NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, ORANGE COUNTY, CALIFORNIA

FINAL

ACTION MEMORANDUM/REMOVAL ACTION WORK PLAN NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24 STATIONARY DEMILITARIZATION FURNACE

Site Status:	Non-National Priorities List
Category of Removal:	Non-Time-Critical Removal Action
CERCLIS ID:	CA0170024491
Site ID:	SWMU 24, Operable Unit 7
Date:	19 July 2002

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ACRONYMS/ABBREVIATIONS

ARAR	applicable or relevant and appropriate requirement
bcy	bank cubic yard
bgs	below ground surface
Cal. Code Regs.	*California Code of Regulations*
Cal. Fish & Game Code	California Fish and Game Code
Cal. Health & Safety Code	*California Health and Safety Code*
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
C.F.R.	*Code of Federal Regulations*
ch.	chapter
COPC	chemical of potential concern
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
DON	Department of the Navy
DTSC	(California Environmental Protection Agency) Department of Toxic Substances Control
EE/CA	engineering evaluation/cost analysis
ELCR	excess lifetime cancer risk
Exec. Order No.	Executive Order Number
FFSRA	Federal Facility Site Remediation Agreement
Foster Wheeler	Foster Wheeler Environmental Corporation
FSI	focused site inspection
HI	hazard index
HQ	hazard quotient
IAS	initial assessment study
IR	Installation Restoration
IRP	Installation Restoration Program
lcy	loose cubic yard
mg/kg	milligrams per kilogram

NACIP	Navy Assessment and Control of Installation Pollutants (Program)
NAVWPNSTA	Naval Weapons Station
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Policy Act
NPL	National Priorities List
NTCRA	Non-Time-Critical Removal Action
NWR	National Wildlife Refuge
PRG	preliminary remediation goal
pt.	part
RAC	remedial action contractor
RAO	removal action objective
RCRA	Resource Conservation and Recovery Act
RFA	RCRA facility assessment
RWQCB	(California) Regional Water Quality Control Board
§	section
SCAQMD	South Coast Air Quality Management District
SDFF	Stationary Demilitarization Furnace Facility
STLC	solubility threshold limit concentration
SWMU	solid waste management unit
TCLP	toxic characteristic leaching procedure
tit.	title
UCL	upper confidence limit
ULBV	upper limit background value
U.S.C.	*United States Code*
U.S. EPA	United States Environmental Protection Agency
WET	(California) Waste Extraction Test

Southwest Division
Naval Facilities Engineering Command
Contracts Department
1220 Pacific Highway
San Diego, California 92132-5190

19 July 2002

SUBJECT: ACTION MEMORANDUM/REMOVAL ACTION WORK PLAN FOR REMOVAL ACTION AT NAVAL WEAPONS STATION SEAL BEACH SOLID WASTE MANAGEMENT UNIT 24, SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Site Status: Non-National Priorities List
Category of Removal: Non-Time-Critical Removal Action
CERCLIS ID: CA0170024491
Site ID: SWMU 24, Operable Unit 7

I. PURPOSE

The purpose of this Action Memorandum/Removal Action Work Plan (hereinafter "Action Memorandum") is to document, for the Administrative Record, the Department of the Navy's (DON's) decision to undertake a non-time-critical removal action (NTCRA) for lead-impacted soil at Naval Weapons Station (NAVWPNSTA) Seal Beach (Figure 1, Attachment C) Solid Waste Management Unit (SWMU) 24, Stationary Demilitarization Furnace. The Department of Defense (DoD) has the authority to undertake Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response actions, including removal actions, under Title 42 *United States Code* (U.S.C.) Section (§) 9604, 10 U.S.C. § 2705, and federal Executive Order Number (Exec. Order No.) 12580. Furthermore, this Action Memorandum satisfies the requirements of California Health and Safety Code (Cal. Health & Safety Code), Chapter (ch.) 6.8.

This document is prepared in accordance with United States Environmental Protection Agency (U.S. EPA) instructions. These instructions are in the Superfund Removal Procedures: Action Memorandum Guidance (U.S. EPA 1990). (References are listed in Attachment A.)

Generally, this entire process is also governed by the Federal Facility Site Remediation Agreement (FFSRA). The FFSRA was signed in 1991 by the DON, California Environmental Protection Agency Department of Toxic Substances Control (DTSC) (Department of Health Services at that time), and California Regional Water Quality Control Board (RWQCB) Santa Ana Region. The FFSRA was amended in August

1994. SWMU 24 is part of operable unit 7 and is included in the FFSRA. All activities related to SWMU 24 will be performed in accordance with the FFSRA.

The goal of the NTCRA is to reduce risk to ecological receptors from exposure to lead-contaminated soil at SWMU 24. To accomplish this goal, the DON is proposing to excavate, remove, and dispose of approximately 450 bank cubic yards (bcy) (in-place soil volume) of contaminated soil at SWMU 24. This proposed action will eliminate the identified pathways of exposure to current ecological receptors at the site. Excavated soil will be transported to a permitted landfill for disposal.

This removal action is deemed consistent with National Oil and Hazardous Substances Pollution Contingency Plan (NCP) Title 40 *Code of Federal Regulations* (C.F.R.) Part (pt.) 300, and Cal. Health & Safety Code ch. 6.8, based on the findings of "actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants" action (40 C.F.R. § 300.415 [b][2][ii]).

There are no nationally significant or precedent setting issues associated with this site.

II. SITE CONDITIONS AND BACKGROUND

SWMU 24 is approximately an 0.69-acre area (roughly 160 by 190 feet) located near the center of the base (Figure 2, Attachment C). The site is located approximately 330 feet south of Westminster Street, and east of Building 95 (Figure 3, Attachment C). There are no buildings within SWMU 24, although Building 95 is approximately 50 feet to the west. SWMU 24 is a flat area that is mostly bare soil and gravel, with ruderal vegetation invading the site. SWMU 24 is not frequented by station personal.

SWMU 24 is the site of the former Stationary Demilitarization Furnace Facility (SDFF). The SDFF was used primarily from 1985 to 1994 for the removal of explosive residue from expended munitions. After the SDFF was decommissioned in 1998, the structures were demolished and removed. The areas known to contain residual quantities of hazardous materials were decontaminated and the site was graded.

During operation of the facility, the waste (kiln dust and sludge) was temporarily stored in 55-gallon, Department of Transportation-approved drums at the SDFF prior to disposal at a permitted off-station facility. If storage of the waste for over 90 days was required, then the waste was transported from the SDFF to a permitted hazardous waste storage facility at NAVWPNSTA Seal Beach. The processing of expended munitions generated waste material containing hazardous concentrations of metals; therefore, it was disposed as a hazardous waste when removed from the facility. On a quarterly basis, a maximum of approximately 3,000 pounds of hazardous waste was stored at the facility (CH2M Hill 2000).

NAVWPNSTA Seal Beach is part of the Commander Navy Region Southwest, and its major claimant is the Commander-In-Chief U.S. Pacific Fleet. The station provides fleet combatants with ready-for-use ordnance. Because of its geographic location,

the station serves as a supply point for operating Navy and Marine Corps bases in southern California.

Site conditions and background information have been compiled from previous field investigation reports.

A. Site Description

This section addresses U.S. EPA Removal Action Work Plan requirements.

1. REMOVAL SITE EVALUATION

The Navy began investigating potentially contaminated sites at NAVWPNSTA Seal Beach with the commencement of the 1985 initial assessment study (IAS) (NEESA 1985). The identification of potentially contaminated sites was based on the results of record searches, aerial photographs, field inspections, and interviews with NAVWPNSTA Seal Beach personnel. The IAS work was conducted under the Navy Assessment and Control of Installation Pollutants (NACIP) Program, which was instituted by the DON in response to the DoD's Installation Restoration Program (IRP) requirement. With the passage of the Superfund Amendments and Reauthorization Act in 1986, the DON adopted the CERCLA terminology and process by replacing the NACIP program with the current IRP.

The SDFF located in SWMU 24 was used primarily from 1985 to 1994, and was not identified as a potentially contaminated site during the 1985 IAS (NEESA 1985). However, SWMU 24 has been recently added to the IRP.

The following summarizes the results of previous investigations conducted at SWMU 24.

- In 1988, a Resource Conservation and Recovery Act (RCRA) facility assessment (RFA) was performed by A.T. Kearney, Inc. to identify and evaluate SWMUs and other areas of concern at NAVWPNSTA Seal Beach. The RFA report summarized SDFF activities and determined the potential for contaminant releases to soil, groundwater, surface water, air and subsurface gas to be low because of the unit's operational practices, electron capture detectors, and secondary containment measures. Suggestions for further action included continued monitoring of the SDFF according to appropriate RCRA regulatory requirements and implementation of any necessary further actions (Kearney 1989).
- In 1998, Foster Wheeler Environmental Corporation (Foster Wheeler) decommissioned the SDFF at SWMU 24. Following demolition of the facility, Foster Wheeler collected soil samples from the surface soil in and around the areas where structures had been located to assess any impacts from past operations. Analytical results from the sampling indicated that some areas of the former facility contain elevated concentrations of metals (Foster Wheeler 1999).

Based on these results, additional soil sampling was warranted and it was determined that SWMU 24 would be included in the 2000 focused site inspection (FSI) conducted by CH2M Hill. The objective of the FSI was to assess the extent of metals to screen for ecological and human-health risks. The following results and conclusions were included in the FSI Phase II report (CH2M Hill 2000):

- Seven metals (cadmium, copper, lead, mercury, nickel, selenium, and zinc) were reported at concentrations above the upper limit background values (ULBVs). Lead and copper were the most frequently reported metals above ULBVs. Most of the metals above ULBVs were predominantly reported in surface soil samples.

- Mercury and nickel were reported above ULBVs in one of the soil samples collected, and cadmium, selenium, and zinc were reported above ULBVs in less than 10 percent of the soil samples collected. The maximum concentrations of metals reported above their ULBV, except mercury, occurred at sample location 2. The only detected mercury was reported in a soil sample collected at 2 feet below ground surface (bgs) at sample location 8. All other metals, except nickel were reported above ULBVs in at least one soil sample collected at 2 feet bgs.

- Results of the human-health risk screening performed during the FSI Phase II indicated that there were minimal risks from metals at the site; the excess lifetime cancer risk (ELCR), estimated based on 95 percent upper confidence limit (UCL) concentrations of metals, was 1×10^{-8} and the noncancer hazard index (HI) was determined to be 1.

- Based on the results of the screening-level ecological risk assessment, it was determined that ecologically significant risks to terrestrial receptors exist from metals in the soil (antimony, cadmium, copper, lead, mercury, nickel, selenium, and zinc). Safe ecological preliminary remediation goals (PRGs) for most receptors were exceeded by the maximum concentrations of these metals and by the arithmetic mean concentrations of lead.

It was concluded in the FSI Phase II report (CH2M Hill 2000) that, although the risk from metals in soil to human-health is low, there is a significant risk from metals in soil to terrestrial ecological receptors, lead being the primary risk driver. As a result, a removal action was recommended (CH2M Hill 2000).

In 2001, Bechtel National, Inc., began preparation of the Engineering Evaluation/Cost Analysis (EE/CA) (BNI 2001) (Attachment B). The EE/CA, finalized in June 2002, was developed to identify and compare removal action alternatives for addressing elevated metals concentrations in soil at SWMU 24.

2. PHYSICAL LOCATION

NAVWPNSTA Seal Beach is approximately 26 miles south of the city of Los Angeles. It consists of about 5,000 acres of land along the Pacific Coast

within the city of Seal Beach in Orange County, California. The cities that surround NAVWPNSTA Seal Beach include Seal Beach, Los Alamitos, Westminster, and Huntington Beach. NAVWPNSTA Seal Beach is bordered to the southwest by Anaheim Bay, to the north by Interstate 405 (San Diego Freeway), to the east by Bolsa Chica Street, to the west by Seal Beach Boulevard, and to the southeast by an Orange County flood control channel (Figures 1 through 3, Attachment C). Landing Hill, a low coastal hill, is located along the western edge of NAVWPNSTA Seal Beach. Adjacent to Landing Hill on the east is Sunset Gap, a wetlands composed of coastal salt marsh and tidal mudflats (Figure 4, Attachment C).

The primary mission of NAVWPNSTA Seal Beach is to provide material and technical support for ammunition, assigned weapons, and weapon systems; maintain and operate an explosive ordnance out-loading facility; and perform additional tasks as directed by Commander Navy Region Southwest and its major claimant, Commander-In-Chief U.S. Pacific Fleet. Open space and buildings, magazines (storage areas for explosives or ordnance), and other structures occupy 357 acres of NAVWPNSTA Seal Beach.

The climate is characterized as "marine-influenced southern California coast." It is mild and stable because of the relatively warm water of the Pacific Ocean. Prevailing winds are from the west (averaging 3.8 miles per hour) but, strong, dry winds occasionally blow from the mountains to the northeast. These winds, known as the "Santa Anas," occur in the fall, winter, and early spring. Average annual precipitation in the area is 12.5 inches, of which more than 90 percent occurs between November and April (SWDIV 1996).

The ecological habitats at NAVWPNSTA Seal Beach include open water, tidal channels, mudflats, and salt marshes. More than 900 acres of NAVWPNSTA Seal Beach have been designated as the Seal Beach National Wildlife Refuge (NWR) (Figure 1, Attachment C). The NWR consists of a 700-acre tidal salt marsh and 200 upland acres. The main purpose of the NWR is to preserve and enhance the area's living resources. Recreational activities (including beach swimming, picnicking, and fishing) are authorized for military, retired military, and civilian personnel. SWMU 24's boundary is approximately 1,800 feet from the NWR (Figure 2, Attachment C). Lead-impacted soil at SWMU 24 is not expected to impact ecological receptors in the NWR.

SWMU 24 area offers a small and poor-quality habitat, primarily consisting of bare soil and gravel. Some ruderal vegetation was noted invading the site from the margins. Areas of nonnative grass surround the site and substantial agricultural areas are located to the south and east.

Because of the distance of SWMU 24 to the nearest surface water body and the depth to the groundwater table, exposure to aquatic receptors was not considered at this site.

3. SITE CHARACTERISTICS

NAVWPNSTA Seal Beach is an operational facility owned and operated by the DON. Land use within the base is generally classified as a "military operating area" for both current and future use. Housing and personnel support, public works, and supply facilities are located in the southwestern corner of NAVWPNSTA Seal Beach.

Currently, no buildings reside within SWMU 24, and no station personnel visit the area. The proposed removal action will be the first remediation activity to occur at SWMU 24.

4. RELEASE OR THREATENED RELEASE OF A HAZARDOUS SUBSTANCE, OR POLLUTANT OR CONTAMINANT INTO THE ENVIRONMENT

SWMU 24 is the location of the former SDFF. The SDFF was used primarily from 1985 to 1994 for the removal of explosive residue from expended munitions. The processing of expended munitions at the SDFF generated waste material containing hazardous concentrations or metals. Operation and maintenance activities at the former SDFF may have resulted in the release of metals-contaminated dust and sludge into the environment and deposition onto the ground.

Analytical results of samples collected from SWMU 24 during the FSI Phase II indicated that metals were present at concentrations above the reporting limits. Summary statistics for the analytical results are presented in Table 2-1 of the EE/CA (Attachment B). Evaluation of the analytical results indicated that elevated metals concentrations in soil presented an unacceptable risk to ecological receptors and lead was the primary concern. In addition, the locations with the highest concentrations of other metals generally corresponded to the locations with the highest concentrations of lead (CH2M Hill 2000). (Section 2.5 of the EE/CA [Attachment B] provides a more detailed explanation of the risk screening results.)

Routes of Exposure

Evaluation of potential routes of exposure focused on potential exposure pathways for ecological receptors as identified in the FSI Phase II report (CH2M Hill 2000) and in the refined ecological risk assessment in the EE/CA (Attachment B). The receptors of potential concern are the following terrestrial ecological receptors that live on or otherwise use SWMU 24.

- The mourning dove spends a high percentage of time in the study area; has a small body size; nests in the area; and ingests soil, grit, and seeds that have been in contact with contaminated soil (CH2M Hill 2000).
- The California ground squirrel has been observed in terrestrial habitats throughout NAVWPNSTA Seal Beach. It spends a high percentage of time in the study area and its burrowing and foraging activities increase

its chances of exposure from soilborne chemicals of potential concern (COPCs) (CH2M Hill 2000).

- The American kestrel has also been observed in terrestrial habitats throughout NAVWPNSTA Seal Beach. Because the American kestrel is considered high on the food chain, its exposure potential to COPCs that biomagnify is increased through ingestion (CH2M Hill 2000).
- The American robin represents several species of birds that feed on insects, earthworms, and other invertebrates; spend a high percentage of time in the study area; have a small body size; nest in the area; and ingest soil, grit, and food items that have been in contact with contaminated soil.
- The raccoon is a midsize (larger than a rodent) mammalian omnivore present at the site; its foraging activities increase its chances of exposure from soilborne COPCs.
- The red fox is a midsize (larger than a rodent) mammalian carnivore. Its foraging activities and high position on the food chain increase its chances of exposure from soilborne COPCs, particularly bioaccumulative compounds. Although the red fox was relocated to an off-site location several years ago (so it could not disturb least tern nests), it is considered representative of mammalian carnivore species.

None of these potential receptors are state or federally listed as endangered, threatened, or special status.

5. NATIONAL PRIORITIES LIST STATUS

The National Priorities List (NPL) was developed by U.S. EPA and lists hazardous waste sites nationwide that pose the greatest risk to public health and, thus, warrant priority responses under CERCLA. NAVWPNSTA Seal Beach is not on the NPL, nor is it proposed to be added to the NPL.

Because SWMU 24 is included in the DoD IRP at NAVWPNSTA Seal Beach, it is being investigated in accordance with CERCLA and other relevant federal, state, and local regulations.

The IRP forms the basis for investigation and cleanup of DoD bases. It is designed to identify, assess, characterize, and clean up or control contamination from past hazardous waste disposal operations and hazardous material spills.

6. MAPS, PICTURES, AND OTHER GRAPHIC REPRESENTATIONS

The following are provided as Attachment C:

- Figure 1 – Regional Map
- Figure 2 – Site Location Map
- Figure 3 – Site Map

- Figure 4 – Surface Features
- Figure 5 – Lead Concentrations in Soil at 0.5 – 1.0 ft bgs
- Figure 6 – Lead Concentrations in Soil at 2.0 – 2.5 ft bgs and 4.0 – 4.5 ft bgs
- Table 1 – Evaluation of Technologies and Process Options
- Table 2 – Cost Estimate for Alternative 2, Excavation With Off-Site Disposal
- Table 3 – Total Costs of Removal Action Alternatives
- Table 4 – Ranking of Alternatives
- Table 5 – Potential Hazardous Waste Determination for Analytes Reported in Soil Samples Collected From SWMU 24
- Table 6 – Potential Federal Chemical-Specific ARARs by Medium
- Table 7 – Potential State Chemical-Specific ARARs by Medium
- Table 8 – Potential State Location-Specific ARARs
- Table 9 – Potential Federal Action-Specific ARARs
- Table 10 – Potential State Action-Specific ARARs

B. Other Actions to Date

Previous and current actions at SWMU 24 are discussed below.

1. PREVIOUS ACTIONS

Previous actions conducted at SWMU 24 are discussed in Section II(A)(1).

2. CURRENT ACTIONS

No government or private actions are being conducted at SWMU 24.

As the lead federal agency, the DON has initiated the following community relations activities at NAVWPNSTA Seal Beach:

- public meetings and technical workshops
- development of a restoration advisory board
- preparation of fact sheets and brochures describing the Installation Restoration (IR) process
- maintenance of information repositories accessible to the public

To gain a more thorough understanding of the activities associated with this NTCRA, the public is encouraged to review documents contained in the information repositories. These repositories are located at NAVWPNSTA Seal Beach, Building 110; and at the Seal Beach Public Library, Mary Wilson Branch,

707 Electric Avenue, Seal Beach, California 90740, telephone (562) 431-3584. The library hours (as of July 2002) are:

Mon and Tues – 12 p.m. to 8 p.m.
Wed and Thurs – 10 a.m. to 6 p.m.
Sat – 10 a.m. to 5 p.m.
Fri and Sun – closed

The complete Administrative Record is located at 1220 Pacific Highway, San Diego, California, and is maintained by Ms. Diane Silva, Southwest Division Naval Facilities Engineering Command Administrative Record Coordinator, (619) 532-3676. Attachment D contains the portion of the Administrative Record Index, which lists documents relevant to SWMU 24.

Public notices to inform the public of removal action documents available for review are included as Attachment E.

C. State and Local Authorities' Role

State and local actions to date and the potential for their continued response are discussed below.

1. STATE AND LOCAL ACTIONS TO DATE

Federal Exec. Order No. 12580 delegates to DoD, the President of the United States' authority to undertake CERCLA response actions. Congress further outlined this authority in its Defense Environmental Restoration Program (DERP) Amendments, which can be found at 10 U.S.C. §§ 2701–2705. Both CERCLA § 120(f) and 10 U.S.C. § 2705 require DON facilities to assure that state and local officials be given the timely opportunity to review and comment on DON response actions. CERCLA § 120 further requires the DON to apply state removal and remedial action regulatory requirements at its facilities.

Accordingly, the following state agencies have provided technical advice, oversight, and approval during previous activities conducted at SWMU 24, which include the RFA, SDFF Decommissioning, FSI Phase II, and EE/CA phases of the IR process:

- DTSC
- RWQCB Santa Ana Region

DTSC will prepare a California Environmental Quality Act document that will discuss the impact of the SWMU 24 NTCRA on the environment. The preparation of this document will include a 30-day public comment period, which satisfies the requirements as set forth in the Cal. Health & Safety Code for remedial action plans.

2. POTENTIAL FOR CONTINUED STATE AND LOCAL RESPONSE

The DTSC and RWQCB currently provide technical oversight to the IRP, assist at monthly program management meetings for NAVWPNSTA Seal Beach, and review documents produced under the IRP for this removal action. It is anticipated that technical oversight will continue throughout the IR process and that the DON's DERP account funds will continue to be the exclusive source of funding for this program.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

In accordance with the NCP, the following factors must be considered in determining the appropriateness of a removal action (40 C.F.R. § 300.415[b][2]):

(i) actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants

(ii) actual or potential contamination of drinking water supplies or sensitive ecosystems

(iii) hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release

(iv) high levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate

(v) weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released

(vi) threat of fire or explosion

(vii) the availability of other appropriate federal or state response mechanisms to respond to the release

(viii) other situations or factors that may pose threats to public health or welfare or the environment

Of the above factors, the following factor applies to the current conditions at SWMU 24:

(i) actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants

This factor has been identified based on the threat to the environment at SWMU 24. This section describes the potential threats posed to human and/or ecological receptors by exposure to lead-impacted soil at SWMU 24 as determined by the risk assessment (CH2M Hill 2000).

A. Threats to Public Health or Welfare

During the human-health risk screening performed as part of the FSI Phase II at SWMU 24, soil analytical data were compared with stationwide ULBVs and residential PRGs. The ELCR and noncancer hazard quotient (HQ) for each COPC were then estimated. The 95 percent UCL of the arithmetic mean concentration of metals in soil at the site yielded an ELCR of 1×10^{-8} and a noncancer HI of 1. The recommendation for a removal action was not based on this low risk to human health, but on the risk to ecological receptors.

B. Threats to the Environment

As part of the EE/CA, an ecological risk assessment was performed using site-specific exposure estimates (Appendix A of Attachment B). Wildlife that may occur at the site was evaluated by representative receptors: American robin, mourning dove, American kestrel, California ground squirrel, raccoon, and red fox. Soil invertebrates, which are food items for many of the wildlife species, were also evaluated.

The results of the ecological risk assessment indicated the potential for impaired growth and reproduction of representative wildlife receptors and soil invertebrates. The ecological risk was attributed to soil lead concentrations (maximum 4,060 milligrams per kilogram [mg/kg]). No ecological risk was indicated by the soil concentrations of copper, mercury, nickel, selenium, and zinc, which had been listed by the screening-level risk assessment. Antimony and cadmium indicated a negligible potential for ecological risk due to low HQs and infrequent occurrence. Maximum concentrations of antimony and cadmium occurred at the same sample location as the maximum concentration of lead (sample location 2, Figure 5, Attachment C); therefore, any potential ecological risk associated with antimony or cadmium is expected to diminish with the reduction of lead concentrations at the site.

Special status species, such as state and federally listed rare, threatened, and endangered species, are not expected to occur at the site. Ecological habitat value of the site is expected to be similar to that of the adjacent area, which is nonnative grassland.

The soil invertebrates were considered the most sensitive of the representative receptors based on exposures from direct contact with and ingestion of the site soil (HQ = 8). To reduce the potential for adverse effects on the growth and reproduction of wildlife receptors represented by the soil invertebrates (HQ = 1), a cleanup goal of 500 mg/kg is recommended for the soil lead concentration.

IV. ENDANGERMENT DETERMINATION

Risk assessment results presented in Section III(B) and documented in the EE/CA (Attachment B), and pertinent information contained in the Administrative Record

confirm that current conditions at SWMU 24 present a threat to ecological receptors and warrant the implementation of an NTCRA.

Actual or potential releases of hazardous substances from the site, if not addressed by implementing the removal action selected in this Action Memorandum, may present future endangerment to ecological receptors and the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

In the EE/CA, the following two removal action alternatives were considered for evaluation:

- Alternative 1, no action; and
- Alternative 2, excavation with off-site disposal.

The no action alternative was evaluated for comparison purposes only. Alternative 2 was considered to be the most effective alternative because the lead-contaminated soil with concentrations above the cleanup goal will be removed from SWMU 24.

A. Proposed Action

On the basis of a comparative analysis of removal action alternatives in the EE/CA (Attachment B), Alternative 2 (excavation with off-site disposal) was chosen as the recommended alternative. This alternative is recommended because it will greatly reduce risks to ecological receptors and the environment by removing soil contaminated with lead concentrations above the cleanup goal. This alternative will meet the removal action objectives (RAOs), comply with applicable or relevant and appropriate requirements (ARARs) and other guidance, and is technically and administratively feasible. The materials to implement this alternative are available commercially. The cost for this alternative is comparable to similar removal actions conducted previously at this facility, and unforeseen future costs are unlikely. In addition, this site is highly accessible and visible, which further supports selection of Alternative 2.

The RAO for SWMU 24 is to reduce the risk to ecological receptors from lead-impacted soil to acceptable levels.

Although the land use is not expected to change following implementation of this alternative, it is difficult to predict the future land use of this site. NAVWPNSTA Seal Beach is not slated for closure or changes in land use. However, should the land use change, the Navy will use the Base Master Plan to track and control the changes and determine the need for reassessment of human-health and/or ecological risk. In addition, the National Environmental Policy Act (NEPA) review process is in place to determine the adequacy of a site to be used for any purpose other than its current use. Should the planned usage of SWMU 24 change in the future, analysis and documentation of historical land use and cleanup activities will be conducted in accordance with the NEPA provisions.

1. PROPOSED ACTION DESCRIPTION

Alternative 2 will implement a remedy of excavation and off-site disposal. Under this alternative, it is assumed excavated soil will be transported to and disposed at an appropriate permitted landfill. The excavation will be backfilled with clean, imported soil to restore the affected area to a condition comparable with surrounding area conditions.

a) Excavation

Soil with lead concentrations above the proposed cleanup goal will be excavated. Figures 5 and 6 (Attachment C) show the approximate limits of the excavation areas, delineated by the 500-mg/kg isoconcentration lines. Contaminated soil will be excavated to approximately 2 feet bgs in the two areas shown to exceed the cleanup goal of 500 mg/kg in surface soil (Figure 5, Attachment C). Contaminated soil will be excavated to approximately 3 feet bgs in the one area shown to exceed the cleanup goal of 500 mg/kg in subsurface soil (Figure 6, Attachment C). Based on current analytical data and interpretation of the extent of soil contamination, approximately 450 bcy (in-place soil volume) will be excavated at SWMU 24. Field methods for analyzing lead in soil may be used to refine excavation limits and expedite the removal action.

Although not expected, dust monitoring will be initiated if considered necessary. In addition, it is not anticipated that excavation activities will be required near Building 95.

b) Confirmation Soil Sampling

Confirmation sampling will be performed to establish concentrations of lead for soil remaining in place after excavation has been completed. The field sampling design, including the proposed locations of confirmation sampling, will be included in the project work plan prepared by the remedial action contractor (RAC). Final confirmation sampling locations will be recorded using surveying techniques. For cost-estimating purposes, it was assumed that one confirmation sample will be collected for every 10- by 10-foot area. Approximately 63 confirmation samples will be collected from locations around the base and perimeter of the excavation. It is assumed that the confirmation samples will be analyzed for total lead using U.S. EPA Method 6010B.

Analytical results of the confirmation sampling will be compared to the proposed cleanup goal. On the basis of this comparison, a decision to terminate excavation, if feasible, will be made. If the decision is made to continue excavation, additional confirmation sampling will be required.

The RAC may choose to collect samples prior to excavation. This alternate approach may eliminate the potential for multiple excavation/ confirmation sampling rounds, but could require more sampling than the approach discussed above.

c) *Backfilling and Revegetation*

When the results of the confirmation sampling analyses indicate that the soil containing lead at concentrations exceeding the proposed cleanup goal has been removed, the excavation will be backfilled with clean fill material and compacted to original grade. The site would then be allowed to naturally return to its prior condition, which is mostly bare soil and gravel, with ruderal vegetation.

d) *Soil Profiling and Disposal*

Excavated soil will be stockpiled on and covered with plastic (minimum 20-millimeter thickness) until it can be sampled and classified for appropriate disposal. Approximately every 125 loose cubic yards (lcy [the 25 percent swell factor of the soil once it is removed from the excavation]) of stockpiled soil will be analyzed for total metals and leaching potential of metals using the toxic characteristic leaching procedure (TCLP) (U.S. EPA Method 1311). This soil may also be analyzed for concentration values for contaminant soluble threshold limit using California Waste Extraction Test (WET) methods. Following profiling, soil will be transported to and disposed at a U.S. EPA-certified disposal facility.

2. CONTRIBUTION TO REMEDIAL PERFORMANCE

The proposed removal action will eliminate immediate and potential exposure risks to ecological receptors and the environment by excavating lead-impacted soil and properly disposing it in an appropriate landfill facility.

3. DESCRIPTIONS OF ALTERNATIVE TECHNOLOGIES

The evaluation of removal alternatives in the EE/CA (Attachment B) describes two alternatives that were considered before the proposed action was selected. On the basis of the evaluation of the nature and extent of contamination and the definition of the RAOs presented in Section 3 of the EE/CA (Attachment B), two removal action alternatives were identified for consideration and subjected to a detailed screening analysis. These alternatives represent a range of options that address site-related conditions and incorporate technologies that are applicable to the lead-impacted soil found at SWMU 24 (Table 1). The following two alternatives were identified and evaluated:

- Alternative 1, no action
- Alternative 2, excavation with off-site disposal

Alternative 1 – No Action

This alternative does not include additional characterization of soil or further action to remove contaminated soil or reduce risk posed by contaminated soil at the site.

Effectiveness

This alternative will not reduce the risk of exposure to contaminated soil at the site and will not meet the RAOs. Toxicity, mobility, and volume of lead will not be reduced. The no action alternative does not activate ARARs.

Implementability

This alternative is technically feasible because it requires no action. However, the no action alternative is not expected to be acceptable to the state or the public.

Cost

No costs are associated with this alternative.

Alternative 2 – Excavation With Off-Site Disposal

Alternative 2 involves the excavation of soil containing lead at concentrations above the proposed cleanup goal of 500 mg/kg. Under this alternative, the excavated soil will be transported to and disposed at an appropriate, permitted landfill. The excavation will be backfilled with clean, fill material, compacted to original grade, and allowed to naturally return to its prior condition.

Effectiveness

Alternative 2 is considered reliable and effective over the long term. This alternative will comply with all identified ARARs. All lead-impacted soil above the cleanup goal will be removed from the area. This will reduce the potential risk to ecological receptors from lead in soil at the site. Although implementation of Alternative 2 will temporarily disrupt the local environment, the site will be restored to its original state in a relatively short period of time by placing clean backfill in the excavation.

Alternative 2 requires disposal of the excavated soil. Waste handling and landfilling technology is well developed. However, off-site disposal of soil classified as hazardous waste cannot be considered permanent remediation of the contaminated material because the excavated soil will not be treated to reduce lead concentrations. There will be some degree of uncertainty regarding potential future liability if the excavated soil were to be disposed of as hazardous waste at an off-site facility.

Short-term risks of this alternative include risks to workers, nearby populations, and the environment.

Implementability

This alternative can be readily implemented in areas where no surface structures are located. Alternative 2 is technically and administratively feasible and does not require special techniques, material, permits, or labor for implementation.

Cost

The total cost estimate for Alternative 2 is $117,900, based on an assumed project start date of July 2002 and project duration of approximately 1 month. The net present value, based on January 2001 dollars, is $110,200. Table 2 (Attachment C) describes the major cost items and the estimated costs. Appendix C of the EE/CA (Attachment B) contains supporting cost information. Table 3 (Attachment C) provides a comparison of the total costs for each alternative.

Comparative Analysis of Alternatives

Table 4 (Attachment C) rates the effectiveness, implementability, and cost for the two alternatives and provides a total ranking. For each alternative, ratings of 1 to 4 (1 being least effective/implementable or highest cost, and 4 being most effective/implementable or lowest cost) were used. These rating numbers are relative to one another and take into consideration the alternatives' comparative analysis. Total rankings are subjective and have been provided for comparison only.

4. ENGINEERING EVALUATION/COST ANALYSIS AND ACTION MEMORANDUM

An EE/CA (Attachment B) was developed for this NTCRA that identified and compared cleanup alternatives to address the risk to ecological receptors from lead-impacted soil. The draft EE/CA was released for public review and comment during the period from 10 January through 09 February 2002.

This Action Memorandum documents the DON's decision to conduct the removal action and presents the selected removal action alternative.

Following the public comment period, the comments were evaluated and a responsiveness summary was prepared describing what actions would be taken with regard to each comment. Regulatory agency comments and the DON's responses to those comments on the draft EE/CA and draft Action Memorandum are included as Appendix D of the final EE/CA and Attachment F of this final Action Memorandum, respectively. The EE/CA, Action Memorandum, and other related project documents are maintained in the Administrative Record, which is open to the public.

5. APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Section 300.415(j) of the NCP provides that removal actions must attain ARARs to the extent practicable, considering the exigencies of the situation.

Section 300.5 of the NCP defines "applicable requirements" as cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state environmental or facility siting laws that specifically address a hazardous

substance, pollutant, or contaminant, removal action, location, or other circumstances at a CERCLA site.

Section 300.5 of the NCP further defines "relevant and appropriate requirements" as cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal or state environmental or facility siting laws. While not applicable to a hazardous substance, pollutant, or contaminant, removal action, location, or other circumstances at a CERCLA site, these laws address problems or situations sufficiently similar to those encountered at a CERCLA site and are well suited to the particular site.

Because CERCLA on-site response actions do not require permitting, only substantive requirements are considered possible ARARs. Administrative requirements such as approval of or consultation with administrative bodies, issuance of permits, documentation, reporting, record keeping, and enforcement are not ARARs for CERCLA actions confined to the site.

Only those promulgated state standards that are identified by a state in a timely manner and are more stringent than federal requirements may be applicable or relevant and appropriate.

There are three types of ARARs. The first includes chemical-specific requirements. This type of ARAR sets limits on the concentration of specific hazardous substances, contaminants, and pollutants in the environment. Examples of this type of ARAR are ambient water quality criteria and drinking water standards. The second type of ARAR includes location-specific requirements that restrict certain types of activity based on site characteristics. These include restrictions on activity in wetlands, floodplains, and historic sites. The third type of ARAR includes action-specific requirements. These are technology-based restrictions that are triggered by the type of action under consideration. Examples of action-specific ARARs are RCRA regulations for waste treatment, storage, and disposal.

ARARs must be identified on a site-specific basis from information about specific chemicals at the site (Table 5, Attachment C), specific features of the site location, and actions that are being considered as removal actions.

Identification of ARARs is a site-specific determination that involves a two-part analysis: a determination of whether a given requirement is applicable and, if not applicable, whether it is relevant and appropriate. A requirement is deemed applicable if the specific terms of the law or regulation directly address the COPC, removal action, or place involved at the site. If the jurisdictional prerequisites of the law or regulation are not met, a legal requirement may, nonetheless, be relevant and appropriate if the site circumstances are sufficiently similar to circumstances in which the law otherwise applies and if it is well suited to the conditions of the site.

As the lead federal agency, the DON has the primary responsibility for the identification of federal ARARs for SWMU 24. As the lead state agency, DTSC

has the responsibility for identifying state ARARs. The DON conducted the federal and state ARARs identification process, and the following is a summary discussion. A more detailed evaluation of ARARs is provided in the EE/CA (Attachment B) and in the ARARs summary tables (Tables 6 through 10, Attachment C).

Many of the ARARs identified by the state agencies were not relevant to the activities planned for IR Site 73 and are not discussed in this document.

In general, the federal and state hazardous waste management regulations promulgated in the *California Code of Regulations* (Cal. Code Regs.) Title (tit.) 22 will be the controlling ARARs for the removal action at SWMU 24. These regulations characterize the hazardous nature of the excavated material, and specify how the excavated material must be managed and disposed after excavation if it is hazardous. If the excavated soil is nonhazardous, the controlling ARARs for soil management will be the State Water Resources Control Board waste discharge to land requirements (Cal. Code Regs. tit. 23, ch. 15). Additionally, various rules and regulations of the South Coast Air Quality Management District (SCAQMD), promulgated pursuant to the Clean Air Act, are ARARs for soil excavation activities.

a) Chemical-Specific ARARs

The proposed removal action involves lead-impacted soil. Summaries of the federal and state chemical-specific ARARs for soil are discussed below.

(1) Federal Chemical-Specific ARARs

At SWMU 24, the excavation of lead-impacted soil alternative will produce solid wastes—the excavated soil. Therefore, certain substantive requirements of RCRA are potential ARARs for handling the waste material from SWMU 24.

RCRA Hazardous Waste Determination. The federal RCRA requirements at 40 C.F.R. 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 (Attachment B, Section B1.3.1). The applicability of RCRA requirements depends on whether the waste is a RCRA hazardous waste; whether the waste was initially treated, stored, or disposed 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 at Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 are potentially 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 potential federal ARARs for determining whether the site has hazardous waste. If the site waste has concentrations exceeding these values, it is determined to be a characteristic RCRA hazardous waste. Based on the evaluation in Section B1.4.1 of Attachment B, the soil subject to removal is considered to be a potential RCRA hazardous waste and will be treated as such during on-site activities.

(2) State Chemical-Specific ARARs

RCRA Requirements. State RCRA requirements included within the U.S. EPA-authorized RCRA program for California are considered to be potential federal ARARs and are discussed above. When state regulations are either broader in scope or more stringent than their federal counterparts, they are considered potential state ARARs. State requirements (e.g., 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 Cal. Code Regs. tit. 22, Division 4.5 requirements that are part of the state-approved RCRA program will be potential state ARARs for non-RCRA, state-regulated hazardous waste.

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 at Cal. Code Regs. tit. 22, § 66261.24(a)(2) are potentially applicable state ARARs for determining whether other RCRA requirements are potential state ARARs. Table 5 (Attachment C) lists the total threshold limit concentrations, the soluble threshold limit concentrations (STLCs), and the TCLP for those chemicals identified in the Cal. Code Regs. The site waste may be compared to these thresholds to determine whether it meets the characteristics for a non-RCRA, state-regulated hazardous waste. However, based on the evaluation in Section B1.4.1 of Attachment B, the soil subject to removal will be treated as potential RCRA hazardous waste and, as a result, the state RCRA requirements are not applicable for on-site activities.

b) Location-Specific ARARs

Cultural and other natural resources are the resource categories relating to location-specific requirements potentially affected by the SWMU 24 removal action alternatives. The conclusions for ARARs pertaining to these resources are presented in the following sections.

(1) Federal Location-Specific ARARs

The reported terrestrial habitats at SWMU 24 are approximately 1,800 feet from the NWR, which is an aquatic habitat. There are no ARARs for the National Wildlife Refuge System Administration Act.

The SWMU 24 removal action will not affect a coastal zone.

(2) State Location-Specific ARARs

Proposed removal options for SWMU 24 do not entail the taking of animals or birds. However, the substantive requirements of California Fish and Game Code (Cal. Fish & Game Code) § 3005(a) regarding the taking of birds and mammals are potentially relevant and appropriate because the soil at the site may potentially present a risk to birds at the site that is similar to risk from a poisonous substance.

c) Action-Specific ARARs

Action-specific ARARs are technology-based restrictions that are triggered by the type of action under consideration (in this case, the excavation, stockpiling, and off-site disposal of soil at SWMU 24).

(1) Federal Action-Specific ARARs

The key threshold question for soil ARARs is whether or not the waste generated during the removal action at SWMU 24 will be classified as a hazardous waste. The soil may be classified as federal hazardous waste as defined by RCRA and the state-authorized program, as non-RCRA state-regulated hazardous waste, or as nonhazardous waste. If the soil is determined to be hazardous waste, the appropriate requirements will apply. Comparing the site waste to the definition of RCRA hazardous waste can make the determination of whether a waste is a RCRA hazardous waste. The RCRA requirements at Cal. Code Regs. tit. 22, §§ 66262.10(a), 66262.11, 66264.13(a) and (b), and 66262.34 are potentially applicable ARARs because they identify the RCRA hazardous waste requirements associated with generation and on-site accumulation.

For temporary storage of excavated soil, 40 C.F.R. § 264.554 requirements for staging piles were evaluated. The substantive requirements are potentially applicable ARARs for the temporary storage of excavated soil during characterization prior to off-site disposal.

SCAQMD Rule 403 applies to any source of dust or fumes, including lead-contaminated soil. The rule states that activities shall not cause or allow emissions of fugitive dust such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source and shall not cause or allow levels of particulate matter less than 10 micrometers in diameter to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples. This rule is potentially applicable to removal activities at the site.

(2) State Action-Specific ARARs

Actions impacting birds or mammals are regulated in Cal. Fish & Game Code § 3005(a). These requirements prohibit the taking of birds and mammals, including the taking by poison. Though it is not anticipated that birds or mammals will be taken during removal activities at SWMU 24, the substantive provisions pertaining to the take of birds or mammals with a poisonous substance are potentially applicable.

6. PROJECT SCHEDULE

The removal action is expected to begin in the middle of October 2002 and to be completed within approximately 1 month. The project schedule is included as Attachment G.

B. Estimated Costs

The DON has made a present-worth estimate of the removal action costs (Table 2, Attachment C). The estimated costs include the direct and indirect capital costs of each alternative. The following items show some components of direct and indirect capital costs:

- direct capital costs
  - construction costs
  - equipment and material costs
  - transport and disposal costs
  - analytical costs
- Indirect costs
  - overhead
  - profit

The estimated costs for the proposed action (Alternative 2) are as follows:

Direct capital costs

Mobilization/demobilization	$2,300
Clear and grub (0.15 acre)	$500
Excavation (450 bcy) and backfill (575 lcy)	$7,900
Load and transport excavated material to permitted landfill for disposal (575 lcy)	$35,600

Confirmation soil sampling (one sample per 10- by 10-foot area + 20 percent for quality control = 76 samples analyzed for total lead [U.S. EPA Method 7000 series])	$4,900
Profile soil sampling for disposal (one composite sample per 125 lcy = 4 samples analyzed for total metals [U.S. EPA Method 6010B/7000 series], TCLP metals [U.S. EPA Method 1311 and U.S. EPA Method 6010B/7000 series], and STLC [California WET])	$2,600
Professional labor (project oversight)	$7,000
Total direct capital costs (based on January 2001 cost database)	**$60,800**
Indirect costs (e.g., overhead, profit) (based on January 2001 cost database)	$33,200
Contingency	$18,800
Escalation	$5,100
TOTAL COST (assumed start date of July 2002)	**$117,900**
NET PRESENT VALUE (January 2001 dollars)	**$110,200**

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If action should be delayed or not taken, the potential for exposure of ecological receptor populations to lead-impacted soil at SWMU 24 will continue. Contamination could spread from the site to nearby areas from wind erosion and surface-water runoff. This spread of contamination will result in an increased health risk to the exposed population. Delayed action will also increase health risks to the ecological receptor population through prolonged exposure to lead-impacted soil.

VII. PUBLIC INVOLVEMENT

The draft EE/CA (Attachment B) was released for public review and comment during the period from 10 January through 09 February 2002. Following the public comment period, the comments were evaluated and a responsiveness summary prepared describing what actions would be taken with regard to each comment. The EE/CA, Action Memorandum, and other related project documents are maintained in the Administrative Record, which is open to the public.

VIII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues with regard to the proposed removal action.

IX. RECOMMENDATIONS AND SIGNATURES

To date, the DON has not acquired evidence identifying other potentially responsible parties at this site. However, information acquired in the future, including but not limited to information acquired during the implementation of this removal action, or future response actions at the site could result in the identification of other potentially responsible parties.

This Action Memorandum was performed in accordance with current U.S. EPA and U.S. Navy guidance documents for NTCRAs under CERCLA. The purpose of this Action Memorandum was to identify and analyze removal actions to address a NTCRA for lead-impacted soil at SWMU 24 at NAVWPNSTA Seal Beach. Two alternatives were identified, evaluated for cost, and ranked:

- Alternative 1 – no action
- Alternative 2 – excavation with off-site disposal

Based on comparative analysis of the removal action alternatives completed in Section 5 of the EE/CA, the DON recommends Alternative 2, excavation with off-site disposal. This alternative best meets NCP criteria of overall protectiveness of human health; compliance with ARARs; long-term effectiveness; reduction of mobility, toxicity, or volume through treatment; short-term effectiveness; implementability; cost; and state and community acceptance.

This decision document represents the selected removal action for SWMU 24 (Stationary Demilitarization Furnace), NAVWPNSTA Seal Beach, Orange County, California, developed in accordance with CERCLA as amended, and is consistent with the NCP. This decision is based on the Administrative Record for the site.

Signature: _____ Date: 12 JUL 02

R. A. Mirick
Captain, U.S. Navy
Commanding Officer

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ATTACHMENT A

REFERENCES

REFERENCES

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ATTACHMENT B

ENGINEERING EVALUATION/COST ANALYSIS

Southwest Division
Naval Facilities Engineering Command
Contracts Department
1220 Pacific Highway
San Diego, California 92132-5190

Contract No. N68711-92-D-4670

COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY

CLEAN II

FINAL
ENGINEERING EVALUATION/COST ANALYSIS NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24 NAVAL WEAPONS STATION SEAL BEACH SEAL BEACH, ORANGE COUNTY, CALIFORNIA

CTO-0151/0395
June 2002

REGISTERED PROFESSIONAL ENGINEER
JAMES HOWARD FRENCH
59983
Exp. 6/30/04
CIVIL
STATE OF CALIFORNIA

Prepared by:

BECHTEL NATIONAL, INC.
1230 Columbia Street, Suite 400
San Diego, California 92101-8502

Signature: _____ Date: 6/19/02
James H. French, PE, Civil Engineer C59983

Signature: _____ Date: 6/19/02
Robert A. Schilling, CTO Leader

SUMMARY

This Engineering Evaluation/Cost Analysis (EE/CA) has been prepared to support a non-time-critical removal action at Solid Waste Management Unit (SWMU) 24, Stationary Demilitarization Furnace, Naval Weapons Station Seal Beach. The SWMU 24 area is part of OU 7 and is included in the Federal Facility Site Remediation Agreement (FFSRA). All activity including this removal action will be conducted in accordance with the FFSRA signed in 1991, and amended in August 1994. This EE/CA was conducted in accordance with current United States Environmental Protection Agency and Department of the Navy (DON) guidance documents for a non-time-critical removal action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Chapter 6.8 of the *California Health & Safety Code*. This EE/CA describes site characteristics, removal action objectives, screening of technologies, removal action alternatives, and the recommended removal action alternative.

CERCLA, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 *Code of Federal Regulations* [C.F.R.] Part 300), and Cal. Health & Safety Code Section 25323 define removal actions as the cleanup or removal of released hazardous substances, actions to monitor the threat of release of hazardous substances, and actions to mitigate or prevent damage to public health or welfare or the environment. The NCP includes provisions for the "excavation, consolidation, or removal of highly contaminated soils from drainage or other areas—where such actions will reduce the spread of, or direct contact with, the contamination" and "containment, treatment, disposal, or incineration of hazardous materials—where needed to reduce the likelihood of human, animal, or food chain exposure" (40 C.F.R 300.415[e][6 and 8]).

The former stationary demilitarization furnace facility (SDFF) was located within SWMU 24. The SDFF was used primarily from 1985 to 1994 for the removal of explosive residue from expended munitions. After the SDFF was decommissioned in 1998, its structures were demolished and removed, the areas known to contain residual quantities of hazardous materials were decontaminated, and the property was graded (CH2M Hill 2000).

The recommendation to undertake a removal action at SWMU 24 was based on the findings in the Focused Site Inspection (FSI) Phase II Report (CH2M Hill 2000). Results of the human-health and ecological screening risk assessments indicated that significant risk to ecological receptors from metals in soil, primarily lead, exists at SWMU 24. Risk to human health was reported to be minimal from metals.

Because the vertical extent of on-site soil contamination appears to be limited to shallow surface soils and groundwater is approximately 21 feet below ground surface, groundwater is not impacted (CH2M Hill 2000). This removal action focuses on soil.

This EE/CA identifies removal action alternatives to reduce the risk to ecological receptors from lead in soil at SWMU 24. After evaluation and screening of multiple removal technologies and process options, two alternatives were identified and considered:

- Alternative 1, no action
- Alternative 2, excavation with off-site disposal

Based on this analysis, the DON recommends Alternative 2, excavation with off-site disposal. This alternative best meets NCP criteria of overall protectiveness of human health and the

environment; compliance with applicable or relevant and appropriate requirements; long-term effectiveness; reduction of mobility, toxicity, or volume through treatment; short-term effectiveness; implementability; cost; and state and community acceptance. The proposed removal action, when implemented, should meet the cleanup objective under CERCLA/NCP as well as Resource Conservation and Recovery Act corrective action for the area.

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ACRONYMS/ABBREVIATIONS

ARAR	applicable or relevant and appropriate requirement
bcy	bank cubic yard
bgs	below ground surface
BNI	Bechtel National, Inc
Cal.	California
Cal-EPA	California Environmental Protection Agency
CCR	*California Code of Regulations*
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.	*Code of Federal Regulations*
CLEAN	Comprehensive Long-Term Environmental Action Navy
COC	chemical of concern
COP	California Ocean Plan
COPC	chemical of potential concern
CRDL	contract required detection limit
CRQL	contract required quantitation limit
CTO	contract task order
DON	Department of the Navy
DTSC	(California Environmental Protection Agency) Department of Toxic Substances Control
ECD	electron capture detector
EE/CA	engineering evaluation/cost analysis
EFA-West	Engineering Field Activity, West
ELCR	excess lifetime cancer risk
EM	electromagnetic
Exec. Order No.	executive order number
°F	degrees Fahrenheit
Fed. Reg.	*Federal Register*
FFSRA	Federal Facility Site Remediation Agreement
Foster Wheeler	Foster Wheeler Environmental Corporation
FSI	focused site inspection
HI	hazard index
HQ	hazard quotient
IARC	International Agency for Research on Cancer
IDL	instrument detection limit
IR	Installation Restoration (Program)

JEG	Jacobs Engineering Group Inc.
lcy	loose cubic yard
µg/kg	micrograms per kilogram
MDL	method detection limit
mg/kg	milligrams per kilogram
NAVWPNSTA	Naval Weapons Station
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEESA	Naval Energy and Environmental Support Activity
NISZ	Newport-Inglewood structural zone
NOAEL	no-observable-adverse-effect level
NWR	(Seal Beach) National Wildlife Refuge
O&M	operation and maintenance
OCEMA	Orange County Environmental Management Agency
Ogden	Ogden Environmental and Energy Services Co., Inc.
OSHA	Occupational Safety and Health Administration
OU	operable unit
PARCC	precision, accuracy, representativeness, completeness, and comparability
PE	professional engineer
PRG	preliminary remediation goal
QAPP	quality assurance project plan
QC	quality control
RAB	restoration advisory board
RAC	remedial action contractor
RACER	Remedial Action Cost Engineering and Requirements
RAO	removal action objective
RAP	remedial action plan
RAW	removal action work plan
RCRA	Resource Conservation and Recovery Act
RFA	RCRA facility assessment
RWQCB	(California) Regional Water Quality Control Board
§	section
SCAQMD	South Coast Air Quality Management District
SCS	Soil Conservation Service
SDFF	stationary demilitarization furnace facility
STLC	soluble threshold limit concentration
SWDIV	Southwest Division Naval Facilities Engineering Command
SWMU	solid waste management unit

Acronyms/Abbreviations

TBC	to be considered
TCLP	toxicity characteristic leaching procedure
UCL	upper confidence limit
ULBV	upper limit background value
U.S.C.	*United States Code*
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WET	(California) Waste Extraction Test

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Section 1
INTRODUCTION

This Engineering Evaluation/Cost Analysis (EE/CA) identifies and evaluates removal action alternatives for addressing metals at Installation Restoration (IR) Program Solid Waste Management Unit (SWMU) 24, Stationary Demilitarization Furnace, Naval Weapons Station (NAVWPNSTA) Seal Beach, California. Bechtel National, Inc. (BNI), prepared this document on behalf of the Department of the Navy (DON), Southwest Division Naval Facilities Engineering Command (SWDIV), under Contract Task Order 0151, issued under the Comprehensive Long-Term Environmental Action Navy (CLEAN) II Program, Contract No. N68711-92-D-4670.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) define removal actions as "the cleanup or removal of released hazardous substances from the environment, such actions as may necessarily be taken in the event of the threat of release of hazardous substance into the environment, such action as may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances, the disposal or removal of material, or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release." The United States Environmental Protection Agency (U.S. EPA) has classified removal actions into three types—emergency, time-critical, and non-time-critical—based on the circumstances surrounding the release or threat of release. The removal action at SWMU 24, which the DON has determined to be appropriate, will be non-time-critical because the on-site activities will be initiated more than 6 months after the planning period begins (40 *Code of Federal Regulations* [C.F.R.] 300.415[b][4]).

Additionally, the *California Health & Safety Code* (Cal. Health & Safety Code) specifies the preparation of necessary documentation, which depends upon the costs of the removal action. The Cal. Health & Safety Code requires development of either a remedial action plan (RAP), for removal actions that cost $1 million or more, or a removal action work plan (RAW), for removal actions that cost less than $1 million. Furthermore, the Cal. Health & Safety Code authorizes the California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC) to waive the RAP requirements, in favor of a RAW or a RAP-equivalent document, for removal actions when an "Imminent and/or Substantial Endangerment" determination exists. DTSC may also waive the RAP requirements of Cal. Health & Safety Code Section (§) 25356.1(d)(1)–(6) if a RAP-equivalent document that meets the requirements of Cal. Health & Safety Code § 25356.1(h)(3) is prepared. Because the removal action for SWMU 24 will cost less than $1 million, the requirements for a RAW apply.

The removal action alternatives described herein address metals in the soils at SWMU 24, the rectangular 0.69-acre site of the former stationary demilitarization furnace facility (SDFF). This area is now predominately flat and covered with loose soil, gravel fill, and some ruderal vegetation. SWMU 24 is a part of OU 7. The SDFF was used primarily from 1985 to 1994 for the removal of explosive residue from expended munitions. After it was decommissioned in 1998, the structures were demolished and removed, and the areas known to contain residual quantities of hazardous materials were decontaminated.

As part of the 1998 SDFF decommissioning activities, 16 soil samples were collected from the surface soils at the demolished SDFF to assess impacts from past operations. Analytical results from the sampling indicated that some areas of the former facility contained elevated concentrations of metals. Thirteen of the samples contained at least one constituent that exceeded the respective stationwide upper limit background values (ULBVs) for metals in soil. Lead was reported above ULBVs in 12 of the 16 samples at concentrations up to 1,200 milligrams per kilogram (mg/kg). Copper, cadmium, selenium, and mercury were also reported in samples at concentrations exceeding their ULBVs (CH2M Hill 2000).

In 2000, CH2M Hill performed a focused site inspection (FSI), Phase II at SWMU 24. During the FSI, soil samples were collected and analyzed for metals. Analytical results for these samples were used in human-health and ecological screening risk assessments. The FSI Phase II Report concluded that there is low human-health risk from metals (the excess lifetime cancer risk was below 1×10^{-6} and the noncancer hazard index was equal to 1). However, there is significant risk from metals to ecological receptors, lead being the primary risk driver. Upon evaluation of the FSI data on risk to human health and ecological receptors, removal and disposal of the contaminated soils were recommended (CH2M Hill 2000).

Although the SWMU 24 area is under the Resource Conservation and Recovery Act (RCRA) corrective action program, it was agreed that the cleanup should be conducted under the CERCLA/NCP program. This non-time critical removal action is being conducted in accordance with the Federal Facility Site Remediation Agreement (FFSRA) signed in 1991, and amended in August 1994. This EE/CA addresses the implementability, effectiveness, and cost of a non-time-critical removal action and applicable regulatory requirements. This EE/CA will be used as the basis for a future CERCLA removal action. The DON, with state regulatory oversight, is the lead agency for this non-time-critical action. As the lead agency, the DON has the final approval authority of the recommended alternative selected and overall public participation activities, with state of California concurrence. To implement this removal action, the DON is working in cooperation with DTSC and California Regional Water Quality Control Board Santa Ana Region (RWQCB).

This EE/CA is being issued in accordance with the Community Relations Plan prepared by NAVWPNSTA Seal Beach to facilitate public involvement in the decision-making process. The public was encouraged to review and comment on the proposed removal activities described in this EE/CA during a formal 30-day comment period when this EE/CA was released to the public, after which the DON provided written responses to significant public comments.

Based on this EE/CA, an action memorandum was prepared that incorporates regulatory and significant public comments. The action memorandum will provide a written record of the decision to select an appropriate removal action. As the primary decision document, the action memorandum substantiates the need for a removal action, identifies the proposed action, and explains the rationale for the removal action selection. This EE/CA and the action memorandum will also satisfy Cal. Health & Safety Code's requirements for a removal action.

NAVWPNSTA Seal Beach has formed a restoration advisory board (RAB) as part of the community outreach effort associated with the IR Program. The RAB meets regularly to review

IR documents and discuss restoration issues. The RAB is made up of members of the community representing diverse interests, and meetings are open to the public. A community co-chair is selected by the RAB members and serves for a designated period.

To gain a more thorough understanding of the activities associated with this removal action and other NAVWPNSTA Seal Beach activities, the public can review documents contained in the information repositories. The information repositories are located at NAVWPNSTA Seal Beach, Building 110, and at the Seal Beach Public Library, Mary Wilson Branch, 707 Electric Avenue, Seal Beach, California 90740, telephone (562) 431-3584. The library hours (as of June 2002) are:

Monday and Tuesday:	12:00 Noon – 8:00 p.m
Wednesday and Thursday:	10:00 a.m. – 6:00 p.m.
Saturday:	10:00 a.m. – 5:00 p.m.
Friday and Sunday:	Closed

Project documents are also available to the public through the Administrative Record. The complete Administrative Record is located at SWDIV, 1220 Pacific Highway, San Diego, California, and is maintained by Ms. Diane Silva, SWDIV Administrative Record Coordinator, telephone (619) 532-3676.

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Section 2
SITE CHARACTERIZATION

This section includes descriptions of the facility and background, previous investigations, nature and extent of contamination, and risk-screening evaluation. The information for this site characterization was taken from the FSI Phase II Report (CH2M Hill 2000) and the RCRA Facility Assessment (RFA) Report (Kearney 1989), except where referenced otherwise.

2.1 FACILITY DESCRIPTION AND BACKGROUND

NAVWPNSTA Seal Beach, located about 30 miles south of the Los Angeles urban center, consists of about 5,000 acres of land located near the Pacific Ocean (Figure 2-1). NAVWPNSTA Seal Beach is part of the Commander Navy Region Southwest, and its major claimant is the Commander-In-Chief Pacific Fleet. The station provides fleet combatants with ready-for-use ordnance. Because of its geographic location, the station serves as a supply point for the operating forces of the DON and Marine Corps in the southern California region.

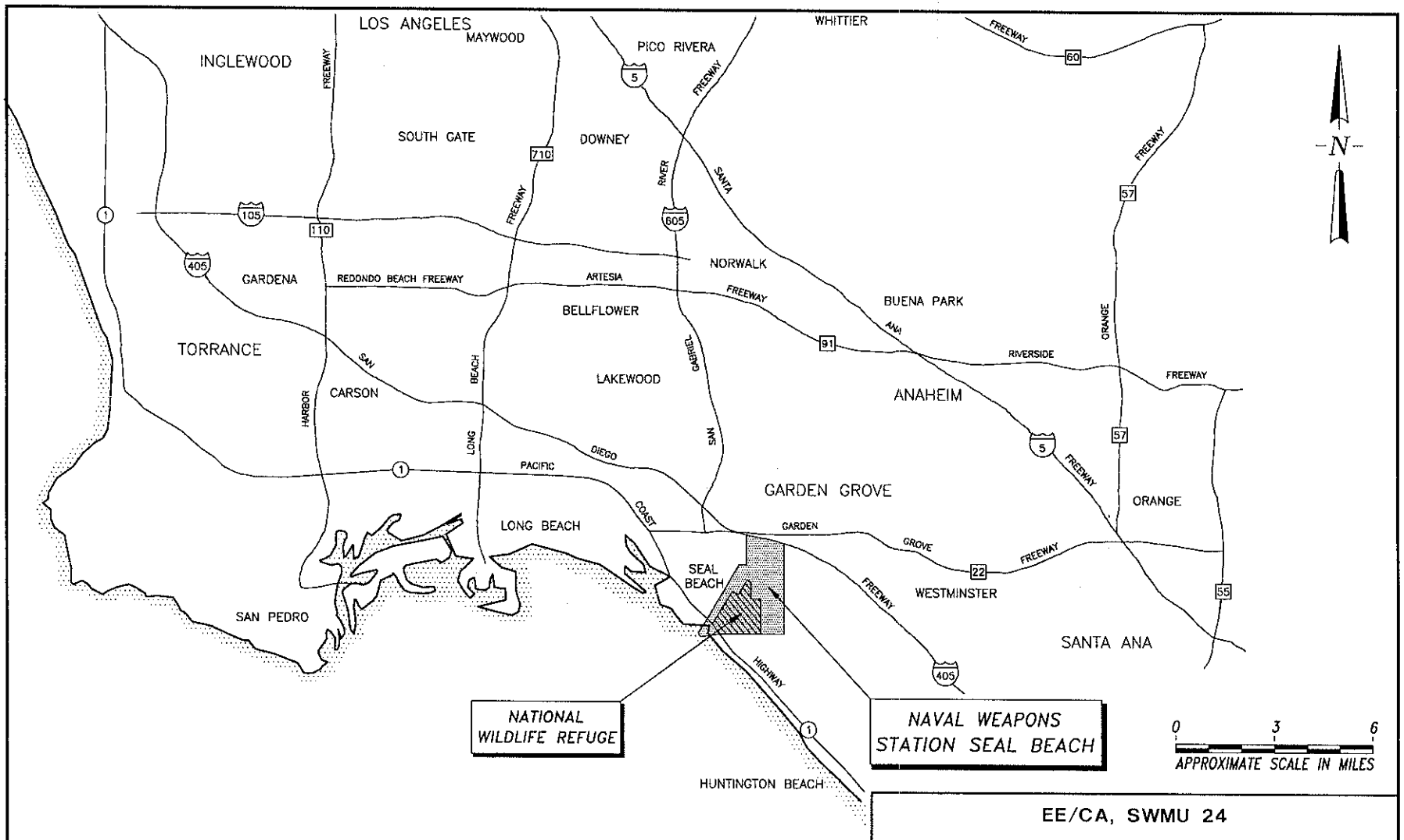
2.1.1 Site Location

SWMU 24 is a rectangular 0.69-acre area located near the center of NAVWPNSTA Seal Beach, approximately 330 feet south of Westminster Street, and east of Building 95 (Figures 2-2 and 2-3). The investigation area of SWMU 24 encompasses approximately 160 by 190 feet. SWMU 24 within OU 7 is bounded on the west by Building 95 and on the east and south by agricultural fields. NAVWPNSTA Seal Beach lies within Township 5 South and Ranges 11 and 12 West, using the San Bernardino Baseline and Meridian. The latitude and longitude of SWMU 24 are 33° 45′ 20″ north and 118° 4′ 3″ west, respectively.

2.1.2 Type of Facility and Operational Status

The former SDFF was located within SWMU 24. The SDFF was used primarily from 1985 to 1994 for the removal of explosive residue from expended munitions. After the SDFF was decommissioned in 1998, the structures were demolished and removed, the areas known to contain residual quantities of hazardous materials were decontaminated, and the site was graded.

The SDFF was developed for processing small munitions items (e.g., small arms ammunition, fuses, cartridge actuated devices), destroying the small quantity of reactive explosive or propellant that could not feasibly be recovered, while reclaiming the relatively large volume of valuable recyclable metals. Small arms munitions, the major workload for the furnace, did not meet the reactive hazardous classification because of their designation as a Class C explosive (Kearney 1989).



EE/CA, SWMU 24

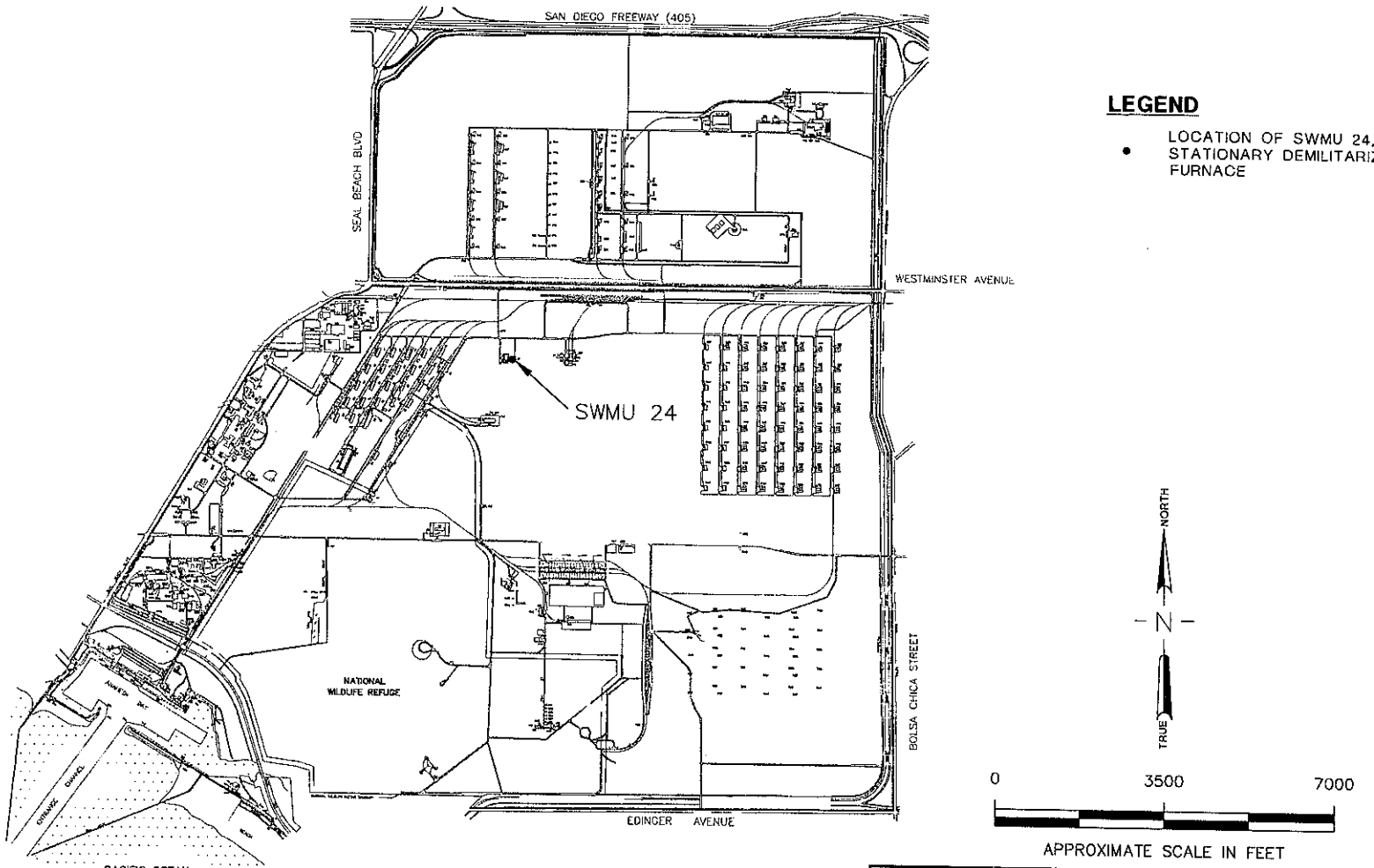
Figure 2-1

Regional Map

Naval Weapons Station Seal Beach, California

Bechtel National, Inc.
CLEAN II Program

Date: 11/6/01
File No: 151R7101
Job No: 22214-151
Rev No: C



REFERENCE: U.S. NAVAL WEAPONS STATION 1989.

EE/CA, SWMU 24

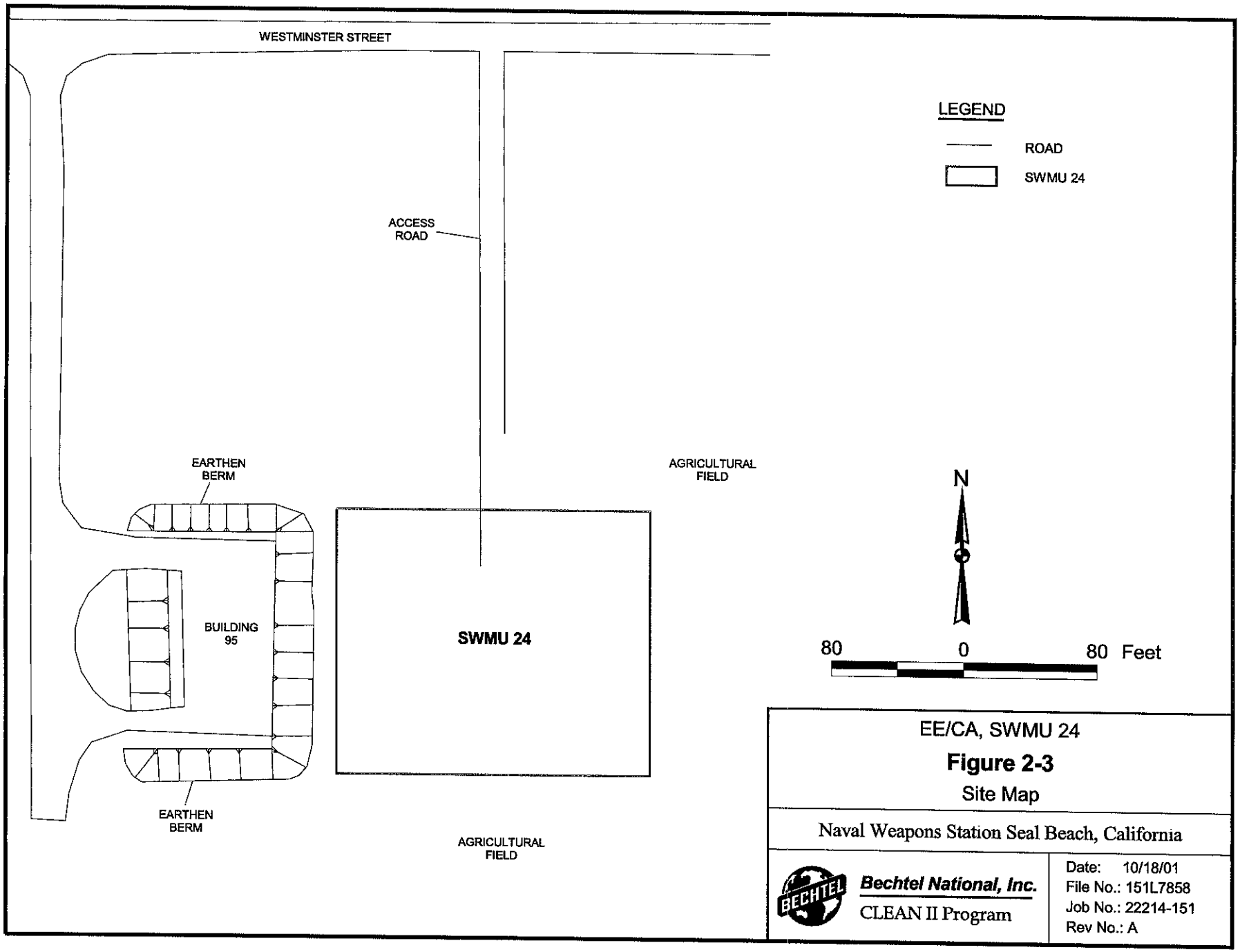
Figure 2-2

Site Location Map

Naval Weapons Station Seal Beach, California

Bechtel National, Inc.
CLEAN II Program

Date: 10/3/01
File No: 151L7102
Job No: 22214-151
Rev No: B


WESTMINSTER STREET
ACCESS ROAD
EARTHEN BERM
BUILDING 95
SWMU 24
AGRICULTURAL FIELD
EARTHEN BERM
AGRICULTURAL FIELD
LEGEND
ROAD
SWMU 24
N
80
0
80 Feet
EE/CA, SWMU 24
Figure 2-3
Site Map
Naval Weapons Station Seal Beach, California
Bechtel National, Inc.
CLEAN II Program
Date: 10/18/01
File No.: 151L7858
Job No.: 22214-151
Rev No.: A

The former SDFF consisted of:

- an oil-fired steel firebox furnace, constructed of American Society for Testing and Materials 212 Grade B firebox quality steel;
- a heat recovery unit with asbestos gaskets;
- a conveyor system that consisted of a feed conveyor, a discharge conveyor, a water cooling conveyor, and an inspection conveyor;
- an emission control system, which included a dust collector with a walk-in clean air plenum (baghouse), a cyclone separator, a draft induction fan with housing, a sampling platform, and connecting duct work (conduit);
- an electrical transformer;
- a steel-reinforced concrete explosion barrier (blast wall);
- a metal operator building (former Building 97) that contained a concrete block control room with a control console;
- a concrete block/wood operations support building (former Building 79) that contained an office and shower/changing area;
- two steel-reinforced aboveground storage bunkers;
- a paint storage locker;
- a steel-reinforced concrete foundation;
- a bermed concrete containment area (with sump) that surrounded the furnace;
- a network of steel-reinforced concrete slabs; and
- an asphalt access road.

The entire site was enclosed by an eight-foot chain-link fence equipped with three strands of barbed wire (Foster Wheeler 1999).

During operation of the facility, the waste (kiln dust and sludge) was temporarily stored in 55-gallon, Department of Transportation-approved drums at the SDFF prior to disposal at a permitted off-station facility. If storage of the waste for over 90 days was required, then the waste was transported from the SDFF to a permitted hazardous waste storage facility at NAVWPNSTA Seal Beach. The processing of expended munitions generated waste material containing hazardous concentrations of metals; therefore, it was disposed as a hazardous waste when removed from the facility. On a quarterly basis, a maximum of approximately 3,000 pounds of hazardous waste was stored at the facility (CH2M Hill 2000).

2.1.3 Topography/Structures

NAVWPNSTA Seal Beach is bordered on the southwest by Anaheim Bay and on the north, east, and west by highly developed urban communities. The most pronounced topographic feature on NAVWPNSTA Seal Beach is Landing Hill on the western portion

of the station. Landing Hill is uplifted along the Newport-Inglewood Fault Zone, which covers an area extending west of NAVWPNSTA Seal Beach across Seal Beach Boulevard. Landing Hill reaches a maximum elevation of about 50 feet above mean sea level on NAVWPNSTA Seal Beach (JEG 1995).

There are currently no buildings within SWMU 24 although Building 95 is approximately 50 feet to the west. SWMU 24 is a flat area that is mostly bare soil and gravel, with ruderal vegetation reinvading the site. Nonnative grasses typical of other developed areas at NAVWPNSTA Seal Beach are beginning to grow there. The area offers limited habitat of poor quality (little vegetation) because of the gravel fill that covers much of the area. SWMU 24 is not frequented by station personnel.

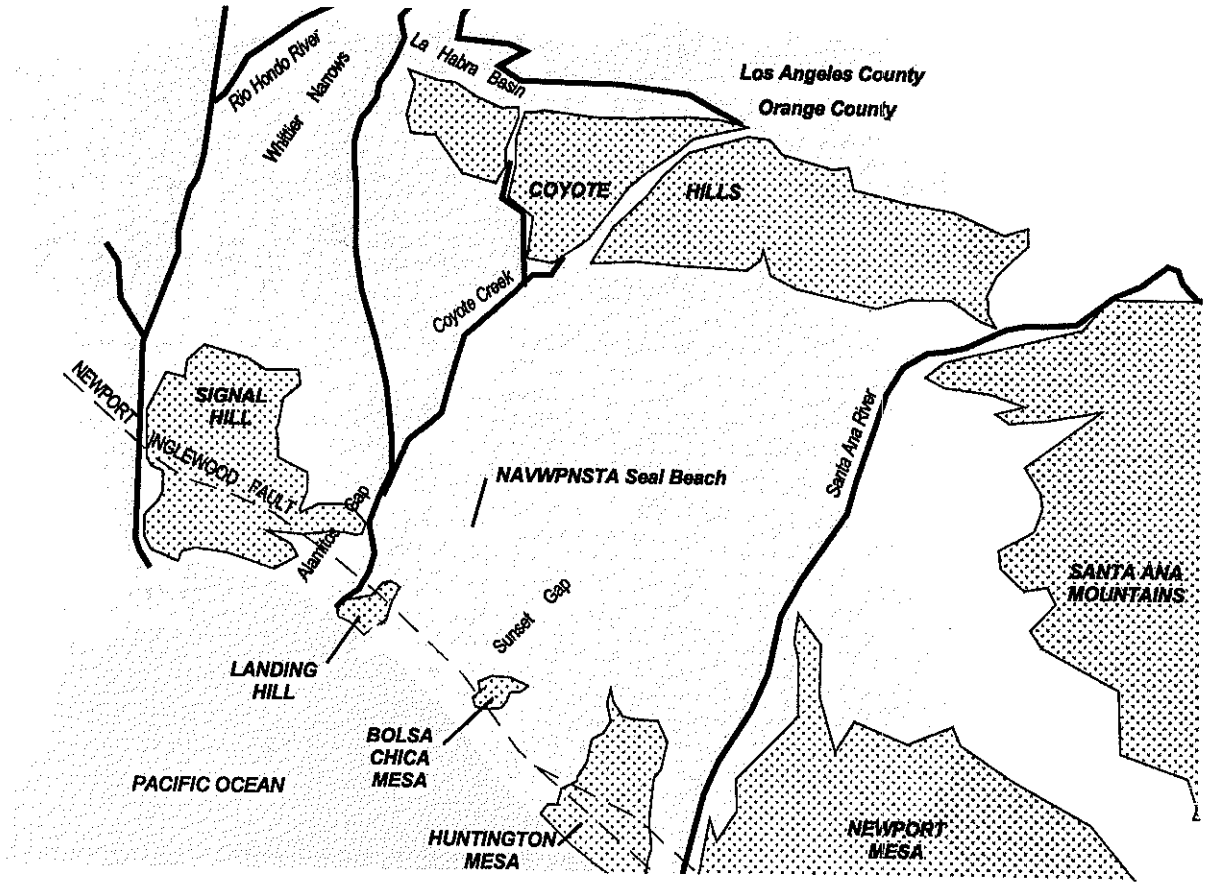
2.1.4 Geology/Soil Information

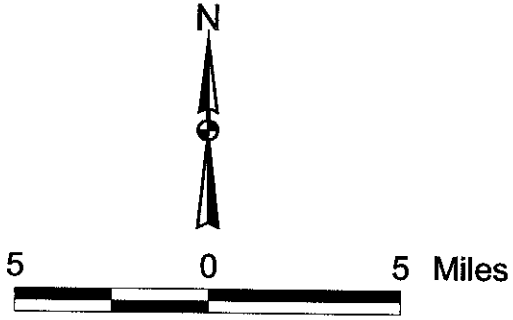
Most of NAVWPNSTA Seal Beach lies on flat, alluvial deposits that slope evenly from approximately 20 feet above mean sea level in the northeastern part of the station to mean sea level in the tidal flats in the southwestern portion of the station.

Bedrock in the vicinity of the base is a thick sequence of Tertiary and Quaternary sedimentary rocks deposited on a basement of pre-Tertiary metamorphic and crystalline rocks. Tertiary rocks range in age from Oligocene to Pliocene and include sandstone, siltstone, shale and mudstone; they are almost exclusively of marine origin (CH2M Hill 2000).

NAVWPNSTA Seal Beach is located adjacent to the Pacific Ocean at the seaward edge of the Orange County Coastal Plain at the northwest corner of Orange County, California. The northwest-trending Newport-Inglewood structural zone (NISZ) underlies the southwestern half of NAVWPNSTA Seal Beach. The NISZ consists of a complex set of faults and folds that extend from Newport Beach approximately 10 miles southeast of NAVWPNSTA Seal Beach to Beverly Hills at the base of the Santa Monica Mountains, approximately 30 miles northwest of the station. Uplift along the NISZ has produced a line of low coastal hills and mesas near the southern end and Landing Hill along the western edge of NAVWPNSTA Seal Beach. Adjacent to Landing Hill on the east is Sunset Gap, a wetlands comprising coastal salt marsh and tidal mudflats (Figure 2-4) (BNI 2000).

NAVWPNSTA Seal Beach soils typically contain abundant clay and silt and are poorly drained. Six soil types (Alo clay, Beach, Bolsa silt loam, Bolsa silt clay loam, Myford sandy loam, and tidal flats) have been identified at the station (SCS 1978). The soil at SWMU is primarily silty clay with a little sand. Based on the topography of the station, groundwater is expected to be at approximately 21 feet below ground surface (bgs) at SWMU 24 (CH2M Hill 2000).





REFERENCE: ADAPTED FROM JEG 1995.

EE/CA, SWMU 24

Figure 2-4

Surface Features

Naval Weapons Station Seal Beach, California

Bechtel National, Inc.
Clean II Program

Date: 6/6/02
File No: 151R7104
Job No: 22214-151
Rev No: B

2.1.5 Surrounding Land Use and Populations

NAVWPNSTA Seal Beach, located in Orange County, is bordered by the city of Seal Beach on the north, west, and southwest; the city of Westminster on the northeast; the city of Huntington Beach on the southeast and south; and county land south of Edinger Avenue.

The predominant land use in the surrounding areas is medium-density residential development, with scattered parcels of high-density residential, commercial, industrial, and recreational development (JEG 1995). Future land uses for the adjacent cities include commercial/industrial, limited residential, and open space uses.

Explosive quantity distance arcs that restrict development to specific permitted uses cover approximately 75 percent of NAVWPNSTA Seal Beach. Two agricultural outleases, totaling approximately 2,000 acres, are used for farming (irrigated and dry) and maintenance. Approximately 100 acres of land is currently being leased for oil production. In addition to the outleased land, the National Wildlife Refuge (NWR), a major biological resource, encompasses approximately 900 acres of NAVWPNSTA Seal Beach. The NWR is an endangered species refuge established to preserve one of the largest remaining salt marshes in southern California. It provides essential habitat for the California brown pelican, peregrine falcon, and Belding's Savannah sparrow. Areas covered by the explosive quantity distance arcs overlap the agricultural outlease areas and portions of the NWR.

Other land uses on NAVWPNSTA Seal Beach include residential; ordnance transfer operations; weapons production, evaluation, and quality assurance; storage (inert and explosive); and administration/community support.

Potable water is supplied to NAVWPNSTA Seal Beach by the city of Seal Beach. Nonpotable water used for agricultural purposes is supplied by on-station agricultural wells with screen intervals between 140 and 600 feet bgs. Because of the distance of these wells from the site (the nearest well is approximately 3,500 feet east of SWMU 24) and their screen intervals, contaminants at SWMU 24 are not expected to impact the water quality in these wells.

The J. H. McGaugh Elementary School, located on the west side of Seal Beach Boulevard between Bolsa Avenue and Marlin Avenue, is approximately 9,000 feet southwest of SWMU 24. The area approximately 1 mile southwest of SWMU 24 is used for military housing.

2.1.6 Sensitive Ecosystems

The SWMU 24 area offers a small, poor-quality habitat, due to the lack of vegetation and bare soil and gravel. Some ruderal vegetation was noted invading the site from the margins. Areas of nonnative grass surround the site and substantial agricultural areas are located to the south.

Ecological receptors at the site are limited because of the recent demolition activity and resultant barren soil. Terrestrial ecological receptors such as California ground squirrels, American kestrels, and mourning doves may occasionally occur at the site.

Because of SWMU 24's distance to the nearest surface water body and the depth to the groundwater table, no aquatic ecosystems are present on the site.

2.1.7 Meteorology

The climate of the NAVWPNSTA Seal Beach area is typical of the southern California coastal region. The adjacent Pacific Ocean has a moderating effect on temperatures. In the winter months, the maximum temperature usually ranges from the middle to high 50s (degrees Fahrenheit [°F]). In the summer months, maximum temperatures in the high 70s and low 80s are common, while low temperatures vary between the high 50s and the mid 60s °F (NEESA 1987).

The Seal Beach coastal area has an average rainfall of 10 to 12 inches, with the greatest rainfall occurring during the winter months (OCEMA 1986). Prevailing winds at the station are from the west. Occasionally, strong, dry, northeasterly winds descend the mountain slopes during the fall, winter, and early spring months. During the winter months, Santa Ana wind conditions are common. Santa Ana winds occur when high pressure builds in the Great Basin area of Utah and Nevada. The clockwise circulation around the high-pressure system produces north-to-northeast winds, which can persist from several hours to a few days and reach sustained speeds of up to 60 miles per hour (JEG 1995). The highest winds at NAVWPNSTA Seal Beach were recorded in association with the winter and spring storms that invade southern California from the Pacific Ocean (NEESA 1987).

2.2 PREVIOUS REMOVAL ACTIONS AND INVESTIGATIONS

NAVWPNSTA Seal Beach and the DON have been actively engaged in the IR Program since 1980. However, SWMU 24 has been only recently added to the IR Program. There have been no previous removal actions taken at SWMU 24. The following summarizes the results of previous investigations conducted at SWMU 24.

In 1988, A.T. Kearney performed an RFA to identify and evaluate SWMUs and other areas of concern at NAVWPNSTA Seal Beach. The RFA Report summarized SDFF activities, the amount and type of waste generated (which were approximately eight 55-gallon drums of lead/water sludge per year, two 55-gallon drums of particulate exhaust from the cyclone per year, and twenty 55-gallon drums of particulate exhaust from the baghouse per year), release history (there were no known releases from this unit), and future release potential. Potential for releases to soil, groundwater, surface water, air, and subsurface gas was determined to be low because of the unit's operational practices, electron capture detectors (ECDs), and secondary containment measures. Suggestions for further action included continued monitoring of the SDFF according to appropriate RCRA regulatory requirements and implementation of any necessary further actions (Kearney 1989).

In 1998, Foster Wheeler Environmental Corporation (Foster Wheeler) decommissioned the SDFF at SWMU 24. Following demolition of the facility, at the DON's request, Foster Wheeler collected soil samples from the surface soil in and around the areas where structures had been located. One sample was collected from a random location within each of the 16 sampling grids at a depth of 3 inches bgs (Foster Wheeler 1999).

The sampling results showed that 13 of the 16 sampling grids contained at least one constituent that exceeded the respective stationwide ULBV for metals in soil at NAVWPNSTA Seal Beach. Lead was reported in excess of the ULBV in 12 of the 16 grids sampled, at concentrations of up to 1,200 mg/kg. Copper was reported in 5 of the 16 samples at concentrations exceeding the ULBV. Cadmium was reported in 4 of the samples at concentrations exceeding the ULBV. Selenium and mercury were each reported in one sample at a concentration exceeding their respective ULBV (Foster Wheeler 1999).

In 2000, CH2M Hill conducted a FSI Phase II at SWMU 24. The objective of the FSI Phase II was to assess the extent of metals to screen for ecological and human-health risks. The results and conclusions were as follows.

- Seven metals (cadmium, copper, lead, mercury, nickel, selenium, and zinc) were reported at concentrations above the ULBVs. Lead and copper were the most frequently reported metals above ULBVs. Most of the metals above ULBVs were predominantly reported in surface soil samples.
- Mercury and nickel were reported above ULBVs in only one of the soil samples collected, while cadmium, selenium, and zinc were reported above ULBVs in less than 10 percent of the soil samples collected. The maximum concentrations of metals reported above their ULBV, except mercury, occurred at sample location 2. The only detected mercury was reported in a soil sample collected at 2 feet bgs. All other metals, except nickel, were reported above ULBVs in at least one soil sample collected at 2 feet bgs.
- The human-health risk screening performed during the FSI concluded that there were minimal risks from metals at the site, the excess lifetime cancer risk (ELCR) estimated based on 95 percent upper confidence limit (UCL) concentrations of metals was 1×10^{-8} and the noncancer hazard index (HI) was determined to be 1.
- Based on the ecological risk screening, ecologically significant risks to terrestrial receptors exist from metals in the soil. Safe ecological preliminary remediation goals (PRGs) for most receptors were exceeded by the maximum concentrations of these metals and by the arithmetic mean concentrations of lead.

As a result, removal action was recommended in the FSI for SWMU 24. Significant risks to terrestrial ecological receptors from exposure to soil were the primary basis for this recommendation.

2.3 SOURCE, NATURE, AND EXTENT OF CONTAMINATION

As discussed in Section 2.1.2, the source and nature of contamination at SWMU 24 are associated with activities that took place at the former SDFF. Operation and maintenance activities at the former SDFF may have resulted in the release of metals-contaminated dust and sludge into the environment and deposition onto the ground within SWMU 24. Lead and copper were the most frequently reported metals within SWMU 24, reported in 30 percent and 20 percent of soil samples, respectively. The locations with the highest concentrations of the other metals generally correspond to the locations with the highest concentrations of lead (CH2M Hill 2000).

Because lead was the most commonly reported metal in soil samples collected during the FSI Phase II at SWMU 24, distribution profiles for surface soil samples from 0.5 to 1.0 foot bgs (Figure 2-5) and subsurface soil samples from 2.0 to 2.5 feet bgs and 4.0 to 4.5 feet bgs (Figure 2-6) were developed. The figures show that lead concentrations exceeding the stationwide ULBV of 35.7 mg/kg and ranging up to 150 mg/kg are widespread throughout the investigation area. However, once the concentrations begin to exceed the 150 mg/kg level, the lateral extent is greatly reduced. There are two distinct areas with lead concentrations above 150 mg/kg at SWMU 24: one along the northern edge (around sample location 2) and the other in the southeastern portion of SWMU 24 (around sample locations 24 and 28). Most of the lead concentrations exceeding the stationwide ULBV of 35.7 mg/kg and ranging up to 4,060 mg/kg are located within the site's shallow surface soils and decrease sharply with depth.

2.4 ANALYTICAL DATA

This section discusses analytical data from the FSI Phase II and summarizes data quality.

2.4.1 Presentation of Analytical Data

Soil samples were collected from within and along the perimeter of the SWMU 24 area during the FSI Phase II. Surface soil samples were collected from 0.5 to 1.0 foot bgs and subsurface soil samples were collected from 2.0 to 2.5 feet and 4.0 to 4.5 feet bgs. Soil samples were collected using hand augers. To assess the extent of the contamination, perimeter samples were collected first and a 24-hour turnaround time was requested for lead analyses. Where the reported lead concentration exceeded the stationwide ULBV for lead (35.7 mg/kg), the sampling grid was extended and additional samples were collected and analyzed for lead. However, the soil samples were only analyzed for metals based on the lead results. In total, 104 samples were identified as target samples for lead. In total, 95 samples were identified as target samples for metals. Table 2-1 shows the summary statistics for the reported analytes. A complete set of laboratory results can be found in the FSI Phase II Report, Appendix H (CH2M Hill 2000).

2.4.2 Data Quality

BNI reviewed the FSI Phase II analytical data for data quality In general, the information contained in the FSI Phase II Report was found to be of acceptable quality to adequately describe site conditions Soil samples were analyzed using U.S. EPA analytical methods. Field and laboratory quality control samples were analyzed at appropriate frequencies.

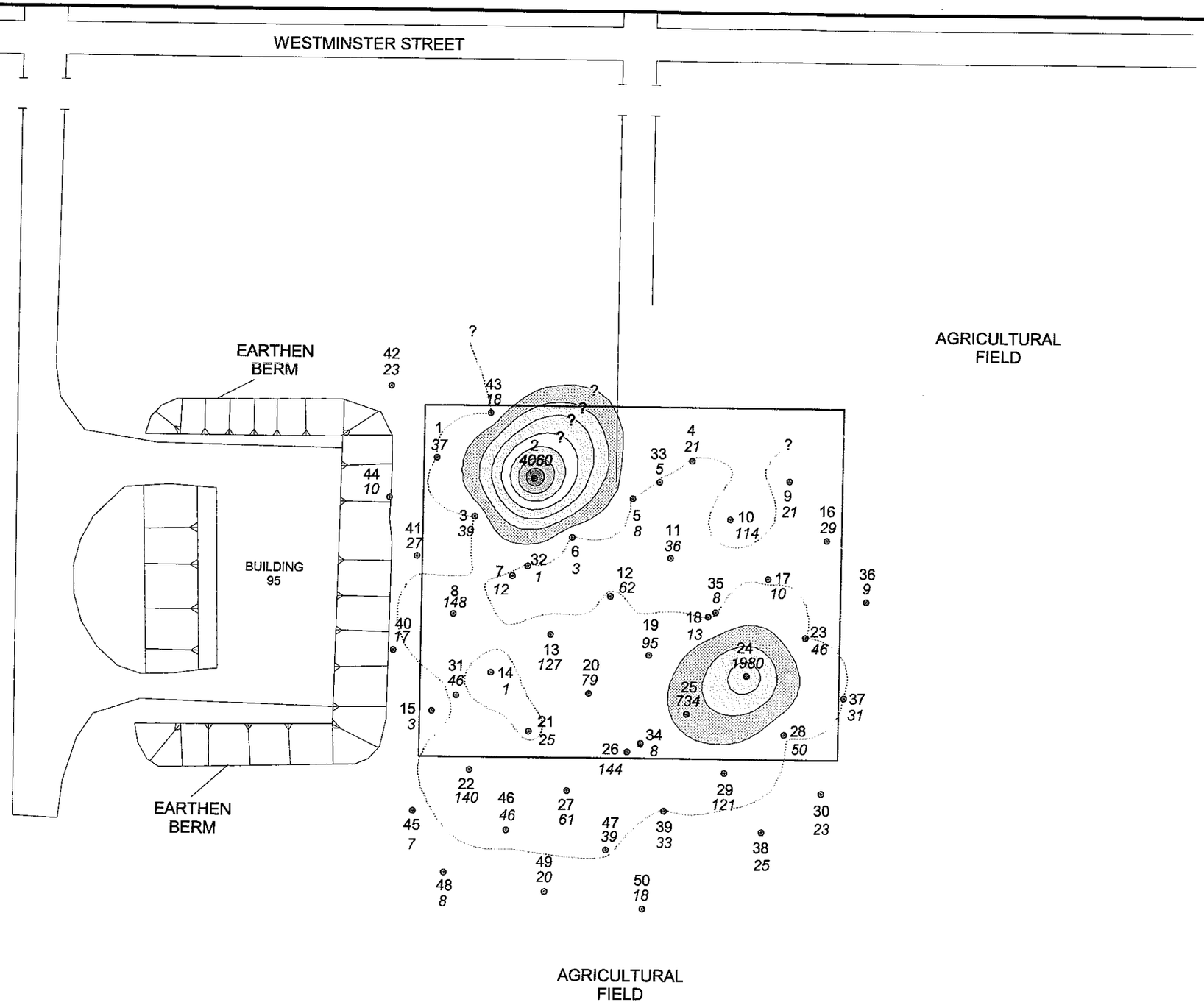
It was noted in the FSI Phase II Report that project chemists evaluated all analytical data independent of the laboratory. The data were reviewed for the quality control (QC) specifications identified in the project Quality Assurance Project Plan (QAPP) (SWDIV 2000) and were flagged in accordance with the project QAPP and U.S. EPA data validation functional guidance (U.S. EPA 1994). Raw data checks (i.e., laboratory instrument output/bench record reviews for laboratory calculations, algorithms, and transcription errors) were carried out for approximately 10 percent of the data. Results of the data validation did not indicate significant issues regarding data quality. More than 95 percent of the data was found to meet QAPP QC criteria (CH2M Hill 2000).

Precision, accuracy, representativeness, comparability, and completeness (PARCC) parameter calculations were defined in the QAPP and evaluated in the FSI Phase II. Results of the assessment for each parameter are as follows.

- Precision data were found to meet project objectives and were within limits.
- Accuracy measurement data were found to meet project objectives and were within limits.
- Representativeness was assessed in both qualitative and quantitative terms. The project report discussed the qualitative aspects of representativeness in terms of design of the field sampling plan, sampling techniques, sample handling protocols, and associated documentation. Quantitative measures of representativeness included field and laboratory blank measurements to identify whether contamination was introduced through field or laboratory operations. Field duplicate measurements were used to establish variability.
- Comparability of the data was established through the use of standard analytical methods and QC procedures established in the project QAPP; consistent reporting units for a specified procedure; and method detection limits for all analytical parameters that were established in accordance with 40 C.F.R. Part 136, Appendix B, before the start of the analyses to meet the project requirements.
- Field activity completeness was assessed during the preparation of the FSI Phase II Report within the context of the overall sampling design. Data completeness met the project needs and expectations.

2.5 STREAMLINED RISK EVALUATION

The decision to proceed with a removal action at SWMU 24 was based largely on the results of the ecological risk screening for soils performed as part of a FSI Phase II (CH2M Hill 2000). This risk evaluation focused on chemicals in the soil.



LEGEND

- ROAD
- SWMU 24
- 9 — SAMPLE LOCATION NUMBER
- 21 — LEAD CONCENTRATION (MG/KG)
- CONTOUR AT 36 MG/KG, THE UPPER LIMIT BACKGROUND VALUE
- ? — ISOCONCENTRATION LINE QUERIED WHERE INTERPRETED

LEAD CONCENTRATION INTERVALS

- 500 - 1000 MG/KG
- 1000 - 1500 MG/KG
- 1500 - 2000 MG/KG
- 2000 - 2500 MG/KG
- 2500 - 3000 MG/KG
- 3000 - 3500 MG/KG
- GREATER THAN 3500 MG/KG

NOTES:

DATA FROM DRAFT FOCUSED SITE INSPECTION PHASE II REPORT CH2MHILL, 18 DECEMBER 2000.

DATA QUALIFIERS ARE NOT SHOWN, THE MAXIMUM LEAD CONCENTRATION FOR DUPLICATE SAMPLES IS USED, AND THE LEAD RESULTS ARE ROUNDED TO WHOLE NUMBERS.

THIS FIGURE IS NOT INTENDED FOR ENGINEERING DESIGN, BUT ONLY TO PROVIDE THE READER WITH AN APPROXIMATION OF THE METAL DISTRIBUTION.

N

50 0 50 Feet

EE/CA, SWMU 24

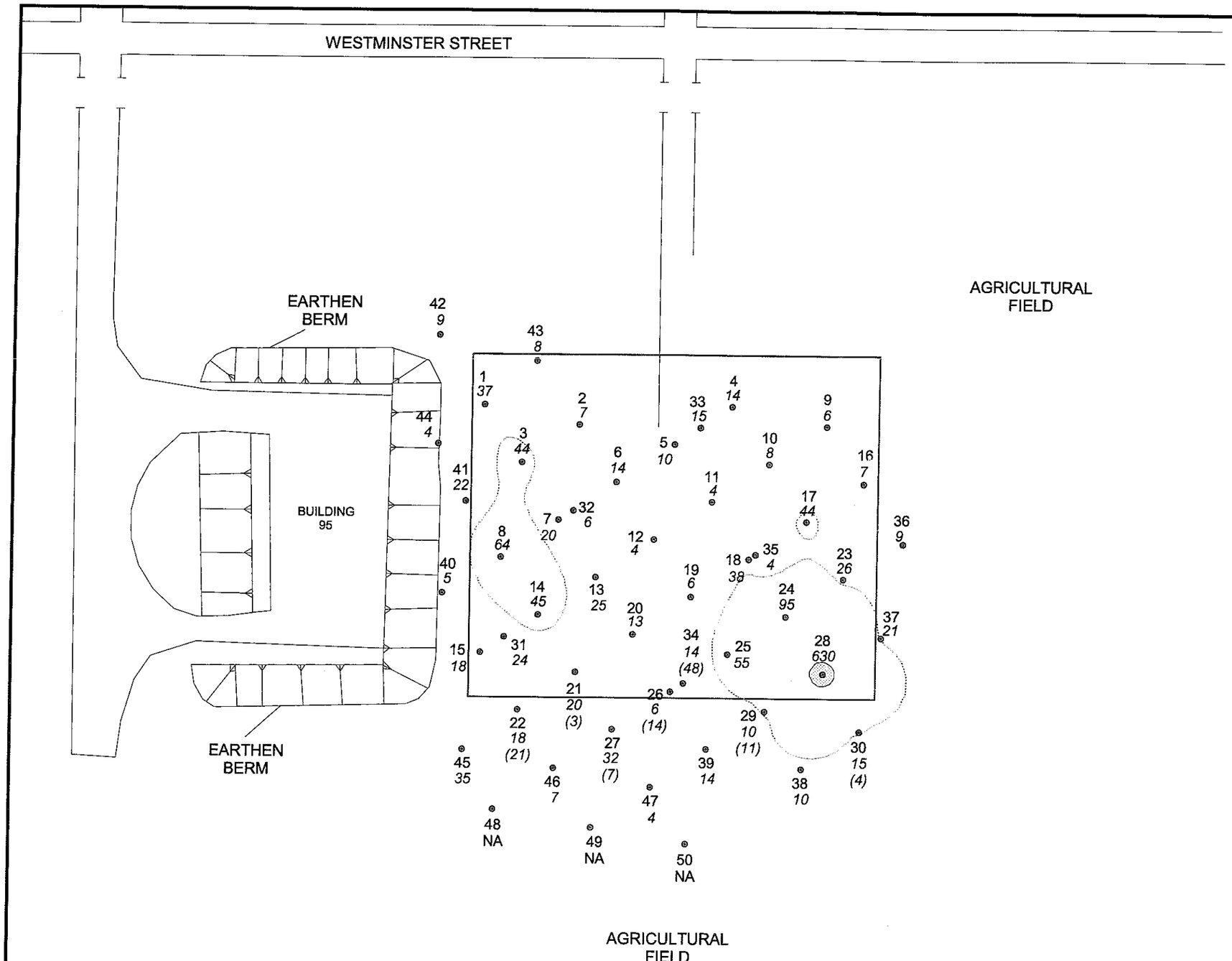
Figure 2-5

Lead Concentrations in Soil at 0.5 - 1.0 ft bgs

Naval Weapons Station Seal Beach, California

Bechtel National, Inc.
CLEAN II Program

Date: 10/18/01
File No.: 151A7818
Job No.: 22214-151
Rev No.: C



LEGEND

ROAD

SWMU 24

22 SAMPLE LOCATION NUMBER

18 LEAD CONCENTRATION (MG/KG) AT 2.0 - 2.5 FT BGS

(21) LEAD CONCENTRATION (MG/KG) AT 4.0 - 4.5 FT BGS

CONTOUR AT 36 MG/KG. THE UPPER LIMIT BACKGROUND VALUE

LEAD CONCENTRATION INTERVALS AT 2.0 - 2.5 FT BGS

- 500 - 1000 MG/KG
- 1000 - 1500 MG/KG
- 1500 - 2000 MG/KG
- 2000 - 2500 MG/KG
- 2500 - 3000 MG/KG
- 3000 - 3500 MG/KG
- GREATER THAN 3500 MG/KG

NOTES:

DATA FROM DRAFT FOCUSED SITE INSPECTION PHASE II REPORT CH2MHILL 18 DECEMBER 2000.

DATA QUALIFIERS ARE NOT SHOWN, THE MAXIMUM LEAD CONCENTRATION FOR DUPLICATE SAMPLES IS USED, AND THE LEAD RESULTS ARE ROUNDED TO WHOLE NUMBERS.

NA - NOT ANALYZED FOR LEAD AT THIS LOCATION

THIS FIGURE IS NOT INTENDED FOR ENGINEERING DESIGN, BUT ONLY TO PROVIDE THE READER WITH AN APPROXIMATION OF THE METAL DISTRIBUTION.

N

50 0 50 Feet

EE/CA, SWMU 24

Figure 2-6

Lead Concentrations in Soil at 2.0 - 2.5 ft and 4.0 - 4.5 ft bgs

Naval Weapons Station Seal Beach, California

Bechtel National, Inc.
CLEAN II Program

Date: 10/18/01
File No : 151A7819
Job No : 22214-151
Rev No : C

Table 2-1
Summary Statistics for Analytes Reported in Soil Samples Collected During the FSI Phase II

Analyte	Number of Samples > Reporting Limit	Maximum Concentration (mg/kg)	Mean Concentration (mg/kg)
Metals			
Aluminum	95 of 95	29,900	13,477
Antimony	2 of 95	115 N	7.0
Arsenic	67 of 95	6.4	3.1
Barium	95 of 95	1,390	104
Beryllium	41 of 95	1.0 B	0.43
Cadmium	15 of 95	526	6.2
Calcium	95 of 95	80,200 N	17,807
Chromium	95 of 95	36	19
Cobalt	94 of 95	15	7.9
Copper	95 of 95	1,110	43
Iron	95 of 95	37,200	18,845
Lead	104 of 104	4,060 J	98
Magnesium	95 of 95	16,000	7,956
Manganese	95 of 95	772	329
Mercury	29 of 95	0.56	0.037
Molybdenum	3 of 95	6.2	2.4
Nickel	70 of 95	36	13
Potassium	94 of 95	8,120	3,805
Selenium	9 of 94	3.9	0.43
Silver	3 of 95	3.0 N	1.1
Sodium	95 of 95	3,680 J	834
Thallium	16 of 95	1.9 B	0.73
Vanadium	95 of 95	70	36
Zinc	95 of 95	1,130	94

Acronyms/Abbreviations:
- CRDL – contract required detection limit
- CRQL – contract required quantitation limit
- FSI – focused site inspection
- IDL – instrument detection limit
- MDL – method detection limit
- mg/kg – milligrams per kilogram

Data Qualifiers:
- B – estimated; below CRDL and above IDL
- J – estimated; below CRQL and above MDL
- N – spiked sample recovery not within control limits

2.5.1 Previous Risk Evaluations and Findings

Human-health and ecological risk screening for soils at SWMU 24 was performed as part of a FSI Phase II (CH2M Hill 2000). The chemicals of potential concern (COPCs) that were evaluated were metals. Results of these risk assessments are summarized in Sections 2.5.1.1 and 2.5.1.2. Based on the human-health risk screening, there are no significant risks to human health from metals at SWMU 24. Except for copper and lead, COPCs were found to present no unacceptable ecological risk.

According to the NCP, eight factors must be considered in determining the appropriateness for a removal action. Conditions at SWMU 24 meet the following NCP requirement for a removal action (40 C.F.R. § 300.415 [b][2]): "actual or potential exposure to nearby human populations, animals or the food chain from hazardous substances or pollutants or contaminants."

The removal action will be conducted as a non-time-critical removal action because the on-site activities will be initiated more than 6 months after the planning period begins (40 C.F.R. Part 300.415[b][4]).

2.5.1.1 HUMAN-HEALTH RISK ASSESSMENT

During the human-health risk assessment performed as part of the FSI Phase II, soil analytical data were compared with stationwide ULBVs and residential PRGs. The ELCR and noncancer hazard quotient (HQ) for each COPC were then estimated. The 95 percent UCL concentration of metals in soil at the site yielded a total ELCR of 1×10^{-8} and a noncancer HI of 1. Cadmium and lead were the primary contributors to the noncancer HI. The recommendation for a removal action was not based on this low risk to human health.

2.5.1.2 ECOLOGICAL RISK ASSESSMENT

A screening level ecological risk assessment was performed for contaminants present in soil at SWMU 24 (CH2M Hill 2000). Eight metals (antimony, cadmium, copper, lead, mercury, nickel, selenium, and zinc) were described as presenting potentially unacceptable ecological risk. Lead was considered the primary concern. The FSI Phase II Report (CH2M Hill 2000) recommended a cleanup goal (referred to in the screening-level ecological risk assessment as a "safe PRG") for lead of 41.6 mg/kg at SWMU 24, based on the results of the screening-level ecological risk assessment. This cleanup goal was selected because it was the lowest PRG based on the ecological receptors that were modeled (mourning dove, ground squirrel, and American kestrel). As part of this report, a refined ecological risk analysis was performed for these ecological receptors as well as for additional ecological receptors (Appendix A).

2.5.2 Health and Environmental Effects Associated With Lead and Threat to Nearby Human Populations and Environment

Lead occurs naturally in the environment. It is not an essential nutritional element. Because it is insoluble, metallic lead is considered nontoxic. However, lead ion and finely divided soluble lead (fumes) can produce a variety of toxic effects in humans provided the level of exposure is high enough. Effects include anemia, delayed mental development and learning difficulties in children, and kidney dysfunction. At high exposure levels, lead can cause sterility, abortion, and infant mortality. Certain forms of lead have been shown to cause kidney tumors in laboratory animals, leading the U.S. EPA and the International Agency for Research on Cancer (IARC) to classify lead as a possible human carcinogen.

Studies have shown that the toxic effects of lead usually do not occur until the concentration of lead in the blood of humans reaches 100 micrograms per liter. Lead can also produce toxic effects in the environment. Lead concentrations in plants normally range between 3 and 4 mg/kg. Apparently, 50 mg/kg is an upper tolerance limit for most vascular plants. No sublethal effects of toxicity are noticeable, but death occurs after 50 mg/kg (Salisbury and Ross 1969, Antonovics et al. 1971). Lead uptake is constant with increasing lead levels in the soil until a point is reached when uptake becomes unrestricted and rises abruptly. Species can rarely tolerate conditions above the level at which there is a sudden increase in lead uptake (Antonovics et al. 1971).

Signs of lead poisoning in domestic and laboratory animals are similar in nature to those in humans. Except for the extensive evaluation of effects of ingesting lead shot, wildlife data are lacking in literature. However, lead in the diet could result in reduced populations of species because of stillbirths, abortion, and reduced learning ability that could cause the young to be more susceptible to predators.

2.5.3 Health and Environmental Effects of Copper and Threat to Nearby Human Populations and Environment

Copper is an essential nutrient, required by the body in very small amounts. However, U.S. EPA has found copper to potentially cause the following health effects when people are exposed to it at levels above the action level for relatively short periods of time: stomach and intestinal distress, liver and kidney damage, and anemia. In addition, copper is a suspected cardiovascular or blood toxicant, a developmental toxicant, a gastrointestinal or liver toxicant, a reproductive toxicant and a respiratory toxicant. Persons with Wilson's disease may be more sensitive than others to the effects of copper contamination (U.S. EPA 2001).

Copper is absorbed from the lungs or gastrointestinal tract following exposure. The highest tissue concentrations of copper are found in the brain, kidney, heart, liver, and pancreas. Copper appears to be excreted in the feces and at a constant rate by the kidneys. Acute poisoning from oral ingestion of copper is rare due to its emetic effect.

There is no evidence that any copper compounds are carcinogenic. The IARC has not evaluated copper or copper compounds or carcinogenicity (Ontario Ministry of the Environment 1998).

Copper in the soils at SWMU 24 does not pose a great risk to human health because not many people frequent the site. Groundwater contamination is also unlikely because the groundwater table is approximately 21 feet bgs. However, copper in the soil does pose a risk to burrowing and foraging terrestrial receptors.

2.5.4 Documented Exposure Pathways

The only receptors of potential concern are the following terrestrial ecological receptors that live on or otherwise use SWMU 24.

- The mourning dove spends time in the study area; it has a small body size, nests in the area, and ingests oil, grit, and seeds that have been in contact with contaminated soils (CH2M Hill 2000).
- The California ground squirrel has been observed in terrestrial habitats throughout NAVWPNSTA Seal Beach; it spends a high percentage of time near the study area and its burrowing and foraging activities increase its chances of exposure from soil-borne COPCs (CH2M Hill 2000).
- The American kestrel has also been observed in terrestrial habitats throughout NAVWPNSTA Seal Beach. Because the American kestrel is considered high on the food chain, its exposure potential to COPCs that biomagnify is increased through ingestion (CH2M Hill 2000).
- The American robin represents several species of birds that spend time in the study area and feed on insects, earthworms, and other invertebrates; it has a small body size, nests in the area, and ingests soil, grit, and food items that have been in contact with contaminated soils.
- The raccoon is a mid-sized (larger than a rodent) mammalian omnivore present at the site; its foraging activities increase its chances of exposure from soil-borne COPCs.
- The red fox is a mid-sized (larger than a rodent) mammalian carnivore; its foraging activities and high position on the food chain increase its chances of exposure from soil-borne COPCs, particularly bioaccumulative compounds. Although the red fox was relocated to an off-site location several years ago (so it could not disturb least tern nests), it is considered representative of mammalian carnivore species.

2.5.5 Sensitive Populations

Although several terrestrial ecological receptors may occur at SWMU 24, ecological receptors are limited because of the recent demolition activity and limited vegetative habitat. Terrestrial ecological receptors at the site are the California ground squirrel, the mourning dove, and the American kestrel, all of which are commonly observed on

maintained grassy areas at NAVWPNSTA Seal Beach (CH2M Hill 2000). None of these receptors are state or federally listed as endangered, threatened, or special status.

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Section 3
IDENTIFICATION OF REMOVAL ACTION OBJECTIVES

This section identifies the removal action scope and objectives for SWMU 24. Removal action objectives (RAOs) are based on CERCLA, NCP, streamlined risk evaluation (Section 2.5), sensitive ecosystems (Section 2.1.6), and chemical- and location-specific applicable or relevant and appropriate requirements (ARARs) (Section 3.4.2). These objectives were used to screen technologies and to develop removal action alternatives (Sections 4 and 5).

3.1 STATUTORY FRAMEWORK

This removal action is taken pursuant to CERCLA and the NCP under the delegated authority of the Office of the President of the United States by Executive Order Number (Exec. Order No.) 12580. This order authorizes the DON to conduct and finance removal actions. This removal action is non-time-critical because more than a 6-month planning period will have been available from the time the DON determined that a removal action was appropriate and the time that on-site activities will be initiated. Requirements for this EE/CA and its mandated public comment period provided opportunity for public input to the cleanup process.

Generally, this entire process is also governed by the FFSRA. SWMU 24 is part of operable unit (OU) 7 and is included in the FFSRA. The FFSRA was signed in September 1991 by the DON, DTSC (Department of Health Services at that time), and RWQCB, and amended in August 1994. All activities related to SWMU 24 will be performed in accordance with the FFSRA.

Additionally, the Cal. Health & Safety Code specifies required documentation, which depends upon the costs of the removal action. The Cal. Health & Safety Code requires development of either a RAP (i.e., for removal actions that cost $1 million or more) or a RAW (i.e., for removal actions that cost less than $1 million). DTSC may waive the RAP requirements in favor of a RAW for removal actions when an Imminent and/or Substantial Endangerment determination exists. Furthermore, DTSC may also waive the RAP requirements if a RAP-equivalent document that meets the requirements of Cal. Health & Safety Code § 25356.1(h)(3) is prepared.

The DON, with state regulatory oversight, is the lead agency for the removal action. As such, the DON has final approval authority over the recommended alternative and all public participation activities with state concurrence. SWDIV, as regional manager of the DON's CERCLA program, is providing technical expertise to NAVWPNSTA Seal Beach to conduct activities specific to the preparation of this EE/CA and the execution of the recommended alternative.

This EE/CA complies with the requirements of CERCLA, Superfund Amendments and Reauthorization Act, NCP at 40 C.F.R. Part 300, Defense Environmental Restoration Program at 10 U.S.C. § 2701, et seq., and Exec. Order No. 12580. This EE/CA is considered appropriate based on the following factor under 40 C.F.R. Part 300.415(b)(2)(i): "actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants."

This EE/CA, along with the action memorandum, will also satisfy Cal. Health & Safety Code requirements for a removal action.

3.2 DETERMINATION OF REMOVAL ACTION SCOPE

The scope of this removal action is to reduce risk to ecological receptors from exposure to elevated metals concentrations in soil associated with SWMU 24. The removal action alternatives considered in this EE/CA may result in a determination that no further response action for CERCLA compliance is appropriate at SWMU 24 for the current and future land use.

A project work plan will be prepared by the remedial action contractor (RAC) to implement the final alternative selected by the DON. The project work plan will describe planning and design to facilitate the removal action, including a confirmation sampling program. A project report will be prepared to document the removal action activities, which will provide the basis if a decision for no further action is recommended following the removal.

3.3 DETERMINATION OF REMOVAL ACTION SCHEDULE

There are neither anticipated weather-related restrictions nor availability-of-services restrictions expected to impact the removal schedule. This EE/CA, which was available for public review and agency comment for a minimum of 30 days, identifies and recommends a removal action alternative. The DON reviewed and prepared written responses to significant public and agency comments, which are included in this final EE/CA.

3.4 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

The NCP states, "Removal actions . . . shall to the extent practicable considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under federal environmental or state environmental or facility citing laws" (40 C.F.R. 300.415[j]).

The evaluation of ARARs for this EE/CA is included as Appendix B. The following subsections provide an overview of the ARARs process and a summary of ARARs that potentially affect the development of RAOs.

3.4.1 ARARs Overview

Identification of ARARs is a site-specific determination that involves a two-part analysis. First, it must be determined whether a given requirement is applicable; then, if it is not applicable, it must be determined whether the requirement is relevant and appropriate. A requirement is deemed applicable if the specific terms of the law or regulation directly address the COPC, removal action, or place involved at the site. If the jurisdictional prerequisites of the law or regulation are not met, a legal requirement may nonetheless be relevant and appropriate if site circumstances are sufficiently similar to circumstances in

which the law otherwise applies and the requirement is well suited to the conditions of the site.

A requirement must be substantive to constitute an ARAR for activities conducted on-site. Procedural or administrative requirements (e.g., permits and reporting requirements) are not ARARs.

In addition to ARARs, NCP provides that where ARARs do not exist, agency advisories, criteria, or guidance are "to be considered" (TBC) useful "in helping to determine what is protective at a site or how to carry out certain actions or requirements" (55 *Federal Register* [Fed. Reg.] 8745). The NCP preamble states, however, that provisions in the TBC category "should not be required as cleanup standards because they are, by definition, generally neither promulgated nor enforceable, so they do not have the same status under CERCLA as do ARARs."

As the lead federal agency, the DON has the primary responsibility for the identification of federal ARARs relevant for SWMU 24. As the lead state agency, DTSC has the responsibility for identifying state ARARs.

The DON formally requested state chemical-, location-, and action-specific ARARs for SWMU 24 in a letter to DTSC, dated 20 June 2001. Following the DON solicitation for ARARs from DTSC, DTSC requested ARARs from other state and local agencies. DTSC issued a letter to the DON, dated 08 August 2001, with correspondence regarding the ARARs solicitation from the following agencies:

- Department of Transportation (correspondence dated 31 July 2001)
- California Integrated Waste Management Board (correspondence dated 26 July 2001)
- California Air Resources Board (correspondence dated 23 July 2001)
- county of Orange, Public Facilities and Resources Department (correspondence dated 19 July 2001)
- city of Seal Beach (correspondence dated 25 July 2001)
- Department of Fish and Game (correspondence dated 03 August 2001)
- South Coast Air Quality Management District (SCAQMD) (correspondence dated 26 July 2001)

In addition, RWQCB issued a letter to the DON on 17 August 2001 in response to the ARARs request.

Some of the agencies that were requested by DTSC to provide ARARs input did not respond. On 15 October 2001, the DON issued a letter to these agencies and requested that they respond to ensure timely implementation of the removal action. The follow-up request was made to the following agencies:

- California Coastal Commission
- Department of Health Services

- Orange County Health Care Agency
- Orange County Sanitation District
- Orange County Water District
- City of Seal Beach Planning Department
- South Coast Air Quality Management District

Subsequently, responses were received from the following agencies:

- Orange County Sanitation District (correspondence dated 31 October 2001)
- California Coastal Commission (correspondence dated 22 October 2001)

Requirements of ARARs and TBCs are generally divided into three categories: chemical-specific, location-specific, and action-specific requirements. Chemical-specific and location-specific ARARs affecting the development of RAOs are discussed in the following section. Other chemical-specific, location-specific, and action-specific ARARs are presented in Section 5 for each alternative considered. Appendix B includes a detailed discussion of all ARARs considered for this EE/CA.

3.4.2 ARARs Affecting Removal Action Objectives

ARARs have been identified for each chemical, location, and removal action alternative (Appendix B). The substantive provisions of the following chemical- and location-specific requirements may impact the development of the RAOs:

- RCRA hazardous waste requirements at Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100
- Characterization of solid waste as toxic based on toxicity characteristic leaching procedure (TCLP) at 40 C.F.R. § 261.24(a) and Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B)
- Cal. Fish & Game Code § 3005(a) regarding the taking of birds and mammals

3.5 REMOVAL ACTION OBJECTIVES

Based on CERCLA, NCP, the risk assessment in the FSI Phase II, and ARARs, the RAOs are as follows.

- Minimize further migration of metals in surface soil at SWMU 24.
- Reduce risk to ecological receptors from metals-impacted soil to acceptable levels.

The ecological risk, summarized in Section 2.5.1.2, was refined to include consideration of the previously described ecological receptors (mourning dove, California ground squirrel, and American kestrel) and additional ecological receptors (raccoon [mammal, omnivore], American robin [bird, omnivore], and red fox [mammal, carnivore]; plants; soil invertebrates; and soil microbes) (Appendix A). Although the red fox was relocated to an off-station location several years ago, it was used in the refined ecological risk

assessment to represent mammalian carnivore species. The addition of supplemental ecological receptors provides for a broader evaluation of the ecosystem that may be at the site. PRGs for metals in soil were developed from predictive exposure scenarios for these ecological receptors. PRGs, based on a validation study and site-specific measurements of effects, were not prepared. No investigations of site-specific effects were conducted. Therefore, PRGs based on predictive exposure scenarios are expected to be conservative and would likely underestimate validation study-based PRGs.

The refined ecological risk assessment (Appendix A) took into consideration the PRGs developed for the ecological receptors applicable to the site and the ecological and other effects to the site that may occur from implementing the selected removal action.

Based on the refined ecological risk assessment (Appendix A), lead is the only metal that presents an unacceptable ecological risk. The recommended cleanup goal for lead in soil is 500 mg/kg. This value is considered protective of wildlife that may be present at the site, such as small birds and mammals, and protective of soil invertebrates and microbes that represent a source of food for the small birds and mammals.

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Section 4
IDENTIFICATION AND SCREENING OF TECHNOLOGIES

Before the removal alternatives were developed, general response actions were determined based on the RAOs. The primary RAO for SWMU 24 is to reduce the risk to ecological receptors from exposure to lead-impacted soil to acceptable levels. Technologies and process options correlating with the general response action categories were then identified and screened for effectiveness, implementability, and cost. The retained technologies and process options were assembled into the removal alternatives that are described and evaluated in Section 5.

4.1 GENERAL RESPONSE ACTIONS

For this effort, five general response action categories were considered: no action, engineering controls, treatment, excavation/backfilling, and disposal.

- **No action** entails no further response action of any type, including administrative controls and monitoring.
- **Engineering controls** reduce potential hazards by limiting exposure to the site through physical controls (e.g., fencing). This type of response action does not reduce the level of contamination on-site.
- **Treatment** involves *in situ* or *ex situ* treatment to chemically or biologically alter contaminants to less harmful by-products or physically alter the contaminated media (e.g., electrokinetic remediation, phytoremediation, soil washing, or solidification/stabilization).
- **Excavation/backfilling** involves removing contaminated soil using mechanical equipment. Following excavation, the area would be backfilled with clean soil, returned to original grade, and revegetated.
- **Disposal** involves the transfer and disposition of excavated soil to an on- or off-site location.

4.2 SCREENING OF TECHNOLOGIES AND PROCESS OPTIONS

Technologies were identified based on general response action categories (Section 4.1). For each technology, representative process options were selected. The process options were screened against the general criteria discussed in Section 4.3. Table 4-1 lists removal technologies and process options identified for the screening process and summarizes the results. The following technologies are screened:

- no action
- access restrictions
- caps, covers
- physical/chemical treatment
- biological treatment
- excavation
- backfilling

- on-site disposal
- off-site disposal

4.3 SCREENING CRITERIA

Removal action technologies were screened following U.S. EPA technical guidance (U.S. EPA 1988). Process options that were retained following this screening evaluation were assembled into removal action alternatives that were also screened for effectiveness, implementability, and cost (Section 5).

4.3.1 Effectiveness

This evaluation criterion emphasizes each process option's performance and capability to meet RAOs. To evaluate the effectiveness of the process options, consideration was given to:

- overall protection of human health and the environment;
- compliance with ARARs;
- long-term effectiveness;
- reduction of toxicity, mobility, or volume of contaminants; and
- short-term effectiveness.

The less effective process options from each technology group were eliminated. Process options that did not provide adequate protection of human health and the environment were also be eliminated from further consideration.

4.3.2 Implementability

This evaluation criterion considers the relative ease to implement a process option. This includes consideration of technical feasibility, commercial availability of materials and equipment, and availability of the technology. Other factors would be availability of skilled labor, logistical considerations, and state and/or community acceptance. Process options that are technically or administratively infeasible or that would require equipment, specialists, or facilities that are not available within a reasonable period of time may be eliminated from further consideration.

4.3.3 Cost

Process options were evaluated based on qualitative costs. Process options with lower costs were preferred if the effectiveness and implementability criteria were judged to be similar.

Table 4-1
General Response Actions, Technologies, and Process Options Compared to Screening Criteria

General Response Action	Technology	Process Option	Description	Effectiveness	Implementability	Cost	Retained
No action	No action	None	The no action process option serves as a baseline against which other process options are compared.	Risk is not reduced Does not restrict access to site Does not reduce toxicity, mobility, or volume of contaminated material Both short- and long-term effectiveness low	Feasible as it requires no action No action may not be acceptable to the state and public	No associated cost	Yes (although low in effectiveness and not expected to be acceptable to the state and public, retained for development of no action alternative for comparison purposes only)
Engineering controls	Access restrictions	Fencing	Fencing provides a vertical barrier at the perimeter of the contaminated area. A combination of galvanized steel/barbed-wire fencing was considered	Does not effectively restrict ecological-receptor access to impacted soil Does not reduce toxicity, mobility, or volume of contaminated material Restricts land use Negatively affects aesthetics	Minimal effort required to install fence	Cost is medium to low	No
		Alarms	Motion- or heat-sensing devices at the site that would deter access by sounding an alarm	Do not prevent access to the site Do not reduce toxicity, mobility, or volume of contaminated material Noise concerns	Installation of alarms and monthly monitoring of system is a minimal effort	Cost would be medium Cost for personnel salary for monitoring alarms Capital cost for alarms Long-term maintenance of alarms	No
	Caps, covers	Soil/vegetative cover	Soil/vegetative cap or cover to separate receptors from contamination.	Ineffective at separating burrowing species from contamination Workers who install cap/cover may be exposed to contamination Long-term maintenance/monitoring required Restricts land use No reduction of toxicity, mobility, or volume through treatment Soil/vegetative cap or cover would raise existing grades and may be visually unattractive	Implementation of cap/cover exposes workers to contaminants Implementation feasible	Cost would be medium Capital cost for cap/cover Cost for personnel salary while installing cap/cover Cost for personnel salary for long-term maintenance/monitoring	No
Treatment	Physical/Chemical treatment	Electrokinetic remediation	*In situ* process in which an electrical field is created in soil matrix by applying a low-intensity direct current to cause metals to migrate toward a collection area The soil with concentrated metals in the collection area is then removed	Ineffective due to the shallow nature of contaminants and low moisture in surface soils Metal contaminants may not be in ionic form	Implementation effort would be large in proportion to the low volume of contamination Extensive testing is required	Cost would be high	No

(table continues)

Table 4-1 (continued)

General Response Action	Technology	Process Option	Description	Effectiveness	Implementability	Cost	Retained
Treatment (continued)	Physical/Chemical treatment (continued)	Soil washing	Uses liquids (usually water, sometimes combined with chemical additives) and a mechanical process to scrub soil. Scrubbing removes hazardous contaminants and concentrates them into a smaller volume. This works if the contaminants are concentrated in small volume of fine particles (clay). The smaller volume of soil can be further treated by other methods and the clean, larger volume of soil can potentially be used as backfill	A small volume of soil still needs to be removed and disposed of Ineffective because the site soils consist primarily of silt and clay Requires extensive and expensive tests Risk from off-site transportation is minimized or eliminated	Implementation is feasible as contamination is limited to top few feet of soil Requires implementation of accompanying technology	Cost would be high	No
		Solidification/ stabilization	During solidification, contaminants are physically bound or enclosed within a stabilized mass. During stabilization, chemical reactions are induced between the stabilizing agent and contaminants to reduce their mobility.	Not totally effective at preventing contact with contaminants by ecological receptors, particularly if the result is loamy Would increase the volume of contaminated soil and raise the grade, which could be undesirable aesthetically Land use would be restricted Risk from off-site transportation is minimized or eliminated	Implementation is feasible; treatability studies are generally required Solidified material may hinder future site use Some processes result in a significant increase in volume, up to double the original volume	Cost would be fairly High mobilization cost for specialized equipment	No
	Biological treatment	Phytoremediation	Describes a variety of remediation methods that use plants to remove contaminants from soil. Phyto-extraction is a process during which water-soluble metals are taken up by the plant species. The metals are stored in the plant's aerial shoots that are harvested and either smelted for potential metal recycling/recovery or disposed as a hazardous waste.	Ineffective in short term and requires maintenance in long term Potentially effective long term, but the harvesting of plants will still periodically disturb site surface soils Requires additional human activity at the site that may interfere with ecological receptors Plants could acquire hazardous characteristics	Long implementation process	Cost would be high Cost for personnel to monitor plants Capital cost for plants Cost for disposal of plants at end of technology period	No
Excavation/ backfilling	Excavation	Selective excavation	Excavation involves physically removing contaminated soil with lead concentrations above the cleanup goal using mechanical equipment	Effective because all contamination above the cleanup goal is removed from the site Some potential for short-term exposure, but can be minimized through engineering controls Effective in long term	Implementation is feasible and project duration is short	Cost is somewhat high	Yes
	Backfilling	Selective backfilling	Backfilling is applied after excavation to restore and regrade the site. The site would be allowed to naturally revegetate	Once contaminants have been removed, the excavation is backfilled and graded to minimize injury to humans and impacts to aesthetics No future land-use restrictions	Implementation is feasible If available and of suitable quality, soil from other on-station projects will be used to backfill the excavation Clean soil may need to be imported to the site	Cost is low to medium Cost associated with backfilling is related to transportation and labor associated with obtaining the clean soil	Yes

(table continues)

Table 4-1 (continued)

General Response Action	Technology	Process Option	Description	Effectiveness	Implementability	Cost	Retained
Disposal	On-site disposal	On-site beneficial reuse	After soil is excavated, stockpiled, and classified, it may be staged temporarily on-site and then relocated to other NAVWPNSTA Seal Beach project locations for beneficial reuse (e.g., foundation material for landfill cap).	Exposure to contaminated soil during handling and transporting	Implementation is feasible if the soil is suitable At this time, it is not anticipated that an appropriate use for the soil will be available	Cost is fairly low Cost associated with transportation of contaminated soil to the disposal site	No
	Off-site disposal	Off-site disposal/ recycling	After soil is excavated, stockpiled, and classified, it will be disposed of. Disposal options will be chosen according to the classification of the soil. The excavated soil would be transported to an appropriate permitted landfill.	Some potential for exposure to contaminated soil during handling and transporting Small potential for spills in community during transportation of soil	Implementation is feasible The classification of the soil removed determines where the soil needs to be disposed of and the procedures needed to be followed	Cost is medium Cost associated with transportation of contaminated soil to the disposal site Cost associated with disposal fees	Yes

Acronym/Abbreviation:
NAVWPNSTA – Naval Weapons Station

Table 4-1
General Response Actions, Technologies, and Process Options Compared to Screening Criteria

Section 5
IDENTIFICATION AND ANALYSIS OF REMOVAL ACTION ALTERNATIVES

Based on the RAOs presented in Section 3 and results of the technology screening described in Section 4, two alternatives were identified for the removal action at SWMU 24:

- Alternative 1, no action
- Alternative 2, excavation with off-site disposal

Generally, two or more alternatives are evaluated in addition to the no action alternative. Because this removal action only addresses risk to ecological receptors from contaminated soil at or near the ground surface, most of the technologies considered were eliminated in the technology-screening stage. The no action alternative is evaluated for comparison purposes only. The two alternatives are described and evaluated based on effectiveness, implementability, and cost in the following sections.

Section 4 2 presents some of the factors considered under each screening criterion. To evaluate the effectiveness of the removal alternatives, additional consideration was given to the overall protection of human health and the environment, compliance with ARARs and other guidance, and the long- and short-term effectiveness. Evaluation of the implementability of the removal alternative included consideration of the technical feasibility, commercial availability, administrative feasibility, and public acceptance. Cost evaluation of the removal alternatives was based primarily on estimates calculated using the Remedial Action Cost Engineering and Requirements (RACER) system developed by the U.S. Air Force. Appendix C provides supporting cost information.

5.1 ALTERNATIVE 1, NO ACTION

This alternative is included for comparison purposes only. It does not include any action to remove or prevent exposure to lead-impacted soil.

5.1.1 Effectiveness

This alternative would not reduce the risk of exposure to contaminated soil at the site and would not meet the RAO. Toxicity, mobility, and volume of lead would not be reduced. The no action alternative does not activate ARARs.

5.1.2 Implementability

This alternative is technically feasible because it requires no action. However, this alternative is expected to be unacceptable to the state and the public.

5.1.3 Cost

No costs are associated with this alternative.

5.2 ALTERNATIVE 2, EXCAVATION WITH OFF-SITE DISPOSAL

Alternative 2 involves the excavation of soil containing lead at concentrations above the cleanup goal of 500 mg/kg. Under this alternative, it is assumed that the excavated soil would be transported and disposed at an appropriate permitted landfill. The excavation would be backfilled with clean, imported soil to restore the affected area to a condition comparable with surrounding area conditions.

5.2.1 Description

Under Alternative 2, soil with lead concentrations above the proposed cleanup goal would be excavated continuously (i.e., not in lifts) and disposed at a permitted landfill. Figures 2-5 and 2-6 show the approximate limits of the excavation areas, delineated by the 500 mg/kg isoconcentration line for lead in soil.

Contaminated soil would be excavated between 1 to 2 feet bgs, although the actual excavation depth would be determined depending upon confirmation sampling results. Following excavation, clean backfill would be used to restore the site to original grade.

5.2.1.1 EXCAVATION

Based on current analytical data and interpretation of the extent of soil contamination (Section 2.3), the excavation would consist of approximately 450 bank cubic yards (bcy) (in-place soil volume) at SWMU 24. Excavation and removal of the contaminated soil would be performed using standard construction equipment (e.g., backhoes and front-end loaders). Although not expected to be necessary, dust monitoring would be initiated if considered necessary. It is not anticipated that excavation activities would be required near Building 95.

5.2.1.2 CONFIRMATION SOIL SAMPLING

Confirmation sampling would be performed to establish concentrations of lead for soil remaining in place after excavation has been completed. The field sampling design, including proposed locations of confirmation samples, would be included in the project work plan prepared by the RAC. Final confirmation sampling locations would be recorded using surveying techniques. For cost estimating purposes, it was assumed that one confirmation sample would be collected for every 10- by 10-foot area. Approximately 63 confirmation samples would be collected from around the base and perimeter of the excavation. It is assumed that the confirmation samples would be analyzed for total lead using U.S. EPA Method 6010B.

Analytical results from confirmation sampling would be compared to the proposed cleanup goal. Based on this comparison, a decision to terminate excavation, if feasible, would be made. Additional confirmation sampling would be required if the decision were made to continue excavation.

The RAC may choose to collect samples prior to excavation. This alternate approach may eliminate the potential for multiple excavation/confirmation sampling rounds, but would probably require more sampling.

5.2.1.3 BACKFILLING AND REVEGETATION

When the results of the confirmation sampling analyses indicate that the soil containing lead at concentrations exceeding the proposed cleanup goal has been removed, the excavation would be backfilled with clean fill material and compacted to original grade. The site would be allowed to naturally return to its prior condition, which is mostly bare soil and gravel, with ruderal vegetation.

5.2.1.4 SOIL PROFILING AND DISPOSAL

Excavated soil would be stockpiled on and covered with plastic (minimum 20-millimeter thickness) until it can be sampled and classified for appropriate disposal. Approximately every 125 loose cubic yards (lcy) (lcy is defined as a 25 percent swell factor of the soil once it is removed from the excavation) of stockpiled soil would be analyzed for total metals and leaching potential of metals using the TCLP (U.S. EPA Method 1311). This quantity might also be analyzed for contaminant soluble threshold limit concentration (STLC) values using California Waste Extraction Test (WET) methods. Soil would be transported and disposed at a U.S. EPA-certified disposal facility.

5.2.2 Effectiveness

Alternative 2 is considered to be reliable and effective. Specific discussion of the effectiveness of this alternative is provided in the following sections.

5.2.2.1 COMPLIANCE WITH ARARs

This alternative would comply with all identified ARARs. The primary ARARs for Alternative 2 include the following:

- RCRA hazardous waste requirements at Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100
- Characterization of solid waste as toxic based on TCLP at 40 C.F.R. § 261.24(a) and Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B)
- Cal. Fish & Game Code § 3005(a) regarding the taking of birds and mammals
- RCRA on-site waste generation at Cal. Code Regs. tit. 22, §§ 66262.10(a), 66262.11, 66264.13(a) and (b)
- RCRA hazardous waste accumulation requirements at Cal. Code Regs. tit. 22, § 66262.34
- RCRA staging pile at 40 C.F.R. § 264.554
- SCAQMD Rule 403 as a potentially applicable federal ARAR

5.2.2.2 LONG-TERM EFFECTIVENESS

Alternative 2 would be very effective over the long term. All lead-impacted soil above the cleanup goal would be removed from the area. This would reduce the potential risk to ecological receptors from lead in soil at the site. Although implementation of Alternative 2

would temporarily disrupt the local environment, the site would be restored to its original state in a relatively short period of time by placing clean backfill in the excavation

Waste handling and landfilling technology is well developed under Alternative 2 for excavated soil disposition. However, off-site disposal of soil classified as hazardous waste cannot be considered permanent remediation of the contaminated material because the excavated soil would not be treated to reduce lead concentrations. There would be some degree of uncertainty regarding potential future liability if excavated soil were to be disposed as hazardous waste at an off-site facility.

5.2.2.3 REDUCTION OF TOXICITY, MOBILITY, AND VOLUME (THROUGH TREATMENT)

Alternative 2 would reduce toxicity at the site by physically removing soil impacted by lead at concentrations that could present unacceptable risk to ecological receptors. Excavation and removal of lead-impacted soil would also effectively reduce the potential mobility and volume of contaminants at the site. However, no treatment of contaminated soil occurs; it is transferred to an approved disposal facility.

5.2.2.4 SHORT-TERM EFFECTIVENESS

According to U.S. EPA guidance, the short-term effectiveness criterion addresses the effects of the alternative during implementation before the removal objectives have been met (U.S. EPA 1993). The primary considerations of this criterion are protection of the community, protection of workers, and environmental impacts that occur during implementation and until the removal action is completed

Potential exposure and protection procedures for workers engaged in construction activities would be addressed in the site-specific safety and health plan. During excavation activities, measures would be taken to reduce fugitive dust emissions, if encountered, and the associated impacts on workers. All workers within the work zone would wear appropriate safety equipment and take appropriate safety measures.

Heavy equipment would conform to Occupational Safety and Health Administration (OSHA) specifications. Excavation areas, soil stockpile areas, and other work areas would be properly delineated to limit access to authorized personnel. Only authorized and trained personnel would operate the heavy equipment.

If soil transport by truck is considered necessary, some or all of the following safety measures would be implemented to limit short-term risks. The trucks may be covered with tarps and their load height limited. Truck traffic could be limited to daylight, off-peak hours. Emergency spill containment and cleanup contingency planning should also be incorporated into the project work plan to minimize the potential of exposure to impacted soil from traffic-related accidental spillage.

5.2.3 Implementability

This alternative can be readily implemented at areas where no surface structures are located. The following subsections further discuss the implementability of this alternative.

5.2.3.1 TECHNICAL FEASIBILITY

Alternative 2 is technically feasible and does not require special techniques, material, permits, or labor for excavation. Conventional earth-moving equipment can be used during the excavation, off-site disposal activities, and backfilling of the excavation. The site is accessible and relatively flat. In addition, if subsurface utilities are encountered, they will be temporarily rerouted during excavation and then restored after completion of the removal action.

The actual volume of soil that can be feasibly excavated would be contingent on field conditions, including foundation considerations, utilities, pipes, and other subsurface features. Depth to groundwater, approximately 21 feet bgs, is not expected to be a factor during excavation activities. Excavation would be conducted in a manner that ensures worker safety.

5.2.3.2 ADMINISTRATIVE FEASIBILITY

Alternative 2 is administratively feasible. Under CERCLA, only substantive provisions of requirements identified as ARARs apply to actions conducted on-site. Administrative or procedural requirements such as permits are not required. However, because this alternative may involve the handling of hazardous waste off-site, administrative requirements and regulations, such as Department of Transportation hazardous waste manifests, must be met.

5.2.3.3 AVAILABILITY OF SERVICES AND MATERIALS

The removal of contaminated soil by excavation is accomplished by using a variety of conventional and readily available equipment, such as backhoes and front-end loaders. This alternative can be implemented using standard transportation and disposal practices. Skilled workers, equipment, and material are readily available.

Several U.S. EPA-certified disposal facilities are located in Utah, California, and Arizona. These facilities will accept RCRA hazardous waste, Cal-EPA non-RCRA hazardous waste, nonhazardous waste, and inert material. Transportation of the contaminated soil to these facilities would be provided by an appropriately licensed waste-hauling company.

5.2.3.4 STATE AND COMMUNITY ACCEPTANCE

It is anticipated that Alternative 2 will receive acceptance from the state regulatory agencies and the local community. State and community concerns were addressed following the public comment period and review of the EE/CA by the RAB, Cal-EPA DTSC, RWQCB, and other agency and public representatives. Limitations arising from public comments and state review will be considered at that time.

5.2.4 Cost

The cost estimate for Alternative 2 was developed based on the estimated extent of soil containing lead at concentrations above the cleanup goal (Section 3.5). A project start

date of July 2002 and project duration of 3 weeks are assumed for the cost estimate. The cost evaluation is based on estimates for capital costs and includes costs for design, construction, equipment, and mobilization. There are no annual operation and maintenance (O&M) costs. Table 5-1 describes the major cost items and the estimated costs. Appendix C presents supporting cost information.

The cost estimate was generated using the RACER system developed by the U.S. Air Force. RACER cost models are based on generic engineering solutions for environmental projects, technologies, and processes. These solutions are derived from historical project information, government laboratories, construction management agencies, vendors, contractors, and engineering analysis. For this alternative, RACER cost estimates have been made site specific by using cost information from similar projects conducted at NAVWPNSTA Seal Beach (i.e., laboratory analyses costs during CLEAN site characterization activities and transportation and disposal costs for soil at a Class I landfill in Utah). It was assumed that the excavation will be conducted continuously, and professional labor has been estimated at a high rate. During implementation of this removal alternative, cost savings may be accomplished by using clean, on-station fill materials generated during other removal/remedial actions, if available.

This cost estimate is for guidance in project evaluation and implementation. It was prepared from information available at the time of publication. The final cost of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule, the company selected for final project implementation, and other variable factors. As a result, the final project cost could vary from the estimates presented herein. The final project cost would also depend on the actual volume of soil removed.

Table 5-1
Cost Estimate for Alternative 2, Excavation With Off-Site Disposal

Description	Cost
Direct capital costs	
Mobilization/demobilization	$2,300
Clear and grub (0.15 acre)	$500
Excavation (450 bcy) and backfill (575 lcy)	$7,900
Load and transport excavated material for disposal (575 lcy)	$35,600
Confirmation soil sampling (one sample per 10- by 10-foot area + 20 percent for QC = 76 samples analyzed for total lead (U.S. EPA Method 7000 series)	$4,900
Profile soil sampling for disposal (one composite sample per 125 lcy = 4 samples analyzed for total metals [U.S. EPA Method 6010B/7000 series], TCLP metals [U.S. EPA Method 1311 and U.S. EPA Method 6010B/7000 series], and STLC [California WET])	$2,600
Professional labor (project oversight)	$7,000
Total direct capital costs (based on January 2001 cost database)	**$60,800**
Indirect costs (e.g., overhead, profit) (based on January 2001 cost database)	**$33,200**
Contingency[a]	**$18,800**
Escalation[b]	**$5,100**
TOTAL COST (start date of July 2002)	**$117,900**
NET PRESENT VALUE (January 2001 dollars)	**$110,200**

Notes:
[a] a 20 percent contingency has been added to cover cost increases that may result from unforeseen conditions and changes that typically occur on removal and remediation projects
[b] escalation modifies the costs in the RACER database from January 2001 to the assumed project start date of July 2002

Acronyms/Abbreviations:
bcy – bank cubic yard
lcy – loose cubic yard
QC – quality control
RACER – Remedial Action Cost Engineering and Requirements
STLC – soluble threshold limit concentration
TCLP – toxicity characteristic leaching procedure
U.S. EPA – United States Environmental Protection Agency
WET – (California) Waste Extraction Test

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Section 6
COMPARATIVE ANALYSIS OF REMOVAL ACTION ALTERNATIVES

In this section, the alternatives analyzed in Section 5 are compared to evaluate their relative performance in relation to each of three criteria. The criteria used in this comparison are the same as those used to analyze the alternatives: effectiveness, implementability, and cost.

6.1 EFFECTIVENESS OF ALTERNATIVES

Effectiveness was evaluated based on the overall protection of human health and the environment (through assessment of long-term effectiveness and permanence, compliance with ARARs, and short-term effectiveness) and reduction of toxicity, mobility, or volume through treatment. Alternative 2, excavation with off-site disposal, is expected to be effective in meeting the RAOs because removal of soil with lead concentrations above the proposed cleanup goal would be directly observed and confirmed by soil sampling. Alternative 1, no action, would not reduce the toxicity, mobility, or volume of lead in soil at SWMU 24.

6.2 IMPLEMENTABILITY OF ALTERNATIVES

Both alternatives are considered implementable. The technical feasibility is generally similar for both alternatives. Required materials and services would be available for both technologies.

Other implementability criteria, such as state and public acceptance, tend to have greater variability between the two alternatives. Alternative 2 is expected to be acceptable to regulatory agencies and the general public. Alternative 1, no action, would not be an acceptable alternative to the DON, regulatory agencies, or the public.

6.3 COST

Table 6-1 summarizes the total estimated costs to implement each alternative, which includes capital costs and indirect costs. These costs are shown as net present value. Under Alternative 2, there are no long-term O&M costs. Alternative 1, of course, has the lowest cost because no action to reduce the exposure of ecological receptors to lead-impacted soil would be implemented. However, as noted previously, this alternative does not comply with all RAOs for this project. Alternative 2 is effective in reducing the risk to ecological receptors.

Table 6-1
Total Costs of Removal Action Alternatives for SWMU 24

Alternative	Cost
Alternative 1, no action	$0
Alternative 2, excavation with off-site disposal	$110,200

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Section 7
RECOMMENDED REMOVAL ACTION ALTERNATIVE

This EE/CA was performed in accordance with current U.S. EPA and DON guidance documents for a non-time-critical removal action under CERCLA. The purpose of this EE/CA was to identify and analyze removal action alternatives to reduce the risk to ecological receptors from lead-impacted soil at SWMU 24. Because most of the potential technologies and process options were screened out, only two alternatives were identified and evaluated: Alternative 1 (no action) and Alternative 2 (excavation with off-site disposal).

Based on comparative analyses of the removal action alternatives discussed in Section 6, the recommended removal action is Alternative 2. Alternative 2 involves complete removal of soil containing lead concentrations above the cleanup goal. Removal of lead-impacted soil would be achieved by using earth-moving machinery to excavate the soil. Confirmation soil samples would be collected to verify that all soil with reported lead concentrations above the cleanup goal had been removed. Excavated soil would be transported to a permitted landfill for disposal. The site would be backfilled with clean soil, either imported or from another on-station location. A project work plan will be prepared by the RAC contractor that will take into consideration safety and health requirements and standard operating procedures.

This alternative is recommended because it greatly reduces risks to ecological receptors by completely removing soil with lead concentrations above the cleanup goal. Following implementation of this alternative, the land use would be unrestricted. This alternative meets the RAOs, complies with ARARs and other guidance, and is technically and administratively feasible. The materials to implement this alternative are commercially available. The cost for this alternative is comparable to similar removal actions previously conducted at this facility, and under this alternative there would be no unforeseen future costs. This alternative is expected to be acceptable to the state and community. Because the recommended removal action will cost less than $1 million, an action memorandum/removal action work plan will be prepared to document the final decision.

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Section 8
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U.S. EPA. *See* United States Environmental Protection Agency.

USGS. *See* United States Geological Survey.

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APPENDIX A

REFINED ECOLOGICAL RISK ASSESSMENT

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ACRONYMS/ABBREVIATIONS

AE	assimilation efficiency
ATSDR	Agency for Toxic Substances and Disease Registry
BTAG	Biological Technical Advisory Group
CLEAN	Comprehensive Long-Term Environmental Action Navy
CLT	central limit theorem
COPC	chemical of potential concern
CTO	contract task order
DTSC	(California Environmental Protection Agency) Department of Toxic Substances Control
EE/CA	engineering evaluation/cost analysis
EFA-West	Engineering Field Activity, West
EPC	exposure point concentration
ERA	ecological risk assessment
FOD	frequency of detection
FSI	focused site inspection
HQ	hazard quotient
kg	kilogram
LOAEL	lowest-observable-adverse-effect level
mg	milligram
mg/kg	milligrams per kilogram
mg/kg-day	milligrams per kilogram per day
NAVWPNSTA	Naval Weapons Station
NOAEL	no-observable-adverse-effect level
PRG	preliminary remediation goal
SDFF	stationary demilitarization furnace facility
SUF	site use factor
SWDIV	Southwest Division Naval Facilities Engineering Command
SWMU	solid waste management unit

TRV	toxicity reference value
95 UCL	95th percent upper confidence limit
UCL	upper confidence limit
ULBV	upper limit background value
U.S. EPA	United States Environmental Protection Agency

Appendix A
REFINED ECOLOGICAL RISK ASSESSMENT

This appendix summarizes the previous screening level ecological risk assessment performed at Solid Waste Management Unit (SWMU) 24, Naval Weapons Station Seal Beach. The risk assessment is then refined to include additional site-specific exposure estimates to calculate refined preliminary remediation goals (PRGs). The refined PRGs are evaluated to recommend a cleanup goal.

A1 SUMMARY AND CONCLUSIONS OF FOCUSED SITE INSPECTION PHASE II SCREENING LEVEL ERA

A screening level ecological risk assessment (ERA) was performed for contaminants present in soil at SWMU 24, Stationary Demilitarization Furnace. Except for copper and lead, contaminants were found to present no unacceptable ecological risk. The following description of SWMU 24 is summarized from the draft Focused Site Inspection (FSI) Phase II Report (CH2M Hill 2000).

The site is bounded to the east and south by agricultural fields and to the west by Building 95. Westminster Street is located 330 feet north of the site. The approximate dimensions of the site are 160 feet by 190 feet, representing 30,400 square feet (0.698 acre, 0.282 hectare). The stationary demilitarization furnace facility (SDFF) was used primarily from 1985 through 1994 to remove explosive residue from expended munitions. The facility was decommissioned in 1998; subsequently, the structures were demolished and removed. The area is generally flat with bare soil and gravel. The soils are primarily silts and clays. The depth to groundwater is approximately 21 feet below ground surface. The site offers a small, poor-quality habitat, due to the lack of vegetation and bare soil and gravel. Some ruderal vegetation was noted invading the site from the margins.

The FSI Phase II Report and Screening Level ERA (CH2M Hill 1999, 2000) indicate potential risk to ecological receptors from soil containing metals. Table A-1 summarizes the metals concentrations in soil from the FSI Phase II Report. Lead was considered the metal with greatest potential risk because its maximum concentration far exceeded the upper limit background value (ULBV) and the screening PRG protective of ecological receptors. The FSI Phase II Report indicated that cadmium, copper, mercury, nickel, selenium, and zinc were also sources of potential risk due to maximum concentrations exceeding respective ULBV and PRG values. Antimony was considered an additional source of potential risk because its maximum concentration exceeded the PRG; however, there is no ULBV value available for antimony. The report indicated that concentrations of antimony, cadmium, copper, nickel, selenium, and zinc were distributed similarly to lead, but concentrations of mercury were not distributed similarly to lead. No hazard quotients for SWMU 24 soil metals concentrations were presented in the report.

Table A-1
Summary of SWMU 24 FSI Phase II Report Concentrations of Metals in Soil[a]

Analyte	FOD (percent)	Minimum (mg/kg)	Maximum (mg/kg)	Mean (mg/kg)	Standard Deviation (mg/kg)	95 UCL (mg/kg)	ULBV[b] (mg/kg)	Percent of Samples > ULBV[b] (percent)
Aluminum	100	2,000	29,900	13,477	7675	14,785	36,271	0
Antimony	2	19	115	7.0	11	8.9	NA	NA
Arsenic	71	1.2	6.4	3.1	1.3	3.3	15.4	0
Barium	100	12	1,390	104	140	127	NA	NA
Beryllium	43	0.48	1.0	0.43	0.26	0.48	2.1	0
Cadmium	16	0.89	526	6.2	54	15	2.2	6
Chromium	100	2.8	36	19	8.4	20	NA	NA
Cobalt	99	2.3	15	7.9	3.6	8.5	NA	NA
Copper	100	4.2	1,110	43	113	63	39	20
Lead	100	1.1	4,060	98	446	171	35.7	28
Manganese	100	59	772	329	190	362	1,103	0
Mercury	31	0.020	0.56	0.037	0.064	0.048	0.30	1
Molybdenum	3	4.8	6.2	2.4	0.56	2.5	NA	NA
Nickel	74	2.7	36	13	7.5	14	32.5	1
Selenium	10	0.72	3.9	0.43	0.39	0.49	0.44	10
Silver	3	2.5	3	1.1	0.30	1.1	NA	NA
Thallium	17	1.1	1.9	0.73	0.35	0.79	NA	NA
Vanadium	100	5.9	70	36	18	39	86	0
Zinc	100	14	1130	94	119	114	177.2	4

Source: CH2M Hill 2000

Notes:
[a] number of samples is 95 for all metals, except lead is 104, and selenium is 94
[b] SWDIV 1997a,b

Acronyms/Abbreviations:
95 UCL -- 95 percent upper confidence limit of arithmetic mean
FOD – frequency of detection
FSI – focused site inspection
mg/kg – milligrams per kilogram
NA – not applicable, ULBV not available
SWMU – solid waste management unit
ULBV – upper limit background value

A2 REFINED ECOLOGICAL RISK ASSESSMENT FOR METALS IN SOIL

The FSI Phase II Report (CH2M Hill 2000) identified eight metals that exceeded available ULBV and screening level PRG values for ecological receptors. Copper and lead were noted as presenting the greatest potential risk to ecological receptors, where maximum concentrations significantly exceeded the ULBVs and screening level ecological PRGs. The refined ecological risk assessment presented in this report reevaluates the ecological risk attributable to metals in soil at SWMU 24, considering site-specific exposure analyses and additional ecological receptors.

The ecological risk assessment was refined to consider additional ecological receptors including raccoon (mammal, omnivore), American robin (bird, omnivore), and fox (mammal, carnivore), plants, soil invertebrates, and soil microbes. Addition of ecological receptors provides for a broader evaluation of the site's ecosystem. PRGs for lead concentrations in soil were developed from predictive exposure scenarios for these supplemental ecological receptors. Refined PRGs, based on a validation study and site-specific measurements of effects, were not prepared and investigations of site-specific effects were not conducted. Therefore, PRGs based on predictive exposure scenarios are expected to be conservative and would likely underestimate validation study-based PRGs.

A2.1 Review of Existing Data for Metals Concentrations in Soil

This review evaluates antimony, cadmium, copper, lead, mercury, nickel, selenium, and zinc, identified in the FSI Phase II Report as being the source of potential risk to ecological receptors (CH2M Hill 2000). Table A-1 tests the summary statistics presented in the FSI Phase II Report. The distribution of copper and lead are discussed below because the FSI Phase II Report suggested that these metals were of primary concern. The FSI Phase II Report indicated that most of the other metals followed similar distributions.

Soil copper and lead data are described herein with summary statistics, calculated with Microsoft® Excel. Probability density curves and Shipiro-Wilk's *W* test for normally distributed data were prepared with Analyze-it for Microsoft Excel.

A2.1.1 COPPER

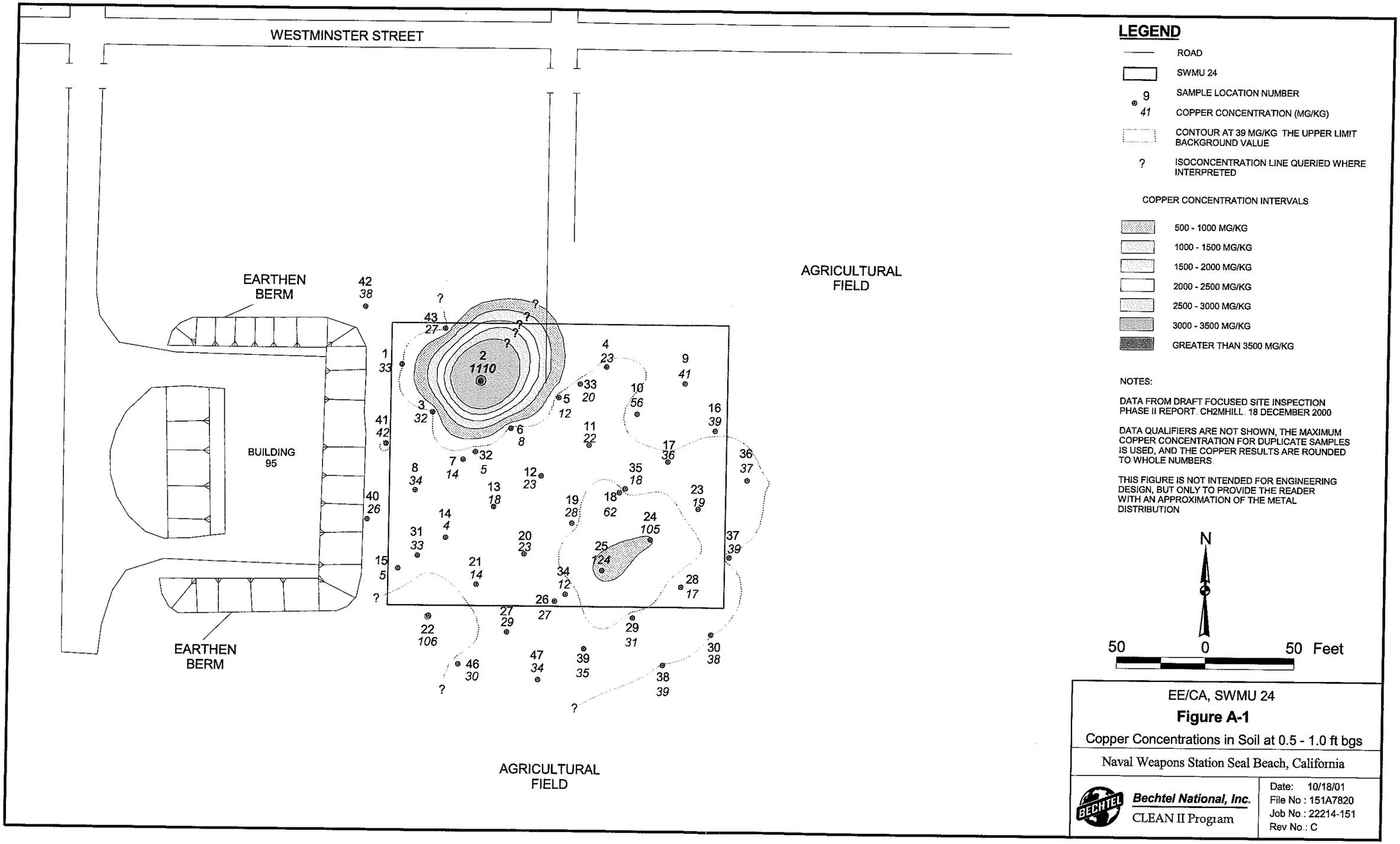
The 104 samples analyzed for copper concentrations in soil that were presented in the FSI Phase II Report (CH2M Hill 2000) are listed in Attachment A1, Table 1. As described in the FSI Phase II Report, duplicate samples were averaged providing a data set of 95 values: 45 of surface soil (0.5–1.0 feet), 43 of subsurface soil (2.0–2.5 feet), and 7 of subsurface soil (4.0–4.5 feet). Soil copper concentrations at the site ranged from 4.2 to 1,110 mg/kg. For comparison, the ULBV is 39 mg/kg (SWDIV 1997). Table A-2 shows the summary statistics calculated for copper. Figures A-1 and A-2 show the spatial distribution of copper.

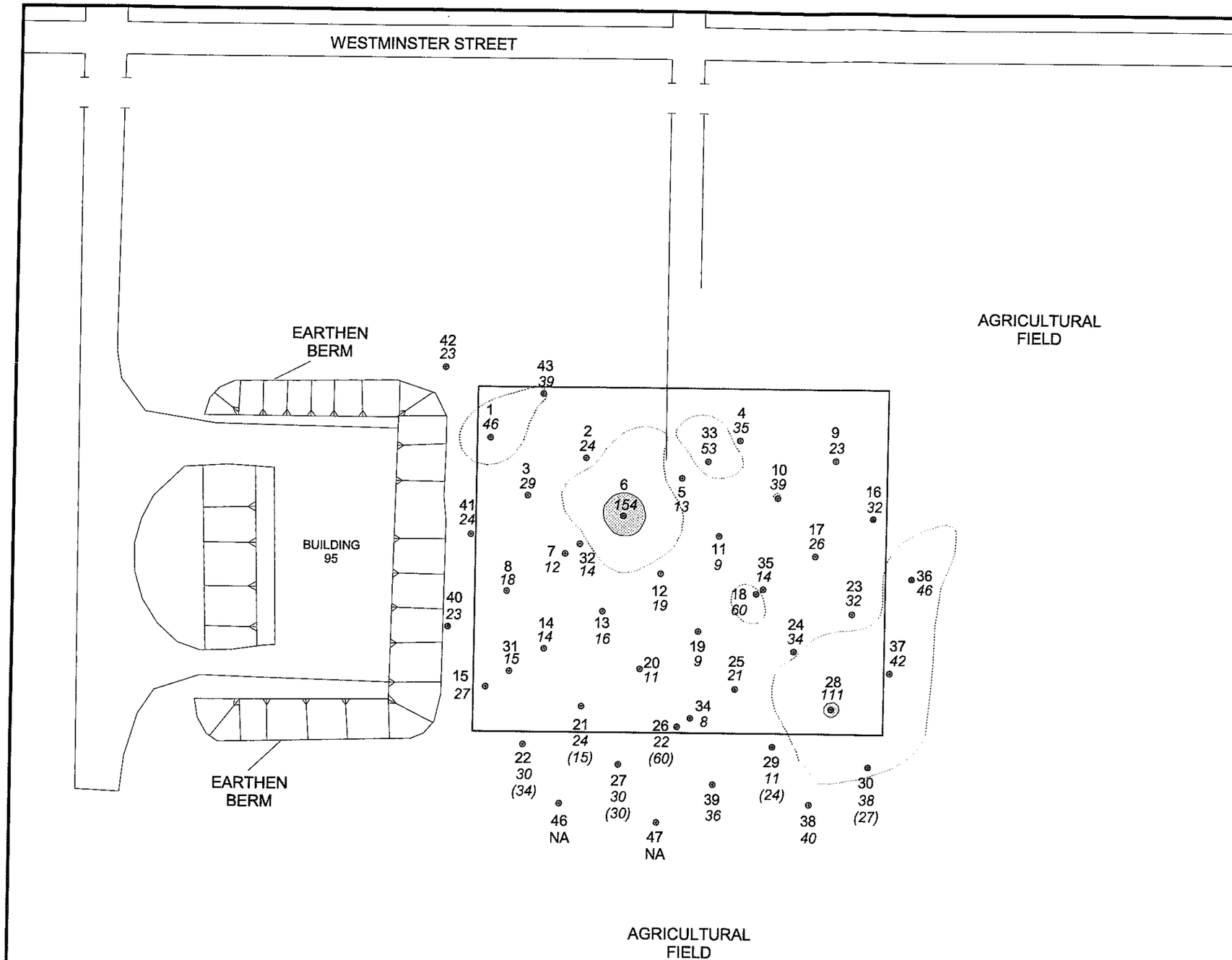
Table A-2
Summary Statistics for Soil Copper and Lead Data

	Copper Surface and Subsurface Soil Samples	Lead Surface and Subsurface Soil Samples
Number of data values	95	104
Number of detected data values	95	104
Maximum (mg/kg)	1,110	4,060
Minimum (mg/kg)	4.2	1.1
95th percentile (mg/kg)	105	138
Median (mg/kg)	27.5	18.0
95 UCL of median (mg/kg)	31.5	22.2
Skewness	9.3	3.0
Distribution	Nonparametric	Nonparametric
Shapiro-Wilk *p* value test fit for normal distribution	< 0.0001	< 0.0001
Shapiro-Wilk *p* value test fit for log-normal distribution	< 0.0001	< 0.0001
Mean, arithmetic (mg/kg)	43.2	98.1
Standard deviation (mg/kg)	113	446
Coefficient of variation (percent)	262	455
95 UCL of mean, Student's-*t*, (mg/kg)	62.5	171
95 UCL of mean, CLT (mg/kg)	62.3 [a]	170 [a]
95 UCL of mean, adjusted CLT (mg/kg)	74.2	184
95 UCL of mean, Land's *H*-statistic	41.9	– [b]
EPC (mg/kg)	62.3	170

Notes:
[a] best estimate of 95 UCL of mean for this data set
[b] not calculated, out of range of *H*-statistic table values (Gilbert 1987)

Acronyms/Abbreviations:
95 UCL – 95 percent upper confidence limit of arithmetic mean
CLT – central limit theorem
EPC – exposure point concentration
mg/kg – milligrams per kilogram
UCL – upper confidence limit


WESTMINSTER STREET
EARTHEN BERM
BUILDING 95
EARTHEN BERM
AGRICULTURAL FIELD
AGRICULTURAL FIELD
LEGEND
ROAD
SWMU 24
SAMPLE LOCATION NUMBER
COPPER CONCENTRATION (MG/KG)
CONTOUR AT 39 MG/KG THE UPPER LIMIT BACKGROUND VALUE
ISOCONCENTRATION LINE QUERIED WHERE INTERPRETED
COPPER CONCENTRATION INTERVALS
500 - 1000 MG/KG
1000 - 1500 MG/KG
1500 - 2000 MG/KG
2000 - 2500 MG/KG
2500 - 3000 MG/KG
3000 - 3500 MG/KG
GREATER THAN 3500 MG/KG
NOTES:
DATA FROM DRAFT FOCUSED SITE INSPECTION PHASE II REPORT. CH2MHILL. 18 DECEMBER 2000
DATA QUALIFIERS ARE NOT SHOWN, THE MAXIMUM COPPER CONCENTRATION FOR DUPLICATE SAMPLES IS USED, AND THE COPPER RESULTS ARE ROUNDED TO WHOLE NUMBERS.
THIS FIGURE IS NOT INTENDED FOR ENGINEERING DESIGN, BUT ONLY TO PROVIDE THE READER WITH AN APPROXIMATION OF THE METAL DISTRIBUTION
N
50 0 50 Feet
EE/CA, SWMU 24
Figure A-1
Copper Concentrations in Soil at 0.5 - 1.0 ft bgs
Naval Weapons Station Seal Beach, California
Bechtel National, Inc.
CLEAN II Program
Date: 10/18/01
File No : 151A7820
Job No : 22214-151
Rev No : C



LEGEND

- ROAD
- SWMU 24
- 21 SAMPLE LOCATION NUMBER
- 24 COPPER CONCENTRATION (MG/KG) AT 2.0-2.5 FT BGS
- (15) COPPER CONCENTRATION (MG/KG) AT 4.0-4.5 FT BGS
- CONTOUR AT 39 MG/KG THE UPPER LIMIT BACKGROUND VALUE

COPPER CONCENTRATION INTERVALS AT 2.0 - 2.5 FT BGS

- 100 - 200 MG/KG
- 200 - 300 MG/KG
- 300 - 400 MG/KG
- 400 - 500 MG/KG
- 500 - 1000 MG/KG
- GREATER THAN 1000 MG/KG

NOTES:

DATA FROM DRAFT FOCUSED SITE INSPECTION PHASE II REPORT. CH2MHILL. 18 DECEMBER 2000.

DATA QUALIFIERS ARE NOT SHOWN, THE MAXIMUM COPPER CONCENTRATION FOR DUPLICATE SAMPLES IS USED, AND THE COPPER RESULTS ARE ROUNDED TO WHOLE NUMBERS.

NA - NOT ANALYZED FOR COPPER AT THIS LOCATION

THIS FIGURE IS NOT INTENDED FOR ENGINEERING DESIGN, BUT ONLY TO PROVIDE THE READER WITH AN APPROXIMATION OF THE METAL DISTRIBUTION

N

50 0 50 Feet

EE/CA, SWMU 24

Figure A-2

Copper Concentrations in Soil at 2.0 - 2.5 ft and 4.0 - 4.5 ft bgs

Naval Weapons Station Seal Beach, California

Bechtel National, Inc.
CLEAN II Program

Date: 10/18/01
File No : 151A7821
Job No : 22214-151
Rev No : B

Review of the total data set indicates that the copper results are positively skewed and do not fit a probability density function of a normal distribution ($W = 0.1984$, $P < 0.0001$) (Figure A-3). The data were log transformed and again evaluated for distribution characteristics (Figure A-4). The log-transformed data are not normally distributed ($W = 0.9128$, $P < 0.0001$).

A2.1.2 LEAD

The 113 samples analyzed for lead concentrations in soil at the site that were presented in the FSI Phase II Report (CH2M Hill 2000) are listed in Attachment A1, Table 1. As described in the FSI Phase II Report, duplicate samples were averaged providing a data set of 104 values: 50 of surface soil (0.5–1.0 feet), 47 of subsurface soil (2.0–2.5 feet), and 7 of subsurface soil (4.0–4.5 feet). Lead concentrations ranged from 1.1 to 4,060 mg/kg. For comparison, the ULBV is 35.7 mg/kg (SWDIV 1997). Table A-2 shows the summary statistics calculated for lead. Figures A-5 and A-6 show the spatial distribution of lead.

Review of the total data set indicates that the lead results are positively skewed and do not fit a probability density function of a normal distribution ($W = 0.1896$, $P < 0.0001$) (Figure A-7). The data were log transformed and again evaluated for distribution characteristics (Figure A-8). The log-transformed data are not normally distributed ($W = 0.9361$, $P < 0.0001$).

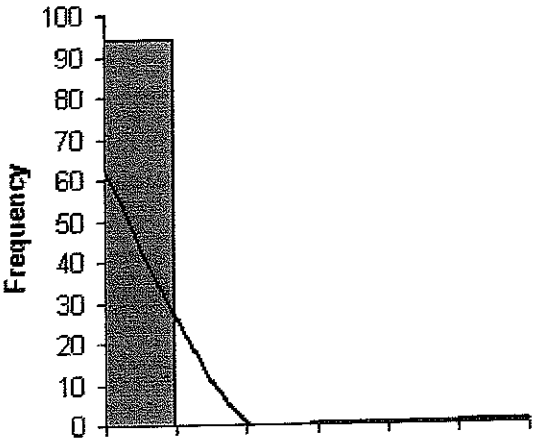
A2.1.3 EXPOSURE POINT CONCENTRATION

The arithmetic mean is the desired statistic to represent the exposure point concentration (EPC). To account for uncertainties related to estimating the arithmetic mean, the 95th percent upper confidence limit (95 UCL) of the mean is used as the EPC. Calculation of the 95 UCL depends on the distribution of the data and the number of data values (n) available; however, when n is greater than 100, the UCL calculations produce similar estimates (U.S. EPA 1997a). The 95 UCL calculations evaluated in this report are presented below:

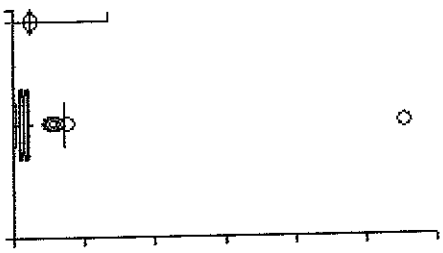
95 UCL Calculation	Description
$\bar{x} + t_{(1-\alpha\ n-1)}\left(\frac{s}{\sqrt{n}}\right)$	Using Student's-t distribution. For use when data fit normal distribution (Gilbert 1987; U.S. EPA 1992, 1997a).
$\bar{x} + z_{(1-\alpha)}\left(\frac{s}{\sqrt{n}}\right)$	Using standard normal distribution. For use when distribution of the data is unknown or when n is large (> 30) (Gilbert 1987, U.S. EPA 1997a). Central limit theorem (CLT) (U.S. EPA 1997a).

Test: **Continuous summary descriptives** analyzed with: Analyze-it + General 1.62

Copper Avg Dup(mg/kg)

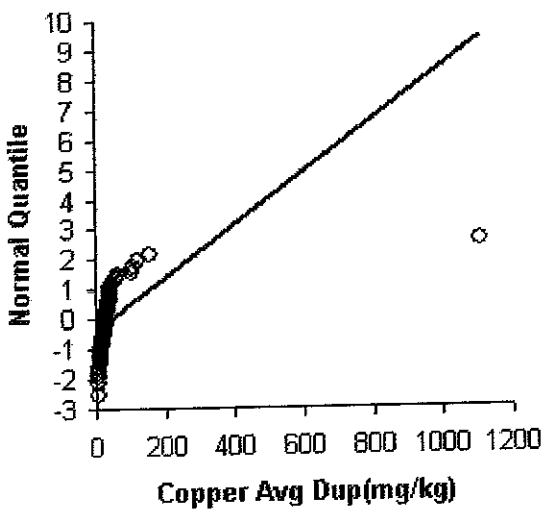


n	95	
Mean	43.215	
95% CI	20.129	to 66.301
Variance	12843.0970	
SD	113.3274	
SE	11.6271	
CV	262%	



Median	27.500	
96.0% CI	23.300	to 31.600
Range	1105.8	
IQR	20.5	

Percentile	
2.5th	4.660
25th	17.700
50th	27.500
75th	38.200
97.5th	142.000

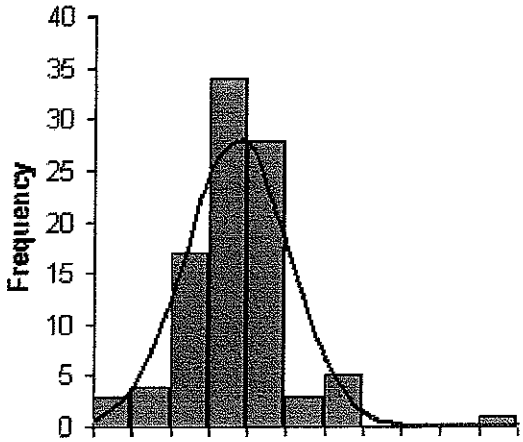


	Coefficient	p
Shapiro-Wilk	0.1984	<0.0001
Skewness	9.0769	<0.0001
Kurtosis	85.9566	<0.0001

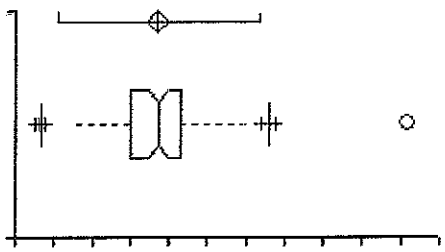
Figure A-3
Soil Copper Data Distribution, Surface and Subsurface Results

Test **Continuous summary descriptives** analyzed with: Analyze-it + General 1.62

Log Copper Avg Dup(mg/kg)

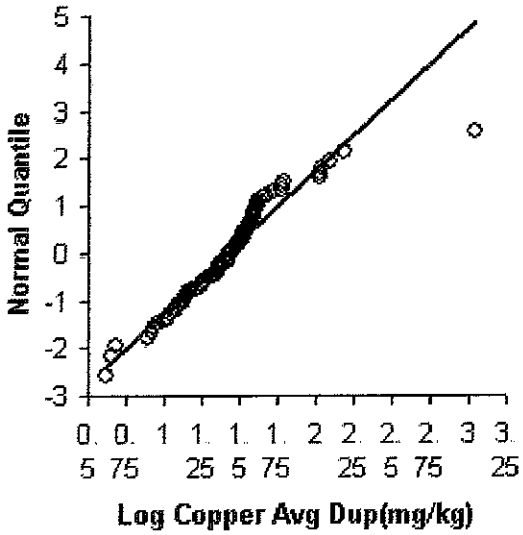


n	95
Mean	1.425
95% CI	1.357 to 1.493
Variance	0.1113
SD	0.3336
SE	0.0342
CV	23%



Median	1.439
96.0% CI	1.367 to 1.500
Range	2.422073688
IQR	0.334091075

Percentile	
2.5th	0.668
25th	1.248
50th	1.439
75th	1.582
97.5th	2.150



	Coefficient	p
Shapiro-Wilk	0.9128	<0.0001
Skewness	1.0369	0.0002
Kurtosis	5.5043	<0.0001

Figure A-4
Soil Copper Data Distribution – Log Transformed, Surface and Subsurface Results

$$\bar{x} + z_{(1-\alpha\ adj)}\left(\frac{s}{\sqrt{n}}\right)$$

where

$$z_{(1-\alpha\ adj)} = z_{(1-\alpha)} + \frac{\acute{k}_3}{6\sqrt{n}}\left(1 + 2z_{(1-\alpha)}{}^2\right)$$

Using standard normal distribution with adjustment for skewness of data. For use when distribution of the data is unknown or when n is large (> 30) (U.S. EPA 1997a). Adjusted CLT (Chen 1995, U.S. EPA 1997a)

$$e^{\left(\bar{x}+0.5s^2+\frac{sH}{\sqrt{n-1}}\right)}$$

Uses Land's H-statistic (Gilbert 1987). For use when data fit log-normal distribution (Gilbert 1987, U.S. EPA 1992).

where

$\bar{x}$ = arithmetic mean

t = Student's-t distribution

$(1-\alpha)$ = one-tail quantile of distribution

s = standard deviation of sample

n = sample size

z = standard normal distribution

$\acute{k}_3$ = coefficient of skewness

e = base of natural logarithm

H = Land's H-statistic

For copper and lead, the EPCs for the combined surface and subsurface soil data were represented by the CLT-based 95 UCL (Table A-2) because n is large and the distributions are unknown (n = 95 for copper, n = 104 for lead). For the other soil metals, the EPC was represented by the 95 UCL for surface and subsurface data as presented in the FSI Phase II Report (CH2M Hill 2000) and summarized in Table A-1 of this report.

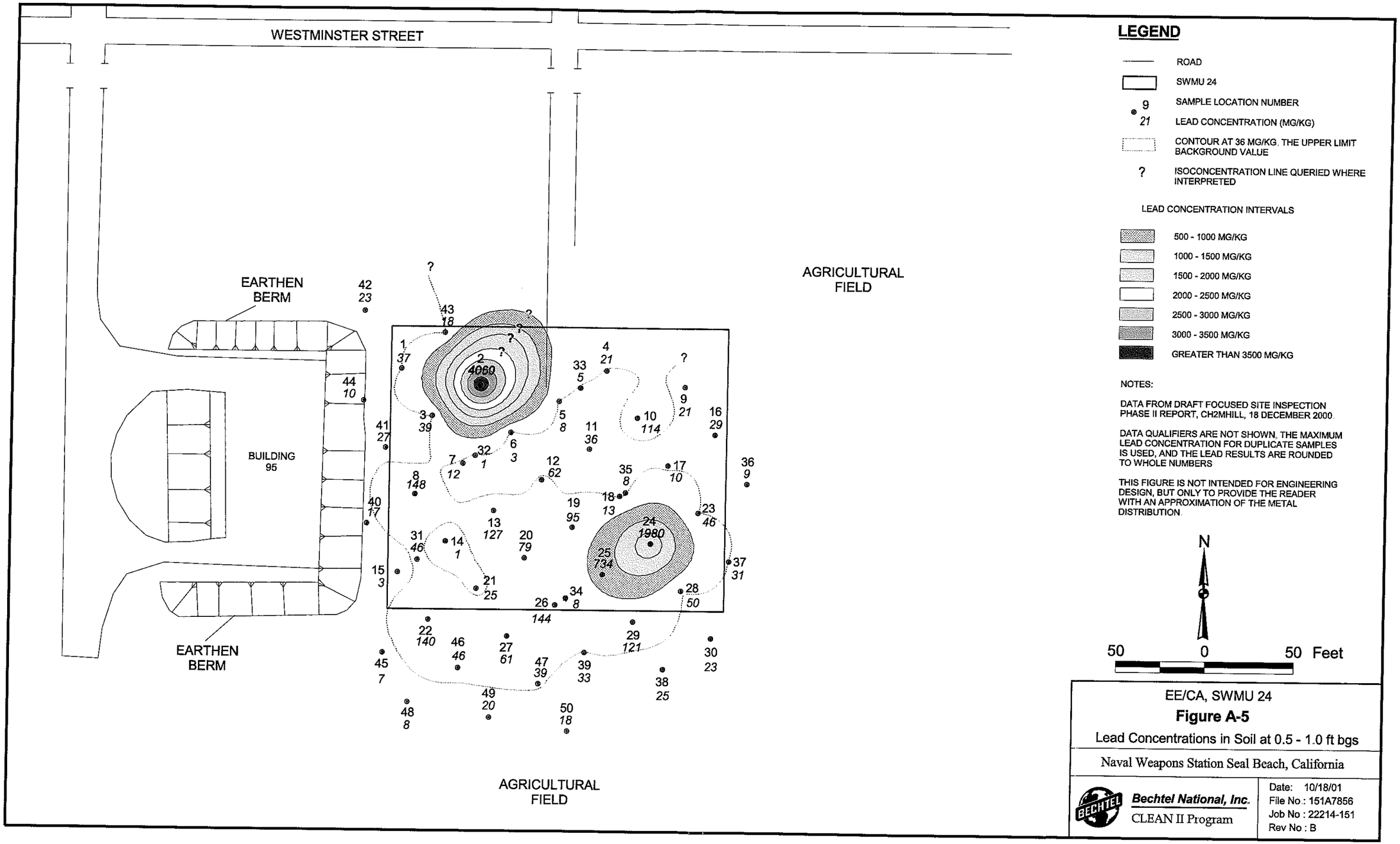
This site was evaluated using the EPC for the combined surface and subsurface soil data because the site conceptual model includes burrowing animals, such as the California ground squirrel.

A2.2 Exposure Scenario for Wildlife Receptors

Exposure parameters for wildlife receptors are listed in Table A-3. Most exposure parameters were estimated with values presented in United States Environmental Protection Agency (U.S. EPA) Wildlife Exposure Factors Handbook (U.S. EPA 1993).

Exposure dose estimates were calculated using

$$Exposure\ Dose = \sum_{i=1}^{n}\left(\frac{Concentration_{media} * Ingestion\ Rate * Fractional\ Intake * AE * SUF}{Body\ Weight}\right)$$



EE/CA, SWMU 24

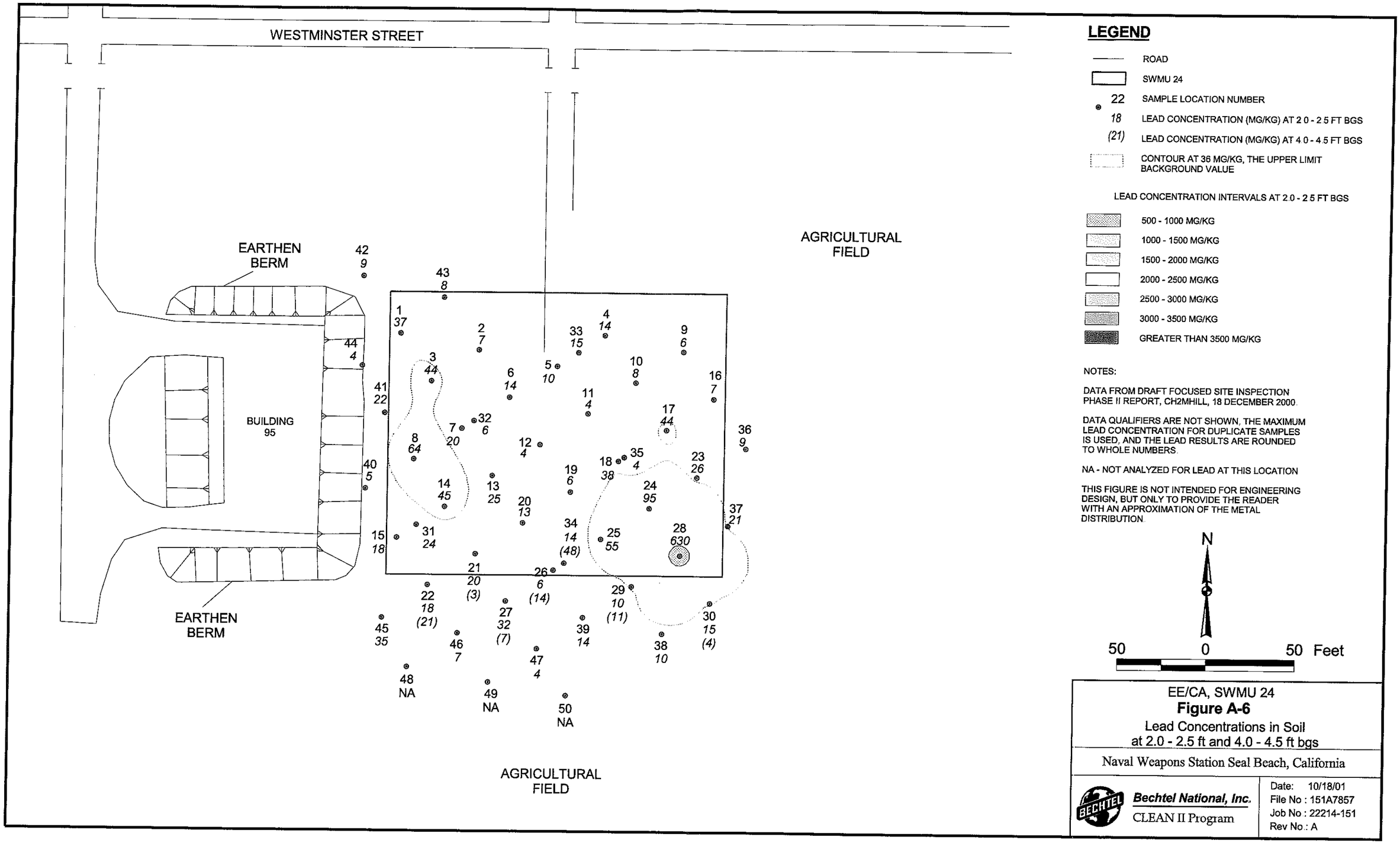
Figure A-5

Lead Concentrations in Soil at 0.5 - 1.0 ft bgs

Naval Weapons Station Seal Beach, California

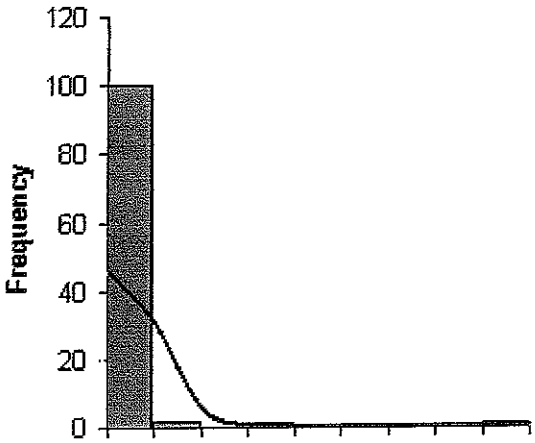
Bechtel National, Inc.
CLEAN II Program

Date: 10/18/01
File No.: 151A7856
Job No.: 22214-151
Rev No.: B

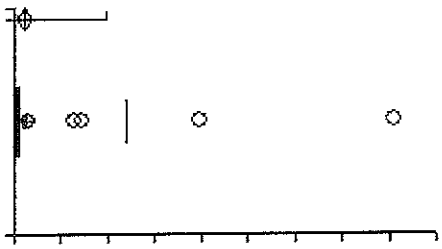

WESTMINSTER STREET
AGRICULTURAL FIELD
EARTHEN BERM
BUILDING 95
EARTHEN BERM
AGRICULTURAL FIELD
LEGEND
ROAD
SWMU 24
22 SAMPLE LOCATION NUMBER
18 LEAD CONCENTRATION (MG/KG) AT 2.0 - 2.5 FT BGS
(21) LEAD CONCENTRATION (MG/KG) AT 4.0 - 4.5 FT BGS
CONTOUR AT 36 MG/KG, THE UPPER LIMIT BACKGROUND VALUE
LEAD CONCENTRATION INTERVALS AT 2.0 - 2.5 FT BGS
500 - 1000 MG/KG
1000 - 1500 MG/KG
1500 - 2000 MG/KG
2000 - 2500 MG/KG
2500 - 3000 MG/KG
3000 - 3500 MG/KG
GREATER THAN 3500 MG/KG
NOTES:
DATA FROM DRAFT FOCUSED SITE INSPECTION PHASE II REPORT, CH2MHILL, 18 DECEMBER 2000.
DATA QUALIFIERS ARE NOT SHOWN, THE MAXIMUM LEAD CONCENTRATION FOR DUPLICATE SAMPLES IS USED, AND THE LEAD RESULTS ARE ROUNDED TO WHOLE NUMBERS.
NA - NOT ANALYZED FOR LEAD AT THIS LOCATION
THIS FIGURE IS NOT INTENDED FOR ENGINEERING DESIGN, BUT ONLY TO PROVIDE THE READER WITH AN APPROXIMATION OF THE METAL DISTRIBUTION.
N
50 0 50 Feet
EE/CA, SWMU 24
Figure A-6
Lead Concentrations in Soil
at 2.0 - 2.5 ft and 4.0 - 4.5 ft bgs
Naval Weapons Station Seal Beach, California
Bechtel National, Inc.
CLEAN II Program
Date: 10/18/01
File No : 151A7857
Job No : 22214-151
Rev No.: A

Test **Continuous summary descriptives** analyzed with: Analyze-it + General 1.62

Lead Avg Dup(mg/kg)

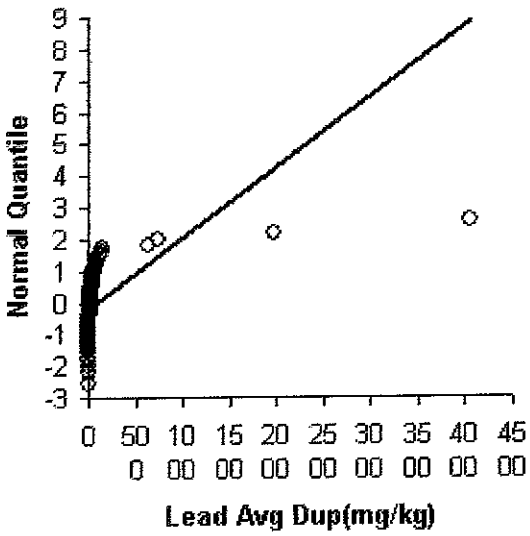


n	104	
Mean	98.082	
95% CI	11.295	to 184 869
Variance	199150.0769	
SD	446.2623	
SE	43.7596	
CV	455%	



Median	17.950	
96.1% CI	13.700	to 23.400
Range	4058.9	
IQR	30.475	

Percentile	
2.5th	2.088
25th	8.400
50th	17.950
75th	38.875
97.5th	1201 250

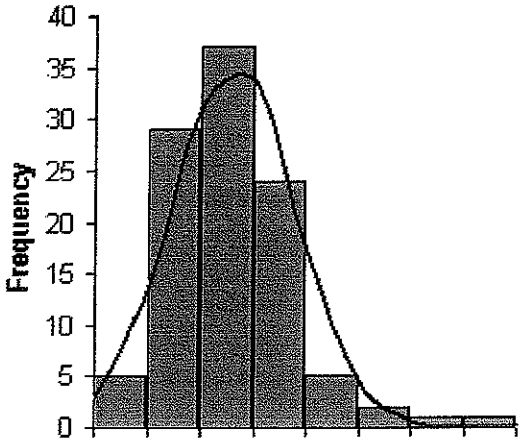


	Coefficient	p
Shapiro-Wilk	0.1896	<0 0001
Skewness	7.7094	<0.0001
Kurtosis	64.1625	<0.0001

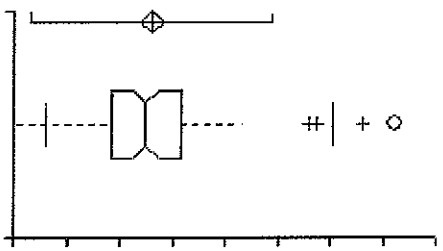
Figure A-7
Soil Lead Data Distribution, Surface and Subsurface Results

Test **Continuous summary descriptives** analyzed with Analyze-it + General 1.62

Log Lead Avg Dup(mg/kg)

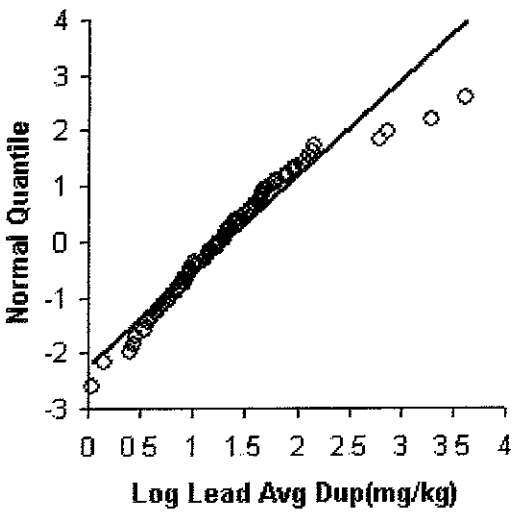


n	104	
Mean	1.299	
95% CI	1.186	to 1.412
Variance	0.3392	
SD	0.5824	
SE	0.0571	
CV	45%	



Median	1.254	
96.1% CI	1.137	to 1.369
Range	3.567133348	
IQR	0.665384352	

Percentile	
2.5th	0.304
25th	0.924
50th	1.254
75th	1.590
97.5th	3.027



	Coefficient	p
Shapiro-Wilk	0.9361	<0.0001
Skewness	1.1181	<0.0001
Kurtosis	2.9422	0.0007

Figure A-8
Soil Lead Data Distribution – Log Transformed, Surface and Subsurface Results

Table A-3
Wildlife Exposure Factors

Type of Exposure Parameter	California Ground Squirrel	Mourning Dove	Raccoon	American Robin	Red Fox	American Kestrel
Body weight (kg)	0.5[a]	0.13[b]	5.12[c]	0.081[c]	4.535[c]	0.11[d]
Ingestion rate, total (kg/d dw)	0.020699[e]	0.015421[f]	0.26301[g]	0.011333[f]	0.238047[g]	0.01056[h,i]
Home range (ha)	0.24[i]	1,000[c]	156[c]	11.04[j]	406[c]	15[k]
Fractional intake incidental diet, soil (% dw)	5.0%[c]	5.0%[c]	9.4%[c]	10.0%[c]	2.8%[c]	0.0%[l]
Fractional intake diet, plant (%)	95%[l]	95%[c]	40%[c]	0%[c]	0%[c]	0%[c]
Fractional intake diet, invertebrate (%)	5%[l]	5%[c]	50%[c]	100%[c]	0%[c]	33%[c]
Fractional intake diet, mammal (%)	0%[l]	0%[c]	10%[c]	0%[c]	100%[c]	67%[c]
Site area SWMU 24 (assume 0.2824 ha from CH2M Hill 2000, Figure 5-10b)	0.2824	0.2824	0.2824	0.2824	0.2824	0.2824
Site use factor (site area/home range)	1	0.0002824	0.00181	0.02558	0.000696	0.01883

Notes:
- [a] Silva and Downing 1995
- [b] Dunning 1984
- [c] U.S. EPA 1993
- [d] Bloom 1973
- [e] Nagy 1987, rodents
- [f] Nagy 1987, birds
- [g] Nagy 1987, mammals
- [h] for ingestion rate ww-dw conversion: 0.68 moisture of carnivore food
- [i] Ziener et al. 1990
- [j] average from literature
- [k] Meyer and Balgooyen 1987
- [l] CH2M Hill 2000

Acronyms/Abbreviations:
- dw – dry weight
- ha – hectare, 2.471 acres
- kg – kilogram
- kg/d – kilograms per day
- SWMU – solid waste management unit
- U.S. EPA – United States Environmental Protection Agency
- ww – wet weight

where

Exposure Dose = dose of chemical of potential concern (COPC) from ingestion ($mg_{COPC}/kg_{Body\ Weight}$-day)
n = number of ingested media for a wildlife receptor (unitless)
$Concentration_{media}$ = concentration of COPC in an ingested medium (soil or food item) ($mg_{COPC}/kg_{food\ item}$ dry weight)
Ingestion Rate = ingestion rate of food for an ecological receptor (kg_{food}/day dry weight)
Fractional Intake = diet component of ingested medium (soil or food item) (percent of diet)
AE = assimilation efficiency, bioavailability (unitless)
SUF = site use factor (unitless)
Body Weight = body weight for wildlife receptor ($kg_{Body\ Weight}$)

Soil metals concentrations were estimated in food items based on the soil EPC and station-specific uptake factors (Table A-4) for NAVWPNSTA Seal Beach (CH2M Hill 1999, 2000).

Bioavailability may affect the actual exposure condition for an organism, which consequently affects the risk characterization. Because lead appeared to present at risk-related concentrations, a bioavailability estimate was prepared. Bioavailability of lead, which varies depending on numerous site-specific physical, chemical, and biological factors, was estimated from the scientific literature as 25 percent. Some factors are site specific for soil and some are site specific for ecological receptors (e.g., the lead form occurring in the soil [primarily due to solubility]; soil particle size, pH, and total organic carbon; and receptor species, age, diet, and nutritional status).

A recent study (Maddaloni et al. 1998) reported that fasting adult humans absorbed 26 percent of ingested lead. However, this study is different from the site model of a typically nourished, normally feeding ecological receptor. The same study (Maddaloni et al. 1998) reported that the ingested lead absorption was only 2.5 percent for normally feeding adult humans.

Table A-4
Uptake Factors for Soil Metals

Soil Metal	Plants	Invertebrates	Small Mammals
Antimony	0.170	0.170	0.170
Cadmium	0.140	0.300	0.140
Copper	0.0166	0.582	0.0079
Lead	0.0093	0.0093	0.0093
Mercury	0.310	0.410	0.500
Nickel	0.022	0.046	0.061
Selenium	0.500	0.500	0.500
Zinc	0.031	0.162	0.062

Source: CH2M Hill 1999, 2000

A few studies have reported lead bioavailability for ecological receptors: 1 to 2 percent bioavailability for cattle and sheep (Blaxter 1950) and 6 percent for rabbits (Davis et al. 1992). Lead bioavailability estimates for normally feeding adult humans range from 2.5 to 10 percent (Heard and Chamberlain 1982, James et al. 1985, Maddaloni et al. 1998, Rabinowitz et al. 1980, Watson et al. 1986).

A review of site-specific data developed by CH2M Hill (1999) indicates that the soil lead bioavailability may be less than 10 percent. Those investigators reported a soil-to-small mammal uptake factor of 0.0093. The estimate was based on co-located soil and rodent samples. The uptake factor accounts for all sources of lead to the rodent, which would represent an upper limit for soil lead accumulated through incidental ingestion.

Site-specific information is not available on lead uptake or bioavailability for avian species; furthermore, it is uncertain whether the small mammals tested (mice) provided an adequate estimate for avian species. However, based on the available data, the 25 percent estimate is likely sufficiently conservative for developing the PRGs. Analysis of site soil for lead speciation (i.e., the form of lead) could provide a basis for selecting a site-specific lead bioavailability value.

The site use factor (SUF) was determined as the ratio of the site area to the wildlife home range. The site area was estimated from site figures presented in the draft FSI Phase II Report (CH2M Hill 2000). Wildlife home range areas were estimated with average values listed in the scientific literature.

A2.3 Toxicity Reference Values

Toxicity reference values (TRVs) are selected from reviews of relevant measurements published in the scientific literature. The Navy has published a TRV, selected from a literature review, in conjunction with the U.S. EPA Region 9 BTAG (Biological Technical Advisory Group) (EFA-West 1998). California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) subsequently incorporated the Navy/BTAG TRV into DTSC guidance (DTSC 2000).

Wildlife TRVs are presented as an upper and lower estimate of an effects threshold. The Low-TRV, based on no-observable-adverse-effect level (NOAEL) data, represents a threshold below which no adverse effects are expected. The High-TRV, based on an approximate midpoint of the range of effects levels, represents a threshold above which adverse effects are likely to occur. The range between the Low-TRV and the High-TRV represents the uncertainty. PRGs are derived based on the Low- and High-TRV. Eventually, a cleanup goal is selected from the range presented by the Low- and High-TRV-based PRGs.

A2.3.1 NAVY/BTAG TRV

Table A-5 presents the Navy/BTAG Low-TRV and High-TRV for mammal and avian species.

Table A-5
Navy/BTAG Toxicity Reference Values

Soil Metal	High-TRV (mg/kg-day)	Low-TRV (mg/kg-day)
Mammals		
Cadmium	2.64	0.06
Copper	631.58	2.67
Lead	240.64	0.0015
Mercury	4	0.25
Nickel	31.6	0.133
Selenium	1.21	0.05
Zinc	411.43	9.6
Birds		
Cadmium	10.43	0.08
Copper	52.26	2.3
Lead	8.75	0.014
Mercury	0.18	0.039
Nickel	56.26	1.38
Selenium	0.93	0.23
Zinc	172	17.2

Source: EFA-West 1998

Acronyms/Abbreviations:
BTAG – Biological Technical Advisory Group
mg/kg-day – milligrams per kilogram per day
TRV – toxicity reference value

A2.3.2 ANTIMONY

A Navy/BTAG TRV is not available for antimony. Therefore, TRVs were selected based on available scientific literature. These TRV are summarized below:

Antimony TRVs for Mammals (mg/kg-day)

0.125	NOAEL based on lifespan and longevity effects for mice exposed to antimony potassium tartrate in drinking water (Schroeder et al. 1968).
0.66	LOAEL based on 4-year study of survival effects for rats exposed to antimony (Schroeder et al. 1970).

Antimony TRVs for Birds (mg/kg-day)

0.0125	Avian data not available. NOAEL based on the mammal NOAEL with uncertainty factor of 0.1.
0.066	Avian data not available. LOAEL based on the mammal LOAEL with uncertainty factor of 0.1.

A2.3.3 LEAD

The Navy/BTAG Low-TRV and High-TRV for mammal species are 0.0015 mg/kg-day and 240.64 mg/kg-day, respectively. The Navy/BTAG Low-TRV and High-TRV for avian species are 0.014 mg/kg-day and 8.75 mg/kg-day, respectively. Additional TRVs were selected to represent a potential basis for a site-specific cleanup goal. The additional TRVs are 8 mg/kg-day for mammals and 0.19 mg/kg-day for birds. These TRVs are summarized below:

Lead TRVs for Mammals (mg/kg-day)

0.0015	NOAEL based on hematological, hepatic, and reproductive effects for rats exposed to lead acetate in drinking water (Krasovskii et al. 1979 as presented in ATSDR 1993). Navy/BTAG Low-TRV (EFA-West 1998).
8	NOAEL based on reproductive effects for rats exposed to lead acetate in food (Azar et al. 1973) Additional-TRV.
240.64	LOAEL based on body and organ weight effects for mice exposed to lead acetate in food (Wise 1981). Navy/BTAG High-TRV (EFA-West 1998).

Lead TRVs for Birds (mg/kg-day)

0.014	NOAEL based on reproductive effects for Japanese quail exposed to lead acetate in food (Edens et al. 1976). Navy/BTAG Low-TRV (EFA-West 1998).
0.19	NOAEL based on reproductive effects for Japanese quail exposed to lead acetate in food (Edens and Garlich 1983) Additional-TRV.
8.75	LOAEL based on reproductive effects for chickens exposed to lead acetate in food (Edens and Garlich 1983). Navy/BTAG High-TRV (EFA-West 1998).

A2.3.4 RECEPTOR-SPECIFIC TRVs

TRVs were adjusted from the species used in the scientific literature to the specific species selected as an ecological receptor at the site (Table A-6). Within any group of animal species, the major source of variation in sensitivity to toxic effects of contaminants is varying body size (Sample et al. 1996). In general, smaller organisms are more tolerant of chemical exposures as a result of the higher rate of metabolism and greater detoxification capabilities. To account for this source of variation in sensitivity, the toxicity benchmarks obtained from the studies were adjusted to estimate receptor species (wildlife) toxicity values using the following equation (Sample et al. 1996):

$$NOAEL_{wildlife} = NOAEL_{test} * (BW_{test}/BW_{wildlife})^{1/4}$$

where

$NOAEL_{wildlife}$ = no-observable-adverse-effect level for wildlife species
$NOAEL_{test}$ = no-observable-adverse-effect level for test species
BW_{test} = body weight for test species
$BW_{wildlife}$ = body weight for wildlife species

Research by Mineau et al. (1996) suggested that physiological scaling factors developed for mammals may not be appropriate for interspecies extrapolations among avian receptors. In their research, scaling factors for the majority of chemicals evaluated (29 of 37 pesticides) were not significantly different from 1. Based on this information, the above equation is as follows:

$$NOAEL_{wildlife} = NOAEL_{test} * (BW_{test}/BW_{wildlife})^{0}$$

which is reduced to the following equation:

$$NOAEL_{wildlife} = NOAEL_{test}$$

Therefore, an avian wildlife species NOAEL is equivalent to an avian test species NOAEL without any adjustment factor for body weight.

A2.4 Risk Characterization

A refined risk characterization as hazard quotients (HQs) based on the Navy/BTAG TRVs is presented in Table A-7 for soil metals. The maximum HQ for the six wildlife ecological receptors is presented. HQ values prepared with the Low-TRVs are labeled as Low-HQ. HQ values prepared with the High-TRVs are labeled as High-HQ.

Low-HQ values for mercury, selenium, and zinc are less than one; therefore, these metals are not considered further as a potential source of risk. After including the SUF in the evaluation of the Low-HQ, copper and nickel show Low-HQ values that are less than one. Antimony, cadmium, and lead show Low-HQ (with SUF) greater than one, indicating potential sources of risk. Antimony and cadmium Low-HQ (with SUF) values are low; 1.3 for antimony and 4.1 for cadmium. The High-HQ (with SUF) for antimony and cadmium are much less than one; 0.13 for antimony and 0.093 for cadmium.

Table A-6
Receptor-Specific Toxicity Reference Values

Metal	California Ground Squirrel	Mourning Dove	Raccoon	American Robin	Red Fox	American Kestrel
Low-TRV (mg/kg-day)						
Antimony	0 0619	0.0125	0 0346	0 0125	0.03565	0.0125
Cadmium	0.0302	0 08	0.0169	0.08	0.0174	0.08
Copper	1 32	2.3	0 738	2.3	0.761	2.3
Lead	0.0012	0.014	0.000673	0.014	0.000694	0.014
Mercury	0.196	0.039	0.1094	0.039	0.113	0 039
Nickel	0.112	1.38	0.0624	1.38	0.0644	1 38
Selenium	0.0391	0.23	0.0218	0.23	0.0225	0.23
Zinc	4.56	17.2	2.55	17.2	2 63	17 2
High-TRV (mg/kg-day)						
Antimony	0 604	0.066	0.337	0 066	0.348	0.066
Cadmium	1.32	10.43	0.739	10.43	0.7616	10.43
Copper	297.8	52.26	166.5	52.26	171.6	52 26
Lead	105.8	8 75	59.16	8.75	60.98	8 75
Mercury	3 847	0.18	2.15	0.18	2.217	0.18
Nickel	26.54	56.26	14.8	56.26	15.29	56.26
Selenium	0.5699	0.93	0.319	0.93	0.3284	0.93
Zinc	316.5	172	177	172	182	172
Additional-TRV (mg/kg-day)						
Lead	7.32	0.19	4.09	0.19	4.22	0 19

Acronyms/Abbreviations:
mg/kg-day – milligrams per kilogram per day
TRV – toxicity reference value

Table A-7
Refined Ecological Risk Assessment HQ Values

Soil Metal	Low-HQ AE = 1 SUF = 1	Low-HQ AE = 1 SUF = Receptor Specific	High-HQ AE = 1 SUF = Receptor Specific	Potential Ecological Risk
Antimony	27	1 3	0.13	Low. Low-$HQ_{(SUF)}$ = 1.3 and High-$HQ_{(SUF)}$ < 1
Cadmium	14	4.1	0.093	Low. Low-$HQ_{(SUF)}$ = 4 1 and High-$HQ_{(SUF)}$ < 1
Copper	2 6	0 18	0.0018	No. Low-$HQ_{(SUF)}$ < 1
Lead	1340	350	0 0048	Yes. Low-$HQ_{(SUF)}$ > 1
Mercury	0 088	0.0037	0.0003	No. Low-HQ < 1
Nickel	1 5	0.38	0.0016	No. Low-$HQ_{(SUF)}$ < 1
Selenium	0 68	0.29	0 020	No. Low-HQ < 1
Zinc	0 44	0 091	0 0013	No. Low-HQ < 1

Acronyms/Abbreviations:
AE – assimilation efficiency (bioavailability)
BTAG – Biological Technical Advisory Group
HQ – hazard quotient
Low-HQ – HQ calculated with the Navy/BTAG Low TRV
SUF – site use factor
TRV – toxicity reference value

Because the Low-HQs (with SUF) are low and the High-HQs (with SUF) are much less than one, antimony and cadmium are not considered further as potential sources of ecological risk. Also, these two metals were infrequently reported in site samples: 2 percent for antimony (2 of 95 samples) and 16 percent for cadmium (15 of 95 samples). Lead is the only soil metal that is considered further for ecological risk.

The ecological risk assessment of soil lead was refined further by including the 25 percent estimate of the assimilation efficiency (bioavailability) and the Additional-TRV. Estimates of the soil lead dose exposures are presented in Table A-8.

The largest wildlife exposures to soil lead for the squirrel, dove, raccoon, and robin were by incidental soil ingestion (Table A-8). Incidental soil ingestion is often found as a significant exposure pathway, especially for ground foraging species and species that consume roots along with stem and leaf plant material. The California ground squirrel showed the greatest risk potential (HQ=127) compared to the other wildlife receptors, based on the Low-TRV (Table A-8). However, based on the Additional-TRV and the High-TRV, the American robin showed the greatest amount of potential risk when compared to the other wildlife receptors.

In addition to the other exposure parameters, the Additional-TRV and the 25 percent assimilation efficiency will be used to develop refined PRGs.

Table A-8
Summary of Dose Exposure and Refined Hazard Quotients for Wildlife Exposure to SWMU 24 Lead*

Wildlife Receptor	Dose from Soil Ingestion (mg/kg-day)	Dose from Plant Ingestion (mg/kg-day)	Dose from Invertebrate Ingestion (mg/kg-day)	Dose from Mammal Ingestion (mg/kg-day)	Total Dose (mg/kg-day)	HQ_{Low}	$HQ_{Additional}$	HQ_{High}
California ground squirrel	8.80E-02	6.22E-02	3.27E-03	0	1.53E-01	1.27E+02	2.10E-02	1.45E-03
Mourning dove	2.52E-01	1.78E-01	9.38E-03	0	4.40E-01	8.87E-03	6.53E-04	1.42E-05
Raccoon	2.05E-01	3.25E-02	4.06E-02	8.12E-03	2.86E-01	7.70E-01	1.27E-04	8.77E-06
American robin	5.95E-01	0	2.21E-01	0	8.16E-01	1.49E+00	1.10E-01	2.39E-03
Red fox	6.25E-02	0	0	8.30E-02	1.45E-01	1.46E-01	2.40E-05	1.66E-06
American kestrel	0	0	4.95E-02	1.02E-01	1.52E-01	2.04E-01	1.50E-02	3.27E-04

Note:

* General:

AE_{soil} as 0.25
AE_{plant}, $AE_{invertebrate}$, and AE_{mammal} as 1.0
CM_{soil} as 170 mg/kg for lead
FI_i as shown in Table A-3
UF_{soil} as 1.0
UF_{plant}, $UF_{invertebrate}$, and UF_{mammal} as 0.0093

$Dose_i$ as $CM_{soil} * UF_i * IR * FI_i * AE_i * BW^{-i}$
Total Dose as $\Sigma\ (Dose_i) * SUF$
HQ_{Low} as Total Dose * $(TRV_{Low})^{-i}$, $HQ_{Additional}$ as Total Dose * $(TRV_{Additional})^{-i}$, and HQ_{High} as Total Dose * $(TRV_{High})^{-1}$

Acronyms/Abbreviations:

AE_i – gastro-intestinal adsorption efficiency, media specific
BW – body weight of ecological receptor
CM – concentration in media
FI_i – fractional intake, media specific diet component
HQ – hazard quotient
IR – ingestion rate
mg/kg – milligrams per kilogram
mg/kg-day – milligrams per kilogram per day
SUF – site use factor
SWMU – solid waste management unit
TRV – toxicity reference value
UF_i – uptake factor, soil to food item, media specific

A3 DEVELOPMENT AND EVALUATION OF REFINED PRGs

Soil lead PRGs were developed and evaluated for several ecological receptors, including avian and mammal wildlife species, plants, soil invertebrates, and soil microbes. Wildlife PRGs were refined according to site-specific exposure pathways as described above.

Evaluation of the potential PRG should consider site-specific characteristics, such as the existing habitat and the organisms occurring or expected to occur at the site. At the time of the investigations for the FSI Phase II Report, SWMU 24 was observed as flat with little vegetation (CH2M Hill 2000). The investigators noted that bare soil and gravel covered most of the site. Ruderal vegetation with nonnative grasses were beginning to grow in small areas of the site (CH2M Hill 2000). The investigators projected that the site coverage by ruderal vegetation would increase, thereby presenting a more attractive habitat for wildlife species than currently exists (CH2M Hill 2000). Areas at NAVWPNSTA Seal Beach with similar vegetation are regularly maintained by mowing.

PRGs for wildlife, plants, soil invertebrates, and soil microbes are presented in Table A-9. Wildlife species are represented by the particular species of the modeled ecological

Table A-9
Summary of Potential Ecological Soil Lead PRGs

Lead Preliminary Remediation Goal (mg/kg)	Ecological Receptor Species	Toxicity Reference Value	Source
50	Plants	Benchmark (10th percentile of LOAEL)	Efroymson et al. 1997a
114	American robin	Avian Low-TRV = 0.014 mg/kg-day SUF = 1.6%; AE = 25%	Navy/BTAG from Edens et al. 1976 (EFA-West 1998)
500	Invertebrates (earthworms)	Benchmark (10th percentile of LOAEL)	Efroymson et al. 1997b
900	Soil microbes	Benchmark (10th percentile of LOAEL)	Efroymson et al. 1997b
1,548	American robin	Avian Additional-TRV = 0.19 mg/kg-day SUF = 1.6%; AE = 25%	Additional TRV from Edens and Garlich 1983
71,280	American robin	Avian High-TRV = 8.75 mg/kg-day SUF = 1.6%; AE = 25%	Navy/BTAG from Edens and Garlich 1983 (EFA-West 1998)

Acronyms/Abbreviations:
- AE – assimilation efficiency (bioavailability) for soil-bound lead
- BTAG – Biological Technical Advisory Group
- LOAEL – lowest-observed-adverse-effect level
- mg/kg – milligrams per kilogram
- PRG – preliminary remediation goal
- SUF – site use factor for wildlife receptor
- SWDIV – Southwest Division Naval Facilities Engineering Command
- TRV – toxicity reference value
- ULBV – upper limit background value

receptors that was the most sensitive for the particular scenario being discussed. The PRGs for plants, soil invertebrates, and soil microbes are 10th percentile values of LOAEL data presented by Efroymson et al. (1997a), Efroymson et al. (1997b), and Efroymson et al. (1997b), respectively. The PRGs for wildlife were calculated as follows:

$$PRG = \frac{TRV * BW}{\sum_{k}^{i=1} \left[UF_i * IR * FI_i * AE_i * SUF \right]}$$

where

PRG = concentration of chemical in soil. Value is expressed as mg/kg_{dw}.
TRV = toxicity reference value. A dose expressed as quantity of chemical per body weight per day, $mg_{chemical}/kg_{BW}$-day.
BW = body weight of the animal, expressed as kg_{BW}.
UF_i = ingested-media-specific uptake factor (soil or food item). Value is expressed as kg_{soil}/kg_{tissue}. UF for soil is 1.
IR = receptor specific ingestion rate, expressed as quantity of food (weight) per day, $kg_{food\ dw}$/ day.
FI_i = receptor specific fractional intake rate for each medium (including plant and animal food items). Dietary composition. Value has no units.
AE_i = chemical specific gastrointestinal absorption efficiency (bioavailability) for each ingested medium (including soil and food items) for each representative species. Value has no units.
SUF = site use factor, receptor specific. Value has no units.
k = number of ingested media types (i.e., soil, plant, invertebrate, mammal).

The 50 mg/kg PRG is a screening benchmark value for plants, based on results for a range of plant species. The site is a ruderal habitat with little vegetation. Although vegetation is expected to increase, it will be poor quality (e.g. nonnative grasses) and will be routinely mowed. Therefore, the lead PRG of 50 mg/kg for plants is not suitable for SWMU 24.

The 114 mg/kg PRG is based on the Navy/BTAG Low-TRV, but the ecological significance of the laboratory results of the source document (Edens et al. 1976) is unclear. The study by Edens et al. (1976) showed a statistically significant reduction of egg production at 0.14 mg/kg. However, the reduction was less than 20 percent, which is often used as a threshold of biological (ecological) significance (Suter et al. 1995, U.S. EPA 1997b). In addition, Edens and Garlich (1983) conducted similar experiments and found no effects at a similar level. In order to develop effective PRGs, the laboratory results upon which they are based must be associated with measured effects that will manifest an adverse condition in a natural population. The lead PRG of 114 mg/kg for wildlife is based on an exceedingly conservative literature value. This value is not suitable and is not considered further as a PRG.

The 500 mg/kg PRG is based on a screening benchmark value for soil invertebrates. This PRG is applicable to the site because of the value of earthworms and other soil

invertebrates as food items for other wildlife receptors. The abundance of soil invertebrates is expected to increase as the vegetation increases.

The 900 mg/kg PRG is based on a screening benchmark value for soil microbes. This PRG is applicable to the site because of the value of the microbes as food items for other wildlife receptors and in nutrient recycling. The abundance of soil microbes is expected to increase as the vegetative cover increases at the site.

The lead PRG of 1,548 mg/kg for wildlife, as represented by the American robin, is a suitable cleanup goal and is protective of wildlife at the site. This value is based on the Additional-TRV, and no effects are expected at this level based on an evaluation of reproduction effects for Japanese quail exposed to lead in their diet (Edens and Garlich 1983). The value of 1,548 mg/kg is considered a minimum value that is protective of wildlife. Uncertainties of the biological effects estimate indicate that a cleanup goal protective of wildlife may range as high as the PRG of 71,280 mg/kg. However, this is an upper-bound PRG because effects are expected at this level.

A4 RECOMMENDATION FOR CLEANUP GOAL

Selection of the ecological cleanup goal should consider the PRGs developed for the ecological receptors applicable to the site. In addition, selection of the ecological cleanup goal should consider the ecological and other effects to the site that may occur with removal to the cleanup goal.

Ecological effects to plants, soil invertebrates, and soil microbes following any selected remedial action would be unlikely because the site is currently mostly barren with exposed soil and gravel and little vegetation. Ecological effects to the wildlife following a selected remedial action would likely be minimal due to the great mobility of the local wildlife.

Based on this review of PRGs as potential lead cleanup goals and the site ecological receptors, the recommended lead cleanup goal should be 1,548 mg/kg or greater, which is protective of wildlife receptors. The recommended lead cleanup goal should not exceed 71,280 mg/kg, which is the upper estimate of protection of wildlife receptors. Also, the recommended lead cleanup goal should not exceed 500 mg/kg, which is protective of soil invertebrates and microbes. Therefore, the recommended lead PRG is 500 mg/kg, which is the minimum of the suitable values.

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ATTACHMENT A1

SWMU COPPER AND LEAD SOIL CONCENTRATIONS FROM FOCUSED SITE INSPECTION PHASE II

Attachment A1
SWMU COPPER AND LEAD SOIL CONCENTRATIONS FROM FSI PHASE II

Table A1-1
SWMU 24 Copper and Lead Soil Concentrations from FSI Phase II

Sample Location	Sample ID	Depth Interval (feet)	Copper (mg/kg)	Lead (mg/kg)
01	49B01SA0-1	0.5–1.0	33.3	36.8 J
01	49B01SA0-2	2.0–2.5	46.4	7.5 J
01	49B01SA1-2	2.0–2.5	33.3	37 J
02	49B02SA0-1	0.5–1.0	1110	4060 J
02	49B02SA0-2	2.0–2.5	23.9	7 J
03	49B03SA0-1	0.5–1.0	31.5	38.5 J
03	49B03SA0-2	2.0–2.5	28.5	44 J
04	49B04SA0-1	0.5–1.0	23.2	20.6 J
04	49B04SA0-2	2.0–2.5	35.4	14.1 J
05	49B05SA0-1	0.5–1.0	12.2	8.4 J
05	49B05SA0-2	2.0–2.5	12.9	9.5 J
06	49B06SA0-1	0.5–1.0	8.3	2.5
06	49B06SA0-2	2.0–2.5	154	13.6
07	49B07SA0-1	0.5–1.0	13.7	12 N*
07	49B07SA0-2	2.0–2.5	11.6	19.6 N*
08	49B08SA0-1	0.5–1.0	33.5	148 J
08	49B08SA0-2	2.0–2.5	17.8	63.5 J
09	49B09SA0-1	0.5–1.0	41.1	20.6 J
09	49B09SA0-2	2.0–2.5	23.3	5.7 J
10	49B10SA0-1	0.5–1.0	39.1	114
10	49B10SA0-2	2.0–2.5	39	8.3
10	49B10SA1-1	0.5–1.0	55.8	113
11	49B11SA0-1	0.5–1.0	22.1	35.6 N*
11	49B11SA0-2	2.0–2.5	9.2	3.8 N*
12	49B12SA0-1	0.5–1.0	23.1	62.2 N*
12	49B12SA0-2	2.0–2.5	18.5	4.1 N*
12	49B12SA1-2	2.0–2.5	10.6	4 N*
13	49B13SA0-1	0.5–1.0	18.2	127 N*
13	49B13SA0-2	2.0–2.5	16.4	25.4 N*
14	49B14SA0-1	0.5–1.0	4.2 B	1.4 N*
14	49B14SA0-2	2.0–2.5	14	44.8 N*
15	49B15SA0-1	0.5–1.0	4.8 B	2.4 J
15	49B15SA0-2	2.0–2.5	26.5	18 J

(table continues)

Table A1-1 (continued)

Sample Location	Sample ID	Depth Interval (feet)	Copper (mg/kg)	Lead (mg/kg)
15	49B15SA1-1	0.5–1.0	5 B	3 3 J
16	49B16SA0-1	0 5–1 0	38.7	28 9 J
16	49B16SA0-2	2.0–2.5	31 6	7 4 N
17	49B17SA0-1	0.5–1.0	36.2	9.5
17	49B17SA0-2	2.0–2.5	26.3	43.7
18	49B18SA0-1	0.5–1 0	62.3	12.7
18	49B18SA0-2	2.0–2.5	60.3	38.3
19	49B19SA0-1	0.5–1.0	27.5	95.2 N*
19	49B19SA0-2	2.0–2.5	8 6	6.2 N*
20	49B20SA0-1	0.5–1.0	23.1	78.8 N*
20	49B20SA0-2	2.0–2.5	10.5	12.7 N*
21	49B21SA0-1	0.5–1.0	13.6	24.9
21	49B21SA0-2	2.0–2.5	12 9	20
21	49B21SA0-3	4.0–4.5	14.5	2.7
21	49B21SA1-2	2.0–2.5	23.6	12.9
22	49B22SA0-1	0.5–1.0	106	140 N
22	49B22SA0-2	2.0–2.5	30.2	17.9 N
22	49B22SA0-3	4.0–4.5	33.5	20.8 N
23	49B23SA0-1	0.5–1.0	19.1	45.6 N
23	49B23SA0-2	2.0–2.5	31 6	25.6 N
24	49B24SA0-1	0.5–1.0	105	1980 N*
24	49B24SA0-2	2.0–2.5	33.9	94 8 N*
25	49B25SA0-1	0.5–1 0	124	734 N*
25	49B25SA0-2	2.0–2.5	20.9	54.8 N*
26	49B26SA0-1	0 5–1.0	26 4	15.6
26	49B26SA0-2	2.0–2 5	21.5	5.8
26	49B26SA0-3	4.0–4.5	59.5	14.2
26	49B26SA1-1	0 5–1.0	26.6	144
27	49B27SA0-1	0.5–1 0	28.9	60 8 N
27	49B27SA0-2	2.0–2.5	29.5	31.8 N
27	49B27SA0-3	4 0–4.5	26.2	6 N
27	49B27SA1-3	4.0–4.5	29.9	6.7 N
28	49B28SA0-1	0.5–1.0	16.8	49.9 N
28	49B28SA0-2	2 0–2.5	111	630 N
29	49B29SA0-1	0.5–1 0	30.8	121 N
29	49B29SA0-2	2.0–2.5	11.1	10.3 N
29	49B29SA0-3	4.0–4.5	24.2	10.5 N

(table continues)

Attachment A1 SWMU Copper and Lead Soil Concentrations from FSI Phase II

Table A1-1 (continued)

Sample Location	Sample ID	Depth Interval (feet)	Copper (mg/kg)	Lead (mg/kg)
30	49B30SA0-1	0.5–1.0	38	23.4 N
30	49B30SA0-2	2.0–2.5	38.4	14.7 N
30	49B30SA0-3	4.0–4.5	27.1	4.4 N
31	49B31SA0-1	0.5–1.0	33	45.9
31	49B31SA0-2	2.0–2.5	15.3	24.3
32	49B32SA0-1	0.5–1.0	4.5 B	1.1
32	49B32SA0-2	2.0–2.5	7	4.5
32	49B32SA1-2	2.0–2.5	13.5	5.9
33	49B33SA0-1	0.5–1.0	20.2	5.1
33	49B33SA0-2	2.0–2.5	52.7	14.7
34	49B34SA0-1	0.5–1.0	11.9	8.2
34	49B34SA0-2	2.0–2.5	7.9	14
34	49B34SA0-3	4.0–4.5	41	47.5
35	49B35SA0-1	0.5–1.0	17.6	7.7
35	49B35SA0-2	2.0–2.5	13.8	3.9
36	49B36SA0-1	0.5–1.0	36.5	9.3
36	49B36SA0-2	2.0–2.5	45.5	9.1
37	49B37SA0-1	0.5–1.0	39.2	31
37	49B37SA0-2	2.0–2.5	42.3	20.6
38	49B38SA0-1	0.5–1.0	38.5	24.8
38	49B38SA0-2	2.0–2.5	39.9	10.3
39	49B39SA0-1	0.5–1.0	35.4	33
39	49B39SA0-2	2.0–2.5	35.6	13.7
40	49B40SA0-1	0.5–1.0	26.4	17.4
40	49B40SA0-2	2.0–2.5	22.9	4.7
41	49B41SA0-1	0.5–1.0	42	27.3
41	49B41SA0-2	2.0–2.5	23.5	21.8
42	49B42SA0-1	0.5–1.0	37.6	22.7
42	49B42SA0-2	2.0–2.5	22.8	9
43	49B43SA0-1	0.5–1.0	26.5	15.7
43	49B43SA0-2	2.0–2.5	38.8	8.4
43	49B43SA1-1	0.5–1.0	26.3	17.8
44	49B44SA0-1	0.5–1.0	NA	9.6
44	49B44SA0-2	2.0–2.5	NA	3.5
45	49B45SA0-1	0.5–1.0	NA	7.2
45	49B45SA0-2	2.0–2.5	NA	34.8
46	49B46SA0-1	0.5–1.0	29.7	45.5

(table continues)

Table A1-1 (continued)

Sample Location	Sample ID	Depth Interval (feet)	Copper (mg/kg)	Lead (mg/kg)
46	49B46SA0-2	2.0–2.5	NA	6.9
47	49B47SA0-1	0.5–1.0	33.6	39
47	49B47SA0-2	2.0–2.5	NA	3.5
48	49B48SA0-1	0.5–1.0	NA	8.4
49	49B49SA0-1	0.5–1.0	NA	19.7
50	49B50SA0-1	0.5–1.0	NA	17.5

Source: CH2M Hill 2000

Note:
* duplicate analysis not within control limits

Acronyms/Abbreviations:
CRDL – contract-required detection limit
IDL – instrument detection limit
mg/kg – milligrams per kilogram
NA – not analyzed
SWMU – solid waste management unit

Data Qualifiers:
B – estimated; below CRDL and above IDL
J – estimated; below CRDL and above IDL
N – spiked sample recovery not within control limits

APPENDIX B

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

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ACRONYMS/ABBREVIATIONS

A	applicable
ACL	alternative concentration limit
AM	action memorandum
app.	appendix
ARAR	applicable or relevant and appropriate requirement
art.	article
BAT	best available technology
BCPCT	best conventional pollution control technology
BDAT	best demonstrated available technology
CAI	closed, abandoned, or inactive
Cal. Code Regs.	*California Code of Regulations*
Cal-EPA	California Environmental Protection Agency
Cal. Fish & Game Code	*California Fish and Game Code*
Cal. Pub. Res. Code	*California Public Resources Code*
Cal. Water Code	*California Water Code*
CAMU	corrective action management unit
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.	*Code of Federal Regulations*
ch.	chapter
COPC	chemical of potential concern
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
div.	division
DON	Department of the Navy
DTSC	(California Environmental Protection Agency) Department of Toxic Substances Control
EE/CA	engineering evaluation/cost analysis
ESA	Endangered Species Act
Exec. Order No.	executive order number
Fed. Reg.	*Federal Register*
FFSRA	Federal Facilities Site Remediation Agreement
gpd	gallons per day
LDR	land disposal restriction

$\mu g/m^3$	micrograms per cubic meter
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NAAQS	National Ambient Air Quality Standards (primary and secondary)
NAVWPNSTA	Naval Weapons Station
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
para.	paragraph
PM_{10}	particulate matter, less than 10 micrometers in diameter
POC	point of compliance
ppm	parts per million
Prop.	proposition
pt.	part
Pub. L. No.	public law number
RA	relevant and appropriate
RCRA	Resource Conservation and Recovery Act
Res.	resolution
RWQCB	(California) Regional Water Quality Control Board, Santa Anna Region
§	section
SCAQMD	South Coast Air Quality Management District
SMCL	secondary maximum contaminant level
STLC	soluble threshold limit concentration
subch.	subchapter
SWMU	solid waste management unit
SWRCB	(California) State Water Resources Control Board
TBC	to be considered
TCLP	toxicity characteristic leaching procedure
tit.	title
TTLC	total threshold limit concentration
U.S.C.	*United States Code*
U.S. EPA	United States Environmental Protection Agency
WET	(Cal-EPA) Waste Extraction Test
WQO	water quality objective

Section B1
INTRODUCTION

This appendix identifies and evaluates potential federal and state of California applicable or relevant and appropriate requirements (ARARs) from the universe of regulations, requirements, and guidance and sets forth the Department of the Navy (DON) determinations regarding those potential ARARs for each response action alternative retained for detailed analysis in this engineering evaluation/cost analysis (EE/CA).

This evaluation includes an initial determination of whether the potential ARARs actually qualify as ARARs, and a comparison for stringency between the federal and state regulations to identify the controlling ARARs. The identification of ARARs is an iterative process. The final determination of ARARs will be made by the DON in the action memorandum (AM), after public review, as part of the response action selection process.

B1.1 SUMMARY OF CERCLA AND NCP REQUIREMENTS

Section 121(d) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, 42 *United States Code* [U.S.C.] Section [§] 9621[d]), as amended, states that remedial (or removal) actions at CERCLA sites must attain (or the decision document must justify the waiver of) any federal or more stringent state environmental standards, requirements, criteria, or limitations determined to be legally applicable or relevant and appropriate. Although Section 121 of CERCLA does not itself expressly require that CERCLA removal actions comply with ARARs, the United States Environmental Protection Agency (U.S. EPA) has promulgated a requirement in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) mandating that CERCLA removal actions ". . . shall, to the extent practicable considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under federal environmental or state environmental or facility siting laws" (Title 40 *Code of Federal Regulations* [C.F.R.] § 300.415[j]) (40 C.F.R. § 300.415[j]). It is DON policy to follow this requirement. Certain specified waivers may be used for removal actions, as is the case with remedial actions.

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

(U.S. EPA 1988a). 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 C.F.R. § 300.400(g)(2) and include the following:

- the purpose of the requirement and the purpose of the CERCLA action
- the medium regulated or affected by the requirement and the medium contaminated or affected at the CERCLA site
- the substances regulated by the requirement and the substances found at the CERCLA site
- any variances, waivers, or exemptions of the requirement and their availability for the circumstances at the CERCLA site
- the type of place regulated and the type of place affected by the release or CERCLA action
- the type and size of structure or facility regulated and the type and size of structure or facility affected by the release or contemplated by the CERCLA action
- any consideration of use or potential use of affected resources in the requirement and the use or potential use of the affected resources at the CERCLA site

According to CERCLA ARARs guidance (U.S. EPA 1988a), a requirement may be "applicable" or "relevant and appropriate," but not both. Identification of ARARs must be done on a site-specific basis and involve a two-part analysis: first, a determination whether a given requirement is applicable; then, if it is not applicable, a determination whether it is nevertheless both relevant and appropriate. It is important to explain that some regulations may be applicable or, if not applicable, may still be relevant and appropriate. When the analysis determines that a requirement is both relevant and appropriate, such a requirement must be complied with to the same degree as if it were applicable (U.S. EPA 1988a).

Tables included in this appendix present each potential ARAR with a determination of ARAR status (i.e., applicable, relevant and appropriate, or not an ARAR). For the determination of relevance and appropriateness, the pertinent criteria were examined to determine whether the requirements addressed problems or situations sufficiently similar to the circumstances of the release or response action contemplated, and whether the requirement was well suited to the site. A negative determination of relevance and appropriateness indicates that the requirement did not meet the pertinent criteria. Negative determinations are documented in the tables of this appendix and are discussed in the text only for specific cases.

To qualify as a state ARAR under CERCLA and the NCP, a state requirement must be:

- a state law,
- an environmental or facility siting law,

- promulgated (of general applicability and legally enforceable),
- substantive (not procedural or administrative),
- more stringent than the federal requirement,
- identified in a timely manner, and
- consistently applied.

To constitute an ARAR, a requirement must be substantive. Therefore, only the substantive provisions of requirements identified as ARARs in this analysis are considered to be ARARs. Permits are considered to be procedural or administrative requirements. Provisions of generally relevant federal and state statutes and regulations that were determined to be procedural or nonenvironmental, including permit requirements, are not considered to be ARARs. CERCLA 121(e)(1), 42 U.S.C. § 9621(e)(1), states that "No Federal, State, or local permit shall be required for the portion of any removal or remedial action conducted entirely on-site, where such remedial action is selected and carried out in compliance with this section." The term *on-site* is defined for purposes of this ARARs discussion as "the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action" (40 C.F.R. § 300.5).

Nonpromulgated advisories or guidance issued by federal or state governments are not legally binding and do not have the status of ARARs. Such requirements may, however, be useful, and are "to be considered" (TBC). TBC (40 C.F.R. § 300.400[g][3]) requirements complement ARARs but do not override them. They are useful for guiding decisions regarding cleanup levels or methodologies when regulatory standards are not available.

Pursuant to U.S. EPA guidance (U.S. EPA 1988a), ARARs are generally divided into three categories: chemical-specific, location-specific, and action-specific requirements. This classification was developed to aid in the identification of ARARs; some ARARs do not fall precisely into one group or another. ARARs are identified on a site basis for remedial (or removal) actions where CERCLA authority is the basis for cleanup.

As the lead federal agency, the DON has primary responsibility for identifying federal ARARs at Solid Waste Management Unit (SWMU) 24, Naval Weapons Station (NAVWPNSTA) Seal Beach. Potential federal ARARs that have been identified for the SWMU 24 EE/CA are discussed in Section B1.2.2. Pursuant to the definition of the term *on-site* in 40 C.F.R. § 300.5, the on-station areas that are part of this action are considered to be on-site. SWMU 24 housed the former stationary demilitarization furnace facility that was used primarily from 1985 through 1994 to remove explosive residue from expended munitions. The facility was decommissioned in 1998; subsequently, the structures were demolished and removed. The chemicals of potential concern (COPCs) at SWMU 24 were metals. Based on the ecological risk screening performed as part of the focused site inspection Phase II (CH2M Hill 2000), ecologically significant risks to terrestrial receptors exist from metals in soil. Lead is the primary contributor to ecological risks at the site. The removal action alternatives being

considered for evaluation in the SWMU 24 EE/CA are 1) no action and 2) excavation with off-site disposal.

Identification of potential state ARARs was initiated through DON requests that the California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC) identify potential state ARARs, an action described in more detail in Section B1.2.3. Potential state ARARs that have been identified for SWMU 24 are discussed below.

B1.2 METHODOLOGY DESCRIPTION

The process of identifying and evaluating potential federal and state ARARs is described in this subsection.

B1.2.1 General

As the lead federal agency, the DON has primary responsibility for identification of potential ARARs for SWMU 24. In preparing this ARARs analysis, the DON undertook the following measures, consistent with CERCLA and the NCP:

- identified federal ARARs for each response action alternative addressed in the EE/CA, taking into account site-specific information for SWMU 24
- reviewed potential state ARARs identified by the state to determine whether they satisfy CERCLA and NCP criteria that must be met in order to constitute state ARARs
- included only the submitted state requirements that were pertinent to the proposed removal action in the ARARs analysis
- evaluated and compared federal ARARs and their state counterparts to determine whether state ARARs are more stringent than the federal ARARs or are in addition to the federally required actions
- reached a conclusion as to which federal and state ARARs are the most stringent and/or "controlling" ARARs for each alternative

B1.2.2 Identifying and Evaluating Federal ARARs

The DON is responsible for identifying federal ARARs as the lead federal agency under CERCLA and the NCP. The final determination of federal ARARs will be made when the DON issues the AM. The federal government implements a number of federal environmental statutes that are the source of potential federal ARARs, either in the form of the statutes or regulations promulgated thereunder. Examples include the Resource Conservation and Recovery Act (RCRA), the Clean Water Act, the Safe Drinking Water Act, the Toxic Substances Control Act, and their implementing regulations, to name a few. See NCP preamble at 55 *Federal Register* (Fed. Reg.) 8764–8765 (1990) for a more complete listing.

The proposed response action and alternatives were reviewed against all potential federal ARARs, including but not limited to those set forth at 55 Fed. Reg. 8764–8765 (1990), in

order to determine if they were applicable or relevant and appropriate utilizing the CERCLA and NCP criteria and procedures for ARARs identification by lead federal agencies.

B1.2.3 Identifying and Evaluating State ARARs

The process of identifying and evaluating potential state ARARs by the state and the DON is described in this subsection.

B1.2.3.1 SOLICITATION OF STATE ARARs UNDER NCP

U.S. EPA guidance (U.S. EPA 1988b) recommends that the lead federal agency consult with the state when identifying state ARARs for remedial (or removal) actions. In essence, the CERCLA/NCP requirements at 40 C.F.R. § 300.515 for remedial (or removal) actions provide that the lead federal agency request that the state identify chemical- and location-specific state ARARs upon completion of site characterization. The requirements also provide that the lead federal agency request identification of all categories of state ARARs (chemical-, location-, and action-specific) upon completion of identification of removal alternatives for detailed analysis. The state must respond within 30 days of receipt of the lead federal agency requests. The remainder of this subsection documents the DON's efforts to date to identify and evaluate state ARARs.

The DON followed the procedures of the process set forth in 40 C.F.R. § 300.515 and Section 7.6 of the Federal Facilities Site Remediation Agreement (FFSRA) for remedial (or removal) actions in seeking state assistance in identifying state ARARs.

B1.2.3.2 CHRONOLOGY OF EFFORTS TO IDENTIFY STATE ARARs

The following chronology summarizes the DON efforts to obtain state assistance in identifying state ARARs for the response action at SWMU 24. Key correspondence between the DON and the state agencies relating to this effort is attached as Attachment A to this appendix and has been included in the Administrative Record for this EE/CA.

The DON formally requested state chemical-, location-, and action-specific ARARs for SWMU 24. A letter was sent 20 June 2001 to the DTSC. Following the DON solicitation for ARARs from DTSC, DTSC requested ARARs from other state and local agencies. DTSC issued a letter to the DON on 08 August 2001 with correspondence regarding the ARARs solicitation from the following agencies:

- Department of Transportation (correspondence dated 31 July 2001)
- California Integrated Waste Management Board (correspondence dated 26 July 2001)
- California Air Resources Board (correspondence dated 23 July 2001)
- county of Orange, Public Facilities and Resources Department (correspondence dated 19 July 2001)
- city of Seal Beach (correspondence dated 25 July 2001)
- Department of Fish and Game (correspondence dated 03 August 2001)
- South Coast Air Quality Management District (SCAQMD) (correspondence dated 26 July 2001)

In addition, the California Regional Water Quality Control Board, Santa Ana Region issued a letter to the DON on 17 August 2001 in response to the ARARs request.

Some of the agencies that were requested by DTSC to provide ARARs input did not respond. On 15 October 2001, the DON issued a letter to these agencies and requested that they respond to ensure timely implementation of the removal action. The follow-up request was made to the following agencies:

- California Coastal Commission
- Department of Health Services
- Orange County Health Care Agency
- Orange County Sanitation District
- Orange County Water District
- City of Seal Beach Planning Department
- South Coast Air Quality Management District

Subsequently, responses were received from the following agencies:

- Orange County Sanitation District (correspondence dated 31 October 2001)
- California Coastal Commission (correspondence dated 22 October 2001)

B1.3 OTHER GENERAL ISSUES

General issues identified during the evaluation of ARARs for SWMU 24 are discussed in the following subsections.

B1.3.1 General Approach to Requirements of the Federal Resource Conservation and Recovery Act

The RCRA is a federal statute passed in 1976 to meet four goals: the protection of human health and the environment, the reduction of waste, the conservation of energy and natural resources, and the elimination of the generation of hazardous waste as expeditiously as possible. The Hazardous and Solid Waste Amendments of 1984 significantly expanded the scope of RCRA by adding new corrective action requirements, land disposal restrictions, and technical requirements. RCRA, as amended, contains several provisions that are potential ARARs for CERCLA sites.

Substantive RCRA requirements are applicable to response actions on CERCLA sites if the waste is a RCRA hazardous waste, and either:

- the waste was initially treated, stored, or disposed after the effective date of the particular RCRA requirement; or
- the activity at the CERCLA site constitutes treatment, storage, or disposal, as defined by RCRA (U.S. EPA 1988a)

The preamble to the NCP indicates that state regulations that are components of a federally authorized or delegated state program are generally considered federal requirements and potential federal ARARs for the purposes of ARARs analysis (55 Fed. Reg. 8666, 8742 [1990]). The state of California received approval for its base RCRA hazardous waste management program on 23 July 1992 (57 Fed. Reg. 32726 [1992]). The state of California "Environmental Health Standards for the Management of Hazardous Waste," set forth in Title 22 *California Code of Regulations*, Division 4.5 (Cal. Code Regs. tit. 22, div. 4.5), were approved by U.S. EPA as a component of the federally authorized state of California RCRA program.

The regulations of Cal. Code Regs. tit. 22, div. 4.5 are, therefore, a source of potential federal ARARs for CERCLA response actions. The exception is when a state regulation is "either broader in scope or more stringent" than the corresponding federal RCRA regulations. In that case, such regulations are not considered part of the federally authorized program or potential federal ARARs. Instead, they are purely state law requirements and potential state ARARs.

The U.S. EPA 23 July 1992 notice approving the state of California RCRA program (57 Fed. Reg. 32726 [1992]) specifically indicated that the state regulations addressed certain non-RCRA, state-regulated hazardous wastes that fell outside the scope of federal RCRA requirements. Cal. Code Regs. tit. 22, div. 4.5 requirements would be potential state ARARs for such non-RCRA, state-regulated wastes.

A key threshold question for the ARARs analysis is whether or not the contaminants at SWMU 24 constitute federal hazardous waste as defined under RCRA and the state's authorized program or qualify as non-RCRA, state-regulated hazardous waste. A discussion of waste characterization is included in Section B1.4.

B1.3.2 California Environmental Quality Act

The California Environmental Quality Act (CEQA) is applicable to state actions but not to actions of the federal government. Furthermore, U.S. EPA and the DON have determined that the requirements of the National Environmental Policy Act (NEPA) and CEQA are no more stringent than the requirements for environmental review under CERCLA, as amended by the Superfund Amendments and Reauthorization Act. Pursuant to the provisions of CERCLA, the NCP, and other federal environmental impact evaluation requirements, selecting a remedial (or removal) action with feasible mitigation measures and provision for public review is designed to assure that the proposed action provides for short- and long-term protection of the environment and public health. Hence, CERCLA performs the same function as, and is substantially parallel to, the state's requirements under CEQA.

For the reasons set forth above, NEPA and CEQA are not ARARs for CERCLA actions.

B1.4 WASTE CHARACTERIZATION

Selection of ARARs involves the characterization of wastes as described below.

B1.4.1 RCRA Hazardous Waste Determination

Federal RCRA hazardous waste determination is necessary to determine whether a waste is subject to RCRA requirements at Cal. Code Regs. tit. 22, div. 4.5 and other state requirements at Cal. Code Regs. tit. 23, div. 3, Chapter (ch.) 15. The first step in the RCRA hazardous waste characterization process is to evaluate contaminated media at the site(s) and determine whether it constitutes a "listed" RCRA waste. The preamble to the NCP states that ". . . it is often necessary to know the origin of the waste to determine whether it is a listed waste and that, if such documentation is lacking, the lead agency may assume it is not a listed waste" (55 Fed. Reg. 8666, 8758 [1990]).

This approach is confirmed in U.S. EPA guidance for CERCLA compliance with other laws (U.S. EPA 1988a), as follows:

> To determine whether a waste is a listed waste under RCRA, it is often necessary to know the source. However, at many Superfund sites, no information exists on the source of wastes The lead agency should use available site information, manifests, storage records, and vouchers in an effort to ascertain the nature of these contaminants When this documentation is not available, the lead agency may assume that the wastes are not listed RCRA hazardous wastes, unless further analysis or information becomes available that allows the lead agency to determine that the wastes are listed RCRA hazardous wastes.

RCRA hazardous wastes that have been assigned U.S. EPA hazardous waste numbers (or codes) are listed in Cal. Code Regs. tit. 22, § 66261.30–66261.33. The lists include hazardous waste codes beginning with the letters "F," "K," "P," and "U."

Knowledge of the exact source of a waste is required for source-specific listed wastes ("K" waste codes). Some knowledge of the nature or source of the waste is required even for listed wastes from nonspecific sources, such as spent solvents ("F" waste codes) or commercial chemical products ("P" and "U" waste codes). These listed RCRA hazardous wastes are restricted to commercially pure chemicals used in particular processes such as degreasing.

P and U wastes cover only unused and unmixed commercial chemical products, particularly spilled or off-spec products (U.S. EPA 1991a). Not every waste containing a P or U chemical is a hazardous waste. To determine whether a CERCLA investigation-derived waste contains a P or U waste, there must be direct evidence of product use. In particular, all the following criteria must be met. The chemicals must be:

- discarded (as described in 40 C.F.R. § 261.2[a][2]),
- either off-spec commercial products or a commercially sold grade,
- not used (soil contaminated with spilled unused wastes is a P or U waste), and
- the sole active ingredient in a formulation.

Hazardous waste characteristics, as defined in 40 C.F.R. § 261.21–261.24, are commonly referred to as ignitability, corrosivity, reactivity, and toxicity. California environmental health standards for the management of hazardous waste set forth in Cal. Code Regs.

tit. 22, div. 4.5 were approved by U.S. EPA as a component of the federally authorized California RCRA program. Therefore, the characterization of RCRA waste is based on the state requirements.

The characteristics of ignitability, corrosivity, reactivity, and toxicity are defined in Cal. Code Regs. tit. 22, § 66261.21–66261.24. According to Cal. Code Regs. tit. 22, § 66261.24(a)(1)(A), "A waste that exhibits the characteristic of toxicity pursuant to subsection (a)(1) of this section has the EPA Hazardous Waste Number specified in Table I of this section which corresponds to the toxic contaminant causing it to be hazardous." Table I assigns hazardous waste codes beginning with the letter "D" to wastes that exhibit the characteristic of toxicity; D waste codes are limited to "characteristic" hazardous wastes.

According to Cal. Code Regs. tit. 22, § 66261.10, waste characteristics can be measured by an available standardized test method or be reasonably classified by generators of waste based on their knowledge of the waste provided that the waste has already been reliably tested or if there is documentation of chemicals used. Based on knowledge of the lead contamination in the soil, there is the potential that once excavated it could be classified as a hazardous waste.

The requirements at Cal. Code Regs. tit. 22, § 66261.24 list the toxic contaminant concentrations that determine the characteristic of toxicity. The concentration limits are in milligrams per liter (mg/L). These units are directly comparable to total concentrations in waste groundwater and surface water. For waste soils, these concentrations apply to the extract or leachate produced by the toxicity characteristic leaching procedure (TCLP).

A waste is considered hazardous if the contaminants in the wastewater or in the soil TCLP extract equal or exceed the TCLP limits. TCLP testing is required only if total contaminant concentrations in soil equal or exceed 20 times the TCLP limits because TCLP uses a 20-to-1 dilution for the extract (U.S. EPA 1988a). Because the cleanup goal for lead of 500 milligrams per kilogram (mg/kg) is greater than 20 times the TCLP limit for lead of 5 mg/L, all of the soil subject to removal is considered to be a potential RCRA hazardous waste and would require TCLP testing to make the final classification for off-site disposal. TCLP testing would be performed for metals; therefore, other RCRA metals that exceed TCLP limits will also be identified. During on-site activities, soil will be treated as RCRA hazardous waste.

B1.4.2 California-Regulated, Non-RCRA Hazardous Waste

A waste determined not to be a RCRA hazardous waste may still be considered a state-regulated non-RCRA hazardous waste. The state is broader in scope in its RCRA program in determining hazardous waste. Cal. Code Regs. tit. 22, § 66261.24(a)(2) lists the total threshold limit concentrations (TTLCs) and the soluble threshold limit concentrations (STLCs) for non-RCRA hazardous waste. The state applies its own leaching procedure, waste extraction test (WET), which uses a different acid reagent and has a different dilution factor (tenfold). There are other state requirements that may be broader in scope than federal ARARs for identifying non-RCRA wastes regulated by the state. These may be potential ARARs for wastes not covered under federal ARARs. See

additional subsections of Cal. Code Regs. tit. 22, § 66261.24. A waste is considered hazardous if its total concentrations exceed the TTLCs or if the extract concentrations from the WET exceed the STLCs. A WET is required when the total concentrations exceed the STLC but are less than the TTLCs (Cal. Code Regs. tit. 22, div. 4.5, ch. 11, Appendix [app.] II [b]). For the removal action at SWMU 24, a portion of the soil subject to removal is expected to contain lead concentrations greater than 1,000 mg/kg (the lead TTLC limit) and would therefore be classified as non-RCRA hazardous waste. The remaining soil subject to removal is expected to contain lead concentrations ranging from the cleanup goal of 500 mg/kg to 4,060 mg/kg and would require a WET because these concentrations exceed the STLC limit of 5 mg/L. This portion of the soil is considered to be a potential non-RCRA hazardous waste. The final classification would be made based on the results of the WET, which would be performed for all metals. If the waste has been determined to be similar to a RCRA hazardous waste, it does not need to be evaluated as a non-RCRA hazardous waste. For this removal action, it may not be necessary to evaluate the soil as a non-RCRA hazardous waste for off-site disposal, because the waste may be classified as a RCRA hazardous waste as discussed in Section B1.4.1. Based on the potential for the soil subject to removal to be classified as RCRA hazardous waste, the soil will be handled as a RCRA hazardous waste during all on-site activities. Therefore, the requirements described in this section are not potential ARARs.

B1.4.3 Other California Waste Classifications

For waste discharged after 18 July 1997, solid waste classifications at Cal. Code Regs. tit. 27, §§ 20210, 20220, and 20230 are used to determine applicability of waste management requirements. These are summarized below.

A "designated waste" under Cal. Code Regs. tit. 27, § 20210 is defined at California Water Code (Cal. Water Code) § 13173. Under Cal. Water Code § 13173, designated waste is hazardous waste that has been granted a variance from hazardous waste management requirements or nonhazardous waste that consists of or contains pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state.

A nonhazardous solid waste under Cal. Code Regs. tit. 27, § 20220 is all putrescible and nonputrescible solid, semisolid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semisolid wastes, and other discarded waste (whether of solid or semisolid consistency), provided that such wastes do not contain wastes that must be managed as hazardous wastes or wastes that contain soluble pollutants in concentrations that exceed applicable water quality objectives or could cause degradation of waters of the state.

Under Cal. Code Regs. tit. 27, § 20230, inert waste is that subset of solid waste that does not contain hazardous waste or soluble pollutants at concentrations in excess of applicable water quality objectives and does not contain significant quantities of decomposable waste.

The waste characterization requirements described in this section are not potential ARARs because the waste is assumed to be similar to RCRA hazardous waste and will be handled on-site under the identified RCRA ARARs.

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Section B2
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. The removal action for this site is driven by the CERCLA Section 121(d)(1) requirements that response actions protect the environment. Based on the risk assessment for the site, it was determined that the site does not pose an unacceptable risk to human health, but that a removal action was necessary to reduce risk to ecological receptors from lead-impacted soil to acceptable levels (Section 2.5 of the main text of this EE/CA). Though the removal action is not driven by ARARs, other chemical-specific requirements were identified that could be potential ARARs for the site.

This section presents ARARs determination conclusions addressing potential chemical-specific ARARs for the proposed removal action followed by a more detailed discussion of the evaluated requirements where deemed necessary.

Potential federal and state chemical-specific ARARs are summarized in Tables B2-1 and B2-2, respectively, which are at the end of this section.

B2.1 SUMMARY OF ARARs CONCLUSIONS BY MEDIUM

Soil is the environmental medium potentially affected by the SWMU 24 removal action alternatives. The conclusions for ARARs pertaining to soil and other media are presented in the following sections.

B2.1.1 Groundwater ARARs Conclusions

Groundwater is not included in the scope of this EE/CA. There is no indication that waste constituents have been released or that there is the potential for release to groundwater. Therefore, no groundwater ARARs were identified for this removal action. Tables B2-1 and B2-2 summarize the evaluated chemical-specific requirements for groundwater and briefly discuss their ARAR status.

B2.1.2 Surface Water ARARs Conclusions

Neither surface water discharge nor surface water cleanup is included as a potential removal action alternative for SWMU 24. There is no indication that waste constituents have been released or that there is the potential for release to surface water. Therefore, no potential ARARs were identified for this removal action. Tables B2-1 and B2-2 summarize the evaluated chemical-specific requirements for surface water and briefly discuss their ARAR status.

B2.1.3 Soil ARARs Conclusions

In cases of soil excavation, sufficient data must be available to evaluate whether the material could be classified as a hazardous waste. Comparing the site waste to the definition of RCRA hazardous waste can make the determination of whether a waste is a RCRA hazardous waste. The RCRA requirements at Cal. Code Regs. tit. 22, § 66261.21,

66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 are potentially applicable ARARs because they define RCRA hazardous waste.

Under the California RCRA Program, waste can be classified as non-RCRA state-only hazardous waste if it meets specified conditions, as defined in Cal. Code Regs. tit. 22, § 66261.22(a)(3) and (4), 66261.24(a)(2)–(a)(8), 66261.101, and 66261.3(a)(2)(C) or 66261.3(a)(2)(F). These requirements have been identified as potentially applicable because a determination will be made as to whether wastes generated may be classified as non-RCRA wastes.

B2.1.4 Air ARARs Conclusions

There are no chemical-specific ARARs for air for this EE/CA. Tables B2-1 and B2-2 summarize the evaluated requirements and briefly discuss their potential ARARs status. Additional potential air ARARs are included in the action-specific ARARs (Section B4).

B2.2 DETAILED DISCUSSION OF SOIL ARARs

This section is intended to provide a detailed discussion of federal and state ARARs by medium. There are no chemical-specific ARARs for groundwater, surface water, and air. Therefore, only soil ARARs are discussed.

The key threshold question for soil ARARs is whether or not the wastes located at SWMU 24 would be classified as hazardous waste. 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, the appropriate requirements will apply.

B2.2.1 Federal

RCRA Hazardous Waste and Groundwater Protection Standards. The federal RCRA requirements at 40 C.F.R. 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 (see Section B1.3.1). The applicability of RCRA requirements depends on whether the waste is a RCRA hazardous waste, whether the waste was initially treated, stored, or disposed 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 at Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 are potentially 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 potential federal ARARs for determining whether the site has hazardous waste. If the site waste has concentrations exceeding these values, it is determined to be a characteristic RCRA hazardous waste. Based on the evaluation in Section B1.4.1, the soil subject to removal is considered to be a potential RCRA hazardous waste and will be treated as such during on-site activities.

Action-specific ARARs for treatment, storage, and disposal are evaluated in Section B4.

B2.2.2 State

RCRA Requirements. State RCRA requirements included within the U.S. EPA-authorized RCRA program for California are considered to be potential federal ARARs and are discussed above. When state regulations are either broader in scope or more stringent 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 Fed. Reg. 60848). The Cal. Code Regs. tit. 22, div. 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 at Cal. Code Regs. tit. 22, § 66261.24(a)(2) are potentially applicable state ARARs for determining whether other RCRA requirements are potential state 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. However, based on the evaluation in Section B1.4.1, the soil subject to the removal will be treated as potential RCRA hazardous waste and, as a result, the state RCRA requirements are not applicable for on-site activities.

Action-specific ARARs for treatment, storage, and disposal are evaluated in Section B4.

Table B2-1
Potential Federal Chemical-Specific[a] ARARs by Medium

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
SOIL				
Resource Conservation and Recovery Act (42 U.S.C., ch. 82, §§ 6901–6991[i])[c]				
Definition of RCRA hazardous waste.	Waste.	Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100	Applicable	Applicable for determining whether waste is hazardous.
A solid waste is characterized as toxic, based on the TCLP, if the waste exceeds the TCLP maximum concentrations.	Waste.	40 C.F.R. pt. 261.24(a) Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B)	Applicable	Applicable for determining whether waste 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.	Cal. Code Regs. tit. 22, § 66264.94(a)(1) and (3), (c), (d), and (e)	Not an ARAR	The site is not a regulated unit and the proposed removal action does not include treatment, storage, or disposal on-site. There is no indication that waste constituents have been released or that there is the potential for release to groundwater.

(table continues)

Table B2-1 (continued)

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
LDRs prohibit disposal of hazardous waste unless treatment standards are met.	Hazardous waste land disposal.	Cal. Code Regs. tit. 22, § 66268.1(f)	Not an ARAR	There are no plans for land disposal of hazardous waste on-site.
Treatment standards including technology requirements before hazardous waste can be disposed to land.	Hazardous waste land disposal.	Cal. Code Regs. tit. 22, § 66268.40	Not an ARAR	There are no plans for land disposal of hazardous waste on-site.
Universal Treatment Standards used to comply with treatment standards.	Hazardous waste land disposal.	Cal. Code Regs. tit. 22, § 66268.48	Not an ARAR	There are no plans for land disposal of hazardous waste on-site.
GROUNDWATER				
Safe Drinking Water Act (42 U.S.C., ch. 6A, § 300[f]–300[j]-26)[c]				
National primary drinking water standards are health-based standards for public water systems (MCLs).	Public water system.	40 C.F.R. § 141.11–141.13, excluding § 141.11(d)(3), 141.15, 141.16, 141.61(a) and (c), and 141.62(b)	Not an ARAR	The NCP defines MCLs as relevant and appropriate for groundwater determined to be a current or potential source of drinking water in cases where MCLGs are not ARARs. However, groundwater is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.
MCLGs pertain to known or anticipated adverse health effects (also known as recommended MCLs).	Public water system.	40 C.F.R. § 141.50–141.51	Not an ARAR	MCLGs that have nonzero values may be relevant and appropriate for groundwater determined to be a current or potential source of drinking water. However, groundwater is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.

(table continues)

Table B2-1 (continued)

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
National secondary drinking water regulations are standards for the aesthetic qualities of public water systems (SMCLs).	Public water system.	40 C.F.R. § 143.3	Not an ARAR	SMCLs are federal contaminant levels intended as guidelines for the states. Because they are not enforceable, federal SMCLs are not ARARs.
Resource Conservation and Recovery Act (42 U.S.C., ch. 82, §§ 6901–6991[i])[c]				
Definition of RCRA hazardous waste.	Waste.	Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100	Not an ARAR	Applicable for determining whether waste is hazardous. However, groundwater is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.
A solid waste is characterized as toxic based on the TCLP, if the waste exceeds the TCLP maximum concentrations.	Waste.	Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B)	Not an ARAR	Applicable for determining whether waste is hazardous. However, groundwater is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.
Groundwater protection standards: Owners/operators of RCRA treatment, storage, or disposal facilities must comply with conditions in this section that are designed to ensure that hazardous constituents entering the groundwater from a regulated unit do not exceed the concentration limits for contaminants of concern set forth under Cal. Code Regs. tit. 22, § 66264.94 in the uppermost aquifer underlying the waste management area of concern at the 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.	Cal. Code Regs. tit. 22, § 66264.94, except 66264.94(a)(2) and 66264.94(b)	Not an ARAR	Groundwater is not included in the scope of this EE/CA. In addition, the site is not a regulated unit, and there is no indication that waste constituents have been released, or that there is the potential for release to groundwater.

(table continues)

Table B2-1 (continued)

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
The POC is a vertical surface located at the hydraulically downgradient limit of the waste management area that extends through the uppermost aquifer underlying the regulated unit.	Hazardous waste treatment or disposal.	Cal. Code Regs. tit. 22, § 66264.95	Not an ARAR	The POC is a potential ARAR only when the RAO provides for achieving the cleanup level or concentration limit at and downgradient of the waste management area instead of throughout the contaminant plume. However, groundwater is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.
Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C., ch. 103, §§ 9601–9675)[c]				
ACLs using a point of exposure beyond the facility boundary.	Known or projected points of entry from groundwater to surface water.	CERCLA § 121(d)(2)(B)(ii) 42 U.S.C., ch. 103, § 9621	Not an ARAR	Groundwater is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.
Clean Water Act of 1977, as Amended (33 U.S.C., ch. 26, §§ 1251–1387)[c]				
Federal ambient water quality criteria.	Discharges to waters of the United States and groundwater.	33 U.S.C. § 1314(a) and 42 U.S.C. § 9621(d)(2) 64 Fed. Reg. 19781 (22 April 1999)	Not an ARAR	Federal ambient water quality criteria are not generally relevant and appropriate in selecting cleanup levels in groundwater. In addition, groundwater is not part of the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.
Water quality standards.	Discharges to waters of the United States.	40 C.F.R. § 131.36(b) and 131.38	Not an ARAR	There are no planned discharges to surface water from groundwater because groundwater is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.

(table continues)

Table B2-1 (continued)

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
SURFACE WATER				
Resource Conservation and Recovery Act (42 U.S.C., ch. 82, §§ 6901–6991[i])[c]				
Groundwater protection standards: Owners/operators of RCRA treatment, storage, or disposal facilities must comply with conditions in this section that are designed to ensure that hazardous constituents entering the groundwater from a regulated unit do not exceed the concentration limits for contaminants of concern set forth under Cal. Code Regs. tit. 22, § 66264.94 in the uppermost aquifer underlying the waste management area of concern at the 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.	Cal. Code Regs. tit. 22, § 66264.94, except 66264.94(a)(2) and 66264.94(b)	Not an ARAR	Neither groundwater nor surface water is included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.
Safe Drinking Water Act (42 U.S.C., ch. 6A, § 300[f]–300[j]-26)[c]				
National primary drinking water standards are health-based standards for public water systems (MCLs).	Public water system.	40 C.F.R. § 141.11–141.13, excluding § 141.11(d)(3), 141.15, 141.16, 141.61(a) and (c), and 141.62(b)	Not an ARAR	The NCP defines MCLs as relevant and appropriate for surface water determined to be a current or potential source of drinking water in cases where MCLGs are not ARARs. However, surface water is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.

(table continues)

Table B2-1 (continued)

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
Ensure safety of public water systems; remedial (or removal) actions must meet cleanup standards; MCLGs pertain to known or anticipated health effects (also known as recommended MCLs).	Public water system; remedial (or removal) activities impacting groundwater; groundwater that is a potential source of drinking water.	40 C.F.R. § 141.50–141.51	Not an ARAR	MCLGs that have nonzero values are relevant and appropriate for surface water determined to be a current or potential source of drinking water (NCP Section 300.430[e][2][I][B]–[D]). However, surface water is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.
National secondary drinking water regulations are standards for the aesthetic qualities of public water systems (SMCLs).	Public water system.	40 C.F.R. § 143.3	Not an ARAR	SMCLs are federal contaminant levels intended as guidelines for the states. Because they are not enforceable, federal SMCLs are not ARARs.
Clean Water Act, as Amended (33 U.S.C., ch. 26, §§ 1251–1387)[c]				
Federal ambient water quality standards.	Discharges to waters of the United States.	40 C.F.R. § 131.36(b)	Not an ARAR	Federal ambient water quality standards would be applicable for any discharges to or cleanup of surface waters. However, there are no planned discharges to or cleanup of surface waters.
Effluent limitations that meet technology-based requirements, including BCPCT and BAT economically achievable.	Discharges to waters of the United States.	33 U.S.C., ch. 26, § 1311(b)(2)	Not an ARAR	There are no planned discharges to waters of the United States.
Water quality criteria.	Discharges to waters of the United States and groundwater.	33 U.S.C., ch. 26, § 1314(a) and 42 U.S.C., ch. 103, § 9621(d)(2) 64 Fed. Reg. 19781 (22 April 1999)	Not an ARAR	Federal water quality standards may be relevant and appropriate for any discharges to surface water. However, there are no planned discharges to surface waters.

(table continues)

Table B2-1 (continued)

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C., ch. 103, §§ 9601–9675)[c]				
ACLs using a point of exposure beyond the facility boundary.	Known or projected points of entry from groundwater to surface water.	CERCLA Section 121(d)(2)(B)(ii) 42 U.S.C., ch. 103, § 9621	Not an ARAR	There are no planned discharges to surface water.
Resource Conservation and Recovery Act (42 U.S.C., ch. 82, §§ 6901–6991[i])[c]				
Definition of RCRA hazardous waste.	Waste.	Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100	Not an ARAR	Applicable for determining whether waste is hazardous. However, surface water is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to surface water.
A solid waste is characterized as toxic, based on the TCLP, if the waste exceeds the TCLP maximum concentrations.	Waste.	40 C.F.R. pt. 261.24(a) Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B)	Not an ARAR	Applicable for determining whether waste is hazardous. However, surface water is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to surface water.
AIR				
Clean Air Act (42 U.S.C., ch. 85, §§ 7401–7671)[c]				
NAAQS: Primary and secondary standards for ambient air quality to protect public health and welfare (including standards for particulate matter and lead).	Contamination of air affecting public health and welfare.	40 C.F.R. § 50.4–50.12	Not an ARAR	Not enforceable and therefore not an ARAR. Additional ARARs are evaluated in Section B4.

(table continues)

Table B2-1 (continued)

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
ARAR – applicable or relevant and appropriate requirement
BAT – best available technology
BCPCT – best conventional pollution control technology
Cal. Code Regs. – *California Code of Regulations*
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R. – *Code of Federal Regulations*
ch. – chapter
DON – Department of the Navy
EE/CA – engineering evaluation/cost analysis
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
POC – point of compliance
pt. – part
RCRA – Resource Conservation and Recovery Act
§ – section
SMCL – secondary maximum contaminant level
TCLP – toxicity characteristic leaching procedure
tit. – title
U.S.C. – *United States Code*

Table B2-2
Potential State Chemical-Specific[a] ARARs by Medium

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
GROUNDWATER, SURFACE WATER, SOIL, SEDIMENTS, AND AIR				
Cal-EPA Department of Toxic Substances Control[c]				
Definition of "non-RCRA hazardous waste."	Waste.	Cal. Code Regs. tit. 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	Applicable for determining whether a waste is a non-RCRA hazardous waste. However, the soil subject to removal will be treated as potential RCRA hazardous waste during on-site activities.
State MCL list.	Source of drinking water.	Cal. Code Regs. tit. 22, §§ 64431 and 64444	Not an ARAR	Neither groundwater nor surface water is included in the scope of the EE/CA.
State secondary MCL list.	Source of drinking water.	Cal. Code Regs. tit. 22, § 64449(a)	Not an ARAR	Neither groundwater nor surface water is included in the scope of the EE/CA.
State and Regional Water Quality Control Boards[c]				
Authorizes the SWRCB and RWQCB to establish in water quality control plans beneficial uses and numerical and narrative standards to protect both surface water and groundwater quality. Authorizes regional water boards to issue permits for discharges to land or surface or groundwater that could affect water quality, including NPDES permits, and to take enforcement action to protect water quality.		Cal. Water Code, div. 7, §§ 13241, 13243, 13263(a), 13269, and 13360 (Porter-Cologne Water Quality Control Act)	Not an ARAR	Neither groundwater nor surface water is included in the scope of the EE/CA.

(table continues)

Table B2-2 (continued)

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
		Cal. Water Code, div. 7, § 13304	Not an ARAR	Section 13304 does not constitute an ARAR because it does not itself establish or contain substantive environmental "standards, requirements, criteria or limitations" (CERCLA 121) and is not in itself directive in intent. In addition, Section 13304 is not more stringent than the substantive requirements of the potential state and federal ARARs identified in this table and Table B2-1.
Describes the water basins in the Santa Ana 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, and incorporates statewide water quality control plans and policies.		Comprehensive Water Quality Control Plan for the Santa Ana Region (Basin Plan) (Cal. Water Code § 13240)	Not an ARAR	Neither groundwater nor surface water is included in the scope of the EE/CA. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.

(table continues)

Table B2-2 (continued)

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
Establishes the policy that high-quality waters of the state "shall be maintained to the maximum extent possible" consistent with the "maximum benefit to the people of the State." It provides that whenever the existing quality of water is better than that required by applicable water quality policies, such existing high-quality water will be maintained until it has been demonstrated to the state that any change will be consistent with maximum benefit to the people of the state, will not unreasonably affect present and anticipated beneficial use of such water, and will not result in water quality less than that prescribed in the policies. It also states that any activity that produces or may produce a waste or increased volume or concentration of waste and that discharges or proposes to discharge to existing high-quality waters will be required to meet waste-discharge requirements that will result in the best practicable treatment or control of the discharge.		Statement of Policy With Respect to Maintaining High Quality of Waters in California, SWRCB Res. 68-16	Not an ARAR	Neither groundwater nor surface water is included in the scope of the EE/CA. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
Describes requirements for RWQCB oversight of investigation and cleanup and abatement activities resulting from discharges of hazardous substances. RWQCB may decide on cleanup and abatement goals and objectives for the protection of water quality and beneficial uses of water within each region. Establishes criteria for "containment zones" where cleanup to established water-quality goals is not economically or technically practicable.		Policies and procedures for investigation and cleanup and abatement of discharges under Cal. Water Code § 13304; SWRCB Res. 92-49	Not an ARAR	Neither groundwater nor surface water is included in the scope of the EE/CA. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.

(table continues)

Table B2-2 (continued)

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
Incorporated into all regional board basin plans. Designates all groundwater and surface waters of the state as drinking water except where the total dissolved solids are greater than 3,000 ppm, the well yield is less than 200 gpd from a single well, the water is a geothermal resource or in a water conveyance facility, or the water cannot reasonably be treated for domestic use using either best management practices or best economically achievable treatment practices.		SWRCB Res. 88-63 (Sources of Drinking Water Policy)	Not an ARAR	Neither groundwater nor surface water is included in the scope of the EE/CA.
Establishes concentration limits for cleanup actions, including groundwater, surface water, and the unsaturated zones for other than hazardous waste at background. Allows a higher cleanup limit (but not to exceed MCLs) if background is not technically or economically achievable.		Cal. Code Regs. tit. 27, §§ 20380(a); 20400(a), (c), (d), (e), and (g); and 20405	Not an ARAR	The site is not a regulated unit and the proposed removal action does not include on-site treatment, storage, or disposal.
Establishes concentration limits for cleanup actions, including groundwater, surface water, and the unsaturated zones for hazardous waste at background. Allows a higher cleanup limit (but not to exceed MCLs) if background is not technically or economically achievable.		Cal. Code Regs. tit. 23, §§ 2550(a); 2550.4(d), (e), and (f); and 2550.5	Not an ARAR	Cal. Code Regs. tit. 23, § 2550(a) addresses the general applicability of other standards in Chapter 15 and does not contain standards itself. Cal. Code Regs. tit. 23, §§ 2550.4(d), (e), and (f) and 2550.5 are not potential ARARs because the site is not a regulated unit and the proposed removal action does not include treatment, storage, or disposal on-site.

(table continues)

Table B2-2 (continued)

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
Establishes beneficial uses of ocean waters, numerical and narrative WQOs, effluent quality objectives including toxic material limitations, and discharge prohibitions.		California Ocean Plan, Water Quality Control Plan for Ocean Waters of California, SWRCB Res. 97-026 (Cal. Water Code § 13170.2)	Not an ARAR	Neither groundwater nor surface water is included in the scope of the EE/CA.
Requires analysis for each priority pollutant to determine if water-quality-based effluent limitation is required. Provides effluent limitation development methodology.	Discharges of toxic priority pollutants into inland surface waters, bays, or estuaries.	Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Inland Surface Waters Plan) (SWRCB 2000), §§ 1.3 and 1.4	Not an ARAR	Discharges into inland surface waters, enclosed bays, or estuaries are not included in the scope of this EE/CA.
Definitions of designated waste, nonhazardous waste, and inert waste.		Cal. Code Regs. tit. 27, §§ 20210, 20220, and 20230	Not an ARAR	Potential ARARs for classifying waste and determining ARAR status of other requirements. The waste characterization requirements described in this section are not potential ARARs because the waste is assumed to be similar to RCRA hazardous waste and will be handled on-site under the identified RCRA ARARs.
California ambient air quality standards set legal limits on the level of an air pollutant in the outdoor (ambient) air necessary to protect public health.	Lead emissions of 1.5 $\mu g/m^3$ (30-day average)	Cal. Code Regs. tit. 17, §§ 70200	Not an ARAR	Not enforceable and, therefore, not a potential ARAR.

(table continues)

Table B2-2 (continued)

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 specific citations are considered potential ARARs

Acronyms/Abbreviations:

ARAR – applicable or relevant and appropriate requirement
Cal. Code Regs. – *California Code of Regulations*
Cal-EPA – California Environmental Protection Agency
Cal. Water Code – *California Water Code*
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
div. – division
DON – Department of the Navy
EE/CA – engineering evaluation/cost analysis
gpd – gallons per day
$\mu g/m^3$ – micrograms per cubic meter
MCL – maximum contaminant level
NPDES – National Pollutant Discharge Elimination System
ppm – parts per million
RCRA – Resource Conservation and Recovery Act
Res. – resolution
RWQCB – (California) Regional Water Quality Control Board, Santa Ana Region
§ – section
SWRCB – (California) State Water Resources Control Board
tit. – title
WQO – water quality objective

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Section B3
LOCATION-SPECIFIC ARARs

Potential location-specific ARARs are identified and discussed in this section. The discussions are presented based on various attributes of the site location, such as whether it is within a floodplain. Additional surveys will be performed in connection with the removal action design and removal action to confirm location-specific ARARs where inadequate siting information currently exists, or in the event of changes to planned facility locations.

B3.1 SUMMARY OF LOCATION-SPECIFIC ARARs

Cultural and other natural resources are the resource categories relating to location-specific requirements potentially affected by the SWMU 24 removal action alternatives. The conclusions for ARARs pertaining to these resources are presented in the following sections.

B3.1.1 Cultural Resources ARARs Conclusions

There are no cultural resources ARARs for the proposed removal action alternatives for SWMU 24. Table B3-1 lists the requirements evaluated with brief discussions of ARAR status.

B3.1.2 Wetlands Protection and Floodplain Management Conclusions

There are no wetland or floodplain resources ARARs for the proposed removal action alternatives for SWMU 24. Table B3-1 lists the requirements evaluated with brief discussions of ARAR status.

B3.1.3 Hydrologic Resources Conclusions

There are no hydrologic resources ARARs for the proposed removal action alternatives for SWMU 24. Table B3-1 lists the requirements evaluated with brief discussions of ARAR status.

B3.1.4 Biological Resources Conclusions

The reported terrestrial habitats at SWMU 24 are approximately 1,800 feet from the Seal Beach National Wildlife Refuge, which is an aquatic habitat. There are no National Wildlife Refuge System Administration Act ARARs.

Proposed removal options for SWMU 24 do not entail the taking of animals or birds. However, the substantive requirements of California Fish and Game Code (Cal. Fish & Game Code) § 3005(a) regarding the taking of birds and mammals are potentially relevant and appropriate.

B3.1.5 Coastal Resources Conclusions

There are no coastal resources ARARs for the proposed removal action alternatives for SWMU 24. Tables B3-1 and B3-2 list the requirements evaluated with brief discussions of ARAR status.

B3.1.6 Geologic Characteristics Conclusions

There are no geologic ARARs for the proposed removal action alternatives for SWMU 24. Table B3-1 lists the requirements evaluated with brief discussions addressing ARAR status.

B3.2 DETAILED DISCUSSION OF ARARs

The following subsections provide a detailed discussion of federal and state ARARs by location-specific resources. Pertinent and substantive provisions of the potential ARARs listed and described below were reviewed to determine whether they are potential federal or state ARARs for the SWMU 24 soil EE/CA.

Requirements that are determined to be ARARs or TBCs are identified in Table B3-1 (federal) and Table B3-2 (state) at the end of this section. ARARs determinations are presented in the column denoted by the heading ARAR Determination. Determinations of status for location-specific ARARs were generally based on consultation of maps or lists included in the regulation or prepared by the administering agency. References to the document or agency consulted are provided in the Comments column and may be provided in footnotes to the table. Specific issues concerning some of the requirements are discussed in the following sections.

B3.2.1 Biological Resources ARARs

The following requirements were evaluated as potential ARARs for this EE/CA:

- Endangered Species Act (ESA) of 1973 (substantive provisions of 16 U.S.C. §§ 1531–1543)
- Migratory Bird Treaty Act of 1972 (substantive provisions of 16 U.S.C. §§ 703–712)
- Marine Mammal Protection Act (substantive provisions of 16 U.S.C. §§ 1361–1421h)
- Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §§ 1801–1882)
- Wilderness Act (16 U.S.C. §§ 1131–1136, 50 C.F.R. § 35.1–35.14)
- California ESA (Cal. Fish & Game Code, ch. 1.5, §§ 2050–2116)

B3.2.1.1 FEDERAL

Endangered Species Act of 1973

The ESA of 1973 (16 U.S.C. §§ 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 C.F.R. § 402 are administrative in nature and are therefore not ARARs. However, they may be TBCs to comply with the substantive provisions of the ESA. Neither threatened nor endangered species have been observed at SWMU 24; therefore, the substantive requirements of this statute are not potential ARARs.

Migratory Bird Treaty Act of 1972

The Migratory Bird Treaty Act (16 U.S.C. §§ 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 C.F.R. § 10.13. Migratory birds, however, have not been observed at SWMU 24; therefore, the substantive requirements of this statute are not potential ARARs.

Marine Mammal Protection Act

The Marine Mammal Protection Act (16 U.S.C. §§ 1361–1421h) prohibits the taking of a marine mammal on the high seas or in a harbor or other place under the jurisdiction of the United States. It prohibits the possession, transport, and sale of a mammal or marine mammal product, unless authorized under law. The prohibitions that are potentially pertinent to CERCLA actions are at 16 U.S.C. § 1372(a)(2). Marine mammals have not been observed at SWMU 24; therefore, this requirement is not a potential ARAR.

Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended

The purpose of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §§ 1801–1882) is to conserve and manage the fishery resources found off the coasts of the United States, the anadromous species, and the continental shelf fishery resources of the United States. It establishes a fishery conservation zone within which the United States has exclusive fishery management prerogatives. There are no fishery resources at SWMU 24; therefore, this requirement is not a potential ARAR.

Wilderness Act

The Wilderness Act (16 U.S.C. § 1131) and its accompanying implementing regulations (50 C.F.R. § 35.1–35.14) create the National Wilderness Preservation System. The intent of the law is to administer and manage units of this system (i.e., wilderness areas) in order to preserve their wilderness character and to leave them unimpaired for future use as wilderness. SWMU 24 is not a federally owned wilderness area; therefore, this requirement is not a potential ARAR.

B3.2.1.2 STATE

California Endangered Species Act

Neither endangered species nor rare or native species have been observed at SWMU 24. Substantive provisions of the California ESA, set forth in the Cal. Fish & Game Code §§ 2050–2068 and 2070–2079, have been identified previously by the state as potential state ARARs. However, §§ 2050–2068 and 2070–2079 were determined to be procedural and nonsubstantive.

California Fish and Game Code

Proposed removal options for SWMU 24 do not entail the taking of animals or birds. However, the substantive requirements of Cal. Fish & Game Code § 3005(a) regarding the taking of birds and mammals are potentially relevant and appropriate.

B3.2.2 Coastal Resources ARARs

There are no coastal resources ARARs for the proposed removal action alternatives for SWMU 24; however, the following requirements were reviewed as potential ARARs for this EE/CA:

- Coastal Zone Management Act (CZMA) (substantive provisions of 16 U.S.C. §§ 1451–1464, 15 C.F.R. § 930)
- California Coastal Act of 1976 (California Public Resources Code [Cal. Pub. Res. Code] §§ 30000–30900; Cal. Code Regs. tit. 14, §§ 13001–13666.4)

B3.2.2.1 FEDERAL

Coastal Zone Management Act

The CZMA (16 U.S.C. §§ 1451–1464) and the accompanying implementing regulations in 15 C.F.R. § 930 require that federal agencies conducting or supporting activities directly affecting the coastal zone conduct or support those activities in a manner that is consistent with the approved state coastal zone management programs. A state coastal zone management program (developed under state law and guided by the CZMA) sets forth objectives, policies, and standards to guide public and private uses of lands and water in the coastal zone.

B3.2.2.2 STATE

California Coastal Act of 1976

The Cal. Pub. Res. Code §§ 30000–30900 and Cal. Code Regs. tit. 14, §§ 13001–13666.4 regulate activities associated with development to control direct significant impacts on coastal waters and to protect state and national interests in California coastal resources. 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 (Cal. Pub. Res. Code §§ 30210–30224); protection, enhancement, and restoration of environmentally sensitive habitats including intertidal and nearshore waters, wetlands, bays and estuaries, riparian habitat, grasslands, streams, lakes, and habitat for rare or endangered plants or animals (Cal. Pub. Res. Code §§ 30230–30240), protection of productive agricultural lands, commercial fisheries, and archeological resources (Cal. Pub. Res. Code §§ 30234, 30241–30244), protection of the scenic beauty of coastal landscapes (Cal. Pub. Res. Code § 30251), and provisions for expansion, in an environmentally sound manner, of existing industrial ports and electricity-generating power plants (Cal. Pub. Res. Code § 30264).

Table B3-1
Potential Federal Location-Specific ARARs

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
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 U.S.C. § 470–470x-6 36 C.F.R. pt. 800 40 C.F.R. § 6.301(b)	Not an ARAR	Substantive provisions are not applicable because SWMU 24 does not fall within a known archaeological site.
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 U.S.C. § 469–469c-1 40 C.F.R. § 6.301(c)	Not an ARAR	Substantive provisions are not applicable because SWMU 24 does not fall within a known archaeological site.
Historic Sites, Buildings, and Antiquities Act of 1935 (16 U.S.C. §§ 461–467)[b]					
Historic sites	Avoid undesirable impacts on landmarks.	Areas designated as historic sites.	16 U.S.C. §§ 461–467 40 C.F.R. § 6.301(a)	Not an ARAR	These requirements are not substantive and are not potential ARARs. SWMU 24 does not fall within a known archaeological site.

(table continues)

Table B3-1 (continued)

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
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 U.S.C. § 470aa–470mm	Not an ARAR	Substantive provisions are not applicable because SWMU 24 does not fall within a known archaeological site.
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 C.F.R. § 6.302(a)	Not an ARAR	The SWMU 24 removal action alternative will not take place at or near a wetland.
Exec. Order No. 11988, Floodplain Management[b]					
Within floodplain	Actions taken should avoid adverse effects, minimize potential harm, restore and preserve natural and beneficial values.	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 C.F.R. § 6.302(b) 40 C.F.R. pt. 6, app. A	Not an ARAR	The SWMU 24 removal action alternative will not take place within a 100-year floodplain.
Clean Water Act of 1977, as Amended, Section 404 (33 U.S.C. § 1344)[b]					
Wetland	Action to prohibit discharge of dredged or fill material into wetland without permit.	Wetland as defined by Exec. Order No. 11990 Section 7.	33 U.S.C. § 1344	Not an ARAR	The SWMU 24 removal action alternative will not include the discharge of dredged or fill material to a wetland.

(table continues)

Table B3-1 (continued)

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
Resource Conservation and Recovery Act (33 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.	Cal. Code Regs. tit. 22, § 66264.18(b)	Not an ARAR	The SWMU 24 removal action alternative will not take place within a 100-year floodplain.
Wild and Scenic Rivers Act (16 U.S.C. §§ 1271–1287)[b]					
Within area affecting national wild, scenic, or recreational river	Avoid taking or assisting in action that will have direct adverse effect on scenic river.	Activities that affect or may affect any of the rivers specified in 16 U.S.C. §1276(a).	16 U.S.C. §§ 1271–1287	Not an ARAR	The SWMU 24 removal action alternative will not impact wild, scenic, or recreational rivers.
Fish and Wildlife Coordination Act (16 U.S.C. §§ 661–666c)[b]					
Area affecting stream or other water body	Action taken should protect fish or wildlife.	Diversion, channeling, or other activity that modifies a stream or other water body and affects fish or wildlife.	16 U.S.C. § 662	Not an ARAR	The SWMU 24 removal action alternative does not include modification of a stream or other water body and affect fish or wildlife.
Rivers and Harbors Act of 1899 (33 U.S.C. §§ 401–413)[b]					
Navigable waters	Permits required for structures or work in or affecting navigable waters.	Activities affecting navigable waters.	33 U.S.C. § 403 33 C.F.R. § 322	Not an ARAR	The SWMU 24 removal action alternative will not include activities, such as dredging, that could affect navigable waters.

(table continues)

Table B3-1 (continued)

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
Endangered Species Act of 1973 (16 U.S.C. §§ 1531–1543)[b]					
Habitat upon which endangered species or threatened species depend	Federal agencies may not jeopardize the continued existence of any listed species or cause the destruction or adverse modification of critical habitat. The Endangered Species Committee may grant an exemption for agency action if reasonable mitigation and enhancement measures such as propagation, transplantation, and habitat acquisition and improvement are implemented.	Determination of effect upon endangered or threatened species or its habitat. Critical habitat upon which endangered species or threatened species depend.	16 U.S.C. § 1536(a), (h)(1)(B)	Not an ARAR	The SWMU 24 removal action alternative is not planned at or near threatened or endangered species habitats.
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 United States from unregulated "take," which can include poisoning at hazardous waste sites.	Presence of migratory birds.	16 U.S.C. § 703	Not an ARAR	Migratory birds have not been observed at or near SWMU 24.
Marine Mammal Protection Act (16 U.S.C. §§ 1361–1421h)[b]					
Marine mammal area	Protects any marine mammal in the United States except as provided by international treaties from unregulated "take."	Presence of marine mammals.	16 U.S.C. § 1372(a)(2)	Not an ARAR	Marine mammals are not present at or near SWMU 24. In addition, the removal action alternative will not constitute a take of a marine mammal.

(table continues)

Table B3-1 (continued)

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
Magnuson-Stevens Fishery Conservation and Management Act of 1976, as Amended (16 U.S.C. §§ 1801–1882)[b]					
Fishery under management	Provides for conservation and management of specified fisheries within specified fishery conservation zones.	Presence of managed fisheries.	16 U.S.C. §§ 1801–1882	Not an ARAR	A managed fishery does not exist at or near SWMU 24.
National Wildlife Refuge System Administration Act of 1996 (16 U.S.C. § 668dd–668ee)[b]					
Wildlife refuge	No person shall take any animal or plant on any national wildlife refuge, except as authorized under 50 C.F.R. § 27.51. The disposing or dumping of wastes is prohibited.	Area designated as part of National Wildlife Refuge System.	16 U.S.C § 668dd–668ee Substantive provisions of 50 C.F.R. § 27.11–27.97	Not an ARAR	SWMU 24 is approximately 1,800 feet from a national wildlife refuge.
Wilderness Act (16 U.S.C. §§ 1131–1136)[b]					
Wilderness area	Area must be administered in such a manner as will leave it unimpaired as wilderness and preserve its wilderness character.	Federally owned area designated as wilderness area.	16 U.S.C. §§ 1131–1136 50 C.F.R. §§ 35.1–35.14	Not an ARAR	The area to be affected by the removal action alternative is not a federally owned wilderness area.
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 thereunder and adjacent shore land.	16 U.S.C. § 1456(c) 15 C.F.R. § 930	Not an ARAR	The SWMU 24 removal action alternative will not affect a coastal zone. In addition, the DON does not view the procedure of preparing a formal coastal consistency document and seeking California Coastal Commission concurrence as a valid ARAR.

(table continues)

Table B3-1 (continued)

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
Resource Conservation and Recovery Act (42 U.S.C. §§ 6901–6991[i])[b]					
Within 61 meters (200 feet) of a fault displaced in Holocene time	New treatment, storage, or disposal of hazardous waste prohibited.	RCRA hazardous waste; treatment, storage, or disposal of hazardous waste.	Cal. Code Regs. tit. 22, § 66264.18(a)	Not an ARAR	SWMU 24 is not near a Holocene fault.
Within salt dome formation, underground mine, or cave	Placement of noncontainerized or bulk liquid hazardous waste prohibited.	RCRA hazardous waste; placement.	Cal. Code Regs. tit. 22, § 66264.18(c)	Not an ARAR	SWMU 24 is not near a salt formation, mine, or cave.

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
Cal. Code Regs. – *California Code of Regulations*
C.F.R. – *Code of Federal Regulations*
DON – Department of the Navy
Exec. Order No. – executive order number
pt. – part
Pub. L. No. – public law number
RCRA – Resource Conservation and Recovery Act
§ – section
tit. – title
U.S.C. – *United States Code*

Table B3-2
Potential State Location-Specific ARARs

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
California Endangered Species Act (Cal. Fish & Game Code §§ 2050–2116)[b]					
Rare native plants	No person may take rare or endangered native plants.	Activity that would involve the taking of a rare or endangered native plant.	Cal. Fish & Game Code § 1908	Not an ARAR	Rare and endangered native plants have not been observed at SWMU 24.
Endangered species habitat	Department policy and legislative findings and definitions for significant natural areas.	Activity taking place in an endangered species habitat and significant natural area.	Cal. Fish & Game Code §§ 2050–2068	Not an ARAR	Procedural; not a "cleanup standard, standard of control," or "other substantive requirement, criteria, or limitation."
Endangered species habitat	Procedures for listing endangered species.	Threatened or endangered species determination.	Cal. Fish & Game Code § 2070	Not an ARAR	Procedural; not a "cleanup standard, standard of control," or "other substantive requirement, criteria, or limitation."
Endangered species habitat	No person shall import, export, take, possess, or sell any endangered or threatened species or part or product thereof.	Threatened or endangered species determination on or before 01 January 1985 or a candidate species with proper notification.	Cal. Fish & Game Code § 2080	Not an ARAR	Neither threatened nor endangered species/habitats have been observed at SWMU 24.
Endangered species habitat	Ensures that action taken will not jeopardize the survival and reproduction of any threatened or endangered species.	Threatened or endangered species determination or a candidate species with proper notification.	Cal. Fish & Game Code §§ 2090–2096	Not an ARAR	Not effective after 01 January 1994.

(table continues)

Table B3-2 (continued)

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
Wildlife species	Prohibits the taking (including poisoning) of birds and mammals.	Activity that would involve the taking of birds or mammals.	Cal. Fish & Game Code § 3005(a)	Relevant and appropriate	The soil at the site may potentially be a risk to birds at the site that is similar to a poison. The removal action alternative at SWMU 24 will not involve the taking of birds or mammals.
Aquatic habitat/species	Prohibits the deposition of materials into state waters that will be deleterious to aquatic habitats or species.	Activity that would involve deposition of materials to waters of the state.	Cal. Fish & Game Code § 5650	Not an ARAR	The SWMU 24 removal action alternative will not include deposition of any materials to waters of the 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; Cal. Code Regs. tit. 14, §§ 13001–13666.4	Not an ARAR	The SWMU 24 removal action alternative will not impact coastal waters.

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 follow each general heading; only substantive requirements of the specific citations are considered potential ARARs

Acronyms/Abbreviations:

ARAR – applicable or relevant and appropriate requirement
Cal. Code Regs. – *California Code of Regulations*
Cal. Fish & Game Code – *California Fish and Game Code*
Cal. Pub. Res. Code – *California Public Resources Code*
DON – Department of the Navy
§ – section
tit. – title

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Section B4
ACTION-SPECIFIC ARARs

This EE/CA report evaluates removal action alternatives for SWMU 24 NAVWPNSTA Seal Beach. This ARARs analysis is based on two alternatives for the site. Alternative 1 is no action and Alternative 2 entails excavation with off-site disposal. Detailed descriptions of the removal alternatives are provided in the main text of this EE/CA report.

Tables B4-1 and B4-2 at the end of this section present and evaluate federal and state potential action-specific ARARs, respectively, for SWMU 24. A discussion of the requirements determined to be pertinent to each alternative being evaluated for SWMU 24 is presented in this section. A discussion of how the alternative complies with each identified ARAR is also provided.

B4.1 ALTERNATIVE 1, NO ACTION

There is no need to identify ARARs for the no action alternative because ARARs apply to "any removal or remedial action conducted entirely on-site" and "no action" is not a removal or remedial action (CERCLA Section 121(e), 42 U.S.C. § 9621[e]). CERCLA § 121 (42 U.S.C. § 9621) cleanup standards for selection of a Superfund remedy, including the requirement to meet ARARs, are not triggered by the no action alternative (U.S. EPA 1991b). Therefore, a discussion of compliance with action-specific ARARs is not appropriate for this alternative.

B4.2 ALTERNATIVE 2, EXCAVATION WITH OFF-SITE DISPOSAL

Discussions of compliance with federal and state action-specific ARARs for Alternative 2 are presented in the following sections.

B4.2.1 Federal

The key threshold question for soil ARARs is whether or not the waste generated during the removal action at SWMU 24 would be classified as a hazardous waste. The soil may be classified as federal hazardous waste as defined by RCRA and the state-authorized program, as non-RCRA state-regulated hazardous waste, or as nonhazardous waste. If the soil is determined to be hazardous waste, the appropriate requirements will apply. Comparing the site waste to the definition of RCRA hazardous waste can make the determination of whether a waste is a RCRA hazardous waste. The RCRA requirements at Cal. Code Regs. tit. 22, §§ 66262.10(a), 66262.11, 66264.13(a) and (b), and 66262.34 are potentially applicable ARARs because they identify the RCRA hazardous waste requirements associated with generation and on-site accumulation.

For temporary storage of excavated soil, 40 C.F.R., § 264.554 requirements for staging piles were evaluated. The substantive requirements are potentially applicable ARARs for the temporary storage of excavated soil during characterization prior to off-site disposal.

SCAQMD Rule 403 applies to any source of dust or fumes, including lead and lead-contaminated soil. The rule states activities shall not cause or allow emissions of fugitive dust such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source and shall not cause or allow levels of

particulate matter less than 10 micrometers in diameter to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples. This rule is potentially applicable to removal activities at the site. Engineering controls, such as spraying water, will be used to prevent visible dust from leaving the property.

B4.2.2 State

Actions impacting birds or mammals are regulated in Cal. Fish & Game Code § 3005(a). These requirements prohibit the taking of birds and mammals, including the taking by poison. Though it is not anticipated that birds or mammals will be taken during removal activities at SWMU 24, the substantive provisions pertaining to the take of birds or mammals with a poisonous substance are potentially applicable.

SCAQMD Rule 402 for nuisance emissions was evaluated as a potential ARAR for the potential air emissions at SWMU 24. This is not a potential federal ARAR because it is not included in the Site Inspection Plan. The nuisance standard states that a person shall not discharge from any source such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to a considerable number of persons or to the public.

The nuisance rule includes subjective, nonenvironmental criteria such as "annoyance," "comfort," and "repose." As such, the DON is troubled by the vague and subjective nature of the nuisance rule and the lack of objective "standards, requirements, criteria, or limitations" within the meaning of Section 121(d)(2) of CERCLA. Other federal and state ARARs addressing actual and potential air emissions will assure adequate protection of human health and the environment. SCAQMD Rule 402 was not determined to be an ARAR.

Table B4-1
Potential Federal Action-Specific ARARs

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal

Action	Requirement	Prerequisites	Citation	ARAR Determination A	ARAR Determination RA	ARAR Determination TBC	Comments
Resource Conservation and Recovery Act (42 U.S.C. §§ 6901–6991[i])[b]							
On-site waste generation	Person who generates waste shall determine if that waste is a hazardous waste.	Generator of waste.	Cal. Code Regs. tit. 22, § 66262.10(a), 66262.11	2			Applicable for any operation where hazardous waste is generated. There is a potential for excavated soils to be classified as RCRA hazardous waste due to localized concentrations of lead. The determination of whether wastes generated during removal 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.	Cal. Code Regs. tit. 22, § 66264.13(a) and (b)	2			Applicable for any operation where hazardous waste is generated. There is a potential for excavated soils to be classified as RCRA hazardous waste due to localized concentrations of lead. The determination of whether wastes generated during removal activities are hazardous will be made at the time the wastes are generated.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal

Action	Requirement	Prerequisites	Citation	ARAR Determination A	ARAR Determination RA	ARAR Determination TBC	Comments
Hazardous waste accumulation	On-site hazardous waste accumulation is allowed for up to 90 days as long as the waste is stored in containers or tanks, on drip pads, or inside buildings, is labeled and dated, etc.	Accumulation of hazardous waste.	Cal. Code Regs. tit. 22, § 66262.34	2			Applicable for any operation where hazardous waste is generated. The determination of whether wastes generated during removal action activities are hazardous will be made at the time the wastes are generated.
Site closure	Minimize the need for further maintenance controls and minimize or eliminate, to the extent necessary to protect human health and the environment, postclosure escape of hazardous waste, hazardous constituents, leachate, contaminated rainfall or runoff, or waste decomposition products to groundwater or surface water or to the atmosphere.	Hazardous waste management facility.	Cal. Code Regs. tit. 22, § 66264.111(a) and (b)	Not an ARAR			No land-based disposal units are planned for waste management.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Clean closure	During the partial and final closure periods, all contaminated equipment, structures and soils shall be properly disposed or decontaminated by removing all hazardous waste and residues.	Hazardous waste management facility.	Cal. Code Regs. tit. 22, § 66264.114	Not an ARAR			The proposed removal action does not include clean closure of a hazardous waste management facility.
Container storage	Containers of RCRA hazardous waste must be: • maintained in good condition, • compatible with hazardous waste to be stored, and • closed during storage except to add or remove waste.	Storage of RCRA hazardous waste not meeting small-quantity generator criteria held for a temporary period greater than 90 days before treatment, disposal, or storage elsewhere, in a container.	Cal. Code Regs. tit. 22, § 66264.171, .172, .173	Not an ARAR			No container storage is proposed for the removal action.
	Inspect container storage areas weekly for deterioration.		Cal. Code Regs. tit. 22, § 66264.174	Not an ARAR			Container storage is not proposed.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal

Action	Requirement	Prerequisites	Citation	ARAR Determination A	ARAR Determination RA	ARAR Determination TBC	Comments
Container storage (continued)	Place containers on a sloped, crack-free base, and protect from contact with accumulated liquid. Provide containment system with a capacity of 10 percent of the volume of containers of free liquids. Remove spilled or leaked waste in a timely manner to prevent overflow of the containment system.	Storage in a container of RCRA hazardous waste not meeting small-quantity generator criteria held for a temporary period greater than 90 days before treatment, disposal, or storage elsewhere.	Cal. Code Regs. tit. 22, § 66264.175(a) and (b)	Not an ARAR			The DON does not plan to store hazardous wastes in containers.
	Keep containers of ignitable or reactive waste at least 50 feet from the facility property line.	Ignitable or reactive waste.	Cal. Code Regs. tit. 22, § 66264.176	Not an ARAR			The DON does not plan to store hazardous wastes in containers.
	Keep incompatible materials separate. Separate incompatible materials stored near each other by a dike or other barrier.		Cal. Code Regs. tit. 22, § 66264.177	Not an ARAR			The DON does not plan to store hazardous wastes in containers.
	At closure, remove all hazardous waste and residues from the containment system, and decontaminate or remove all containers and liners.		Cal. Code Regs. tit. 22, § 66264.178	Not an ARAR			The DON does not plan to store hazardous wastes in containers.
Placement of waste in land disposal units	Movement of excavated materials to new location and placement in or on land will trigger LDRs for the excavated waste or closure requirements for the unit in which the waste is being placed.	Materials containing RCRA hazardous wastes subject to LDRs are placed in another unit.	Cal. Code Regs. tit. 22, § 66268.40	Not an ARAR			Disposal or placement of waste on land is not included as part of the proposed removal alternative. Soil excavated and sifted during proposed removal activities will be removed for off-site disposal.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Placement of waste in land disposal units (continued)	Treatment of waste subject to ban on land disposal must attain levels achievable by BDAT for each hazardous constituent in each listed waste, if residual is to be land disposed.	Placement of RCRA hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, or underground mine or cave.	Cal. Code Regs. tit. 22, § 66268.42	Not an ARAR			Disposal or placement of waste on land is not included as part of the proposed removal alternative. Soil excavated and sifted during proposed removal activities will be removed for off-site disposal.
	BDAT standards for spent solvent wastes and dioxin-containing wastes are based on one of four technologies or combinations: for wastewaters, (1) steam stripping, (2) biological treatment, or (3) carbon absorption; and for all other wastes, (4) incineration. Any technology may be used, however, if it will achieve the concentration levels specified.	Solvent or dioxin-containing wastes.	Cal. Code Regs. tit. 22, § 66268.30, § 66268.31	Not an ARAR			Neither solvent- nor dioxin-containing wastes have been identified at the site.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Clean closure	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. If waste is left on-site, closure and postclosure care requirements are necessary.	Surface impoundments, container or tank liners, and hazardous waste residues or contaminated soil (including soil from dredging or soil disturbed in the course of drilling or excavation) returned to land. Not applicable to material treated, stored, or disposed only before the effective date of the requirements, or if treated *in situ* or consolidated within the area of contamination.	Cal. Code Regs. tit. 22, § 66264.228(a), (b), (e)–(k), (m), (o)–(q) except as it cross-references procedural requirements such as closure plans and annual reports	Not an ARAR			No land-based disposal units are planned for waste management.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Waste pile	Use a single liner and leachate collection system. Waste put into waste pile is subject to land ban regulations.	RCRA hazardous waste, noncontainerized accumulation of solid, nonflammable hazardous waste that is used for treatment or storage.	Cal. Code Regs. tit. 22, § 66264.251 (except 251[j], 251[e][11])	Not an ARAR			Wastes are not planned to be managed as waste piles as part of this action.
Staging pile	A staging pile must facilitate a remedy that is reliable, effective, and protective; and be designed using appropriate measures (e.g., liners, covers, run-on/run-off controls, groundwater monitoring system) to prevent or minimize releases and cross media transfers of hazardous wastes and constituents. Closure requirements for the piles are specified. The staging piles do not trigger LDRs.	Temporary (up to 2 years) storage of hazardous waste.	40 C.F.R., § 264.554		2		Potentially applicable for accumulating waste, generated during removal action, for characterization and staging prior to off-site disposal.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Closure of waste pile	At closure, owner shall remove or decontaminate all waste residues, contaminated containment system components, contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste. If waste is left on-site, perform postclosure care in accordance with the closure and postclosure care requirements that apply to landfills.	Waste pile used to store hazardous waste.	Cal. Code Regs. tit. 22, § 66264.258(a) and (b) except references to procedural requirements	Not an ARAR			Waste piles will not be used to store hazardous waste.
CAMU	An area at a RCRA facility may be designated as a CAMU. Placement of remediation wastes into or within a CAMU does not constitute land disposal of hazardous wastes nor creation of a unit subject to minimum technology requirements or LDRs.	RCRA CAMU.	Cal. Code Regs. tit. 22, § 66264.552(c) and (e)	Not an ARAR			Removal actions will not involve creation of a CAMU.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Discharge to groundwater from regulated unit	Owners/operators of RCRA surface impoundment, waste pile, land treatment unit, or landfill shall conduct a monitoring and response program for each regulated unit.	Surface impoundment, waste pile, land treatment unit, or landfill for which constituents in or derived from waste in the unit may pose a threat to human health or the environment.	Cal. Code Regs. tit. 22, § 66264.91(a) and (c), except as it cross-references permit requirements	Not an ARAR			RCRA surface impoundments, waste piles, land treatment units, or landfills are not pertinent to the scope of the proposed removal alternative for SWMU 24. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
POC	The POC is a vertical surface, located at the hydraulically downgradient limit of the waste management area that extends through the uppermost aquifer underlying the regulated unit.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.95	Not an ARAR			Groundwater is not included in the scope of the proposed removal alternative for SWMU 24.
Monitoring	Requirements for monitoring groundwater, surface water, and the vadose zone.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.97	Not an ARAR			There is no regulated unit and no treatment, storage, or disposal proposed. Groundwater and surface water are not included in the scope of the proposed removal alternative for SWMU 24.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal

Action	Requirement	Prerequisites	Citation	ARAR Determination A	ARAR Determination RA	ARAR Determination TBC	Comments
Monitoring (continued)	Requirements for a detection monitoring program.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.98	Not an ARAR			There is no regulated unit and no treatment, storage, or disposal proposed. Groundwater and surface water are not included in the scope of the proposed removal alternative for SWMU 24.
	Requirements for an evaluation monitoring program.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.99	Not an ARAR			There is no regulated unit and no treatment, storage, or disposal proposed. Groundwater and surface water are not included in the scope of the proposed removal alternative for SWMU 24. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
Corrective action	The owner or operator required to take corrective action under Cal. Code Regs. tit. 22, § 66264.91 shall take corrective action to remediate releases from the regulated unit and to ensure that the regulated unit achieves compliance with the water quality protection standard.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.100(a) and (b)	Not an ARAR			Corrective action is not pertinent to the scope of the proposed removal alternative for SWMU 24. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Corrective action (conrinued)	The owner or operator shall implement corrective action measures that ensure that constituents of concern achieve their respective concentration limits at all monitoring points and throughout the zone affected by the release, including any portions of the affected zone that extend beyond the facility boundary, by removing the waste constituents or treating them in place. The owner or operator shall take other action to prevent noncompliance due to a continued or subsequent release including, but not limited to, source control.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.100(c)	Not an ARAR			Corrective action is not pertinent to the scope of the proposed removal alternative for SWMU 24. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Monitoring	The owner or operator shall establish and implement, in conjunction with the corrective action measures, a water quality monitoring program that will demonstrate the effectiveness of the corrective action program and be effective in determining compliance with the water quality protection standard and in determining the success of the corrective action measures under subsection (c) of this section.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.100(d)	Not an ARAR			Corrective action is not pertinent to the scope of the proposed removal alternative for SWMU 24. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
Completion of response action	Completion of the corrective action program must be demonstrated to be in compliance with the water quality protection standard based on the results of sampling and analysis for all constituents of concern for a period of 1 year and establish a detection monitoring program.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.100(g)(1) and (3)	Not an ARAR			Corrective action is not pertinent to the scope of the proposed removal alternative for SWMU 24. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Clean Air Act (42 U.S.C. §§ 7401–7671)[b]							
Discharge to air	NAAQS – primary and secondary standards for ambient air quality to protect public health and welfare (including standards for particulate matter and lead).	Contamination of air affecting public health and welfare.	40 C.F.R. § 50.4–50.12	Not an ARAR			Federal NAAQS are nonenforceable standards.
Fugitive dust emissions	Shall not cause or allow emissions of fugitive dust such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source and shall not cause or allow PM_{10} levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples.	Applies to any source of dust or fumes, including lead and lead-contaminated soil.	SCAQMD Rule 403	2			Dust emissions may occur during removal activities. Engineering controls will be used to limit dust emissions.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal

Action	Requirement	Prerequisites	Citation	ARAR Determination A	ARAR Determination RA	ARAR Determination TBC	Comments
Federal Hazardous Materials Transportation Law (49 U.S.C. §§ 5101–5127)[b]							
Transportation of hazardous material	No person shall represent that a container or package is safe unless it meets the requirements of 49 U.S.C. §§ 5101–5127.	Interstate carriers transporting hazardous waste and substances by motor vehicle. Transportation of hazardous material under contract with any department of the executive branch of the federal government.	49 C.F.R. § 171.2(f)		Not an ARAR		Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.
	No person shall unlawfully alter or deface labels, placards or descriptions, packages, containers, or motor vehicles used for transportation of hazardous materials.		49 C.F.R. § 171.2(g)		Not an ARAR		Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.
Hazardous materials marking, labeling, and placarding	Each person who offers hazardous material for transportation or each carrier that transports it shall mark each package, container, and vehicle in the manner required.	Person who offers hazardous material for transportation; carries hazardous material; or packages, labels, or placards hazardous material.	49 C.F.R. § 172.300		Not an ARAR		Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Hazardous materials marking, labeling, and placarding (continued)	Each person offering nonbulk hazardous materials for transportation shall mark the proper shipping name and identification number (technical name) and consignee's name and address.		49 C.F.R. § 172.301	Not an ARAR			Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.
	Hazardous materials for transportation in bulk packages must be labeled with proper ID number, specified in 49 C.F.R. § 172.101 table, with required size of print. Packages must remain marked until cleaned or refilled with material requiring other marking.		49 C.F.R. § 172.302	Not an ARAR			Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.
	No package marked with a proper shipping name or ID number may be offered for transport or transported unless the package contains the identified hazardous material or its residue.		49 C.F.R. § 172.303	Not an ARAR			Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal

Action	Requirement	Prerequisites	Citation	ARAR Determination A	ARAR Determination RA	ARAR Determination TBC	Comments
Hazardous materials marking, labeling, and placarding (continued)	The markings must be durable, in English, in contrasting colors, unobscured, and away from other markings.		49 C.F.R. § 172.304	Not an ARAR			Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.
	Nonbulk combination packages containing liquid hazardous materials must be packed with closures upward, and marked with arrows pointing upward.		49 C.F.R. § 172.312	Not an ARAR			Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.
	Labeling of hazardous material packages shall be as specified in the list.		49 C.F.R. § 172.400	Not an ARAR			Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.
	Each bulk packaging or transport vehicle containing any quantity of hazardous material must be placarded on each side and each end with the type of placards listed in Tables 1 and 2 of 49 C.F.R. § 172.504.	Each person who offers for transport or transports any hazardous materials shall comply with these placarding requirements.	49 C.F.R. § 172.504	Not an ARAR			Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.

(table continues)

Table B4-1 (continued)

Notes:

[a] discussion of compliance with action-specific ARARs is not appropriate

[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 specific citations are considered potential ARARs

Acronyms/Abbreviations:

A – applicable
ARAR – applicable or relevant and appropriate requirement
BDAT – best demonstrated available technology
Cal. Code Regs. – *California Code of Regulations*
CAMU – corrective action management unit
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R. – *Code of Federal Regulations*
DON – Department of the Navy
EE/CA – engineering evaluation/cost analysis
LDR – land disposal restriction
NAAQS – National Ambient Air Quality Standards (primary and secondary)
PM_{10} – particulate matter, less than 10 micrometers in diameter
POC – point of compliance
RA – relevant and appropriate
RCRA – Resource Conservation and Recovery Act
§ – section
SCAQMD – South Coast Air Quality Management District
TBC – to be considered
tit. – title
U.S.C. – *United States Code*

Table B4-2
Potential State Action-Specific ARARs

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal

Action	Requirement	Prerequisites	Citation	ARAR Determination A	ARAR Determination RA	ARAR Determination TBC	Comments
State Water Resources Control Board and Regional Water Quality Control Board[b]							
Actions affecting water quality	Authorizes the SWRCB and RWQCB to establish in water quality control plans beneficial uses and numerical and narrative standards to protect both surface water and groundwater quality. Authorizes regional water boards to issue permits for discharges to land or surface water or groundwater that could affect water quality, including NPDES permits, and to take enforcement action to protect water quality.		Cal. Water Code, div. 7, §§ 13241, 13243, 13263(a), 13269, and 13360 (Porter-Cologne Water Quality Control Act); other provisions are not ARARs	Not an ARAR			Groundwater is not part of the scope for the proposed removal action at SWMU 24. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
	Describes the water basins in the Santa Ana Region, establishes beneficial uses of surface water and groundwater, establishes water quality objectives, including narrative and numerical standards, establishes implementation plans to meet water quality objectives and protect beneficial uses, and incorporates statewide water quality control plans and policies.		Comprehensive Water Quality Control Plan for the Santa Ana Region	Not an ARAR			Groundwater is not part of the scope for the proposed removal action at SWMU 24. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Discharges to high-quality waters	Incorporated into all Regional Board Basin Plans. Requires that quality of waters of the state that is better than needed to protect all beneficial uses be maintained unless certain findings are made. Discharges to high quality waters must be treated using best practicable treatment or control necessary to prevent pollution or nuisance and to maintain the highest quality water. Requires cleanup to background water quality or to lowest concentrations technically and economically feasible to achieve. Beneficial uses must, at least, be protected.		SWRCB Res. 68-16 (Policy With Respect to Maintaining High Quality of Waters in California) (Cal. Water Code § 13140, CWA regulations 40 C.F.R. § 131.12)	Not an ARAR			SWRCB Res. No. 68-16 is a potential ARAR for new discharges, not for cleanup or migration of groundwater. Groundwater is not part of the scope for the proposed removal action at SWMU 24. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
Actions affecting water quality	Provides water quality criteria for classifying the beneficial use of groundwater as municipal/domestic. Criteria outlined as follows: total dissolved solids ≤ 3,000 mg/L or yielding 200 gallons per day or serving as a public water system.	Applies in determining beneficial uses for waters that may be affected by discharges of waste.	SWRCB Res. 88-63 ("Sources of Drinking Water Policy") (as contained in the Basin Plans)	Not an ARAR			Groundwater is not part of the scope for the proposed removal action at SWMU 24.

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal

Action	Requirement	Prerequisites	Citation	ARAR Determination A	ARAR Determination RA	ARAR Determination TBC	Comments
Actions affecting water quality (continued)	Establishes policies and procedures for the oversight of investigations and cleanup and abatement activities resulting from discharges of waste which affect or threaten water quality. Requires cleanup of all waste discharged and restoration of affected water to background conditions. Requires actions for cleanup and abatement to conform to Res. 68-16 and applicable provisions of Cal. Code Regs. tit. 23, div. 3, ch. 15 as feasible.	Cleanup and discharge of groundwater to groundwater or surface water and establishment of containment zones.	SWRCB Res. 92-49 (Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Cal. Water Code § 13304) (Cal. Water Code § 13307) (02 October 1996)	Not an ARAR			Groundwater is not part of the scope for the proposed removal action at SWMU 24. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
Discharge to ocean	Describes policy for protection of ocean water quality. Includes beneficial use designations, water quality objectives, general requirements, compliance criteria, and discharge prohibitions. All discharges to the ocean must comply with criteria set forth in the Ocean Plan.	Plan is applicable to point source discharges to the ocean and nonpoint sources of waste discharge. Plan provides water quality objectives for receiving waters. Plan does not apply to discharges to enclosed bays and estuaries.	SWRCB Res. 97-026, California Ocean Plan (23 July 1997), policy set forth in Cal. Water Code, div. 7, §§ 13000, 13170, and 13170.2	Not an ARAR			There are no planned discharges to ocean waters as part of the proposed removal alternative for SWMU 24.

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Safe Drinking Water and Toxic Enforcement Act of 1986 (Prop. 65)[b]							
Discharge to drinking water source	Prohibits discharge of known human carcinogens or reproductive toxins to source of drinking water or on land where it could pass into a source of drinking water. Chemicals and applicable regulatory levels are listed in Cal. Code Regs. tit. 22, § 12000–14000.	Discharge of known human carcinogens or reproductive toxins.	Safe Drinking Water and Toxic Enforcement Act of 1986 (Prop. 65), Cal. Health & Safety Code, div. 20, § 25249.5–.13	Not an ARAR			This statute is expressly not directly applicable to the federal government. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
California Environmental Quality Act[b]							
Actions by state	Requires analysis of environmental impacts of response actions, comparison of alternative actions, and implementation of appropriate mitigation measures. No hazardous substances may remain on-site unless further mitigation is not feasible.	State actions.	CEQA, California Pub. Res. Code §§ 21100–21178, 15000, and 15002	Not an ARAR			Requirements of CEQA are applicable to state actions and not those of the federal government. The CERCLA process fulfills these requirements (see Section B1.3.2).

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Toxic Pits Cleanup Act[b]							
Action at surface impoundment	Authorizes the RWQCB to regulate surface impoundments containing hazardous waste, as defined in Cal. Code Regs. tit. 22. Prohibits discharges to such surface impoundments unless they meet specified siting and design requirements. Requires compliance with specific investigation, remediation, and reporting requirements.	Surface impoundment.	Cal. Health & Safety Code § 25208 (Toxic Pits Cleanup Act)	Not an ARAR			There is no planned discharge to or cleanup of surface impoundment as part of the proposed removal alternative.
State Water Resources Control Board[b]							
Landfill capping	Alternatives to construction or prescriptive standards.	Cal. Code Regs. tit. 27 requirements are only applicable for waste discharged after 18 July 1997 unless otherwise noted.	Cal. Code Regs. tit. 27, §§ 20080 (b) and (c) and 21090	Not an ARAR			The proposed removal alternative does not include an alternative cap or cover.

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Monitoring	Persons responsible for discharges at units that were CAI on or before 27 November 1984 may be required to develop and implement a monitoring program in accordance with subdiv. 1, subch. 3, art. 1 (Cal. Code Regs. tit 27, §§ 20380–20435).	CAI waste management unit before 27 November 1984.	Cal. Code Regs. tit. 27, § 20080(g)	Not an ARAR			SWMU 24 does not constitute a CAI waste management unit.
Disposal of waste	Requires that designated waste as defined at Cal. Water Code § 13173 be discharged to Class I or Class II waste management units.	Discharges of designated waste after 18 July 1997 (nonhazardous waste that could cause degradation of surface or ground waters) to land for treatment, storage, or disposal.	Cal. Code Regs. tit. 27, § 20210	Not an ARAR			Waste discharge is not a part of the proposed removal alternative.
	Requires that nonhazardous solid waste as defined at § 20220(a) be discharged to a classified waste management unit.	Discharge of nonhazardous solid waste after 18 July 1997 to land for treatment, storage, or disposal.	Cal. Code Regs. tit. 27, § 20220(b), (c), and (d)	Not an ARAR			Waste discharge is not a part of the proposed removal alternative.

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal

Action	Requirement	Prerequisites	Citation	ARAR Determination A	ARAR Determination RA	ARAR Determination TBC	Comments
Disposal of waste (continued)	Inert waste as defined at § 20230(a) need not be discharged at a classified unit.	Applies to discharges of inert waste to land after 18 July 1997 for treatment, storage, or disposal.	Cal. Code Regs. tit. 27, § 20230(b)	Not an ARAR			Waste discharge is not a part of the proposed removal alternative.
Monitoring	Requires detection monitoring. Once a significant release has occurred, evaluation or corrective action monitoring is required.	Discharge of waste to land after 18 July 1997.	Cal. Code Regs. tit. 27, § 20385(a)(1) and (a)(2)	Not an ARAR			Waste discharge is not a part of the proposed removal alternative. Treatment, storage, and disposal on-site are not proposed. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
Groundwater cleanup	Requires identification of the point of compliance, hydraulically downgradient from the area where waste was discharged to land.	Discharge of waste to land after 18 July 1997.	Cal. Code Regs. tit. 27, § 20405	Not an ARAR			Groundwater is not part of the scope for the proposed removal action at SWMU 24. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
Monitoring	Requires monitoring for compliance with removal action objectives for 3 years from the date of achieving cleanup levels.	Discharge of waste to land after 18 July 1997.	Cal. Code Regs. tit. 27, § 20410	Not an ARAR			Waste discharge is not a part of the proposed removal alternative.
	Requires general soil, surface water, and groundwater monitoring.	Discharge of waste to land after 18 July 1997.	Cal. Code Regs. tit. 27, § 20415	Not an ARAR			Waste discharge is not a part of the proposed removal alternative.

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Groundwater monitoring	Provides minimum requirements for a groundwater detection monitoring program.	Discharge of waste to land after 18 July 1997.	Cal. Code Regs. tit. 27, § 20420	Not an ARAR			Waste discharge is not a part of the proposed removal alternative. No on-site treatment, storage, or disposal is proposed. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
	Requires evaluation monitoring once a significant release is detected.	Discharge of waste to land after 18 July 1997.	Cal. Code Regs. tit. 27, § 20425	Not an ARAR			Waste discharge is not a part of the proposed removal alternative. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
Corrective action	Requires implementation of corrective action measures that ensure that cleanup levels are achieved throughout the zone affected by the release by removing the waste constituents or treating them in place. Source control may be required. Also requires monitoring to determine the effectiveness of the corrective actions.	Discharge of waste to land after 18 July 1997.	Cal. Code Regs. tit. 27, § 20430 except § 20430(g)(2)	Not an ARAR			There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Clean closure	When the discharger has successfully completed clean closure, the landfill shall no longer be subject to the SWRCB-promulgated requirements of this title; otherwise, the discharger shall close the landfill and carry out postclosure maintenance as though the discharger had not attempted clean closure. For the purpose of this paragraph, the discharger shall have successfully clean-closed a landfill only if all waste materials, contaminated components of the containment system, and affected geologic materials— including soils and rock beneath and surrounding the unit and groundwater polluted by a release from the unit—are either removed and discharged to an appropriate unit or treated to the extent that they no longer pose a threat to water quality; and all remaining containment features are inspected for contamination and, if contaminated, discharged in accordance with para. (f)(1).		Cal. Code Regs. tit. 27, § 21090(f)	Not an ARAR			SWMU 24 is not a landfill. In addition, clean closure of a waste management unit is not a part of the proposed removal action.

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Monitoring	Detection monitoring program may be required at CAI sites before the effective date of these requirements.	CAI site before 27 November 1984.	Cal. Code Regs. tit. 23, § 2510(g)	Not an ARAR			SWMU 24 was not CAI before 27 November 1984.
Detection monitoring	Detection monitoring program.	Cal. Code Regs. tit. 23 requirements are only applicable to waste discharges to land after 27 November 1984.	Cal. Code Regs. tit. 23, § 2550.8	Not an ARAR			SWMU 24 was not CAI before 27 November 1984.
Evaluation monitoring	Evaluation monitoring program.	Cal. Code Regs. tit. 23 requirements are only applicable to waste discharges to land after 27 November 1984.	Cal. Code Regs. tit. 23, § 2550.9	Not an ARAR			SWMU 24 was not CAI before 27 November 1984.
California Fish and Game Code[b]							
Actions involving wildlife	Designation of the Department of Fish and Game as trustee for State Fish and Wildlife Resources.		Cal. Fish & Game Code § 711.7	Not an ARAR			Not a "cleanup standard, standard of control," or "other substantive requirement, criteria, or limitation."

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal

Action	Requirement	Prerequisites	Citation	ARAR Determination A	ARAR Determination RA	ARAR Determination TBC	Comments
Rare native plants	Action must be taken to conserve native plants. Prohibits the releases and/or actions that would have a deleterious effect on species or habitat.	Rare native plants.	Cal. Fish & Game Code § 1900	Not an ARAR			Rare native plants have not been observed on or near SWMU 24.
Aquatic and wildlife species/habitat	Conservation objectives and policy for natural resources.		Cal. Fish & Game Code § 2014	Not an ARAR			This is not a "cleanup standard, standard of control," or "other substantive requirement, criteria, or limitation."
Actions impacting endangered species/habitat	Action must be taken to conserve endangered species. Prohibits releases that would have a deleterious effect on species.	Endangered or threatened species.	Cal. Fish & Game Code § 2080	Not an ARAR			Endangered species have not been observed on or near SWMU 24.
Actions impacting birds or mammals	Prohibits the taking of birds and mammals, including the taking by poison.	Birds and mammals.	Cal. Fish & Game Code § 3005(a)	2			Procedural aspects are not ARARs; certain substantive provisions pertaining to take of birds or mammals with a poisonous substance are potentially applicable. The removal activity will prevent "take" of birds and mammals by removing soil contaminants.
Actions impacting birds of prey	Action must be taken to prevent the take, possession, or destruction of any birds of prey or their eggs.	Birds of prey.	Cal. Fish & Game Code § 3503.5	Not an ARAR			Birds of prey have not been observed at SWMU 24.

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal

Action	Requirement	Prerequisites	Citation	ARAR Determination			Comments
				A	RA	TBC	
Actions impacting fully protected bird species/ habitat	Action must be taken to prevent the taking of fully protected birds.	Fully protected bird species/habitat.	Cal. Fish & Game Code § 3511	Not an ARAR			Fully protected birds and/or their habitats have not been observed at SWMU 24.
Actions impacting migratory nongame birds	Actions must be taken to prevent the take or possession of any migratory nongame birds.	Migratory nongame birds.	Cal. Fish & Game Code § 3513	Not an ARAR			Migratory nongame birds have not been observed at SWMU 24.
Actions impacting mountain lions	Action must be taken to avoid injuring, taking, possessing, or transporting any mountain lion.		Cal. Fish & Game Code § 4800	Not an ARAR			Mountain lions and/or their habitat have not been observed on or near SWMU 24.
Actions impacting fully protected mammals	Action must be taken to assure that no fully protected mammals are taken or possessed at any time.		Cal. Fish & Game Code § 4700	Not an ARAR			Fully protected mammals and/or their habitats have not been observed on or near SWMU 24.
Actions impacting fully protected reptiles and amphibians	Prohibits the take or possession of fully protected reptiles and amphibians as listed.		Cal. Fish & Game Code § 5050	Not an ARAR			Such reptiles and amphibians and/or their habitats have not been observed on or near SWMU 24.
Discharge to waters of the state	Prohibits the passage of enumerated substances or materials into waters of the state deleterious to fish, plant life, or birds.		Cal. Fish & Game Code §§ 5650(a) and (f); 5651	Not an ARAR			There is no potential for contaminants to pass into water during removal activities at SWMU 24.

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal

Action	Requirement	Prerequisites	Citation	ARAR Determination A	ARAR Determination RA	ARAR Determination TBC	Comments
Actions impacting tidal invertebrates	Prohibits the taking of mollusks, crustaceans, or other invertebrates without a permit.	Tidal invertebrates.	Cal. Fish & Game Code § 8500	Not an ARAR			Tidal invertebrates have not been observed on or near SWMU 24.
***California Code of Regulations*, Title 14, Natural Resources[b]**							
Activity affecting protected amphibians and reptiles	Actions must be taken to avoid taking listed protected amphibians and reptiles.		Cal. Code Regs. tit. 14, §§ 40, 41 and 42	Not an ARAR			Such amphibians and reptiles and/or their habitats have not been observed on or near SWMU 24.
Activity affecting fur-bearing animals	Action must be taken to avoid taking listed fur-bearing animals.		Cal. Code Regs. tit. 14, § 460	Not an ARAR			Such fur-bearing animals and/or their habitats have not been observed on or near SWMU 24.
Air Quality Management District/Air Pollution Control District[b]							
Nuisance emissions	Nuisance standard that states a person shall not discharge from any source such quantities of air contaminants or other materials that cause injury, detriment, nuisance, or annoyance to a considerable number of persons or to the public.	Applies to discharge to air.	SCAQMD Rule 402	Not an ARAR			The nuisance rule includes subjective, nonenvironmental criteria such as "annoyance," "comfort," and "repose." As such, the DON is troubled by the vague and subjective nature of the nuisance rule and the lack of objective "standards, requirements, criteria, or limitations" within the meaning of Section 121(d)(2) of CERCLA. Other federal and state ARARs addressing actual and potential air emissions will assure adequate protection of human health and the environment.

(table continues)

Table B4-2 (continued)

Notes:

[a] discussion of compliance with action-specific ARARs is not appropriate

[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 actions are considered potential ARARs

Acronyms/Abbreviations:

A – applicable
ARAR – applicable or relevant and appropriate requirement
art. – article
CAI – closed, abandoned, or inactive
Cal. Code Regs. – *California Code of Regulations*
Cal. Fish & Game Code – *California Fish and Game Code*
Cal. Health & Safety Code – *California Health and Safety Code*
Cal. Pub. Res. Code – *California Public Resources Code*
Cal. Water Code – *California Water Code*
CEQA – California Environmental Quality Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R. – *Code of Federal Regulations*
ch. – chapter
CWA – Clean Water Act
div. – division
DON – Department of the Navy
EE/CA – engineering evaluation/cost analysis
mg/L – milligrams per liter
NPDES – National Pollutant Discharge Elimination System
para. – paragraph
Prop. – proposition
RA – relevant and appropriate
Res. – resolution
RWQCB – (California) Regional Water Quality Control Board, Santa Ana Region
§ – section
SCAQMD – South Coast Air Quality Management District
subch. – subchapter
SWRCB – (California) State Water Resources Control Board
TBC – to be considered
tit. – title

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Section B5
SUMMARY

Controlling ARARs have been identified in the text of this appendix for each medium, location, and proposed removal action. The substantive provisions of the following requirements were identified as potential ARARs that affected the development of removal action objectives for SWMU 24:

- RCRA hazardous waste requirements at Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100
- Characterization of solid waste as toxic based on TCLP at Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B)
- Cal. Fish & Game Code § 3005(a) regarding the taking of birds and mammals
- RCRA on-site waste generation at Cal. Code Regs. tit. 22, §§ 66262.10(a), 66262.11, 66264.13(a) and (b)
- RCRA hazardous waste accumulation requirements at Cal. Code Regs. tit. 22, § 66262.34
- RCRA staging pile at 40 C.F.R. § 264.554
- SCAQMD Rule 403

In cases of soil excavation, sufficient data must be available to evaluate whether the material could be classified as a hazardous waste. Comparing the site waste to the definition of RCRA hazardous waste can make the determination of whether a waste is a RCRA hazardous waste. The RCRA requirements at Cal. Code Regs. tit. 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 are potentially applicable ARARs because they define RCRA hazardous waste.

The requirements under Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B) are applicable for determining if a solid waste is characterized as toxic. The determination is based on the TCLP; if the contaminant concentrations in the solid waste TCLP extract exceed the TCLP limits, the waste is determined to be a characteristic RCRA hazardous waste (see Section B1.4.1).

Actions impacting birds or mammals are regulated in Cal. Fish & Game Code § 3005(a). These requirements prohibit the taking of birds and mammals, including the taking by poison. Though it is not anticipated that birds or mammals will be taken during removal activities at SWMU 24, the substantive provisions pertaining to the take of birds or mammals with a poisonous substance are potentially relevant and appropriate location-specific ARARs and potentially applicable action-specific ARARs.

At SWMU 24, there is a potential for excavated soils to be classified as RCRA hazardous waste due to localized concentrations of lead. The determination of whether the wastes generated during removal activities are hazardous will be made at the time the wastes are generated. The requirements for determining whether the waste is a hazardous waste are found under Cal. Code Regs. tit. 22, § 66262.10(a) and 66262.11, and the requirements for analyzing the waste to determine whether the waste is hazardous are found under Cal. Code Regs. tit. 22, § 66264.13(a) and (b).

For any operations where hazardous waste is generated, on-site hazardous waste accumulation is allowed under Cal. Code Regs. tit. 22, § 66262.34 for up to 90 days as long as the waste is stored in containers or tanks, on drip pads, inside buildings, is labeled and dated, etc.

For temporary storage of excavated soil, the substantive requirements found in 40 C.F.R., § 264.554 for staging piles are potentially applicable federal ARARs for the temporary storage of excavated soil during characterization prior to off-site disposal.

SCAQMD Rule 403 applies to any source of dust or fumes, including lead and lead-contaminated soil. The rule states activities shall not cause or allow emissions of fugitive dust such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source and shall not cause or allow levels of particulate matter less than 10 micrometers in diameter to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples. This rule is potentially applicable to removal activities at the site. Engineering controls will be used to minimize dust emissions, such as spraying the soil with water, if necessary.

Section B6
REFERENCES

California State Water Resources Control Board. 2000. Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Phase 1 of the Inland Surface Waters Plan and the Enclosed Bays and Estuaries Plan).

CH2M Hill. 2000. Focused Site Inspection Phase II Report, Naval Weapons Station, Seal Beach, California. Draft. Volumes 1 and 2. December.

SWRCB. *See* California State Water Resources Control Board.

United States Environmental Protection Agency. 1988a. CERCLA Compliance With Other Laws Manual, Draft Guidance. EPA/540/G-89/006, Office of Emergency and Remedial Response, Washington, DC. August.

———. 1988b. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA. OSWER Directive 9355.3-01, -02. EPA/540/G-89/004. October.

———. 1991a. Management of Investigation-Derived Wastes During Site Inspections. EPA/540/G-91/009. May.

———. 1991b. ARARs Q's and A's: General Policy, RCRA, CWA, SDWA, Post-ROD Information, and Contingent Waivers. OSWER Directive No. 9234.2-01/FS-A, Washington, DC. June.

U.S. EPA. *See* United States Environmental Protection Agency.

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ATTACHMENT A

ARARs CORRESPONDENCE

The Department of the Navy Letter to Department of Toxic Substances Control

20 June 2001

CTO-151/0284
File: 02185, 0334

DEPARTMENT OF THE NAVY
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO CA 92132-5190

5090
Ser 5NEN.SL/562
June 20, 2001

Ms. Katherine Leibel
Office of Military Facilities
Department of Toxic Substances Control
Region 4
5796 Corporate Ave
Cypress, CA 90630

Dear Ms. Leibel:

Pursuant to accomplishing the goals of Naval Weapons Station Seal Beach Installation Restoration (IR) program outlined for fiscal year 2001, we are hereby requesting, that the Department of Toxic Substances Control (DTSC), as the lead agency for the State of California, identify potential State chemical-specific, location-specific and action specific "Applicable" or "Relevant and Appropriate" Requirements (ARARs) for a proposed Non-Time Critical Removal Action at Sites 73 (Water Tower Area) and SWMU 24 (Stationary Demilitarization furnace).

To expedite the removal process, the Department of the Navy (DoN) is requesting action specific ARARs along with the chemical-specific and location-specific ARARs. The attached enclosure (1) is a summary of Background Information for Non-Time-Critical Removal Action at Sites 73 and SWMU 24 for Naval Weapons Station Seal Beach to help you with this effort.

In addition, the DoN is requesting that the State of California identify any other criteria, advisories, guidance, and proposed standards that the State requests be considered for the above-identified IR sites. Please coordinate responses from all California state agencies.

The Department of the Navy is requesting timely identification of potential State ARARs consistent with Section 121 (d) (2) (A) of CERCLA and the National Contingency Plan 40 CFR SS300.400 (g) and 300.515(d) &(h). Experience to date around the country has shown that a failure to identify ARARs with sufficient precision, early in the process, can cause severe disruptions in timely implementation of removal actions. To ensure timely and complete ARARs identification, for the IR Sites listed above, please include the following information:

1. A specific citation to the statutory or regulatory provision(s) for the potential State ARAR and the date of enactment or promulgation.

2. A brief description of why the potential State ARAR is applicable or relevant and appropriate to the particular IR Site.

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3. A description of how the potential State ARAR would apply to potential remedial action, including: specific numeric discharge, effluent, or emission limitations; hazardous substance/constituent action or cleanup levels; etc., if the State intends to take the position that the potential State ARAR includes such limitations, levels, etc.

4. If the State believes its proposed ARAR is more stringent than the corresponding Federal ARAR, please provide the rationale and technical justification for this position.

5. If the State determines that there is not enough information to fully respond to our request, please identify any additional information that would be required to support identification of State ARARs and their application.

Consistent with 40 CFR S300.515 (h) (2), we are requesting that you send a response via first class mail addressed to me and postmarked within thirty (30) calendar days of receipt of this request. Please direct any technical questions that you may have concerning this request to Mr. Si Le at (619) 532-1235 and any legal questions to Mr. Perry Sobel, Associate Counsel (Environmental), at (619) 532-2312.

Sincerely,

M. GOOD
By direction of the Commander

Enclosure (1): Summary of Background Information For Non-Time-Critical Removal Action At IR Site 73 And SWMU 24

5090
Ser 5NEN.SL/562
June 20, 2001

Copy to:
Ms. Patricia Hannon
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, CA 92501

Mr. John Bradley
Seal Beach National Wildlife Refuge
P.O. Box 815
Seal Beach, CA 90740

Commanding Officer (Code 045)
Attn: Ms. Pei-Fen Tomashiro
Naval Weapons Station, Seal Beach, Bldg 110
800 Seal Beach Boulevard
Seal Beach, CA 90740-5000

Mr. Robert Schilling
Naval Weapons Station Seal Beach
Bechtel Field Office (trailer southeast of Bldg. 112)
800 Seal Beach Blvd.
Seal Beach, CA. 90740-5000

Mr. Bryant Wong
CH2M Hill
3 Hutton Centre Drive, Suite 200
Santa Ana, CA 92707

SUMMARY OF BACKGROUND INFORMATION FOR NON-TIME-CRITICAL REMOVAL ACTION AT IR SITE 73 AND SWMU 24 NAVAL WEAPONS STATION SEAL BEACH

The following information is provided to assist the Navy and state regulatory agencies in early identification of chemical-, location-, and action-specific applicable or relevant and appropriate requirements (ARARs) to support the engineering evaluation/cost analyses (EE/CAs) for soil at Installation Restoration (IR) Program Site 73 and Solid Waste Management Unit (SWMU) 24, Naval Weapons Station (NAVWPNSTA) Seal Beach.

As part of the EE/CAs for these sites, potential non-time-critical removal actions will be evaluated with consideration given to the nine criteria stipulated in the National Oil and Hazardous Substances Pollution Contingency Plan: overall protection of human health and the environment; compliance with ARARs; long-term effectiveness; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability; cost; state acceptance; and community acceptance.

NAVWPNSTA Seal Beach, located about 30 miles south of the Los Angeles urban center, consists of about 5,000 acres of land located on the Pacific Coast. NAVWPNSTA Seal Beach is part of the Commander Navy Region Southwest, and its major claimant is the Commander-In-Chief Pacific Fleet. The Station provides fleet combatants with ready-for-use ordnance. Because of its geographic location, the Station serves as a supply point for the operating Navy and Marine Corps forces in the southern California region.

IR Site 73 – Water Tower

IR Site 73 is the area under and surrounding the Station water tower. Since its construction around 1944, the water tower has been periodically painted and sandblasted an unknown number of times. The most recent painting took place around 1994. Previous painting activities resulted in a release of sandblast paint chips to the area surrounding the water tower.

As shown on the Site Location Map and IR Site 73 Base Map below, the site is located east of Seal Beach Boulevard, south of the Main Gate, and southwest of Building 206. The site falls within a known archeological site, CA-ORA-322/1,118; and, in 1997, an archaeological investigation documented by Ogden reconfirmed the significance of the site's cultural resources.

RISK SCREENING RESULTS FOR IR SITE 73

The chemicals of potential concern (COPCs) at IR Site 73 are metals and semi-volatile organic compounds (SVOCs). Human health risk screening for soils at IR Site 73 was performed as part of a Focused Site Inspection (FSI). The screening compared the soil analytical data with stationwide upper limit background values (ULBVs) and residential preliminary remediation goals (PRGs), and estimated the excess lifetime cancer risk (ELCR) and non-cancer hazard quotient (HQ) for each COPC. The 95 percent upper confidence limit (UCL) concentration of metals in soil at the site yielded an ELCR of 2×10^{-9} and a non-cancer hazard index (HI) of 0.7. The ELCR associated with the SVOCs in soil is 1×10^{-5}, primarily as a result of polynuclear aromatic hydrocarbon (PAH) benzo(a)pyrene. The non-cancer HI is less that 0.1 for SVOCs at IR Site 73.

Based on the ecological risk screening performed as part of the FSI, ecologically significant risks to terrestrial receptors exist from metals in soil. Safe ecological PRGs for most receptors are exceeded by the 95 percent UCL concentrations of lead. The maximum concentrations of metals in soils, primarily lead, exceed the lowest safe PRGs for the receptors selected at the site. Lead is the primary contributor to ecological risks at the site.

Most of the PAH compounds (except the most volatile) were detected in soil at IR Site 73. However, maximum concentration of anthracene, benzo(a)pyrene, and dibenzo(a,h)anthracene did not exceed safe ecological PRGs for any receptor. Therefore, PAHs do not contribute to the risks to ecological receptors at IR Site 73.

POTENTIAL REMOVAL ACTION ALTERNATIVES FOR IR SITE 73

Removal action alternatives being considered for evaluation in the IR Site 73 EE/CA range from no action, partial removal of impacted soil, to complete removal of impacted soil. Soil removal would be followed by disposal.

Depending on the removal action goals developed during the EE/CA, the area of impacted soil subject to removal action may range from approximately 600 square yards to in excess of 5,000 square yards. The depth of the removal area is expected to range from 1 to 3 feet. Therefore, the volume of impacted soil subject to a removal action could range from 200 to 5,000 cubic yards. Since IR Site 73 is known to contain cultural resources, the volume of soil subject to removal action and/or disturbance will be limited to the maximum extent practicable.

SWMU 24 – Stationary Demilitarization Furnace

Prior to its decommissioning in 1998, SWMU 24 housed the stationary demilitarization furnace facility (SDFF). The SDFF was used primarily from 1985 to 1994 for the removal of explosive residue from expended munitions. When it was decommissioned in 1998, the structures were demolished and removed; and the areas known to contain residual quantities of hazardous materials were decontaminated. After the demolition of the SDFF, the area was graded.

SWMU 24 is located in the center of the Station south of Westminster Street, bounded by Building 95 to the west and agricultural fields to the east and south, as shown in the Site Location Map and SWMU 24 Base Map below.

RISK SCREENING RESULTS FOR SWMU 24

The COPCs at SWMU 24 are metals. Human health risk screening for soils at SWMU 24 was performed as part of an FSI. The screening compared the soil analytical data with stationwide ULBVs and residential PRGs, and estimated the ELCR and HQ for each COPC. The total ELCR for metals in soil, based on 95 percent UCL concentrations, is 1×10^{-8}. The HI for metals at the site is 1.0. Therefore, there are no significant human-health risks from metals at the site.

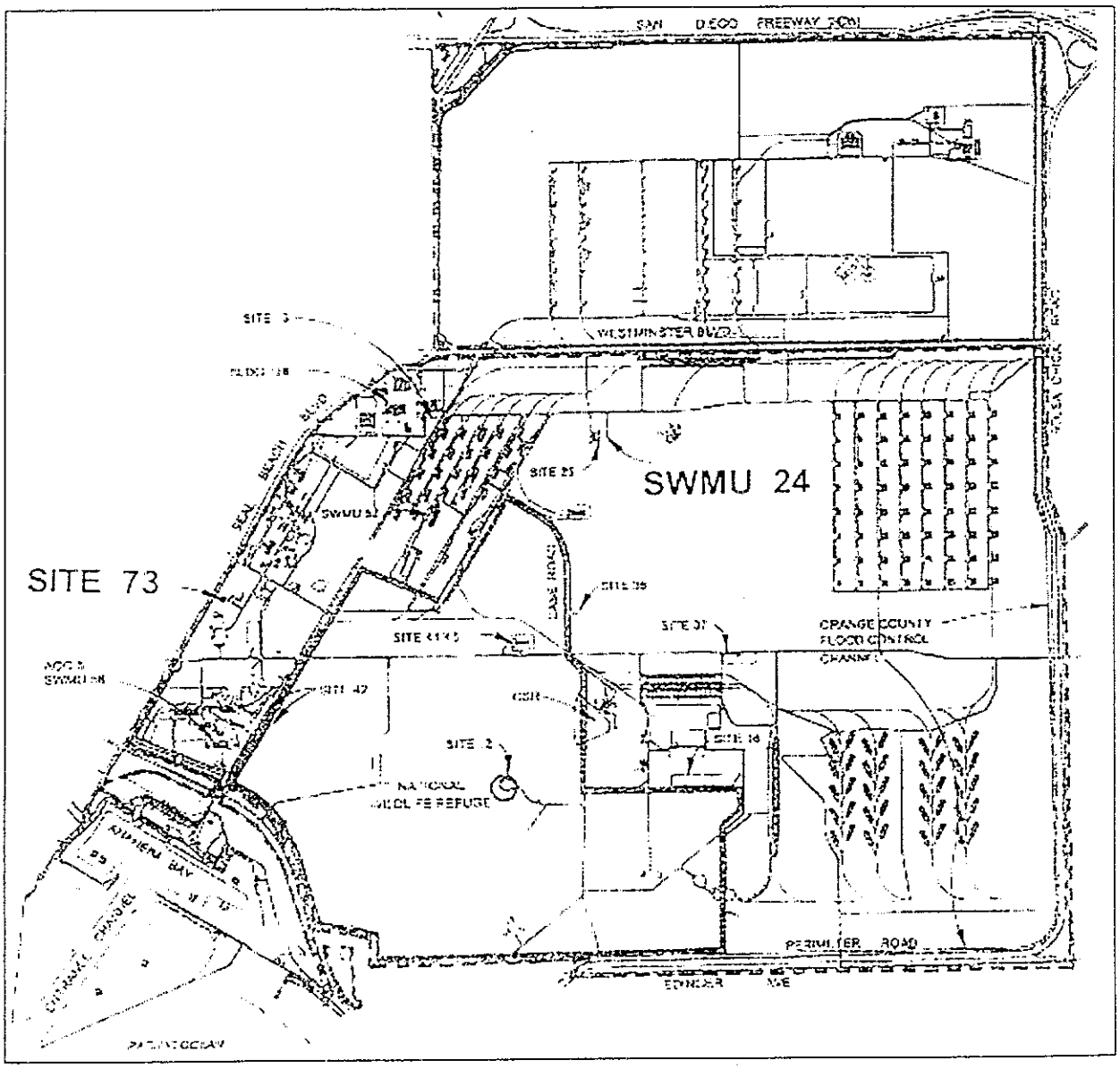
Based on the ecological risk screening performed as part of the FSI, there are significant risks to terrestrial receptors from metals in soil. Safe ecological PRGs for most receptors are exceeded by the arithmetic mean concentrations of lead. The maximum

concentrations of metals in soils, primarily lead and copper, exceed the lowest safe PRG for the receptors selected at the site These metal exceedances occurred predominantly within two localized areas.

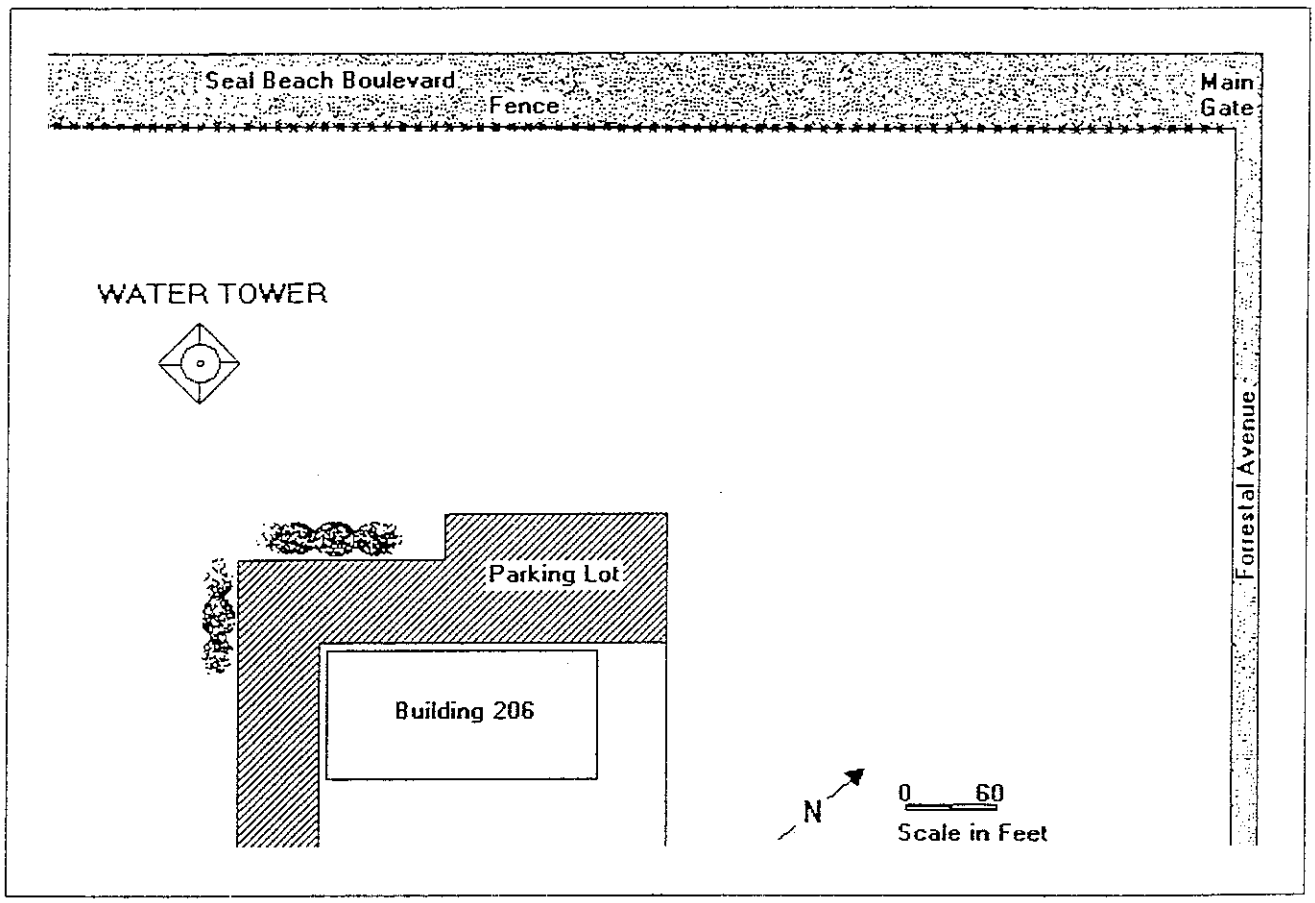
POTENTIAL REMOVAL ACTION ALTERNATIVES FOR SWMU 24

Removal action alternatives being considered for evaluation in the SWMU 24 EE/CA range from no action, partial removal of impacted soil, to complete removal of impacted soil. Soil removal would be followed by disposal. Another possible removal action alternative for this site is consolidation. Under consolidation, the surface area of impacted soil at the site would be reduced by up to a third of the original surface area. Placement of a cover may also be considered.

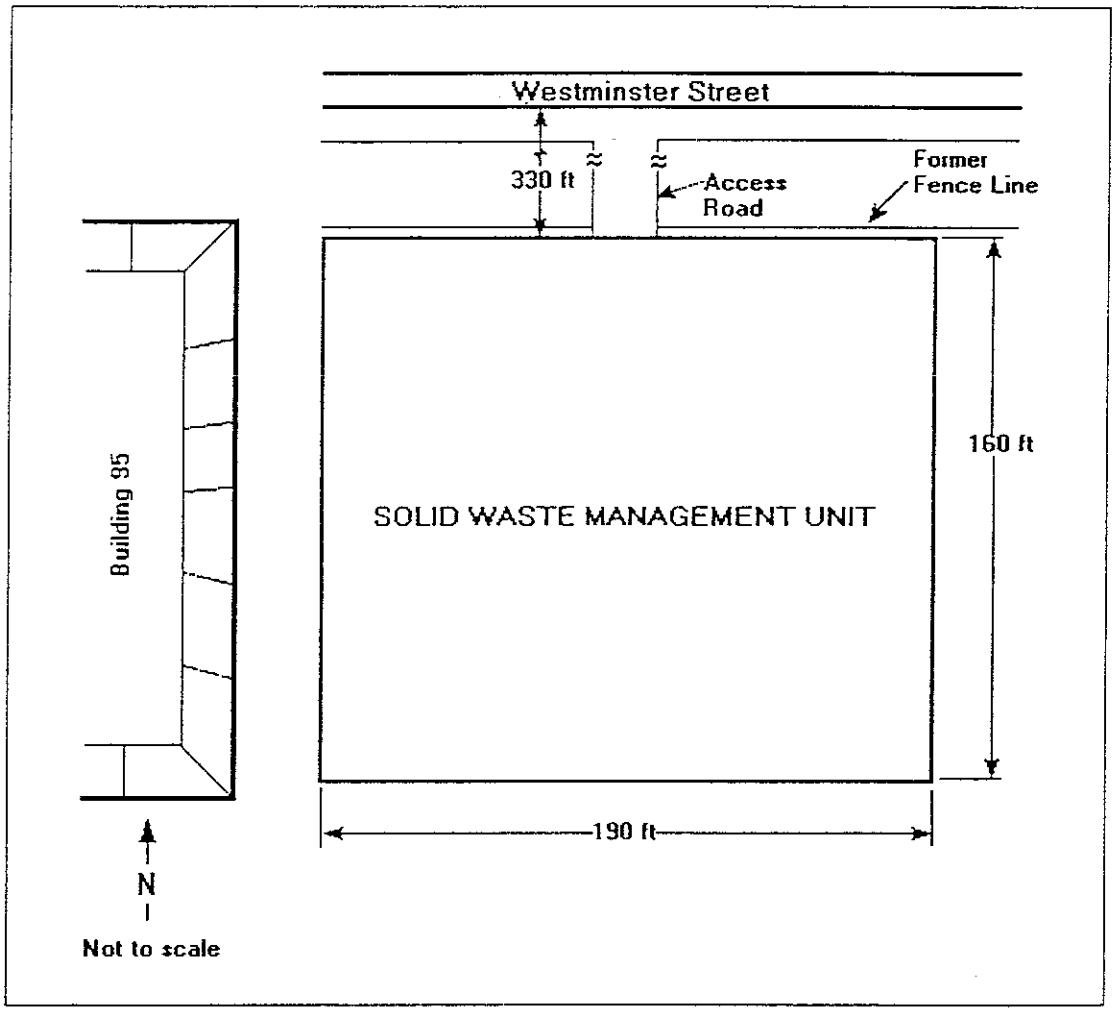
For SWMU 24, the area of impacted soil subject to a removal action could range from approximately 200 square yards to nearly 1,500 square yards, depending on the removal action goals developed during the EE/CA. With the exception of one soil sample collected from 2 to 2.5 feet below ground surface, the majority of lead concentrations significantly above the stationwide ULBV lead concentration was reported in surface soil samples only. Therefore, the depth of the removal area is expected to be approximately 1 foot below ground surface resulting in an estimated soil volume of 70 to 500 cubic yards.



Site Location Map



IR Site 73 Base Map



SWMU 24 Base Map

Department of Toxic Substances Control
Letter to the Department of the Navy

08 August 2001

Department of Toxic Substances Control

Edwin F. Lowry, Director
5796 Corporate Avenue
Cypress, California 90630

Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

Gray Davis
Governor

CTO-151/0296
File: 02184, 0222

August 8, 2001

Mr. Mark Good
Southwest Division
Naval Facilities Engineering Command
1220 Pacific Coast Highway
San Diego, California 92132-5190

RESPONSE TO REQUEST FOR IDENTIFICATION OF APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs): PROPOSED NON-TIME CRITICAL REMOVAL ACTION AT INSTALLATION RESTORATION (IR) PROGRAM SITE 73, (WATER TOWER AREA) AND SWMU 24 (STATIONARY DEMILITARIZATION FURNACE) NAVAL WEAPONS STATION (NWS), SEAL BEACH.

Dear Mr. Good:

The California Department of Toxic Substances Control (DTSC) received your letter dated June 20, 2001 requesting state action-specific, chemical specific and location specific ARARs for IR Site 73 (Water Tower Area) and SWMU 24 (Stationary Demilitarization Furnace). According to Federal Facility Site Remediation Agreement (FFSRA) section 7.7 (c), the Navy is required to contact the agencies that failed to respond and again solicit their inputs. Please note that ARARs analysis is an iterative process. At the time of developing Remedial Action Plan (RAP)/ Removal Action Work plan (RAW), additional ARARs may be apparent.

In response to your request, we solicited action-specific, chemical specific and location specific ARARs from the following state and local agencies:

California Department of Health Services;
California Coastal Commission;
California Integrated Waste Management Board;
California Regional Water Quality Control Board, Santa Ana Region;
California Department of Fish and Game;
Orange County Public Facilities & Resources Department (Environmental Management Agency);

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at www.dtsc.ca.gov.

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California Department of Transportation (District 12);
South Coast Air Quality Management District;
California Air Resources Board;
California State Lands Commission;
Orange County Sanitation District;
Orange County Water District;
Orange County Health Care Agency;
City of Seal Beach Environmental Quality Control Board; and
City of Seal Beach Planning Department.

We received responses from California Air Resources Board, California Department of Transportation, California Integrated Waste Management Board, California Department of Fish and Game, County of Orange Public Facilities & Resources Department and City of Seal Beach Environmental Quality Board. The responses are enclosed as Attachment A.

If you have any questions, please call me at (714) 484-5446.

Sincerely,

Katherine K. Leibel
Remedial Project Manager
Federal Facilities Unit "B"
Southern California Branch
Office of Military Facilities

Enclosure

cc: Ms. Pei-Fen Tamashiro, Environmental Engineer
Naval Weapons Station, Seal Beach
Public Works Code 099
800 Seal Beach Boulevard
Seal Beach, California 90740-5000

Mr. Si Le
Southwest Division
Naval Facilities Engineering Command
1220 Pacific Coast Highway
San Diego, California 92132-5190

cc: Mr. Patricia Hannon (without Enclosure)
California Regional Water Quality Control Board
3737 Main Street, Suite 500
Riverside, California 92501-3339

Ms. Lindi Wilhite (without Enclosure)
17340 Santa Maria Street
Fountain Valley, California 92708

ATTACHMENT A

Department of Transportation Letter to Department of Toxic Substances Control

31 July 2001

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, *Governor*

DEPARTMENT OF TRANSPORTATION

DISTRICT 12
3337 MICHELSON DRIVE SUITE CN380
IRVINE, CA 92612-1699

July 31, 2001 ***FAX and SEND***

Katherine K. Leibel, Remedial Project Manager
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, CA 90630

IGR/CEQA
PN
Log # 937
SCH# None

Dear Ms. Leibel:

Subject: Seal Beach Naval Weapons Station ARARS

Thank you for the opportunity to review and comment on the **Public Notice (PN) for the Seal Beach Naval Weapons Station (NWS) Applicable or Relevant and Appropriate Requirements (ARARs) project**. The proposed project is to provide potential state action-specific, chemical-specific and locations-specific ARARs for IR site 73 and SWMU 24 at the NWS, Seal Beach.

Caltrans District 12 is a reviewing agency and has the following comment:

- If soil is to be excavated and taken off-site for disposal, measure must be taken to avoid tracking of materials, which may fall or blow onto Caltrans Right-of-way and measures must be taken to contain vehicle loads on State Right-of-way.

Please continue to keep us informed of projects that may potentially impact our State Transportation Facilities. If you have any questions, or need assistance please contact Lynne Gear at (949) 724-2241.

Sincerely,

Robert F. Joseph

Robert F. Joseph, Chief
Advance Planning Branch

Cc: Ron Helgeson, HDQTRS
Terry Roberts, OPR
Leslie Manderscheid, Environmental Planning

California Integrated Waste Management Board Letter to Department of Toxic Substances Control

26 July 2001

California Integrated Waste Management Board

Linda Moulton-Patterson, Chair
1001 I Street • Sacramento, California 95814 • (916) 341-6000
Mailing Address: P. O. Box 4025, Sacramento, CA 95812-4025
www.ciwmb.ca.gov

Gray Davis
Governor

Winston H. Hickox
Secretary for Environmental Protection

July 26, 2001

Ms. Katherine K. Leibel
Federal Facilities Unit "B"
Southern California Operations
Office of Military Facilities
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630

REQUEST FOR IDENTIFICATION OF ARARS FOR SITE 73 AND SWMU 24, SEAL BEACH NAVAL WEAPONS CENTER, SEAL BEACH, ORANGE COUNTY

Dear Ms. Leibel:

California Integrated Waste Management Board (Board) Closure and Technical Services Section staff have reviewed your July 2, 2001, request for applicable or relevant and appropriate requirements (ARARs) for the proposed non-time critical removal action at Installation Restoration (IR) Program Site 73 (Water Tower Area) and SWMU 24 (Stationary Demilitarization Furnace) at Seal Beach Naval Weapons Center, Orange County.

Based on Board staff review of the accompanying material to your request letter, staff has concluded that the Water Tower Area (Site 73) and the Stationary Demilitarization Furnace (SWMU 24) are not solid waste disposal sites as defined in the Public Resources Code. Therefore, the Board will not be providing ARARs for these sites.

Thank you for the opportunity to review the proposed project. For future correspondence with the Board, please note our new address above.

Should you have any questions or comments concerning the above matter, please contact Christopher Fong of my staff or me at (916) 341-6352 or (916) 341-6318, respectively.

Sincerely,

Michael B. Wochnick, Manager
Closure and Technical Services

cc: Ms. Patty Henshaw, Orange County Solid Waste Local Enforcement Agency
Ms. Patricia Hannon, Santa Ana Regional Water Quality Control Board

California Air Resources Board Letter to Department of Toxic Substances Control

23 July 2001

Winston H. Hickox
Agency Secretary

Air Resources Board

Alan C. Lloyd, Ph.D.
Chairman
1001 I Street • P.O. Box 2815 • Sacramento, California 95812 • www.arb.ca.gov

Gray Davis
Governor

MEMORANDUM

TO: Katherine Leibel
Remedial Project Manager
Federal Facilities Unit "B"
Southern California Operations
Office of Military Facilities
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630

FROM: Lynton Baker Lynn Baker
Staff Air Pollution Specialist
Substance Evaluation Section
Stationary Source Division

DATE: July 23, 2001

SUBJECT: APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS FOR INSTALLATION RESTORATION SITE 73 (WATER TOWER AREA) AND SOLID WASTE MANAGEMENT UNIT 24 (STATIONARY DEMILITARIZATION FURNACE) - SEAL BEACH NAVAL WEAPONS STATION

This memorandum is in response to your request for potential California "Applicable or Relevant and Appropriate Requirements" (ARARs) for Installation Restoration Site 73 (Water Tower Area) and Solid Waste Management Unit 24 (Stationary Demilitarization Furnace) at the Seal Beach Naval Weapons Station. State law as codified in Health and Safety Code (Division 26, section 40000) provides to local and regional authorities the primary responsibility for control of air pollution from sources other than emissions from motor vehicles. Air pollution control districts and air quality management districts are required to adopt and enforce rules and regulations to achieve and maintain the state and federal ambient air quality standards in all areas affected by emission sources under their jurisdiction, and to enforce all applicable provisions of state and federal law (Health and Safety Code section 40001).

Rules and regulations of the South Coast Air Quality Management District (SCAQMD) should be included in the consideration of action specific ARARs for these sites. If you have not contacted the SCAQMD, we recommend that you contact Mr. Larry Bowen,

Manager of the Toxics Section, at (909) 396-2575. SCAQMD rules that may apply include:

201 Permit to Construct
203 Permit to Operate
402 Nuisance
403 Fugitive Dust
1401 New Source Review of Carcinogenic Air Contaminants

In addition, the California Ambient Air Quality Standards (CAAQS, list enclosed) may apply as chemical specific ARARs. This is to ensure that activities undertaken to remediate these sites do not cause ambient air concentrations above the health protection levels of the CAAQS. If soil removal is necessary, the CAAQS for particulate matter (PM10) and lead should be considered.

If you have questions, please call me at (916) 324-6997.

Enclosure

cc: Mr. Larry Bowen (w/o Enclosure)
Manager, Toxics Section
South Coast Air Quality Management District
21865 E. Copley Dr.
Diamond Bar, CA 91765

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		Federal Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	0.12 ppm (235 µg/m³)[8]	Same as Primary Standard	Ethylene Chemiluminescence
	8 Hour	—		0.08 ppm (157 µg/m³)		
Respirable Particulate Matter (PM_{10})	Annual Geometric Mean	30 µg/m³	Size Selective Inlet Sampler ARB Method P (8/22/85)	—	Same as Primary Standard	Inertial Separation and Gravimetic Analysis
	24 Hour	50 µg/m³		150 µg/m³		
	Annual Arithmetic Mean	—		50 µg/m³		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		65 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetic Analysis
	Annual Arithmetic Mean			15 µg/m³		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m³)	Non-dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m³)	None	Non-dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m³)		35 ppm (40 mg/m³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	—	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m³)		—		
Lead	30 days average	1.5 µg/m³	AIHL Method 54 (12/74) Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m³	Same as Primary Standard	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	—	Fluorescence	0.030 ppm (80 µg/m³)	—	Pararosoaniline
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (365 µg/m³)	—	
	3 Hour	—		—	0.5 ppm (1300 µg/m³)	
	1 Hour	0.25 ppm (655 µg/m³)		—	—	
Visibility Reducing Particles	8 Hour (10 am to 6 pm PST)	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer—visibility of ten miles or more (0.07—30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent. Method: ARB Method V (8/18/89).		No Federal Standards		
Sulfates	24 Hour	25 µg/m³	Turbidimetric Barium Sulfate-AIHL Method 61 (2/76)			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Cadmium Hydroxide STRactan			

See footnotes on next page.....

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM10, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded.

2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 mm of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.

8. New federal 8-hour ozone and fine particulate matter standards were promulgated by U.S. EPA on July 18, 1997. The federal 1-hour ozone standard continues to apply in areas that violated the standard. Contact U.S. EPA for further clarification and current federal policies.

County of Orange, Public Facilities and Resources Department Letter to Department of Toxic Substances Control

19 July 2001

Vicki L. Wilson, Director

COUNTY OF ORANGE

PUBLIC FACILITIES & RESOURCES DEPARTMENT

Environmental Resources
1750 S. Douglass Road
Anaheim, CA 92806

Telephone: (714) 567-6363
Fax: (714) 567-6220

July 19, 2001

Ms. Katherine Leibel
Department of Toxic Substances Control
Federal Facilities Unit "B"
Southern California Operations
Office of Military Facilities
5796 Corporate Avenue
Cypress, CA 90630

Subject: **Applicable or Relevant and Appropriate Requirements (ARARs) for Non-time-critical Removal Action at Installation Restoration (IR) Site 73 and Solid Waste Management Unit (SWMU) 24, Naval Weapons Station (NWS), Seal Beach, California**

Dear Ms. Leibel:

In response to your letter dated July 2, 2001, this department has reviewed the summary background information for subject project and has no comments.

Thank you for the opportunity to comment on ARARs for the Seal Beach NWS non-time critical removal project. Please direct any questions regarding this letter to Duc Nguyen at (714) 567-6339.

Very truly yours,

Chris Crompton
Manager, Environmental Resources

CC: dn\D:\users\Nguyend\Rev\ARAR\Seal Beach NWS ARAR 0107 site 73 24

City of Seal Beach Letter to Department of Toxic Substances Control

25 July 2001

City of Seal Beach

CITY HALL • 211 EIGHTH STREET
SEAL BEACH, CALIFORNIA 90740-6379
(562) 431-2527

July 25, 2001

Department of Toxic Substances Control
Attn: Katherine K. Leibel
Remedial Project Manager
Federal Facilities Unit "B"
Southern California Operations
Office of Military Facilities
5796 Corporate Avenue
Cypress, CA 90630

Dear Ms. Leibel:

SUBJECT: "***Request for Applicable or Relevant and Appropriate Requirements***" **(ARARs) for Naval Weapons Station (WPNSTA), Seal Beach, Site 73 and SWMU 24**

The City of Seal Beach has reviewed your request of July 2, 2001 relative to "*Request for Applicable or Relevant and Appropriate Requirements*" (ARARs) for Naval Weapons Station (WPNSTA), Seal Beach, Site 73 and SWMU 24. Upon a review of your letter and the information provided in Attachments A and B, the City of Seal Beach has no input on potential ARARs regarding chemical-specific ARARs. The City does have a "***relevant and appropriate requirement***" in relation to Site 73 and SWMU 24. The City requests that all requirements of South Coast Air Quality Management District Rule 402, Nuisances, and Rule 403, Fugitive Dust, be incorporated into the remediation program for this site, due to the close distance to existing residential areas and the nature of the proposed soil removal activities.

The City of Seal Beach further requests that an "*Archaeological Resources Protection Plan for Installation Restoration Site 73*", be required to be prepared to assure compliance with the provisions of Section 106 of the National Historic Preservation Act to address potential impacts to the significant archaeological site CA-ORA-322/1,118. I am enclosing a copy of monitoring and worker training activities that should be included, depending on the recommendation of the final "*Archaeological Resources Protection Plan*", with the final conditions of approval for the subject removal action. The enclosed materials are from a previous document prepared by the Department of Navy, the "*Archaeological Resources*

Protection Plan for Installation Restoration Sites 5, 8, 12, 16, 21, 40, 44, and 46 at Naval Weapons Station, Seal Beach, Orange County, California", dated March 1995.

The City requests, in light of the existing agreements between the Navy and the State of California which require the Installation Restoration Program to comply with State requirements and regulations, that all project activities would be determined a project pursuant to California Public Resources Code Section 21065, and therefor would require an environmental analysis to be performed in accordance with the provisions of the California Environmental Quality Act, Section 21000 et. seq., and the "Guidelines for the Implementation of the California Environmental Quality Act with Discussions", prepared by the Governors Office of Planning and Research.

Thank you for allowing us to comment on the proposed ARARs for Naval Weapons Station, Seal Beach, Site 73 and SWMU 24. If you have any questions or require further information, please contact Mr. Lee Whittenberg, Director of Development Services Department, (562) 431-2527, extension 313, at your earliest convenience. He will be able to respond to any additional questions that you may have regarding this matter.

Sincerely,

Joseph E. Porter, III
Chairperson, Environmental Quality Control Board

Enclosure: "*Archaeological Resources Protection Plan for Installation Restoration Sites 5, 8, 12, 16, 21, 40, 44, and 46 at Naval Weapons Station, Seal Beach, Orange County, California*", dated March 1995: Section 6 – Archaeological Resources Protection; and Appendix A – Sample Worker Instructional Presentation

Distribution: City Council
Archaeological Advisory Committee
Environmental Quality Control Board

City Manager
Director of Development Services Department

Department of Fish and Game Letter to Department of Toxic Substances Control

03 August 2001

Ms. Katherine Leibel
Office of Military Facilities
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630

August 3, 2001

Applicable or Relevant and Appropriate Requirements (ARARs) for Seal Beach Naval Weapons Stations (NWS), California, Site 73 and SWMU 24

This memorandum is in response to your July 2, 2001, letter requesting potential State ARARs for Site 73 (water tower area) and SWMU 24 (stationary demilitarization furnace) at Seal Beach NWS. The Department of Fish and Game (DFG) appreciates this opportunity to provide State laws and regulations to guide the planned cleaup at Seal Beach NWS.

It is our understanding, that you are making the request for ARARs, as the State lead agency for toxic cleanup, for purposes of ensuring a coordinated cleanup effort. The request for DFG to define appropriate State cleanup requirements is made pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as a portion of the remedial investigation/feasibility study process. This letter will serve to advise you of the Department's continuing interest in coordinating any natural resource issues, as the designated natural resource trustee for the State of California. This may be necessary should release(s) of any hazardous materials at the subject site affect State natural resources.

I had one site-visit of Site 73 and SWMU 24 on July 26, 2001. They are terrestrial habitats approximately 3500 feet from the National Wildlife Refuge which is a aquatic habitat. Listed on the enclosed table is a site-specific list of Fish and Game Code Sections which appear to apply as State ARARs or TBCs (to be considered) with the date of enactment or promulgation. The specific citation and explanation for each listed ARAR and TBC are also attached, in addition to applicable statutes and regulations.

We highly recommend that biological characterization be conducted at Site 73 and SWMU 24 in the site inspection process. Following our review of the biological

characterization, we may suggest refinement of the attached list of ARARs depending on the existence of species or conditions which warrant additional protection under California law.

The DFG appreciates the opportunity to provide our ARARs. If you have any questions or need further information, please contact me at (916) 324-9805 or by e-mail at chuang@ospr.dfg.ca.gov

Sincerely,

Charlie Huang, Ph.D.
Associate Toxicologist
Scientific Branch
Office of Spill Prevention and Response

Reviewer Ms. Regina Donohoe, Ph.D.
Staff Toxicologist

Ms. Wendy Johnson
Staff Counsel

cc: Mr. James Polisini, Ph.D.
Department of Toxic Substances Control
Glendale, California

Ms. Pei-Fen Tamashiro
Naval Weapons Station, Seal Beach
Seal Beach, California

Department of Fish and Game
Office of Spill Prevention and Response
Sacramento, California

Mr. Al Petrovich, CDFG/OSPR-Scientific
Ms. Julie Yamamoto, CDFG/OSPR-Scientific
Mr. Eugene Toffoli, CDFG/OSPR-Legal
Ms. Wendy Johnson, CDFG/OSPR-Legal

File: OSPR-RF, Huang, Chron
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CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
For Site 73 and SWMU 24

LOCATION	STANDARD	SPECIFIC CITATION	ARAR/TBC EXPLANATION
California fish and wildlife resources	The Department of Fish and Game holds natural resources in public trust for the State of California	Fish and Game Code section 711.7 (Added by Stats. 1990. c. 1706 (A.B 3158), section 5).	This Code section designates the Department of Fish and Game as the trustee agency over California's fish and wildlife resources. It also concerns the payment of state filing and permit fees by person engaging in projects or activities under federal licenses, contract or permit. *California Public Resources Code section 10005 and section 21089.* This section expresses administrative policy and does not necessarily impose a substantive requirement in this situation. This section should be considered to the extent that DFG is the trustee agency over California's fish and wildlife resources.
Wildlife Species	Action must be taken to prohibit the taking of birds and mammals, including the taking by poison	Fish and Game Code section 3005 (Stats. 1957, c. 456, p 1353 section 3005)	This code section prohibits the taking of birds and mammals, including taking by poison. "Take" is defined by Fish and Game Code section 86 to include killing. "Poison" is not defined in the code. Although there is no state authority on this point, federal law recognizes that poison, such as Strychnine, may effect incidental taking. (*Defenders of Wildlife v. Administrator, Environmental Protection Agency (1989) 882 F. 2d. 1295)* This code section imposes a substantive, promulgated environmental protection requirement.
Aquatic and wildlife species/habitat	Action may be taken to collect damages for the taking of birds, mammals, fish, reptiles or amphibians	Fish and Game Code section 2014: (Stats 1957,c. 456,p.1342. section 2014)	This section declares that it is the policy of the state to conserve its natural resources. It allows the state to recover damages in a civil action against any person or local agency which unlawfully or negligently takes or destroys any bird, mammal, fish, reptile or amphibian protected by the laws of the state

CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
For Site 73 and SWMU 24

Rare native plants	Action must be taken to conserve native plants, there can be no releases and/or actions that would have a deleterious effect on species or habitat.	Fish and Game Code section 1900 *et seq* (Added by Stats. 1977, c. 1181, p. 3869, section 8)	These code sections make provisions concerning native plants protection, including: criteria for determining endangered plant species; designation of endangered plants by the Fish and Game Commission; research by the Department; takings by the Department for scientific or propagation purposes; other prohibitions on takings; exercise of enforcement authority; arrests and confiscation; carrying out of plant conservation programs by other state departments and agencies; and unauthorized public agency regulations pertaining to agriculture. Sections 1900, 1901, 1904, 1905, 1906, 1907, 1909, 1910, 1911, 1912, and 1913 are procedural or administrative in nature and do not impose any substantive requirements Section 1908 imposes a substantive requirement by forbidding any "person" to take rare or endangered native plants. Fish and Game Code section 67 provides the definition of "person" as any natural person or any partnership, corporation, limited liability company, trust, or other type of association. Whether the federal government or contractors acting on behalf of the federal government would fall within that definition is a potential issue. To the extent that there are rare or endangered plants on site, section 1908 would be an ARAR.

CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
For Site 73 and SWMU 24

Endangered Species/habitat	Criteria to be considered in Standard for Fish and Game Code section 2080	Fish and Game Code section 2050-2068; 2070-2079 (Added by Stats. 1984, c. 1240 section 2)	These code sections comprise Article 1 and Article 2 of chapter 1.5 of California Endangered Species Act. These sections make declarations of policy and provide definitions, and do not impose any substantive requirements. We ask that these sections be considered to the extent that Fish and Game Code section 2080 is an ARAR (as noted below).
Endangered Species	Action must be taken to conserve endangered species, there can be no releases and/or actions that would have a deleterious effect on species or habitat.	Fish and Game Code section 2080 (Added by Stats. 1984, c. 1240, section 2).	This section prohibits the take, possession, purchase or sell within the state, any species (including rare native plant species), or any product thereof, that the commission determines to be an endangered or threatened species, or the attempt of any of these acts. This section is applicable and relevant to the extent that there are endangered or threatened species in the area which have the potential of being affected if actions are not taken to conserve the species. This section prohibits releases and/or actions that would have a deleterious effect on species or their habitat. This section and applicable Title 14 regulations should be considered as ARARs. *California Code of Regulations Title 14 sections 670.2* provides a listing the plants of California declared to be Endangered, Threatened or Rare. *California Code of Regulations Title 14 section 670.5* provides a listing of Animals of California declared to be endangered or threatened *California Code of Regulations Title 14 section 783 et seq.*, provides the implementation regulations for the California Endangered Species Act.

CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
For Site 73 and SWMU 24

Fully protected bird species/ habitat	Action must be taken to prevent the taking of fully protected birds	Fish and Game Code section 3511 (Added by Stats.1970, c. 1036, p. 1848 section 4)	This section provides that it is unlawful to take or possess any of the following fully protected birds: (a) American peregrine falcon (b). Brown Pelican (c). California black rail (d). California Clapper rail (e) California Condor (f). California least tern (g). Golden eagle (h). Greater sandhill crane (i). Light footed clapper rail (j). Southern bald eagle (k). Trumpeter swan (l). White-tailed kite (m) Yuma clapper rail This should be considered Applicable and Relevant to the extent that such fully protected birds or their habitat are detected on or near the site.
Migratory Non-game Birds	Actions must be taken to prevent the take or possession of any migratory nongame birds	Fish and Game Code section 3513 (Added by Stats 1957, c. 1972, p. 1377 section 36)	This section prohibits the take or possession of any migratory nongame bird as designated in the Migratory Bird Treaty Act, *16 U.S.C. sections 3371-3378. 50 C.F.R. section 10 13*, or any part of such migratory nongame bird, except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Treaty Act. This section is Applicable and Relevant, unless one of the rules and regulations adopted by the Secretary of the Interior exempt the activity and to the extent that this code section is more stringent than the Migratory Bird Act found at *16 U.S.C. section 3371.*

CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
For Site 73 and SWMU 24

Fully Protected Mammals	Actions must be taken to assure that no fully protected mammals are taken or possessed at any time.	Fish and Game Code section 4700 (Added by Stats. 1970, c. 1036, p. 1848 section 6)	This section prohibits the take or possession of any of the fully protected mammals or their parts. The following are fully protected mammals: (a) Morro Bay kangaroo rat (b) Bighorn sheep except Nelson bighorn sheep (c) Northern elephant seal (d) Guadalupe fur seal (e) Ring-tailed cat (f) Pacific right whale (g) Salt-marsh harvest mouse (h) Southern sea otter (i) Wolverine This section is applicable, relevant, and appropriate to the extent that such mammals and/or their habitat are located on or near the site.
Birds of Prey	Action must be taken to prevent the take, possession or destruction of any birds-of prey or their eggs	Fish and Game Code section 3503.5 (Added by Stats 1985, c 1334, section 6)	This section prohibits the take, possession or destruction of any birds in the orders of Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto. This section will be applicable and relevant to the extent that such species or their eggs are located on or near the site.

CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
For Site 73 and SWMU 24

Nongame birds	Actions must be taken to prevent the take of nongame birds.	Fish and Game Code section 3800 (Added by Stats 1971, c. 1470, p 2906, section 13)	This section prohibits the take of nongame birds, except in accordance with regulations of the commission, or when related to mining operations with a mitigation plan approved by the department. This section further provides requirements concerning mitigation plans related to mining. This section is applicable and relevant to the extend that nongame birds or their eggs are located on or near the site and such species have not been included in the fish and wildlife conservation plan filed pursuant to the Federal Fish and Wildlife Conservation Act. Species included in the plan will be protected at the federal standard making this section an ARAR to the extent that it is more stringent than the federal standard of protection.
Nongame mammals	Action must be taken to avoid the take or possession of nongame mammals	Fish and Game Code section 4150 (Added by Stats. 1971, c. 1470, p. 2907, section 21)	Nongame mammals are those occurring naturally in California which are not game mammals, fully protected mammals, or fur-bearing mammals. These mammals, or their parts, may not be taken or possessed except as provided in this code or in accordance with regulations adopted by the commission.
Nongame Animals	Action must be taken to avoid the take of nongame mammals except as provided in applicable regulations	Title 14 California Code of Regulations (hereinafter referred as C C.R.) section 472 (effective 07/01/74)	This Regulation provides that nongame birds and mammals may not be taken a). The following nongame birds and mammals may be taken except as provided in Chapter 6: English Sparrow, starling, coyote, weasels, skunks, opossum, moles and rodents (excludes tree and flying squirrels, and those listed as furbearers, endangered or threatened species); b) Fallow, sambar, sika, and axis deer may be taken concurrently with the general deer season. c). Aoudad, mouflon,tahr, and feral goats may be taken all year. d) American crows may be taken only under provisions of section 485 and by landowners or tenants, or person authorized by landowners or tenants, when American crows are committing or about to commit depredations upon ornamental shade trees, agricultural crops, livestock, or whildlife, or when concentrated in such numbers and manner as to constitute a health hazard or other nuisance. If required by Federal regulations, landowners or tenants shall obtain a Federal migratory bird depredation permit before taking any American crows or authorizing any other person to take them

CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
For Site 73 and SWMU 24

Nongame Birds and NonGame Mammals	Methods of Take	Title 14 C.C.R. section 475 (effective 07/05/72)	This regulation provides that birds and nongame mammals may be taken in any manner except as follows: a). Poison may not be used, b). Recorded or electrically amplified bird or mammal calls or sounds or recorded or electrically amplified imitations of bird or mammal calls or sounds may not be used to take any nongame bird or nongame mammal except coyotes, bobcats, American crows and starlings. The regulation further specifies when take with equipment and ammunition, traps, feed, bait and/or other material capable of attracting nongame mammals may occur.
Tidal Invertebrates	Action must be taken to avoid the take or possession of mollusks, crustaceans, or other invertebrates	Fish and Game Code section 8500(Added by Stats 1972, c 1248 p 2436 Section 2, eff. Dec. 13, 1972)	It is unlawful to possess or take, unless otherwise expressly permitted in this chapter, mollusks, crustaceans, or other invertebrates, unless a valid tidal invertebrate permit has been issued. The taking, possessing, or landing of such invertebrates pursuant to this section shall be subject to regulations adopted by the commission.

CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
For Site 73 and SWMU 24

Protected Amphibians	Action must be taken to avoid the take or possession of protected amphibians	Title 14 C.C.R. sections 40 & 41 (Section 40 designated effective 03/01/74; section 41 designated effective on the thirtieth day after 07/01/83)	This regulation makes it unlawful to take, possess, purchase, propagate, sell, transport, import, or export any native reptile or amphibian, or parts thereof unless under special permit from the department issued pursuant to Title 14 C.C.R. sections 650 and 670.7 of these regulations, or section 2081 of the Fish and Game Code for those species in the regulations which are also state listed species. The following amphibians are protected amphibians: a. Santa Cruz long-toed salamander b. Siskiyou mountain salamander c. Desert slender salamander d. Kern Canyon slender salamander e. Tehachapi slender salamander f. Limestone salamander g. Shasta salamander h. Black toad i. Red Legged Frog j. Southwestern toad k. Mt. Lyell salamander l. Inyo Mountains salamander m. California tiger salamander n. Olympic salamander o. Del Norte salamander p. Colorado River toad q. Yosemite toad r. Foothill yellow-legged frog s. Mountain yellow-legged frog t. Cascade frog u. Spotted frog v. Lowland leopard frog w. Tailed frog x. Western spadefoot

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Protected Reptiles	Action must be taken to avoid the take or possession of protected reptiles	14 C.C.R. sections 40 and 42 (section 40, see above; section 42 was deemed operative 09/10/96)	This regulation makes it unlawful to take, possess, purchase, propagate, sell, transport, import, or export any native reptile or amphibian, or parts thereof unless under special permit from the department issued pursuant to Title 14 C.C.R. sections 650 and 670.7 of these regulations, or section 2081 of the Fish and Game Code for those species in the regulations which are also state listed species. The following reptiles are protected : a. Blunt-nosed leopard lizard b. Banded Gila monster c. Southern rubber boa d. Alameda whipsnake e. San Francisco garter snake f. Giant garter snake g. Desert tortoise h. Panamint alligator lizard i. Sonora mud turtle j. Island night lizard k. Flat-tailed horned lizard l. San Diego mountain kingsnake m. Coachella Valley fringe-toed lizard n. Switak's barefoot gecko o. Lead-toed gecko p. Granite night lizard q. Orange throated whiptail r. Black legless lizard s. Coast horned lizard t. Western pond turtle u. San Joaquin coachwhip v. Two striped garter snake

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California Environmental Quality Implementation	Provides for Procedural Regulation for Implementation of the California Environmental Quality Act	Title 14 C C R. Subdivision 3, Chapter 4 commencing with section 750 (effective 04/04/73)	Chapter 4 provides for procedural regulations of the implementation of CEQA. The regulations specify the objectives and criteria, and the procedures to be followed by Fish and Game in implementing CEQA. The Fish and Game CEQA implementation Regulations are to be used in conjunction with the State EIR Guidelines. *Public Resources Code section 21080.5.* CEQA provides that prior to a decision concerning a project as defined in CEQA and the State EIR Guidelines, Fish and Game acting as lead agency, or an agency with jurisdiction by law to exercise authority over natural resources, which may be affected by the project will in consultation with the public and appropriate federal, state, and local agencies, assess in detail the potential environmental impact of a project in order that adverse effects are avoided and environmental quality is preserved, restored or enhanced to the fullest extent practicable. Project alternatives that will minimize significant adverse impact will be explored and evaluated in order to avoid to the fullest extent practicable undesirable consequences to the environment. Public Resources Code section 21067 provides that a "Lead agency" is the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment. The lead agency is charged with the responsibility of consulting with all responsible agencies and with any other public agency which has jurisdiction over natural resources affected by the project which are held in trust for the people of the State to determine whether a negative declaration or environmental impact report is required for a project. *Public Resources Code section 21080.3.* A Project is an activity which may cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment and which is an activity directly undertaken by any public agency. Chapter 4 is Applicable and relevant because CDFG is the trustee agency over California's natural resources and the lead agency must consult with agencies having jurisdiction over natural resources potentially affected by the project.

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Aquatic habitat/species	Action must be taken if materials deleterious to fish and wildlife are placed where they can enter waters of the State There can be no release that would have a deleterious effect on species or habitat	Fish and Game Code section 5650 (a), (b) & (f)	These code sections prohibit the deposition into state waters of, *inter alia*, petroleum products (Section 5650(a)), factory refuse (section 5650(b)), and any substance deleterious to fish, plants or birds (section 5650(f)). These are substantive, promulgated environmental protection requirements. These requirements impose strict criminal liability on violators. (*People v. Chevron Chemical Company (1983) 143 Cal. App. 3d 50)*. This imposition of strict criminal liability imposes a standard that is more stringent than federal law. Section 5650 makes it unlawful 'to deposit in, permit to pass into, or place where it can pass into the waters of this state" enumerated substances. This section would be applicable and relevant to site 73 and SWMU 24 to the extent that contaminated groundwater has the potential of reaching surface waters or otherwise compromising surface waters.

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Fully Protected Reptiles and Amphibians	Actions must be taken to prevent the take or possession of any fully protected reptile or amphibian.	Fish and Game Code section 5050 (Added by Stats. 1970, c. 1036, p. 1849, section 7)	This section prohibits the take or possession of fully protected reptiles and amphibians or parts thereof. The following are fully protected reptiles and amphibians: (a) Blunt-nosed leopard lizard (b) San Francisco garter snake (c) Santa Cruz long-toed salamander (e) Black toad This section is applicable, relevant and appropriate to the extend that such amphibians or reptiles and/or their habitat are located on or near the site
Specially Protected Mountain Lion	Action must be taken to avoid injuring, taking, possessing or transporting any mountain lion.	Fish and Game Code sections 4800 et.seq. (Prop. 117 approved June 5, 1990)	Mountain lions are specially protected mammals in California. It is unlawful to take, injure, possess, transport, or sell any mountain lion or any part or product thereof. Violation of this section is a misdemeanor. This section will be applicable and relevant to the extent that the Mountain Lion or its habitat is located on or near the site.
Furbearing Mammals	Action must be taken to avoid take	Title 14 C.C.R. section 460 (effective 07/01/59)	Regulation makes it unlawful to take Fisher marten, river otter, desert kit fox, and red fox. This section will be applicable and relevant upon the discovery of such species on site 73 or SWMU 24.

Statutory and Regulatory Authority (In order of citation in the ARAR/TBC Table)

Fish and Game Code section711.7.
(a) The fish and wildlife resources are held in trust for the people of the state by and through the department.
(1) Insofar as state wildlife trust resources exist and depend upon federal proprietary lands or federal land and water adjacent to or affecting state trust resources, all persons engaging in projects or activities under federal license, contract, or permit, to the extent permitted by federal law, shall be governed by this article and shall pay project filing fees unless the payment of state filing and permit fees is explicitly preempted by the authority of the federal agency permitting the use or modification of state trust resources.
(2) Insofar as state wildlife trust resources exist and depend upon federal proprietary lands or federal lands and waters adjacent to or affecting state trust resources, all federal agencies acting in their proprietary capacity, to the extent permitted by federal law, shall be governed by this article and Sections 10005 and 21089 of the Public Resources Code, unless the payment of state filing and permit fees is explicitly preempted by the authority of a particular federal agency.
(b) If a court of competent jurisdiction finds that any provision of this section or the application thereof to any federal agency, person, or circumstances is held invalid, that invalidity shall not affect other provisions or applications of the section which can be given effect without the invalid provision or application, and to this end the provisions of this section are severable.

Fish and Game Code section 3005.
(a) It is unlawful to take birds or mammals with any net, pound, cage, trap, set line or wire, or poisonous substance, or to possess birds or mammals so taken, whether taken within or without this state, except as provided in this code or, when relating to ongoing mining operations, in accordance with a mitigation plan approved by the department.
(b) (1) Mitigation plans relating to mining operations approved by the department shall, among other criteria, require avoidance of take, where feasible, and include reasonable and practicable methods of mitigating the unavoidable take of birds and mammals. When approving mitigation plans, the department shall consider the use of the best available technology on a site-specific basis.
(2) Mitigation plans relating to mining operations approved by the department shall include provisions that address circumstances where mining operations contribute to bird deaths, including ponding of

process solutions on heap leach pads and exposure of process solution channels, solution ponds, and tailing ponds

(3) The mine operator shall prepare a mitigation plan that shall be submitted to the department for approval. For ongoing mining operations, the mitigation plan shall result in an overall reduction in take of avian or mammal species. The department shall provide an opportunity for public review and comment on each mitigation plan during the department's approval process. The mitigation plan shall be prepared on a site-specific basis and may provide for offsite mitigation measures designed to reduce avian mortality. The mine operator shall submit monthly monitoring reports on avian mortality to the department to aid in evaluating the effectiveness of onsite mitigation measures.

(4) The department shall monitor and evaluate implementation of the mitigation plan by the mine operator and require modification of the plan or other remedial actions to be taken if the overall reduction in take of avian or mammal species required pursuant to paragraph (3) is not being achieved.

(5) The mining operator shall reimburse the department for its direct costs to provide appropriate notice of the mitigation plan to affected local government entities and other affected parties. The mine operator shall provide the department a limited number of copies, as determined by the department, of the mitigation plan for public review.

(c) Proof of possession of any bird or mammal that does not show evidence of having been taken by means other than a net, pound, cage, trap, set line or wire, or poisonous substance, is prima facie evidence that the birds or mammals were taken in violation of this section.

(d) This section does not apply to the lawful taking of fur-bearing mammals, nongame birds, nongame mammals, or mammals found to be injuring crops or property, to the taking of birds or mammals under depredation permits, to taking by employees of the department acting in an official capacity, or to taking in accordance with the conditions of a scientific or propagation permit by the holder of that permit.

Fish and Game Code section 2014.

(a) It is the policy of this state to conserve its natural resources and to prevent the willful or negligent destruction of birds, mammals, fish, reptiles, or amphibia.

The state may recover damages in a civil action against any person or local agency which unlawfully or negligently takes or destroys any bird, mammal, fish, reptile, or amphibian protected by the laws of this state.

(b) The measure of damages is the amount which will compensate for all the detriment proximately caused by the destruction of the birds, mammals, fish, reptiles, or amphibia.

(c) An action to recover damages under this section shall be brought in the name of the people of the state, in a court of competent jurisdiction in the county in which the cause of action arose. The State Water Resources Control Board shall be notified of, and may join in, any action brought under this section when the activities alleged to have caused the destruction of any bird, mammal, fish, reptile, or amphibian may involve either the unlawful discharge of pollutants into the waters of the state or other violation of Division 7 (commencing with Section 13000) of the Water Code.

(d) This section does not apply to persons or local agencies engaged in agricultural pest control, to the destruction of fish in irrigation canals or works or irrigation drainages, or to the destruction of birds or mammals killed while damaging crops as provided by law.

(e) No damages may be recovered against a local agency pursuant to this section if civil penalties are assessed against the local agency for the same detriment pursuant to Division 7 (commencing with Section 13000) of the Water Code.

(f) Any recovery or settlement of money damages, including, but not limited to, civil penalties, arising out of any civil action filed and maintained by the Attorney General in the enforcement of this section shall be deposited by the department in the subaccounts of the Fish and Wildlife Pollution Account in the Fish and Game Preservation Fund as specified in Section 13011.

(g) For purposes of this section, "local agency" includes any city, county, city and county, district, public authority, or other political subdivision.

Fish and Game Code section 1900.
The intent of the Legislature and the purpose of this chapter is to preserve, protect and enhance endangered or rare native plants of this state.

The Legislature finds that many species and subspecies of native plants are endangered because their habitats are threatened with destruction, drastic modification, or severe curtailment, or because of commercial exploitation or by other means, or because of disease or other factors.

Fish and Game Code section 2050.
This chapter shall be known and may be cited as the California Endangered Species Act.

Fish and Game Code section 2051.
The Legislature hereby finds and declares all of the following:

(a) Certain species of fish, wildlife, and plants have been rendered extinct as a consequence of man's activities, untempered by adequate concern and conservation.

(b) Other species of fish, wildlife, and plants are in danger of, or threatened with, extinction because their habitats are threatened with destruction, adverse modification, or severe curtailment, or because of overexploitation, disease, predation, or other factors.

(c) These species of fish, wildlife, and plants are of ecological, educational, historical, recreational, esthetic, economic, and scientific value to the people of this state, and the conservation, protection, and enhancement of these species and their habitat is of statewide concern.

Fish and Game Code section 2052.
The Legislature further finds and declares that it is the policy of the state to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat and that it is the intent of the Legislature, consistent with conserving the species, to acquire lands for habitat for these species.

Fish and Game Code section 2052.1.
The Legislature further finds and declares that if any provision of this chapter requires a person to provide mitigation measures or alternatives to address a particular impact on a candidate species, threatened species, or endangered species, the measures or alternatives required shall be roughly proportional in extent to any impact on those species that is caused by that person. Where various measures or alternatives are available to meet this obligation, the measures or alternatives required shall maintain the person's objectives to the greatest extent possible consistent with this section. All required measures or alternatives shall be capable of successful implementation. This section governs the full extent of mitigation measures or alternatives that may be imposed on a person pursuant to this chapter. This section shall not affect the state's obligations set forth in Section 2052.

Fish and Game Code section 2053.
The Legislature further finds and declares that it is the policy of the state that state agencies should not approve projects

as proposed which would jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy.

Furthermore, it is the policy of this state and the intent of the Legislature that reasonable and prudent alternatives shall be developed by the department, together with the project proponent and the state lead agency, consistent with conserving the species, while at the same time maintaining the project purpose to the greatest extent possible.

Fish and Game Code section 2054.
The Legislature further finds and declares that, in the event specific economic, social, or other conditions make infeasible such alternatives, individual projects may be approved if appropriate mitigation and enhancement measures are provided.

Fish and Game Code section 2055.
The Legislature further finds and declares that it is the policy of this state that all state agencies, boards, and commissions shall seek to conserve endangered species and threatened species and shall utilize their authority in furtherance of the purposes of this chapter.

Fish and Game Code section 2056.
The Legislature further finds and declares that the cooperation of the owners of land which is identified as habitat for endangered species and threatened species is essential for the conservation of those species and that it is the policy of this state to foster and encourage that cooperation in furtherance of the purposes of this chapter. Therefore, a landowner of property on which an endangered, threatened, or candidate species lives shall not be liable for civil damages for injury to employees of, or persons under contract with, the department if the injury occurs while those persons are conducting survey, management, or recovery efforts with respect to those species.

Fish and Game Code section 2060.
The definitions in this article govern the construction of this chapter.

Fish and Game Code section 2061.
"Conserve," "conserving," and "conservation" mean to use, and

the use of, all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary. These methods and procedures include, but are not limited to, all activities associated with scientific resources management, such as research, census, law enforcement, habitat acquisition, restoration and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Fish and Game Code section 2062.
"Endangered species" means a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease. Any species determined by the commission as "endangered" on or before January 1, 1985, is an "endangered species."

Fish and Game Code section 2063.
"Feasible" means feasible as defined in Section 21061.1 of the Public Resources Code.

Fish and Game Code section 2064.
"Project" means project as defined in Section 21065 of the Public Resources Code.

Fish and Game Code section 2065.
"State lead agency" means the state agency, board, or commission which is a lead agency under the California Environmental Quality Act (Division 13 (commencing with Sec. 21000) of the Public Resources Code).

Fish and Game Code section 2067.
"Threatened species" means a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as "rare" on or before January 1, 1985, is a "threatened species."

Fish and Game Code section 2068.
"Candidate species" means a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list.

Fish and Game Code section 2070.
The commission shall establish a list of endangered species and a list of threatened species. The commission shall add or remove species from either list if it finds, upon the receipt of sufficient scientific information pursuant to this article, that the action is warranted.

Fish and Game Code section 2071.
The commission shall adopt guidelines by which an interested person may petition the commission to add a species to, or to remove a species from either the list of endangered or the list of threatened species.

Fish and Game Code section 2071.5.
The department shall recommend, and the commission shall adopt, criteria for determining if a species is endangered or threatened.

Fish and Game Code section 2072.
The petition shall be written, shall be clearly identified as a petition, and shall clearly indicate the administrative measure recommended.

Fish and Game Code section 2072.3.
To be accepted, a petition shall, at a minimum, include sufficient scientific information that a petitioned action may be warranted. Petitions shall include information regarding the population trend, range, distribution, abundance, and life history of a species, the factors affecting the ability of the population to survive and reproduce, the degree and immediacy of the threat, the impact of existing management efforts, suggestions for future management, and the availability and sources of information. The petition shall also include information regarding the kind of habitat necessary for species survival, a detailed distribution map, and any other factors that the petitioner deems relevant.

Fish and Game Code section 2072.7.
The department may, in the absence of a petition from an interested party, recommend to the commission that it add a species to, or remove a species from, either the list of endangered species or the list of threatened species. If it makes a recommendation under this section, the department shall include the information specified in Section 2072.3. A department recommendation under this section shall be considered by the commission as a petition with a departmental recommendation to accept and consider as described in subdivision (b) of Section 2073.5, and is subject to Sections 2074 to 2079, inclusive.

Fish and Game Code section 2073.
Within 10 days of the receipt of a petition from an interested person under Section 2072.3, the commission shall refer the petition to the department.

Fish and Game Code section 2073.3.
(a) The commission shall publish a notice in the California Regulatory Notice Register of the receipt of a petition prepared pursuant to Section 2072.3 by the department, or by an interested party and referred to the department, pursuant to Section 2073, or the commencement of an evaluation, to add a species to, remove a species from, or change the status of a species on, the list of endangered species or the list of threatened species pursuant to Section 2072.7. At a minimum, the notice shall include all of the following:
(1) The scientific and common name of the species.
(2) Habitat type, if that information is available in the petition.
(3) The location where interested persons can submit information to the department relating to the petitioned species.
(b) The commission shall notify interested persons pursuant to Section 2078, by mail, of the notices prepared pursuant to subdivision (a), and shall mail a copy of the notice to those persons.

Fish and Game Code section 2073.4.
(a) A person may submit information to the department relating to the petitioned species during the evaluation of the petition pursuant to Section 2073.5. The information shall relate to the matters identified in Section 2072.3.

(b) Within 10 days after receiving information pursuant to subdivision (a), the department shall notify the petitioner regarding its content.

Fish and Game Code section 2073.5.
(a) Within 90 days of receipt of the petition, the department shall evaluate the petition on its face and in relation to other relevant information the department possesses or receives, and submit to the commission its written evaluation report with one of the following recommendations to the commission:
(1) Based upon the information contained in the petition, there is not sufficient information to indicate that the petitioned action may be warranted, and the petition should be rejected.
(2) Based upon the information contained in the petition, there is sufficient information to indicate that the petitioned action may be warranted, and the petition should be accepted and considered.
(b) Upon the request of the director, the commission may grant the department an extension of time, not to exceed 30 days, to allow the department additional time to further analyze and evaluate the petition and complete its evaluation report.
(c) The department's evaluation report shall include copies of, or a list of, all information submitted to the department pursuant to subdivision (a) of Section 2073.4 during its evaluation of the petition. If copies are not included, the report shall state where the listed information is available for review.

Fish and Game Code section 2073.7.
A petitioner may amend a petition at any time prior to the beginning of the meeting held by the commission pursuant to Section 2074.2. However, if the commission determines that the amendment is substantive, the commission shall resubmit the petition to the department for review pursuant to Section 2073.5, publish notice of the amendment pursuant to Section 2073.3, and renotice or continue any hearing scheduled pursuant to Section 2074 in order to provide adequate opportunity for public comment.

Fish and Game Code section 2074.
The commission shall schedule the petition for consideration at its next available meeting, but not sooner than 30 days after receipt of the petition and public release of the evaluation report, and distribute its pending agenda to interested persons pursuant to Section 2078. The commission also shall make the petition, evaluation report, and other materials received available for review.

Fish and Game Code section 2074.2.

(a) At the scheduled meeting, the commission shall consider the petition, the department's written report, and comments received, and the commission shall make and enter in its public record one of the following findings:

(1) If the commission finds that the petition does not provide sufficient information to indicate that the petitioned action may be warranted, the commission shall publish a notice of finding that the petition is rejected, including the reasons why the petition is not sufficient.

(2) If the commission finds that the petition provides sufficient information to indicate that the petitioned action may be warranted, the commission shall publish a notice of finding that the petition is accepted for consideration. If the accepted petition recommends the addition of a species to either the list of endangered species or the list of threatened species, the commission shall include in the notice that the petitioned species is a candidate species The commission shall maintain a list of species which are candidate species.

(b) The commission shall publish and distribute the findings relating to the petition pursuant to Section 2078.

Fish and Game Code section 2074.4.

If a petition is accepted by the commission for consideration, all reasonable attempts shall be made to notify affected and interested parties and to solicit data and comments on the petitioned action from as many persons as is practicable. In addition to commission efforts to provide notification through distribution of the commission agenda and minutes pursuant to Section 2078, the department shall immediately undertake efforts to notify affected and interested parties. Methods of notification may include, but are not limited to, correspondence, newspaper notices, and press releases, and notification shall include notice to owners of that land which may provide habitat essential to the continued existence of the species, unless the director determines that ownership is so widespread, fragmented, or complex as to make individual notice impractical.

Fish and Game Code section 2074.6.

The department shall promptly commence a review of the status of the species concerned in the petition. Within 12 months of the date of publication of a notice of acceptance of a petition for consideration by the commission pursuant to paragraph (2) of subdivision (a) of Section 2074.2, the department shall provide a written report to the commission, based upon the best scientific information available to the department, which indicates whether the

petitioned action is warranted, which includes a preliminary identification of the habitat that may be essential to the continued existence of the species, and which recommends management activities and other recommendations for recovery of the species.

Fish and Game Code section 2074.8.
Nothing in this article imposes any duty or obligation for, or otherwise requires, the commission or the department to undertake independent studies or other assessments of any species when reviewing a petition and its attendant documents and comments.

Fish and Game Code section 2075.
The commission shall schedule the petition for final consideration at its next available meeting after receipt of the departmental report provided pursuant to Section 2074.6 and shall distribute the pending agenda for that meeting pursuant to Section
Fish and Game Code section 2078.
The commission shall make the department's report, or copies thereof, which was provided, pursuant to Section 2074.6, available for review upon request.

Fish and Game Code section 2075.5.
At the meeting scheduled pursuant to Section 2075, the commission shall make one of the following findings:
(1) The petitioned action is not warranted, in which case the finding shall be entered in the public records of the commission and the petitioned species shall be removed from the list of candidate species maintained pursuant to Section 2074.2.
(2) The petitioned action is warranted, in which case the commission shall publish a notice of that finding and a notice of proposed rulemaking pursuant to Section 11346.4 of the Government Code to add the species to, or remove the species from, the list of endangered species or the list of threatened species. Further proceedings of the commission on the petitioned action shall be made in accordance with Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code.

Fish and Game Code section 2076.
Any finding pursuant to this section is subject to judicial review under Section 1094.5 of the Code of Civil Procedure.

Fish and Game Code section 2076.5.
Notwithstanding Sections 2071 to 2075.5, inclusive, the

commission may adopt a regulation which adds a species to the list of endangered species or to the list of threatened species as an emergency regulation pursuant to Article 1.5 (commencing with Section 240) to Chapter 2 of Division 1 if the commission finds that there is any emergency posing a significant threat to the continued existence of the species. The commission shall notify affected or interested persons of the adoption of such an emergency regulation pursuant to the methods described in Section 2074.4.

Fish and Game Code section 2077.
(a) The department shall review species listed as an endangered species or as a threatened species every five years to determine if the conditions that led to the original listing are still present. The review shall be conducted based on information which is consistent with the information specified in Section 2072.3 and which is the best scientific information available to the department. The review shall include a review of the identification of the habitat that may be essential to the continued existence of the species and the department's recommendations for management activities and other recommendations for recovery of the species. The department shall notify any person who has notified the commission, in writing with their address, of their interest, and the department may notify any other person.

(b) Review of species that are listed by both the commission and the United States Department of Interior will be conducted in conjunction with the five-year review process of the United States Department of Interior.

(c) Initial review of those species listed by the commission before January 1, 1982, that are not listed by the federal government shall be undertaken and completed by July 1, 1987 Initial review of those species listed by the commission after January 1, 1982, that are not listed by the federal government shall be undertaken and completed within five years of the date the species was originally listed by the commission.

(d) Notwithstanding any other provision of this section, the commission or the department may review a species at any time based upon a petition or upon other data available to the department and the commission.

(e) The department shall report in writing to the commission the results of its five-year review for each listed species. The commission shall treat any report of the department under this subdivision which contains a recommendation to add a species to, or remove a species from, the list of endangered species or the list of threatened species as a department recommendation submitted pursuant to Section 2072.7.

Fish and Game Code section 2078.
(a) To provide all interested persons access to information and notification of pending listing or delisting actions, the commission shall distribute the related agenda of pending actions and those portions of its minutes of actions taken under this article to any individuals who have notified the commission, in writing with their address, of their interest. This notification shall be published in the California Regulatory Notice Register and shall meet the requirements of public notice as required for commission action under Section 2073.3, 2074, 2074.2, 2075, or 2077.

(b) The commission may impose an annual fee on those persons who request inclusion on the list to be notified in order to offset the cost of establishing and maintaining the list, and preparing and mailing the notices. Fees received pursuant to this section shall be deposited in the Fish and Game Preservation Fund.

Fish and Game Code section 2079.
The department shall, by January 30 of each year, beginning January 30, 1986, prepare a report summarizing the status of all state listed endangered, threatened, and candidate species, and shall submit the report to the commission, the Legislature, the Governor, and all individuals who have notified the commission, in writing with their address, of their interest. This report shall include, but not be limited to, a listing of those species designated as endangered, threatened, and candidate species, a discussion of the current status of endangered, threatened, or candidate species, and the time frames for the review of listed species pursuant to this article.

Fish and Game Code section 2080.
No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided in this chapter, the Native Plant Protection Act (Chapter 10 (commencing with Section 1900) of this code), or the California Desert Native Plants Act (Division 23 (commencing with Section 80001) of the Food and Agricultural Code).

Fish and Game Code section 3511.
Fully protected birds or parts thereof may not be taken or

possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected bird and no such permits or licenses heretofore issued shall have any force or effect for any such purpose; except that the commission may authorize the collecting of such species for necessary scientific research and may authorize the live capture and relocation of such species pursuant to a permit for the protection of livestock. Legally imported fully protected birds or parts thereof may be possessed under a permit issued by the department.

The following are fully protected birds:

(a) American peregrine falcon (Falco peregrinus anatum)
(b) Brown pelican
(c) California black rail (Laterallus jamaicensis coturniculus)
(d) California clapper rail (Rallus longirostris obsoletus)
(e) California condor (Gymnogyps californianus)
(f) California least tern (Sterna albifrons browni)
(g) Golden eagle
(h) Greater sandhill crane (Grus canadensis tabida)
(i) Light-footed clapper rail (Rallus longirostris levipes)
(j) Southern bald eagle (Haliaeetus leucocephalus leucocephalus)
(k) Trumpeter swan (Cygnus buccinator)
(l) White-tailed kite (Elanus leucurus)
(m) Yuma clapper rail (Rallus longirostris yumanensis)

Fish and Game Code section 3513.
It is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Treaty Act.

Fish and Game Code section 4700.
Fully protected mammals or parts thereof may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected mammal and no permits or licenses heretofore issued shall have any force or effect for that purpose. However, the commission may authorize the collecting of those species for necessary scientific research. Legally imported fully protected mammals or parts thereof may be possessed under a permit issued by the department.

The following are fully protected mammals:

(a) Morro Bay kangaroo rat (Dipodomys heermanni morroensis).

(b) Bighorn sheep (Ovis canadensis), except Nelson bighorn sheep (subspecies Ovis canadensis nelsoni) as provided by subdivision (b) of Section 4902.
(c) Northern elephant seal (Mirounga angustirostris).
(d) Guadalupe fur seal (Arctocephalus townsendi).
(e) Ring-tailed cat (genus Bassariscus).
(f) Pacific right whale (Eubalaena sieboldi).
(g) Salt-marsh harvest mouse (Reithrodontomys raviventris).
(h) Southern sea otter (Enhydra lutris nereis).
(i) Wolverine (Gulo luscus).

Fish and Game Code section 3503.5.
It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.

Fish and Game Code section 3800.
(a) All birds occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds are nongame birds. It is unlawful to take any nongame bird except as provided in this code or in accordance with regulations of the commission or, when relating to mining operations, a mitigation plan approved by the department.
(b) (1) Mitigation plans relating to mining operations approved by the department shall, among other criteria, require avoidance of take, where feasible, and include reasonable and practicable methods of mitigating the unavoidable take of birds and mammals. When approving mitigation plans, the department shall consider the use of the best available technology on a site-specific basis.
(2) Mitigation plans relating to mining operations approved by the department shall include provisions that address circumstances where mining operations contribute to bird deaths, including ponding of process solutions on heap leach pads and exposure of process solution channels, solution ponds, and tailing ponds.
(3) The mine operator shall prepare a mitigation plan that shall be submitted to the department for approval. For ongoing mining operations, the mitigation plan alone or in conjunction with regulations adopted by the commission shall result in an overall reduction in take of avian or mammal species. The department shall provide an opportunity for public review and comment on each mitigation plan during the department's approval process. The

mitigation plan shall be prepared on a site-specific basis and may provide for offsite mitigation measures designed to reduce avian mortality. The mine operator shall submit monthly monitoring reports on avian mortality to the department to aid in evaluating the effectiveness of onsite mitigation measures.

(4) The mining operator shall reimburse the department for its direct costs to provide appropriate notice of the mitigation plan to affected local government entities and other affected parties. The mine operator shall provide the department a limited number of copies, as determined by the department, of the mitigation plan for public review.

(c) The department shall monitor and evaluate implementation of the mitigation plan by the mine operator and require modification of the plan or other remedial actions to be taken if the overall reduction in take of avian or mammal species required pursuant to paragraph (3) is not being achieved.

Fish and Game Code section 4150.
All mammals occurring naturally in California which are not game mammals, fully protected mammals, or fur-bearing mammals, are nongame mammals. Nongame mammals or parts thereof may not be taken or possessed except as provided in this code or in accordance with regulations adopted by the commission.

Title 14
472. General Provisions.

Except as otherwise provided in Sections 478 and 485 and subsections (a) through (d) below, nongame birds and mammals
may not be taken.

(a) The following nongame birds and mammals may be taken at any time of the year and in any number except as prohibited in
Chapter 6: English sparrow, starling, coyote, weasels, skunks, opossum, moles and rodents (excluding tree and flying squirrels,
and those listed as furbearers, endangered or threatened species).

(b) Fallow, sambar, sika, and axis deer may be taken only concurrently with the general deer season.

(c) Aoudad, mouflon, tahr, and feral goats may be taken all year

(d) American crows (Corvus brachyrhynchos) may be taken only under the provisions of Section

485 and by landowners or
tenants, or by persons authorized in writing by such landowners or tenants, when American crows are committing or about to
commit depredations upon ornamental or shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such
numbers and manner as to constitute a health hazard or other nuisance. Persons authorized by landowners or tenants to take
American crows shall keep such written authorization in their possession when taking, transporting or possessing American
crows. American crows may be taken only on the lands where depredations are occurring or where they constitute a health
hazard or nuisance. If required by Federal regulations, landowners or tenants shall obtain a Federal migratory bird depredation
permit before taking any American crows or authorizing any other person to take them.

American crows may be taken under the provisions of this subsection only by firearm, bow and arrow, falconry or by toxicants
by the Department of Food and Agriculture for the specific purpose of taking depredating crows. Toxicants can be used for
taking crows only under the supervision of employees or officers of the Department of Food and Agriculture or federal or
county pest control officers or employees acting in their official capacities and possessing a qualified applicator certificate issued
pursuant to sections 14151-14155 of the Food and Agriculture Code. Such toxicants must be applied according to their label
requirements developed pursuant to sections 6151-6301, title 3, California Code of Regulations.

475. Methods of Take for Nongame Birds and Nongame Mammals.
Nongame birds and nongame mammals may be taken in any manner except as follows:

(a) Poison may not be used.

(b) Recorded or electrically amplified bird or mammal calls or sounds or recorded or electrically amplified imitations of bird or
mammal calls or sounds may not be used to take any nongame bird or nongame mammal except coyotes, bobcats, American
crows and starlings.

(c) Fallow deer, sambar deer, axis deer, sika deer, aoudad, mouflon, tahr and feral goats may be taken only with the equipment
and ammunition specified in Section 353 of these regulations.

(d) Traps may be used to take nongame birds and nongame mammals only in accordance with the provisions of section 465.5
of these regulations and sections 3003.1 and 4004 of the Fish and Game Code.

(e) No feed, bait or other material capable of attracting a nongame mammal may be placed or used in conjunction with dogs for
the purpose of taking any nongame mammals. Nothing in this section shall prohibit an individual operating in accordance with
the provisions of Section 465.5 from using a dog to follow a trap drag and taking the nongame mammal caught in that trap.

Fish and Game code section 8500.
Except as otherwise expressly permitted in this chapter, no
mollusks, crustaceans, or other invertebrates may be taken, possessed
aboard a boat, or landed for commercial purposes by any person in
any tide pool or tidal area, including tide flats or other areas
between the high tidemark and 1,000 feet beyond the low tidemark,
unless a valid tidal invertebrate permit has been issued to that
person that has not been suspended or revoked. The taking,
possessing, or landing of mollusks, crustaceans, or other
invertebrates pursuant to this section shall be subject to
regulations adopted by the commission.

Title 14
40. General Provisions Relating to Native Reptiles and Amphibians.

(a) Prohibition on Take, Possession, Purchase, Propagation, Sale, Import, or Export. It is unlawful to take, possess, purchase,
propagate, sell, transport, import or export any native reptile or amphibian, or part thereof, except as provided in this chapter
and in Chapter 2 of this subdivision relating to sportfishing and frogging.

(b) Except for dried or processed reptile skins, it is unlawful to display, in any place of business where pets or other animals are
sold, native reptiles or amphibians which cannot lawfully be sold.

(c) Progeny resulting from pregnant native reptiles or amphibians collected from the wild must be transferred to another person
or to a scientific or educational institution within 45 days of birth or hatching. Persons receiving such progeny shall comply with
the bag and possession limits specified in sections 41.5 and 42.5.

(d) Reptiles or amphibians which have been in captivity, including wild-caught and captively-bred individuals or offspring, shall

not be released into the wild.

(e) Biological Supply Houses and Exempt Organizations.

(1) Biological Supply Houses. The department may issue permits to owners of biological supply houses to sell native reptiles
and amphibians to scientific or educational institutions, pursuant to Section 651 of these regulations.

(2) Organizations and Schools Exempt from Permit. Institutions or organizations engaged in bona fide scientific study of native
wildlife, whose specimens are readily available for use or viewing by the public at large on a regular basis, and government
accredited schools that are open to the public may possess, accept donations of, or exchange, purchase or sell between
organizations, native reptiles and amphibians without a permit.

(f) Except as otherwise provided in federal law, the Fish and Game Code or Section 671, no permit is required to import,
export, transport, possess, propagate, buy or sell nonnative reptiles or amphibians.

41. Protected Amphibians.

Except under special permit from the department issued pursuant to sections 650 and 670.7 of these regulations, or Section 2081 of the Fish and Game Code, none of the following amphibians may be taken or possessed at any time:

(a) Santa Cruz long-toed salamander (Ambystoma macrodactylum croceum).

(b) Siskiyou mountain salamander (Plethodon stormi).

(c) Desert slender salamander (Batrachoseps aridus).

(d) Kern Canyon slender salamander (Batrachoseps simatus).

(e) Tehachapi slender salamander (Batrachoseps stebbinsi).

(f) Limestone salamander (Hydromantes brunus).

(g) Shasta salamander (Hydromantes shastae).

(h) Black toad (Bufo exsul).

(i) Red-legged frog (Rana aurora).

(j) Southwestern toad (Bufo microscaphus).

(k) Mt. Lyell salamander (Hydromantes platycephalus).

(l) Inyo Mountains salamander (Batrachoseps campi).

(m) California tiger salamander (Ambystoma californiense).

(n) Olympic salamander (Rhyacotriton olympicus).

(o) Del Norte salamander (Plethodon elongatus).

(p) Colorado River toad (Bufo alvarius).

(q) Yosemite toad (Bufo canorus).

(r) Foothill yellow-legged frog (Rana boylii).

(s) Mountain yellow-legged frog (Rana muscosa).

(t) Cascade frog (Rana cascade).

(u) Spotted frog (Rana pretiosa).

(v) Lowland leopard frog (Rana yavapaiensis).

(w) Tailed frog (Ascaphus truei).

(x) Western spadefoot (Scaphiopus hammondii).

42. Protected Reptiles.

Except under special permit from the department issued pursuant to sections 650 and 670.5 of these regulations, or Section 2081 of the Fish and Game Code, none of the following reptiles may be taken or possessed at any time.

(a) Blunt-nosed leopard lizard (Gambelia sila).

(b) Banded Gila monster (Heloderma suspectum cinctum).

(c) Southern rubber boa (Charina bottae umbratica).

(d) Alameda whipsnake (Masticophis lateralis euryxanthus).

(e) San Francisco garter snake (Thamnophis sirtalis tetrataenia).

(f) Giant garter snake (Thamnophis gigas).

(g) Desert tortoise (Gopherus agassizi).

(h) Panamint alligator lizard (Gerrhonotus panamintinus).

(i) Sonora mud turtle (Kinosternon sonoriense).

(j) Island night lizard (Xantusia riversiana).

(k) Flat-tailed horned lizard (Phrynosoma mcallii).

(l) San Diego mountain kingsnake (Lampropeltis zonata pulchra).

(m) Coachella Valley fringe-toed lizard (Uma inornata).

(n) Switak's barefoot gecko (Coleonyx switaki).

(o) Leaf-toed gecko (Phyllodactylus xanti).

(p) Granite night lizard (Xantusia henshawi).

(q) Orange-throated whiptail (Cnemidophorus hyperythrus).

(r) Black legless lizard (Anniella pulchra nigra).

(s) Coast horned lizard (Phrynosoma coronatum).

(t) Western pond turtle (Clemmys marmorata).

(u) San Joaquin coachwhip (Masticophis flagellum ruddocki).

(v) Two striped garter snake (Thamnophis hammondii).

Fish and Game Code section 5650.
(a) Except as provided in subdivision (b), it is unlawful to deposit in, permit to pass into, or place where it can pass into the waters of this state any of the following:
(1) Any petroleum, acid, coal or oil tar, lampblack, aniline, asphalt, bitumen, or residuary product of petroleum, or carbonaceous material or substance.
(2) Any refuse, liquid or solid, from any refinery, gas house,

tannery, distillery, chemical works, mill, or factory of any kind.
(3) Any sawdust, shavings, slabs, or edgings.
(4) Any factory refuse, lime, or slag.
(5) Any cocculus indicus.
(6) Any substance or material deleterious to fish, plant life, or bird life.
(b) This section does not apply to a discharge or a release that is expressly authorized pursuant to , and in compliance with, the terms and conditions of a waste discharge requirement pursuant to Section 13263 of the Water Code or a waiver issued pursuant to subdivision (a) of Section 13269 of the Water Code issued by the State Water Resources Control Board or a regional water quality control board after a public hearing, or that is expressly authorized pursuant to, and in compliance with, the terms conditions of a federal permit for which the State Water Resources Control Board or a regional water quality control board has, after a public hearing, issued a water quality certification pursuant to Section 13160 of the Water Code. This section does not confer additional authority on the State Water Resources Control Board, a regional water quality control board, or any other entity.
(f) The affirmative defense in subdivision (c) does not apply and may not be raised by the defendant in any case in which a district attorney, city attorney, or Attorney General alleges, and the court finds, that the defendant acted willfully.

Fish and Game Code section 4800.
(a) The mountain lion (genus Felis) is a specially protected mammal under the laws of this state.
(b) It is unlawful to take, injure, possess, transport, import, or sell any mountain lion or any part or product thereof, except as specifically provided in this chapter or in Chapter 2 (commencing with Section 2116) of Division 3. This chapter does not prohibit the sale or possession of any mountain lion or any part or product thereof, when the owner can demonstrate that the mountain lion, or part or product thereof, was in the person's possession on June 6, 1990.
(c) Any violation of this section is a misdemeanor punishable by imprisonment in the county jail for not more than one year, or a fine of not more than ten thousand dollars ($10,000), or by both that fine and imprisonment. An individual is not guilty of a violation of this section if it is demonstrated that, in taking or injuring a mountain lion, the individual was acting in self-defense or in defense of others.
(d) Section 219 does not apply to this chapter. Neither the commission nor the department shall adopt any regulation that

conflicts with or supersedes any of the provisions of this chapter.

Title 14 California Code of Regulations section 460.
Fisher, Marten, River Otter, Desert Kit Fox and Red Fox. Fisher, marten, river otter, desert kit fox, and red fox may not be taken at any time.

South Coast Air Quality Management District Letter to Department of Toxic Substances Control

26 July 2001

CTO-151 / 0301
File: 02184, 0222

South Coast
Air Quality Management District
21865 E. Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 · http://www.aqmd.gov

July 26, 2001

Ms. Katherine K. Leibel
Remedial Project Manager
Department of Toxic Substances Control
5796 Corporate Ave.
Cypress, CA 90630

Subject: Applicable or Relevant and Appropriate Requirements (ARARs) for IR Site 73 and SWMU 24 at NWS, Seal Beach

Dear Ms. Leibel:

This letter is in response to your request dated July 2, 2001 for subject site Applicable or Relevant and Appropriate Requirements (ARARs). Based on review of the project summary provided with your request, the South Coast Air Quality Management District (District) requires a Site Specific Soil Mitigation Plan for this project. This plan will contain requirements and conditions to comply with District Rule 1166. A plan application package containing a sample and a copy of the Rule 1166 are enclosed for your review.

Due to excavation activities, dust and maybe odors from the site may create public nuisance concerns. District Rules 402 and 403 regulate these issues and are also enclosed for your convenience.

If you need further information or assistance, please contact Ranjit Vishwanath at 909 396-2682 or my office at 909 396-2575.

Sincerely,

Larry Bowen
Manager
Toxics and Waste Management Unit

rv/DJ/LB

DTSCarar

(Adopted May 7, 1976)

RULE 402. NUISANCE

A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

(Adopted May 7, 1976)(Amended November 6, 1992)
(Amended July 9, 1993)(Amended February 14, 1997)
(Amended December 11, 1998)

RULE 403. FUGITIVE DUST

(a) Purpose

The purpose of this rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.

(b) Applicability

The provisions of this rule shall apply to any activity or man-made condition capable of generating fugitive dust.

(c) Definitions

(1) ACTIVE OPERATIONS shall mean any activity capable of generating fugitive dust, including, but not limited to, earth-moving activities, construction/demolition activities, or heavy- and light-duty vehicular movement.

(2) ANEMOMETERS are devices used to measure wind speed and direction in accordance with the performance standards, and maintenance and calibration criteria as contained in the most recent Rule 403 Implementation Handbook, now or hereafter adopted by the Governing Board.

(3) BEST AVAILABLE CONTROL MEASURES represent fugitive dust control actions which are required to be implemented within the boundaries of the South Coast Air Basin. A detailed listing of best available control measures for each fugitive dust source type shall be as contained in the most recent Rule 403 Implementation Handbook, now or hereafter adopted by the Governing Board.

(4) BULK MATERIAL is sand, gravel, soil, aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter.

(5) CHEMICAL STABILIZERS mean any non-toxic chemical dust suppressant which must not be used if prohibited for use by the Regional Water Quality Control Boards, the California Air Resources Board, the U.S. Environmental Protection Agency (U.S. EPA), or any applicable law, rule or regulation; and should meet any specifications, criteria, or tests required by any federal, state, or local water agency. Unless otherwise indicated, the use of a non-toxic chemical stabilizer shall be of sufficient concentration and application frequency to maintain a stabilized surface.

(6) CONSTRUCTION/DEMOLITION ACTIVITIES are any on-site mechanical

activities preparatory to or related to the building, alteration, rehabilitation, demolition or improvement of property, including, but not limited to the following activities; grading, excavation, loading, crushing, cutting, planing, shaping or ground breaking.

(7) CONTINGENCY NOTIFICATION means that the U.S. EPA has determined and notified the District in writing that PM_{10} contingency requirements must be implemented based on a finding that: (1) PM_{10} and PM_{10} precursor emissions reductions were less than required at any three-year milestone reporting interval, or (2) the region failed to attain the PM_{10} standards within the time frames allotted under the Federal Clean Air Act, or (3) if as part of an Attainment/Maintenance Plan, the region is no longer in attainment of the PM_{10} standards.

(8) CONTRACTOR means any person who has a contractual arrangement to conduct an active operation for another person.

(9) DISTURBED SURFACE AREA means a portion of the earth's surface which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust. This definition excludes those areas which have:

(A) been restored to a natural state, such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby natural conditions;

(B) been paved or otherwise covered by a permanent structure; or

(C) sustained a vegetative ground cover over at least 95 percent of an area for a period of at least 6 months.

(10) DUST SUPPRESSANTS are water, hygroscopic materials, or non-toxic chemical stabilizers used as a treatment material to reduce fugitive dust emissions.

(11) EARTH-MOVING ACTIVITIES shall include, but not be limited to, grading, earth cutting and filling operations, loading or unloading of dirt or bulk materials, adding to or removing from open storage piles of bulk materials, landfill operations, or soil mulching.

(12) FUGITIVE DUST means any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of man.

(13) INACTIVE DISTURBED SURFACE AREA means any disturbed surface area upon which active operations have not occurred or are not expected to occur for a period of ten consecutive days.

(14) LARGE OPERATIONS means any active operations on property which contains in excess of 100 acres of disturbed surface area; or any earth-moving operation which exceeds a daily earth-moving or throughput volume of 7,700 cubic meters (10,000 cubic yards) three times during the most recent 365-day period.

(15) MEDIUM OPERATIONS means any active operations on property which contains between 50 and 100 acres of disturbed surface area; or any earth-moving operation with a daily earth-moving or throughput volume of between 3,850 cubic meters (5,000 cubic yards) and 7,700 cubic meters (10,000 cubic yards) three times during the most recent 365-day period.

(16) NON-ROUTINE means any non-periodic active operation which occurs no more than three times per year, lasts less than 30 cumulative days per year, and is scheduled less than 30 days in advance.

(17) OPEN STORAGE PILE is any accumulation of bulk material with 5 percent or greater silt content which is not fully enclosed, covered or chemically stabilized, and which attains a height of three feet or more and a total surface area of 150 or more square feet. Silt content level is assumed to be 5 percent or greater unless a person can show, by sampling and analysis in accordance with ASTM Method C-136 or other equivalent method approved in writing by the Executive Officer, the California Air Resources Board, and the U. S. EPA, that the silt content is less than 5 percent. The results of ASTM Method C-136 or equivalent method are valid for 60 days from the date the sample was taken.

(18) PARTICULATE MATTER means any material, except uncombined water, which exists in a finely divided form as a liquid or solid at standard conditions.

(19) PAVED ROAD means an improved street, highway, alley, public way, or easement that is covered by typical roadway materials excluding access roadways that connect a facility with a public paved roadway and are not open to through traffic. Public paved roads are those open to public access and that are owned by any federal, state, county, municipal or any other governmental or quasi-governmental agencies. Private paved roads are any paved roads not defined as public.

(20) PM_{10} is particulate matter with an aerodynamic diameter smaller than or equal to 10 microns as measured by the applicable State and Federal reference test methods.

(21) PROPERTY LINE means the boundaries of an area in which either a person causing the emission or a person allowing the emission has the legal use or possession of the property. Where such property is divided into one or more sub-tenancies, the property line(s) shall refer to the boundaries dividing the areas of all

sub-tenancies.

(22) REASONABLY AVAILABLE CONTROL MEASURES are appropriate techniques and procedures used to prevent or reduce the emission and airborne transport of fugitive dust, outside the boundaries of the South Coast Air Basin. These include, but are not limited to, application of dust suppressants, use of coverings or enclosures, paving, enshrouding, planting, reduction of vehicle speeds, and other measures as specified by the Executive Officer. A detailed listing of reasonably available control measures for each fugitive dust source type shall be as contained in the most recent Rule 403 Implementation Handbook, now or hereafter adopted by the Governing Board.

(23) SILT means any aggregate material with a particle size less than 74 micrometers in diameter which passes through a No. 200 Sieve.

(24) SIMULTANEOUS SAMPLING means the operation of two PM_{10} samplers in such a manner that one sampler is started within five minutes of the other, and each sampler is operated for a consecutive period which must be not less than 290 minutes and not more than 310 minutes.

(25) SOUTH COAST AIR BASIN means the non-desert portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange County as defined in California Code of Regulations, Title 17, Section 60104. The area is bounded on the west by the Pacific Ocean, on the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains, and on the south by the San Diego county line.

(26) STABILIZED SURFACE means:

(A) any disturbed surface area or open storage pile which is resistant to wind-driven fugitive dust;

(B) any unpaved road surface in which any fugitive dust plume emanating from vehicular traffic does not exceed 20 percent opacity.

(27) UNPAVED ROADS are any unsealed or unpaved roads, equipment paths, or travel ways that are not covered by one of the following: concrete, asphaltic concrete, recycled asphalt, asphalt or other materials with equivalent performance as determined by the Executive Officer, the California Air Resources Board, and the U.S. EPA. Public unpaved roads are any unpaved roadway owned by Federal, State, county, municipal or other governmental or quasi-governmental agencies. Private unpaved roads are all other unpaved roadways not defined as public.

(28) VISIBLE ROADWAY DUST means any sand, soil, dirt, or other solid particulate matter which is visible upon paved road surfaces and which can be

removed by a vacuum sweeper or a broom sweeper under normal operating conditions.

(29) WIND-DRIVEN FUGITIVE DUST means visible emissions from any disturbed surface area which is generated by wind action alone.

(30) WIND GUST is the maximum instantaneous wind speed as measured by an anemometer.

(d) Requirements

(1) A person shall not cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source.

(2) A person conducting active operations within the boundaries of the South Coast Air Basin shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type which is part of the active operation.

(3) A person conducting active operations outside the boundaries of the South Coast Air Basin may utilize reasonably available control measures in lieu of best available control measures to minimize fugitive dust emissions from each fugitive dust source type which is part of the active operation.

(4) A person shall not cause or allow PM_{10} levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other U.S. EPA-approved equivalent method for PM_{10} monitoring. If sampling is conducted, samplers shall be:

(A) Operated, maintained, and calibrated in accordance with 40 Code of Federal Regulations (CFR), Part 50, Appendix J, or appropriate U.S. EPA-published documents for U.S. EPA-approved equivalent method(s) for PM_{10}.

(B) Reasonably placed upwind and downwind of key activity areas and as close to the property line as feasible, such that other sources of fugitive dust between the sampler and the property line are minimized.

(5) Any person in the South Coast Air Basin shall:

(A) prevent or remove within one hour the track-out of bulk material onto public paved roadways as a result of their operations; or

(B) take at least one of the actions listed in Table 3 and:

(i) prevent the track-out of bulk material onto public paved roadways as a result of their operations and remove such material at anytime track-out extends for a cumulative distance of greater than 50 feet on to any paved public road during active operations; and

(ii) remove all visible roadway dust tracked-out upon public paved roadways as a result of active operations at the conclusion of each work day when active operations cease.

(e) Contingency Requirements

When a contingency notification has occurred, the requirements of this subdivision shall become effective in the county subject to the notification 60 days after the first publication date in newspapers of general circulation in that county. Such publication shall specify that a contingency notification has occurred, and that any person who conducts or authorizes the conducting of a medium operation shall be required to comply with the provisions of subdivision (f), in addition to the requirements of subdivision (d).

(f) Special Requirements for Large Operations, and Medium Operations Under a Contingency Notification

(1) Any person who conducts or authorizes the conducting of either a large operation which is subject to the requirements of this rule, or a medium operation under a contingency notification as set forth in subdivision (e), shall either:

(A) take the actions specified in Tables 1 and 2 for each applicable source of fugitive dust within the property lines and shall:

(i) notify the Executive Officer not more than 7 days after qualifying as a large operation or as a medium operation under a contingency notification;

(ii) include, as part of the notification, the items specified in subparagraphs (f)(3)(A) and (f) (3)(B);

(iii) maintain daily records to document the specific actions taken;

(iv) maintain such records for a period of not less than 6 months; and

(v) make such records available to the Executive Officer upon request; or

(B) obtain an approved fugitive dust emissions control plan (plan).

(2) Any person subject to paragraph (f)(1) who elects to obtain an approved fugitive dust emission control plan must submit the plan to the Executive Officer no later than 30 days after the activity becomes a large operation.

(3) Any plan prepared pursuant to subparagraph (f)(1)(B) shall include:

(A) The name(s), address(es), and phone number(s) of the person(s) responsible for the preparation, submittal, and implementation of the plan;

(B) A description of the operation(s), including a map depicting the location of the site;

(C) A listing of all sources of fugitive dust emissions within the property lines;

(D) A description of the required control measures as applied to each of the sources identified in subparagraph (f)(3)(C). The description must be sufficiently detailed to demonstrate that the applicable best available control measures or reasonably available control measures will be utilized and/or installed during all periods of active operations.

(4) In the event that there are special technical (e.g., non-economic) circumstances, including safety, which prevent the use of at least one of the required control measure for any of the sources identified in subparagraph (f)(3)(C), a justification statement must be provided in lieu of the description required in subparagraph (f)(3)(D). The justification statement must explain the reason(s) why the required control measures cannot be implemented.

(5) Within 30 calendar days of the receipt of a plan submitted pursuant to subparagraph (f)(1)(B), the Executive Officer will either approve, conditionally approve, or disapprove the plan , in writing. For a plan to be approved or conditionally approved, three conditions must be satisfied:

(A) All sources of fugitive dust emissions must be identified (e.g., earth-moving, storage piles, vehicular traffic on unpaved roads, etc.).

(B) For each source identified, at least one of the required control measures must be implemented, or an acceptable justification statement pursuant to paragraph (f)(4) must be provided; and

(C) If, after implementation of the required control measures, visible dust emissions are crossing the property line(s), then high wind measures (e.g., increased watering) must be specified for immediate implementation.

(6) Conditional approval will be made if conditions are met, but the stated measures do not satisfactorily conform to the guidance contained in the applicable Rule 403 Implementation Handbook. If a plan is conditionally approved, the conditions necessary to modify the plan will be provided in writing to the person(s) identified in subparagraph (f)(3)(A). Such modifications must be incorporated into the plan within 30 days of the receipt of the notice of conditional approval, or the plan shall be disapproved. A letter to the Executive Officer stating that such modifications will

be incorporated into the plan shall be deemed sufficient to result in approval of the plan.

(7) If a plan is disapproved by the Executive Officer:

(A) The reasons for disapproval shall be given to the applicant in writing.

(B) Within 7 days of the receipt of a notice of a disapproved plan, the applicant shall comply with the actions specified in Tables 1 and 2 for each applicable source of fugitive dust within the property lines.

(C) The applicant may resubmit a plan at any time after receiving a disapproval notification, but will not be relieved of complying with subparagraph (f)(7)(B) until such time as the plan has been approved.

(8) Failure to comply with any of the provisions in an approved or conditionally approved plan shall be a violation of subdivision (f).

(9) Any approved plan shall be valid for a period of one year from the date of approval or conditional approval of the plan. Plans must be resubmitted annually, at least 60 days prior to the expiration date, or the plan shall become disapproved as of the expiration date. If all fugitive dust sources and corresponding control measures or special circumstances remain identical to those identified in the previously approved plan, the resubmittal may contain a simple statement of no-change. Otherwise, a resubmittal must contain all the items specified in subparagraphs (f)(3) (A through D).

(10) Any person subject to the requirements of paragraph (f)(1) who no longer exceeds, and does not expect to exceed for a period of at least one year, the criteria for a large operation or a medium operation under a contingency notification may request a reclassification as a non-large operation not subject to subparagraph (f). To obtain this reclassification, a person must submit a request in writing to the Executive Officer specifying the conditions which have taken place to reduce the disturbed surface area and/or the earth-moving or throughput conditions to levels below the criteria for large operations. A person must further indicate that the criteria for large operations are not expected to be exceeded during the subsequent 12-month period. The Executive Officer shall either approve or disapprove the reclassification within 60 days from receipt of the reclassification request. The Executive Officer will disapprove the request if the indicated changes can not be verified to be below the criteria for large operations or a medium operation under a contingency notification. If approved, the person shall be relieved of all requirements under subdivision (f). Any person so reclassified would again be subject to the requirements of subdivision (f) if at any time subsequent to the reclassification the criteria for large operations or a medium operation under a contingency notification are met.

(11) A person responsible for more than one operation subject to subparagraph (f) at non-contiguous sites may submit one plan covering multiple sites provided that:

(A) the contents of the plan apply similarly to all sites; and

(B) specific information is provided for each site, including, map of site location, address, description of operations, and a listing of all sources of fugitive dust emissions within the property lines.

(g) Compliance Schedule

All the newly amended provisions of this rule shall become effective upon adoption of this Rule Amendment. Pursuant to subdivision (f), any fugitive dust emission control plan which has been approved or conditionally approved prior to the date of adoption of these amendments shall remain in effect and the plan approval date and annual resubmittal date shall remain unchanged. If any changes to such plans are necessary as a result of these amendments, such changes shall not be required until the annual resubmittal date, pursuant to paragraph (f)(9).

(h) Exemptions

(1) The provisions of this rule shall not apply to:

(A) Agricultural operations outside the boundaries of the South Coast Air Basin, agricultural operations directly related to the raising of fowls or animals, and agricultural operations conducted within the boundaries of the South Coast Air Basin provided that the combined disturbed surface area within one continuous property line and not separated by a paved public road is 10 acres or less.

(B) Agricultural operations within the South Coast Air Basin, until June 30, 1999, whose combined disturbed surface area includes more than 10 acres. All provisions of this Rule shall become applicable to agricultural operations exceeding 10 acres beginning July 1, 1999, excluding those listed in (h)(1)(A), unless the person responsible for such operations voluntarily implements the conservation practices contained in the most recent Rule 403 Agricultural Handbook, now or hereafter adopted by the Governing Board. The person responsible for such operations must complete and maintain the self-monitoring form documenting sufficient conservation practices, as described in the Rule 403 Agricultural Handbook, and must make it available to the Executive Officer upon request.

(C) Any disturbed surface area less than one-half (1/2) acre on property zoned for residential uses.

(D) Active operations conducted during emergency life-threatening situations, or in conjunction with any officially declared disaster or state of emergency.

(E) Active operations conducted by essential service utilities to provide electricity, natural gas, telephone, water and sewer during periods of service outages and emergency disruptions.

(F) Any contractor subsequent to the time the contract ends, provided that such contractor implemented the required control measures during the contractual period.

(G) Any grading contractor, for a phase of active operations, subsequent to the contractual completion of that phase of earth-moving activities, provided that the required control measures have been implemented during the entire phase of earth-moving activities, through and including five days after the final grading inspection.

(H) Weed abatement operations ordered by a county agricultural commissioner or any state, county, or municipal fire department, provided that:

(i) mowing, cutting or other similar process is used which maintains weed stubble at least three inches above the soil; or

(ii) any discing or similar operation which cuts into and disturbs the soil is used and meets the following conditions:

[a] A determination is made by the issuing agency of the weed abatement order that, due to fire hazard conditions, rocks, or other physical obstructions, it is not practical to meet the conditions specified in clause (h)(1)(H)(i); and

[b] Such determination is made in writing and provided to the person conducting the weed abatement operation prior to beginning such activity; and

[c] Such written determination is provided to the Executive Officer upon request from the person conducting the weed abatement operation.

(Note: The provisions of clause (h)(1)(H)(ii) do not exempt the owner of any property from controlling fugitive dust emissions emanating from disturbed surface areas which have been created as a result of the weed abatement actions.)

(I) sandblasting operations.

(2) The provisions of paragraphs (d)(1) and (d)(4) shall not apply:

(A) When wind gusts exceed 25 miles per hour, provided that:

(i) The required control measures for high wind conditions are

implemented for each applicable fugitive dust source type, as specified in Table 1, and;

(ii) Records are maintained in accordance with clauses (f)(1)(A)(iii), (f)(1)(A)(iv) and (f)(1)(A)(v); and

(iii) In the event there are technical (e.g., non-economic) reasons, including safety, why any of the required control measures in Table 1 cannot be implemented for one or more fugitive dust source categories, a person submits a "High Wind Fugitive Dust Control Plan" (HW-Plan). The HW-Plan must further provide an alternative measure of fugitive dust control, if technically feasible. Such plan will be subject to the same approval conditions as specified in subparagraphs (f)(5) and (f)(6).

(B) To unpaved roads, provided such roads:

(i) are used solely for the maintenance of wind-generating equipment; or

(ii) are unpaved public alleys as defined in Rule 1186; or

(iii) meet all of the following criteria:

[a] are less than 50 feet in width at all points along the road;

[b] are within 25 feet of the property line; and

[c] have a traffic volume less than 20 vehicle-trips per day.

(C) To any active operation, open storage pile, or disturbed surface area for which necessary fugitive dust preventive or mitigative actions are in conflict with the federal Endangered Species Act.

(D) To non-routine or emergency maintenance of flood control channels and water spreading basins.

(3) The provisions of paragraphs (d)(1), (d)(2), and (d)(4) shall not apply to:

(A) Blasting operations which have been permitted by the California Division of Industrial Safety; and

(B) Motion picture, television, and video production activities when dust emissions are required for visual effects. In order to obtain this exemption, the Executive Officer must receive notification in writing at least 72 hours in advance of any such activity and no nuisance results from such activity.

(4) The provisions of paragraph (d)(4) shall not apply if the dust control actions, as specified in Table 2, are implemented on a routine basis for each applicable fugitive dust source type. To qualify for this exemption, a person must:

(A) maintain records to document the dates of active operations, all applicable fugitive dust source types, and the actions taken consistent with Table 2;

(B) retain such records for a period of at least six months; and

(C) make such records available to the Executive Officer upon request.

(5) The provisions of paragraph (d)(5) shall not apply to earth coverings of public paved roadways where such coverings are approved by a local government agency for the protection of the roadway, and where such coverings are used as roadway crossings for haul vehicles.

(6) The provisions of subdivision (f) shall not apply to:

(A) officially-designated public parks and recreational areas, including national parks, national monuments, national forests, state parks, state recreational areas, and county regional parks;

(B) any construction and/or earth-moving activity in which the completion date is expected to be less than 60 days after the beginning date. To qualify for this exemption, a person must:

(i) notify the Executive Officer not more than 7 days after qualifying as a large operation or a medium operation under a contingency notification;

(ii) include, as part of the notification, the items specified in subparagraphs (f)(3)(A) and (f)(3)(B); and

(iii) take the actions specified in Tables 1 and 2 at such time as the construction and/or earth-moving activities extend more than 60 days after qualifying as a large operation or a medium operation under a contingency notification.

(C) any large operation or a medium operation under a contingency notification which is required to submit a dust control plan to any city or county government which has adopted a District-approved dust control ordinance. To qualify for this exemption, a person must submit a copy of the city- or county-approved dust control plan to the Executive Officer within 30 days of the effective date of this rule or within 30 days of receiving approval from the city or county government, whichever is later.

(D) any large operation or a medium operation under a contingency notification subject to Rule 1158, which has an approved dust control plan pursuant to Rule 1158, provided that all sources of fugitive dust are included in the Rule 1158 plan.

(i) Fees

(1) Any person subject to a plan submittal pursuant to subparagraph (f)(1)(B) or clause (h)(2)(A)(iii) or subparagraph (h)(1)(B) shall be assessed applicable filing and evaluation fees pursuant to Rule 306. Any person who simultaneously submits a plan pursuant to subparagraph (f)(1)(B) and clause (h)(2)(A)(iii) shall, for the purpose of this rule, be deemed to submit one plan.

(2) The submittal of an annual statement of no-change, pursuant to paragraph (f)(9), shall not be considered as an annual review, and therefore shall not be subject to annual review fees, pursuant to Rule 306.

(3) The owner/operator of any facility for which the Executive Officer conducts upwind/downwind monitoring for PM_{10} pursuant to paragraph (d)(4) shall be assessed applicable Ambient Air Analysis Fees pursuant to Rule 304.1. Applicable fees shall be waived for any facility which is exempted from paragraph (d)(4) or meets the requirements of paragraph (d)(4).

TABLE 1
BEST [REASONABLY] AVAILABLE CONTROL MEASURES FOR HIGH WIND CONDITIONS

FUGITIVE DUST SOURCE CATEGORY		CONTROL MEASURES
Earth-moving	(1A)	Cease all active operations; OR
	(2A)	Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	(0B)	On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR
	(1B)	Apply chemical stabilizers prior to wind event; OR
	(2B)	Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR
	(3B)	Take the actions specified in Table 2, Item (3c); OR
	(4B)	Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed

		surface areas.
Unpaved roads	(1C)	Apply chemical stabilizers prior to wind event; OR
	(2C)	Apply water twice [once] per hour during active operation; OR
	(3C)	Stop all vehicular traffic.
Open storage piles	(1D)	Apply water twice [once] per hour; OR
	(2D)	Install temporary coverings.
Paved road track-out	(1E)	Cover all haul vehicles; OR
	(2E)	Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All Categories	(1F)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 1 may be used.

* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 2
DUST CONTROL ACTIONS FOR EXEMPTION FROM PARAGRAPH (d) (4)

FUGITIVE DUST SOURCE CATEGORY		**CONTROL ACTIONS**
Earth-moving (except construction cutting and filling areas, and mining operations)	(1a)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR
	(1a-1)	For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: Construction fill	(1b)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other

areas:		equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the California Air Resources Board and the U.S. EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.

* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 2 (Continued)

FUGITIVE DUST SOURCE CATEGORY		**CONTROL ACTIONS**
Earth-moving: Construction cut areas and mining operations:	(1c)	Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	(2a/b)	Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 [70] percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	(2c)	Apply chemical stabilizers within five working days of grading completion; OR
	(2d)	Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	(3a)	Apply water to at least 80 [70] percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR

	(3b)	Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR
	(3c)	Establish a vegetative ground cover within 21 [30] days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR
	(3d)	Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.

*** Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.**

TABLE 2 (Continued)

FUGITIVE DUST SOURCE CATEGORY		**CONTROL ACTIONS**
Unpaved Roads	(4a)	Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; OR
	(4b)	Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR
	(4c)	Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	(5a)	Apply chemical stabilizers; OR
	(5b)	Apply water to at least 80 [70] percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR
	(5c)	Install temporary coverings; OR
	(5d)	Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile.
All Categories	(6a)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 2 may be used.

*** Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.**

TABLE 3
TRACK-OUT CONTROL OPTIONS
PARAGRAPH (d)(5)(B)

CONTROL OPTIONS

(1)	Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
(2)	Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.
(3)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 3 may be used.

South Coast Air Quality Management District

(Adopted August 5, 1988)(Amended July 14, 1995)(Amended May 11, 2001)

RULE 1166. VOLATILE ORGANIC COMPOUND EMISSIONS FROM DECONTAMINATION OF SOIL

a) Applicability

This rule sets requirements to control the emission of Volatile Organic Compounds (VOC) from excavating, grading, handling and treating VOC-contaminated soil as a result of leakage from storage or transfer operations, accidental spillage, or other deposition.

(b) Definitions

(1) EXCAVATION is the process of digging out and removing materials, including any material necessary to that process such as the digging out and removal of asphalt or concrete necessary to expose, dig out and remove known VOC contaminated soil.

(2) GRADING is the process of leveling off to produce a smooth surface including the removal of any material necessary to that process such as asphalt and concrete necessary to expose known VOC contaminated soil.

(3) Soil decontamination Measure is any process approved by the Executive Officer to remediate, destroy, remove, or encapsulate VOC and VOC-contaminated soil.

(4) Underground Storage Tank means any one or combination of tanks, including pipes connected thereto, which is used for the storage of organic liquid which is more than 50% beneath the surface of the ground.

(5) VOC contaminated Soil is a soil which registers a concentration of 50 ppm or greater of Volatile Organic Compounds as measured before suppression materials have been applied and at a distance of no more than three inches from the surface of the excavated soil with an organic vapor analyzer calibrated with hexane.

(6) VOC contaminated Soil Mitigation PLAN is a plan to minimize VOC emissions to the atmosphere during excavation and any subsequent handling of VOC-contaminated soil.

(7) Volatile Organic Compound (VOC) is any volatile compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds. Exempt compounds are defined in Rule 102—Definition Of

Terms.

(8) VOLATILE ORGANIC MATERIALS include gasoline, diesel, crude oil, lubricant, waste oil, adhesive, paint, stain, solvent, resin, monomer, and/or any other material containing VOC.

(c) Requirements

(1) A person excavating an underground storage tank and/or transfer piping storing or previously storing VOC materials, or excavating or grading soil containing VOC materials shall:

(A) Apply for, obtain and operate pursuant to a mitigation plan approved by the Executive Officer prior to commencement of excavation or handling. The mitigation plan general requirement and application requirements are found in Attachment A to this rule. A copy of the approved plan must be on site during the entire excavation period.

(B) Notify the Executive Officer at least 24 hours prior to excavation using a form approved by the Executive Officer which is fully completed.

If the excavation does not commence on start date, renotification is required.

An alternative notification procedure may be authorized for multiple excavations within a single facility, with prior written approval from the Executive Officer.

(C) Monitor for VOC contamination pursuant to subdivision (e), at least once every 15 minutes commencing at the beginning of excavation or grading and record all VOC concentration readings in a format approved by the Executive Officer; and

(D) When VOC-contaminated soil is detected during excavation or grading:

(i) Implement the approved mitigation plan (Attachment A).

(ii) Notify the Executive Officer within 24 hours of detection of VOC-contaminated soil.

(iii) Monitor and record VOC concentration readings as prescribed in the plan. Monitoring records must be kept available on site.

(iv) Keep calibration records for all monitoring instruments available on site.

(2) A person handling VOC-contaminated soil at or from an excavation or grading site shall:

(A) Segregate VOC-contaminated stockpiles from non-VOC contaminated stockpiles such that mixing of the stockpiles does not take place.

(B) Spray VOC-contaminated soil stockpiles with water and/or approved vapor suppressant and cover them with plastic sheeting for all periods of inactivity lasting more than one hour.

(C) Conduct a daily visual inspection of all covered VOC contaminated soil stockpiles to ensure the integrity of the plastic covered surfaces. A daily inspection record must be maintained on site.

(D) Comply with the provisions in subparagraph (c) (1)(A) and clause (c)(1)(D)(i).

(E) Maintain a record of the identification and business addresses of the generator, transporter and storage/treatment facilities. Such record shall be signed by each party at the time custody is transferred.

(F) Treat or remove contaminated soil from an excavation or grading site within 30 days from the time of excavation.

(3) If the VOC concentration in the excavated soil is measured at greater than 1000 ppm, spray the soil with water or vapor suppressant and:

(A) As soon as possible, but not more than 15 minutes, place the soil in sealed containers, or

(B) As soon as possible, but not more than 15 minutes, load into trucks, moisten with additional water, cover and transport off site, or

(C) Implement other alternative storage methods approved in writing by the Executive Officer.

(4) A person treating VOC-contaminated soil shall:

(A) Obtain a permit to construct and operate treatment equipment, as applicable, from the Executive Officer, and

(B) Implement VOC-contaminated soil decontamination measures, as approved by the Executive Officer in writing, which result in Best Available Control Technology applied during all segments, and which include, but are not limited to, at least one of the following:

(i) Installation and operation of an underground VOC collection system and a disposal system prior to excavation.

(ii) Collection and disposal of the VOC from the excavated soil on-site using equipment approved by the Executive

Officer.

(iii) Any equivalent VOC-contaminated soil control measure previously approved in writing by the Executive Officer.

(5) A person shall not engage in or allow any on-site or off-site spreading, grading or screening of VOC-contaminated soil, which results in uncontrolled evaporation of VOC to the atmosphere.

(6) Loading trucks for contaminated soil must meet the following:

(A) The truck and trailer shall be adequately tarped prior to leaving the site; no excavated materials shall extend above the sides or rear of the truck or trailer to prevent soil spillage during transport, and

(B) The exterior of the truck, trailer and tires shall be cleaned off prior to the truck leaving the site.

(d) Exemptions

(1) The provisions of this rule shall not apply to the following:

(A) Excavation, handling, and treating of less than one (1) cubic yard of contaminated soil.

(B) Removal of soil for sampling purposes.

(C) Accidental spillage of five (5) gallons or less of VOC containing material.

(2) The provisions of paragraphs (c)(1) and (c)(2) shall not apply to soil excavation or handling as a result of an emergency as declared by an authorized health officer, agricultural commissioner, fire protection officer, or other authorized agency officer. Whenever possible, the Executive Officer shall be notified by telephone prior to commencing such excavation. The Executive Officer shall be notified in writing no later than 48 hours following such excavation. Written notification shall include written emergency declaration from the authorized officer.

(e) Test Methods

(1) A person shall measure excavated soils for volatile organic compounds to determine contamination by:

(A) Using an organic vapor analyzer calibrated with hexane, complying with 40 CFR Part 60 Appendix A, EPA Reference Method 21 Section 3 or any equivalent method with prior approval in writing by the Executive Officer. If other calibrating gases are used, then the measured readings shall be correlated to and expressed as hexane.

(B) Placing the probe inlet at a distance of no more than three inches from the surface of the excavated soil and while slowly moving

the probe across the soil surface, observe the instrument readout. If an increased meter reading is observed, continue to sample the excavated soil until the maximum meter reading is obtained. Leave the probe inlet at this maximum reading location for approximately double the instrument response time. If the maximum observed meter reading is greater than the 50 ppm standard in the regulation, record and report the results.

(2) The presence of VOC in stored or spillage materials shall be determined by SCAQMD Method 313 [Determination of Presence of Volatile Organic Compounds (VOC) in Headspace] and/or Method 304 (Determination of Volatile Organic Compounds in Various Materials) contained in the SCAQMD "Laboratory Methods of Analysis for Enforcement Samples" manual.

(f) Enforcement

(1) Violation of any provision of this rule or the violation of the approved mitigation plan shall be grounds for the Executive Officer to amend or revoke the mitigation plan, in addition to penalties provided by the Health & Safety Code.

(2) If the owner or operator is served with a Notice of Violation for creating a public nuisance, the owner or operator shall suspend operation until the public nuisance is mitigated to the satisfaction of the Executive Officer.

ATTACHMENT A

GENERAL MITIGATION PLANS REQUIREMENTS

VOC Contaminated Soil Mitigation Plans shall be written to minimize VOC emissions to the atmosphere during excavation, grading, handling and treatment of VOC contaminated soil. VOC Contaminated Soil Mitigation Plans shall consist of three types: Various Locations, Site Specific and Facility Treatment.

(1) General Requirements

(A) A plan is not transferable.

(B) A person responsible for the excavation, grading or handling of VOC contaminated soil must be completely familiar with the plan and must adhere to the plan requirement. The Executive Officer may require that the plan be signed by the owner and/or operator.

(C) A plan may be amended upon renewal.

(D) Permission to excavate, grade or handle VOC contaminated soil may be withdrawn by the District upon a finding by the Executive Officer that the excavation, grading or handling of the VOC

contaminated soil is causing a public nuisance or violating other AQMD rules or regulations.

(2) Various Location Plans:

(A) Shall be limited to the excavation of 2000 cubic yards or less of VOC contaminated soil in any consecutive 12 month period at the same site.

(B) Shall not be used in conjunction with any other various location plan at the same site within a consecutive 12-month period.

(C) Shall expire after one year from issuance unless renewed.

(D) Shall not be issued for nor used for operations that involve grading, soil treatment or remediation, or landfills.

(3) Site Specific Plans:

(A) Shall be for excavation of greater than 2000 cubic yards of VOC contaminated soil.

(B) Shall be issued for specific excavation or grading locations for a period not to exceed two years.

(C) Shall not be renewable.

(4) Facility Treatment Plans:

(A) Shall be issued for a treatment facility at a permanent location.

(B) Shall expire after one year from issuance unless renewed.

(5) Applications for Site Specific Plans shall contain as a minimum:

(A) Reasons for excavation or grading.

(B) Cause of VOC soil contamination and history of the site.

(C) Description of tanks or piping associated with the soil contamination.

(D) An estimate of the amount of contaminated soil.

(E) The operating schedule for excavation and removal.

(F) Description of how the excavation or grading will be conducted.

(G) Description of mitigation measures for dust, odors and VOC.

(H) Details of disposal of VOC contaminated soil, including the ultimate receptor.

(I) Description of monitoring equipment and techniques.

(J) A map showing the facility layout, property line, and surrounding area up to 2500 feet away, and including any schools, residential areas or other sensitive receptors such as hospitals or locations where children or elderly people live or work.

(K) Designation of a person who can conduct a site inspection with the Executive Officer prior to issuance of the plan.

(6) Applications for Facility Treatment Plans shall at a minimum:

(A) Include a list of all AQMD permits to construct or operate which have been issued for that treatment and control equipment.

(B) Provide for the implementation of VOC-contaminated soil decontamination measures, as approved by the Executive Officer in writing, which result in Best Available Control Technology during all operations.

(C) Provide a map showing the facility layout including the location of all proposed VOC and non-VOC contaminated soil stockpiles.

(D) Specify the total amount of VOC contaminated soil proposed to be stockpiled on site.

(E) Provide for VOC contaminated soil stockpiles to be kept moist with water or suppressant and be covered to prevent fugitive emissions.

(F) Provide for VOC contaminated soil stockpiles to be segregated from non-VOC contaminated soil stockpiles.

(G) Provide for maintenance of records for stockpiles according to the source name, address and dates of reception.

(H) Provide for records of the generator, transporter and storage/treatment facilities and indicate their identification and business addresses. Such records shall be signed by each party at the time custody is transferred.

(I) Provide a map showing the facility layout, property line, and surrounding area up to 2500 feet away, and including any schools, residential area or other sensitive receptors such as hospitals, or locations where children or elderly people live or work.

(J) Designation of a person who can conduct a site inspection with the Executive Officer prior to issuance of the plan.

(K) Specify the operating schedule and maximum amount of VOC-contaminated soil proposed to be remediated on a daily basis.

(7) In approving a plan, the Executive Officer require reasonable conditions

deemed necessary to ensure the operations comply with the plan and AQMD rules. The conditions may include, but shall not be limited to, procedures for ensuring responsibility for the implementation of the plan, accessibility to the site for AQMD staff, notification of actions required by the plan, identification of emission receptors, monitoring and testing, suppression and covering of stockpiles, prevention of public nuisance from VOC or dust emissions, prevention of fugitive emissions of VOC contaminated soil, loading of truck trailers, and disposal and treatment.

(8) In approving a plan, the Executive Officer may require any records deemed necessary to be maintained by the operator to demonstrate compliance with the plan. Such records shall be retained for at least 2 years and be made available to the Executive officer upon request.

AQMD Home Page
This page updated: May 30, 2001
URL: http://www.aqmd.gov/rules/html/r1166.html

South Coast
Air Quality Management District
21865 E. Copley Drive, Diamond Bar, CA 90765-4182
(909) 396-2000 • http://www.aqmd.gov

SITE SPECIFIC VOC-CONTAMINATED SOIL MITIGATION PLAN PACKAGE

This application package contains:

1. General applicability information for VOC contaminated soil mitigation plan

2. Forms for Submittal with Instructions
   a. 400P
   b. 400P-1
   c. Applicant's Agreement
   d. 400-CEQA

3. Sample Plan

4. Rule 1166 Soil Monitoring Record Form

5. Rule 1166 Notification Form

Revised July 2001

INTRODUCTION

In accordance with the requirements of AQMD Rule 1166 - Volatile Organic Compound Emissions from Decontamination of Soil, an approved Mitigation Plan is required prior to commencement of any of the following activities:

1. Excavation of an underground storage tank or piping which has stored VOC
2. Excavation, handling, or storage of VOC contaminated soil (soil which registers >50 ppm or greater using an OVA monitor calibrated with hexane)

This package was developed to provide the applicant with the materials necessary to prepare a mitigation plan application for the excavation and handling VOC-contaminated soil. This package includes:

1. Form 400P - Application for Plans,
2. Business Type Codes,
3. Form SM-1A - Rule 1166 VOC-Contaminated Soil Mitigation Plan Information to Accompany Application Form 400-P, and
4. A sample "Site Specific" plan with typical plan conditions. This is included as a sample only, actual conditions may vary from those presented in this example.

MAILING ADDRESS:

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
P.O. BOX 4944
DIAMOND BAR, CA 91765-0944

INSTRUCTIONS - SITE SPECIFIC

The Site Specific Plan is designed for activities involving a single site. Typically, these activities are larger in scope (>2,000 yd^3) or possess unique qualities that require a "tailor made" plan. A Site Specific Plan is required for:

1. Activities involving quantities of VOC-contaminated soil exceeding 2,000 cubic yards,
2. Uses in conjunction with any on-site treatment/remedial action, or
3. Situations where the standard conditions contained within the Various Locations Plan are not appropriate.

To apply for a Site Specific Mitigation Plan:

1. Complete Form 400-P,
2. Complete Form SM-1A, mark the "Site Specific" box and provide any additional information as required, and
3. Submit Form 400-CEQA.
4. Submit both forms, with the plan submittal fee of $378.82, to the SCAQMD at the address above.

PLAN FEES

In accordance with SCAQMD Rule 306, all applicable fees are required at the time of filing. The fees are as follows:

Plan Filing Fee
The plan filing fee shall be $87.40.

Plan Evaluation Fee
In addition to the payment of the filing fee, an initial payment for plan evaluation fees

shall be paid at the time of submittal. Plan evaluation fees shall be at an amount equal to the total actual and reasonable time incurred by the SCAQMD for evaluation of a plan, assessed at the rate of $87.40 per person per hour or prorated portion thereof.

Typically, the time required to evaluate a Various Locations is one (1) hour. Hence, the plan evaluation fee for a Various Locations Plan is limited to $87.40.

The time required to evaluate a Site Specific Plan varies and will depend on the complexity of the plan. Therefore, an initial plan evaluation fee of $291.42 shall be paid at the time of submittal for a "site specific" plan. The adjustment to the initial plan evaluation fee will be determined at the time a plan is approved or denied, and notification of an amount due or refund will be made.

Total fees to be included with the completed application package is:

Site Specific Mitigation Plan: $378.82

QUESTIONS

Rule 1166 questions (909) 396-2326
Mitigation plans
Soil excavation requirements
Fax #: (909) 396-3342

Public Information (909) 396-3600

Variances from SCAQMD Rules and Permits conditions (909) 396-2468

Small Business Assistance (800) 396-3235

To report air quality complaints (800) CUT-SMOG

APPLICATION FOR PLANS

FORM 400P

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

COMPANY INFORMATION

FOR INSTRUCTIONS SEE REVERSE SIDE

LEGAL NAME OF APPLICANT: ____ I.R.S. OR ____ S.S. NO.:

PLAN TO BE ISSUED TO: (SEE INSTRUCTIONS)

BUSINESS MAILING ADDRESS:

FACILITY INFORMATION

FACILITY NAME FACILITY I.D. NO.: ____

EQUIPMENT/FACILITY LOCATION. *(FOR VARIOUS LOCATIONS PLANS ENTER VARIOUS LOCATIONS')*

TYPE OF BUSINESS: BUSINESS TYPE CODE: (SEE INSTRUCTIONS) ____

CONTACT PERSON AND TITLE: CONTACT TELEPHONE NO/FAX NO: ( ) ( )

EQUIPMENT INFORMATION

APPLICATION HEREBY SUBMITTED FOR: SOIL MITIGATION PLAN

RULE NUMBER WHICH THIS APPLICATION APPLIES TO: RULE 1166

TYPE OF PLAN APPLICATION: COMPLIANCE PLAN [X] EXCAVATION PLAN [X]

IF THIS APPLICATION IS ASSOCIATED WITH CERTAIN DISTRICT APPLICATION(S)/PERMIT(S), ENTER APPLICATION/PERMIT NUMBER(S):

FOR THIS PROJECT, HAS A CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) DOCUMENT BEEN REQUIRED BY ANOTHER GOVERNMENTAL AGENCY? NO [ ] YES [ ] IF YES, ENTER NAME OF AGENCY:

DO YOU CLAIM CONFIDENTIALITY OF DATA? (SEE INSTRUCTIONS) YES [ ] NO [ ]

OPERATING SCHEDULE: (Site Specific Plans Only.)

	HOURS/DAY	DAYS/WEEK	WEEKS/YEAR
MAXIMUM			
AVERAGE			

SIGNATURE

I HEREBY CERTIFY, UNDER PENALTY OF PERJURY, THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION ARE TRUE AND CORRECT.

SIGNATURE OF RESPONSIBLE MEMBER OR ORGANIZATION DATE

TYPE OR PRINT NAME OF SIGNER:	TITLE OF SIGNER	TELEPHONE NO.: ( )

SCAQMD USE ONLY

APPLICATION NUMBER	EQUIP. CAT. NO. /	ENGR. A. R. DATE INITIAL	ENGR. A. R. DATE INITIAL
ASSIGNMENT UNIT ENG.	FEE SCHEDULE $	VALIDATION	CHECK NO. AMOUNT ENF. SEC.

SEE REVERSE SIDE FOR INSTRUCTIONS AND ADDITIONAL INFORMATION

FORM 400P APPLICATION INSTRUCTIONS

COMPANY INFORMATION

LEGAL NAME OF APPLICANT:
Please identify the legal entity that operates the equipment.

I.R.S. OR S.S. NO.:
This information is used for identification purposes. Please enter the Internal Revenue Service (I.R.S.) or Social Security (S.S.) number of the applicant and check the appropriate box.

PLAN TO BE ISSUED TO:
Special format is used to identify both the legal entity and the business name. Please pattern your entry after one of the following examples:

Personal Name:	John C. King
Personal Name with DBA:	ABC Store, John C. King DBA
Partnership:	John C. King, Jim Day, and Ann Smith
Partnership	ABC Store, J. King J. Day A. Smith DBA
Corporation	ABC Corporation
Corporation with Division:	ABC Corporation, Office Products Division
Corporation with DBA:	ABC Corporation, ABC Trucking Co. DBA
Governmental Agency:	Any City, Public Works Dept.
School:	John Muir High School
Colleges and Universities:	University of California, Los Angeles, Biochemistry Dept.

BUSINESS MAILING ADDRESS:
Please identify the address where all business correspondence is to be mailed.

FACILITY INFORMATION

FACILITY NAME:
For identification purposes, please enter the name of the subject facility if you have more than one facility.

FACILITY I.D. NO.:
If your facility has been issued an I.D. number by the District, please enter it in the space provided. Otherwise, leave this blank. An I.D. number will be assigned when the application is submitted.

EQUIPMENT/FACILITY LOCATION:
Please identify the address where the equipment or facility will be located. If no street address is available, please provide a location description and zip code. For equipment to be operated at *various locations*, state "various locations in SCAQMD" and the initial operating location.

TYPE OF BUSINESS:
This information is used by the District for planning and statistical purposes. Please state the type of business you conduct in this facility (e.g. refinery, paint manufacturing, dry cleaner, restaurant, etc.).

BUSINESS TYPE CODE AT THIS FACILITY:
This information is used by the District for planning and statistical purposes. Using the provided list of business codes, please enter the code which best describes your business activity at this facility.

CONTACT PERSON, TITLE, PHONE NUMBER & FAX NUMBER:
Please identify the person name and title whom would be contacted regarding this application; also include the contact telephone number for this person.

EQUIPMENT INFORMATION

CALIFORNIA ENVIRONMENTAL QUALITY ACT:
A California Environmental Quality Act (CEQA) document (e.g., environmental impact report, negative declaration) is required for any project which results in significant effect on the environment. If such a document has been required by another governmental agency, please enter the name of that agency. A copy of this document is also required before the application can be deemed complete. Therefore, please submit a copy of the approved document.

CONFIDENTIALITY:
District records are subject to the California Public Records Act. To claim confidentiality of information submitted with this application, check "yes." Please be sure that all submitted information which you wish to be kept confidential is clearly marked as such. Please also state the reason(s) for claiming confidentiality. Examples of acceptable reasons are trade secrets and production data. Please note that state law prevents emissions data and permit documents from being kept secret

SUPPLEMENTAL INFORMATION

In addition to this application form, please submit supporting documents containing information required by the specific rule under which the application is filed. For Rule 1146, please complete Form 1146ALT.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
SUPPLEMENTAL
RULE 1166 VOC-CONTAMINATED SOIL MITIGATION PLAN INFORMATION TO ACCOMPANY APPLICATION FORM 400-P-1

LEGAL NAME OF APPLICANT:

TYPE OF BUSINESS:

TYPE OF PLAN: [ ] VARIOUS LOCATIONS [ ] SITE SPECIFIC (PLEASE COMPLETE 1 THROUGH 10 BELOW)

FOR SITE SPECIFIC PLAN ONLY

1. REASON FOR EXCAVATION:

   [ ] TANK REPLACEMENT/REPAIR [ ] PIPING REPLACEMENT/REPAIR [ ] REMOVAL/TREATMENT OF SOIL

   [ ] OTHER _____

2. CAUSE OF VOC-CONTAMINATION:

   [ ] UNDERGROUND TANK LEAKS [ ] UNDERGROUND PIPING LEAKS [ ] SPILLAGE FROM FILLING

   [ ] OTHER _____

3. DATA ON TANK(S) TO BE REMOVED (IF ANY)

NUMBER	SIZE (GALLONS)	CONTENTS (UNLEADED GAS, ETC.)
_____	_____	_____
_____	_____	_____
_____	_____	_____

4. EXTENT OF SOIL CONTAMINATION:

   A. VOLUME _____ YD^3 (_____ FT W X _____ FT L X _____ FT D)

   B. BULK DENSITY OF SOIL _____ TON/YD^3 POROSITY _____

   C. [ ] SOIL ANALYSIS ATTACHED, IF AVAILABLE (SPECIATED FOR BENZENE, TOLUENE, XYLENE, 1,2-DICHLOROETHANE, TOTAL PETROLEUM HYDROCARBONS, OR OTHER VOC IN MG/KG OR PPM)

   D. [ ] VAPOR ANALYSIS ATTACHED, IF AVAILABLE (TOTAL ORGANICS WITH OVA OR OTHER POLLUTANT/INSTRUMENT OVER SOIL OR IN WELLS - INCLUDE POLLUTANT, INSTRUMENT TYPE, READINGS & LOCATION OF MONITORS OR SAMPLES TAKEN)

5. EXCAVATION OPERATING SCHEDULE:

   A. START DATE ____/____/____ STOP DATE____/____/____ (_____ DAYS)

   B. ____ HR/DAY (____ AM/PM TO ____ AM/PM) ____ HR/DAY ____ WK/YR

ON THE REVERSE SIDE OF THIS PAGE, PLEASE PROVIDE THE FOLLOWING:

6. DESCRIPTION OF HOW EXCAVATION WILL BE CONDUCTED INCLUDING EXCAVATION, SOIL STORAGE (STOCKPILE, CONTAINER) AND/OR LOADING/TRANSPORT:
7. MITIGATION MEASURES FOR DUST, ODORS, AND EMISSIONS DURING EXCAVATION, INCLUDING PERIODS OF INACTIVITY SUCH AS LUNCH BREAKS, NIGHTS, WEEKENDS, AND HOLIDAYS:
8. FACILITY WHERE EXCAVATED VOC-CONTAMINATED SOIL WILL BE TREATED (NAME AND LOCATION). IF TREATING ONSITE, SPECIFY THE TREATMENT METHOD AND ATTACH A CURRENT COPY OF THE AQMD PERMIT TO OPERATE FOR THE TREATMENT EQUIPMENT TO BE USED AT THIS SITE.

9. VAPOR PHASE MONITORING TO BE CONDUCTED:

POLLUTANT	INSTRUMENT TYPE	LOCATION	DURATION (CONTINUOUS / OTHER FREQUENCY)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

10. PLEASE ATTACH A FACILITY LAYOUT/PLOT PLAN TO SHOW TANK LOCATIONS (IF ANY), PROPERTY LINE, AND SURROUNDING AREA UP TO 2500 FEET AWAY. IDENTIFY ALL USES IN THE AREA AND HIGHLIGHT SENSITIVE AREAS SUCH AS SCHOOLS, RESIDENTIAL AREAS, RESTAURANTS, AND SHOPPING CENTERS.

AQMD

APPLICANT'S STATEMENT

I hereby agree that a Standard Permit will be issued only if the following requirements are met:

1. The total quantity of VOC contaminated soil excavated and handled at each site in a calendar year does not exceed 2,000 cubic yards.
2. There is no school located within 1,000 feet of the equipment for which this application is made.
3. The facility will operate the equipment in compliance with all laws, ordinances, regulations and statutes of other governmental agencies.
4. All permit conditions listed in the sample permit are acceptable, and the facility will operate in compliance with these conditions.

I HEREBY CERTIFY UNDER PENALTY OF LAW THAT ALL THE INFORMATION I HAVE PROVIDED ARE TRUE AND CORRECT. I ALSO CERTIFY THAT I HAVE READ AND UNDERSTOOD THE PERMIT CONDITIONS LISTED AND WILL COMPLY WITH ALL THE PERMIT CONDITIONS.

SIGNATURE OF RESPONSIBLE OFFICIAL OF FIRM:_____

NAME (Please print):_____

TITLE OF RESPONSIBLE OFFICIAL OF FIRM:_____

DATE SIGNED:_____

SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE

BUSINESS TYPE CODES
Standard Industrial Classification (SIC) Codes

A	**AGRICULTURE, FORESTRY, AND FISHING**
0100	AGRICULTURAL PRODUCTION-CROPS
0200	AGRICULTURAL PRODUCTION-LIVESTOCK
0700	AGRICULTURAL SERVICES
0800	FORESTRY
0900	FISHING, HUNTING, AND TRAPPING
4300	U.S. POSTAL SERVICE
9900	NONCLASSIFIABLE ESTABLISHMENTS
B	**MINING**
1000	METAL MINING
1010	Iron Ores
1020	Copper Ores
1030	Lead and Zinc Ores
1040	Gold and Silver Ores
1060	Ferroalloy Ores, Except Vanadium
1080	Metal Mining Services
1090	Miscellaneous Metal Ores
1200	COAL MINING
1220	Bituminous Coal and Lignite Mining
1230	Anthracite Mining
1240	Coal Mining Services
1300	OIL AND GAS EXTRACTION
1310	Crude Petroleum and Natural Gas
1320	Natural Gas Liquids
1380	Oil and Gas Field Services
1400	NONMETALLIC MINERALS, EXCEPT FUELS
1410	Dimension Stone
1420	Crushed and Broken Stone
1440	Sand and Gravel
1450	Clay, Ceramic, & Refractory Minerals
1470	Chemical and Fertilizer Minerals
1474	Potash, soda, and borate minerals
1475	Phosphate rock
1479	Chemical and fertilizer mining, nec
1480	Nonmetallic Minerals Services
1490	Miscellaneous Nonmetallic Minerals
C	**CONSTRUCTION**
1500	GENERAL BUILDING CONTRACTORS
1520	Residential Building Construction
1530	Operative Builders
1540	Nonresidential Building Construction
1600	HEAVY CONSTRUCTION, EX BUILDING
1610	Highway and Street Construction
1620	Heavy Construction, Except Highway
1700	SPECIAL TRADE CONTRACTORS
1710	Plumbing, Heating, air-conditioning
1720	Painting and Paper Hanging
1730	Electrical Work
1740	Masonry, Stonework, and Plastering
1750	Carpentry and Floor Work
1760	Roofing, Siding, and Sheet Metal Work
1770	Concrete Work
1780	Water Well Drilling
1790	Misc. Special Trade Contractors
1793	Glass and glazing work
1794	Excavation work
1795	Wrecking and demolition work
1799	Special trade contractors, nec
D	**MANUFACTURING**
2000	FOOD AND KINDRED PRODUCTS
2010	Meat Products
2011	Meat packing plants
2013	Sausages and other prepared meats
2015	Poultry slaughtering and processing
2020	Dairy Products
2030	Preserved Fruits and Vegetables
2040	Grain Mill Products
2041	Flour and other grain mill products
2044	Rice milling
2045	Prepared flour mixes and dough's
2046	Wet corn milling
2047	Dog and cat food
2048	Prepared feeds, nec
2050	Bakery Products
2051	Bread, cake, and related products
2052	Cookies and crackers
2060	Sugar and Confectionery Products
2070	Fats and Oils
2080	Beverages
2084	Wines, brandy, and brandy spirits
2085	Distilled and blended liquors
2086	Bottled and canned soft drinks
2087	Flavoring extracts and syrups, nec
2090	Misc. Food and Kindred Products
2100	TOBACCO PRODUCTS
2200	TEXTILE MILL PRODUCTS
2210	Broadwoven Fabric Mills, Cotton
2220	Broadwoven Fabric Mills, Manmade
2230	Broadwoven Fabric Mills, Wool
2240	Narrow Fabric Mills
2250	Knitting Mills
2260	Textile Finishing, Except Wool
2270	Carpets and Rugs
2280	Yarn and Thread Mills
2290	Miscellaneous Textile Goods
2300	APPAREL AND OTHER TEXTILE PRODUCTS
2400	LUMBER AND WOOD PRODUCTS
2420	Sawmills and Planing Mills
2430	Millwork, Plywood & Structural Members
2434	Wood kitchen cabinets
2435	Hardwood veneer and plywood
2436	Softwood veneer and plywood
2439	Structural wood members, nec
2440	Wood Containers
2450	Wood Buildings and Mobile Homes
2490	Miscellaneous Wood Products
2500	FURNITURE AND FIXTURES
2510	Household Furniture
2520	Office Furniture
2521	Wood office furniture
2522	Office furniture, except wood
2530	Public Building & Related Furniture
2540	Partitions and Fixtures
2541	Wood partitions and fixtures
2542	Partitions and fixtures, except wood
2590	Miscellaneous Furniture and Fixtures
2600	PAPER AND ALLIED PRODUCTS
2610	Pulp Mills
2620	Paper Mills
2630	Paperboard Mills
2650	Paperboard Containers and Boxes
2670	Misc. Converted Paper Products
2700	PRINTING AND PUBLISHING
2710	Newspapers
2720	Periodicals
2730	Books
2731	Book publishing
2732	Book printing
2740	Miscellaneous Publishing
2750	Commercial Printing
2752	Commercial printing, lithographic
2754	Commercial printing, gravure
2759	Commercial printing, nec
2760	Manifold Business Forms
2770	Greeting Cards
2780	Blankbooks and Bookbinding
2790	Printing Trade Services
2800	CHEMICALS AND ALLIED PRODUCTS
2810	Industrial Inorganic Chemicals
2812	Alkalies and chlorine
2813	Industrial gases
2816	Inorganic pigments
2819	Industrial inorganic chemicals, nec
2820	Plastics Materials and Synthetics
2821	Plastics materials and resins
2822	Synthetic rubber
2823	Cellulosic manmade fibers
2824	Organic fibers, noncellulosic
2830	Drugs
2833	Medicinals and botanicals
2834	Pharmaceutical preparations
2835	Diagnostic substances
2836	Biological products exc. diagnostic
2840	Soap, Cleaners, and Toilet Goods
2841	Soap and other detergents
2842	Polishes and sanitation goods
2843	Surface active agents
2844	Toilet preparations
2850	Paints and Allied Products
2860	Industrial Organic Chemicals
2861	Gum and wood chemicals
2865	Cyclic crudes and intermediates
2869	Industrial organic chemicals, nec
2870	Agricultural Chemicals
2890	Miscellaneous Chemical Products
2891	Adhesives and sealants
2892	Explosives
2893	Printing ink
2895	Carbon black
2899	Chemical preparations, nec
2900	PETROLEUM AND COAL PRODUCTS
2910	Petroleum Refining
2950	Asphalt Paving and Roofing Materials
2951	Asphalt paving mixtures and blocks
2952	Asphalt felts and coatings
2990	Misc. Petroleum and Coal Products
2992	Lubricating oils and greases
2999	Petroleum and coal products, nec
3000	RUBBER AND MISC. PLASTICS PRODUCTS
3010	Tires and Inner Tubes
3020	Rubber and Plastics Footwear
3050	Hose & Belting & Gaskets & Packing
3052	Rubber & plastics hose & belting
3053	Gaskets, packing and sealing devices
3060	Fabricated Rubber Products, NEC
3061	Mechanical rubber goods
3069	Fabricated rubber products, nec
3080	Miscellaneous Plastics Products, NEC
3081	Unsupported plastics film & sheet
3082	Unsupported plastics profile shapes
3083	Laminated plastics plate & sheet
3084	Plastics pipe
3085	Plastics bottles
3086	Plastics foam products
3087	Custom compound purchased resins
3088	Plastics plumbing fixtures
3089	Plastics products, nec
3200	STONE, CLAY, AND GLASS PRODUCTS
3210	Flat Glass
3220	Glass and Glassware, Pressed or Blown
3221	Glass containers
3229	Pressed and blown glass, nec
3230	Products of Purchased Glass
3240	Cement, Hydraulic
3250	Structural Clay Products
3251	Brick and structural clay tile
3253	Ceramic wall and floor tile
3255	Clay refractories
3259	Structural clay products, nec
3260	Pottery and Related Products
3261	Vitreous plumbing fixtures
3262	Vitreous china table & kitchenware
3263	Semivitreous table & kitchenware
3264	Porcelain electrical supplies
3269	Pottery products, nec
3270	Concrete, Gypsum, and Plaster Products
3271	Concrete block and brick
3272	Concrete products, nec
3273	Ready-mixed concrete
3274	Lime
3275	Gypsum products
3280	Cut Stone and Stone Products
3290	Misc. Nonmetallic Mineral Products
3291	Abrasive products
3292	Asbestos products
3295	Minerals, ground or treated
3296	Mineral wool
3297	Nonclay refractories
3299	Nonmetallic mineral products, nec
3300	PRIMARY METAL INDUSTRIES
3310	Blast Furnace and Basic Steel Products
3312	Blast furnaces and steel mills
3313	Electrometallurgical products
3315	Steel wire and related products
3316	Cold finishing of steel shapes
3317	Steel pipe and tubes
3320	Iron and Steel Foundries
3321	Gray and ductile iron foundries
3322	Malleable iron foundries
3324	Steel investment foundries
3325	Steel foundries, nec
3330	Primary Nonferrous Metals
3331	Primary copper
3334	Primary aluminum
3339	Primary nonferrous metals, nec
3340	Secondary Nonferrous Metals
3350	Nonferrous Rolling and Drawing
3351	Copper rolling and drawing
3353	Aluminum sheet, plate, and foil
3354	Aluminum extruded products
3355	Aluminum rolling and drawing, nec
3356	Nonferrous rolling and drawing, nec
3357	Nonferrous wiredrawing & insulating
3360	Nonferrous Foundries (Castings)
3363	Aluminum die-castings
3364	Nonferrous die-casting exc. aluminum
3365	Aluminum foundries
3366	Copper foundries
3369	Nonferrous foundries, nec
3390	Miscellaneous Primary Metal Products
3398	Metal heat treating
3399	Primary metal products, nec
3400	FABRICATED METAL PRODUCTS
3410	Metal Cans and Shipping Containers
3411	Metal cans
3412	Metal barrels, drums, and pails
3420	Cutlery, Handtools, and Hardware
3430	Plumbing and Heating, Except Electric
3440	Fabricated Structural Metal Products
3441	Fabricated structural metal
3442	Metal doors, sash, and trim
3443	Fabricated plate work (boiler shops)
3444	Sheet metalwork
3446	Architectural metal work
3448	Prefabricated metal buildings
3449	Miscellaneous metal work
3450	Screw Machine Products, Bolts, Etc.
3460	Metal Forgings and Stampings
3462	Iron and steel forgings
3463	Nonferrous forgings
3465	Automotive stampings
3466	Crowns and closures
3469	Metal stampings, nec
3470	Metal Services, NEC
3471	Plating and polishing
3479	Metal coating and allied services
3480	Ordnance and Accessories, NEC
3482	Small arms ammunition
3483	Ammunition, exc. for small arms, nec
3484	Small arms
3489	Ordnance and accessories, nec
3490	Misc. Fabricated Metal Products
3491	Industrial valves
3492	Fluid power valves & hose fittings
3493	Steel springs, except wire
3494	Valves and pipe fittings, nec
3495	Wire springs
3496	Misc. fabricated wire products
3497	Metal foil and leaf
3498	Fabricated pipe and fittings
3499	Fabricated metal products, nec
3500	INDUSTRIAL MACHINERY AND EQUIPMENT
3510	Engines and Turbines
3520	Farm and Garden Machinery

BUSINESS TYPE CODES
Standard Industrial Classification (SIC) Codes

3530 Construction and Related Machinery
3531 Construction machinery
3532 Mining machinery
3533 Oil and gas field machinery
3534 Elevators and moving stairways
3535 Conveyors and conveying equipment
3536 Hoists, cranes, and monorails
3537 Industrial trucks and tractors
3540 Metalworking Machinery
3541 Machine tools, metal cutting types
3542 Machine tools, metal forming types
3543 Industrial patterns
3544 Special dies, tools, jigs & fixtures
3545 Machine tool accessories
3546 Power-driven handtools
3547 Rolling mill machinery
3548 Welding apparatus
3549 Metalworking machinery, nec
3550 Special Industry Machinery
3560 General Industrial Machinery
3561 Pumps and pumping equipment
3562 Ball and roller bearings
3563 Air and gas compressors
3564 Blowers and fans
3565 Packaging machinery
3566 Speed changers, drives, and gears
3567 Industrial furnaces and ovens
3568 Power transmission equipment, nec
3569 General industrial machinery, nec
3570 Computer and Office Equipment
3580 Refrigeration and Service Machinery
3590 Industrial Machinery, NEC
3600 ELECTRONIC & OTHER ELECTRIC EQUIPMENT
3610 Electric Distribution Equipment
3620 Electrical Industrial Apparatus
3630 Household Appliances
3640 Electric Lighting and Wiring Equipment
3650 Household Audio and Video Equipment
3660 Communications Equipment
3661 Telephone and telegraph apparatus
3663 Radio & TV communications equipment
3669 Communications equipment, nec
3670 Electronic Components and Accessories
3690 Misc. Electrical Equipment & Supplies
3700 TRANSPORTATION EQUIPMENT
3710 Motor Vehicles and Equipment
3711 Motor vehicles and car bodies
3713 Truck and bus bodies
3714 Motor vehicle parts and accessories
3715 Truck trailers
3716 Motor homes
3720 Aircraft and Parts
3730 Ship and Boat Building and Repairing
3740 Railroad Equipment
3750 Motorcycles, Bicycles, and Parts
3760 Guided Missiles, Space Vehicles, Parts
3790 Miscellaneous Transportation Equipment
3800 INSTRUMENTS AND RELATED PRODUCTS
3810 Search and Navigation Equipment
3820 Measuring and Controlling Devices
3840 Medical Instruments and Supplies
3850 Ophthalmic Goods
3860 Photographic Equipment and Supplies
3870 Watches, Clocks, Watchcases & Parts
3900 MISCELLANEOUS MANUFACTURING INDUSTRIES
3100 LEATHER AND LEATHER PRODUCTS
3910 Jewelry, Silverware, and Plated Ware
3930 Musical Instruments
3940 Toys and Sporting Goods
3950 Pens, Pencils, Office, & Art Supplies
3960 Costume Jewelry and Notions
3990 Miscellaneous Manufactures

E TRANSPORTATION AND PUBLIC UTILITIES

4000 RAILROAD TRANSPORTATION
4010 Railroads
4100 LOCAL AND INTERURBAN PASSENGER TRANSIT
4200 TRUCKING AND WAREHOUSING
4400 WATER TRANSPORTATION
4410 Deep Sea Foreign Trans. of Freight
4420 Deep Sea Domestic Trans. of Freight
4430 Freight Trans. on the Great Lakes
4440 Water Transportation of Freight, NEC
4480 Water Transportation of Passengers
4490 Water Transportation Services
4500 TRANSPORTATION BY AIR
4510 Air Transportation, Scheduled
4520 Air Transportation, Nonscheduled
4580 Airports, Flying Fields, & Services
4600 PIPELINES, EXCEPT NATURAL GAS
4610 Pipelines, Except Natural Gas
4612 Crude petroleum pipelines
4613 Refined petroleum pipelines
4619 Pipelines, nec
4800 COMMUNICATION
4810 Telephone Communication
4820 Telegraph & Other Communications
4830 Radio and Television Broadcasting
4840 Cable and Other Pay TV Services
4890 Communication Services, NEC
4900 ELECTRIC, GAS, AND SANITARY SERVICES
4910 Electric Services
4920 Gas Production and Distribution
4922 Natural gas transmission
4923 Gas transmission and distribution
4924 Natural gas distribution
4925 Gas production and/or distribution
4930 Combination Utility Services
4931 Electric and other services combined
4932 Gas and other services combined
4939 Combination utilities, nec
4940 Water Supply
4950 Sanitary Services
4952 Sewerage systems
4953 Refuse systems
4959 Sanitary services, nec
4960 Steam and Air-Conditioning Supply
4970 Irrigation Systems

F WHOLESALE TRADE

5000 WHOLESALE TRADE-DURABLE GOODS
5010 Motor Vehicles, Parts, and Supplies
5020 Furniture and Homefurnishings
5030 Lumber and Construction Materials
5040 Professional & Commercial Equipment
5050 Metals and Minerals, Except Petroleum
5060 Electrical Goods
5070 Hardware, Plumbing & Heating Equipment
5080 Machinery, Equipment, and Supplies
5090 Miscellaneous Durable Goods
5093 Scrap and waste materials
5100 WHOLESALE TRADE-NONDURABLE GOODS
5110 Paper and Paper Products
5120 Drugs, Proprietaries, and Sundries
5130 Apparel, Piece Goods, and Notions
5140 Groceries and Related Products
5150 Farm-Product Raw Materials
5160 Chemicals and Allied Products
5170 Petroleum and Petroleum Products
5171 Petroleum bulk stations & terminals
5172 Petroleum products, nec
5180 Beer, Wine, and Distilled Beverages
5190 Misc. Nondurable Goods

G RETAIL TRADE

5200 BUILDING MATERIALS & GARDEN SUPPLIES
5300 GENERAL MERCHANDISE STORES
5400 FOOD STORES
5450 Dairy Products Stores
5460 Retail Bakeries
5490 Miscellaneous Food Stores
5500 AUTOMOTIVE DEALERS & SERVICE STATIONS
5510 New and Used Car Dealers
5520 Used Car Dealers
5530 Auto and Home Supply Stores
5540 Gasoline Service Stations
5550 Boat Dealers
5560 Recreational Vehicle Dealers
5570 Motorcycle Dealers
5590 Automotive Dealers, NEC
5600 APPAREL AND ACCESSORY STORES
5700 FURNITURE AND HOMEFURNISHINGS STORES
5800 EATING AND DRINKING PLACES
5900 MISCELLANEOUS RETAIL
5910 Drug Stores and Proprietary Stores
5920 Liquor Stores
5930 Used Merchandise Stores
5940 Miscellaneous Shopping Goods Stores
5960 Nonstore Retailers
5980 Fuel Dealers
5983 Fuel oil dealers
5984 Liquefied petroleum gas dealers
5989 Fuel dealers, nec
5990 Retail Stores, NEC
6000 DEPOSITORY INSTITUTIONS
6300 INSURANCE CARRIERS
6500 REAL ESTATE

H FINANCE, INSURANCE, AND REAL ESTATE

4700 TRANSPORTATION SERVICES
4720 Passenger Transportation Arrangement
4730 Freight Transportation Arrangement
4740 Rental of Railroad Cars
4780 Miscellaneous Transportation Services
6100 NONDEPOSITORY INSTITUTIONS
6200 SECURITY AND COMMODITY BROKERS
6400 INSURANCE AGENTS, BROKERS, & SERVICE
6700 HOLDING AND OTHER INVESTMENT OFFICES
7000 HOTELS AND OTHER LODGING PLACES
7600 MISCELLANEOUS REPAIR SERVICES
7800 MOTION PICTURES
7819 Services allied to motion pictures
7900 AMUSEMENT & RECREATION SERVICES
8100 LEGAL SERVICES
8300 SOCIAL SERVICES
8400 MUSEUMS, BOTANICAL, ZOOLOGICAL GARDENS
8600 MEMBERSHIP ORGANIZATIONS
8700 ENGINEERING & MANAGEMENT SERVICES

I SERVICES

7200 PERSONAL SERVICES
7210 Laundry, Cleaning, & Garment Services
7211 Power laundries, family & commercial
7212 Garment pressing & cleaners' agents
7213 Linen supply
7215 Coin-operated laundries and cleaning
7216 Drycleaning plants, except rug
7217 Carpet and upholstery cleaning
7218 Industrial launderers
7219 Laundry and garment services, nec
7230 Beauty Shops
7240 Barber Shops
7250 Shoe Repair and Shoeshine Parlors
7260 Funeral Service and Crematories
7290 Miscellaneous Personal Services
7299 Miscellaneous personal services, nec
7300 BUSINESS SERVICES
7310 Advertising
7320 Credit Reporting and Collection
7330 Mailing, Reproduction, Stenographic
7334 Photocopying & duplicating services
7336 Commercial art and graphic design
7340 Services to Buildings
7342 Disinfecting & pest control services
7349 Building maintenance services, nec
7350 Misc. Equipment Rental & Leasing
7352 Medical equipment rental
7353 Heavy construction equipment rental
7359 Equipment rental & leasing, nec
7360 Personnel Supply Services
7380 Miscellaneous Business Services
7384 Photofinishing laboratories
7500 AUTO REPAIR, SERVICES, AND PARKING
7510 Automotive Rentals, No Drivers
7513 Truck rental and leasing, no drivers
7514 Passenger car rental
7515 Passenger car leasing
7519 Utility trailer rental
7520 Automobile Parking
7530 Automotive Repair Shops
7532 Top & body repair & paint shops
7533 Auto exhaust system repair shops
7534 Tire retreading and repair shops
7536 Automotive glass replacement shops
7537 Automotive transmission repair shops
7538 General automotive repair shops
7539 Automotive repair shops, nec
7540 Automotive Services, Except Repair
7542 Carwashes
7549 Automotive services, nec
8000 HEALTH SERVICES
8060 Hospitals
8070 Medical and Dental Laboratories
8080 Home Health Care Services
8090 Health and Allied Services, NEC
8200 EDUCATIONAL SERVICES
8210 Elementary and Secondary Schools
8220 Colleges and Universities
8230 Libraries
8240 Vocational Schools
8290 Schools & Educational Services, NEC

J PUBLIC ADMINISTRATION

9100 EXECUTIVE, LEGISLATIVE, AND GENERAL
9200 JUSTICE, PUBLIC ORDER, AND SAFETY
9220 Public Order and Safety
9221 Police protection
9223 Correctional institutions
9224 Fire protection
9300 FINANCE, TAXATION, & MONETARY POLICY
9400 ADMINISTRATION OF HUMAN RESOURCES
9500 ENVIRONMENTAL QUALITY AND HOUSING
9510 Environmental Quality
9530 Housing and Urban Development
9600 ADMINISTRATION OF ECONOMIC PROGRAMS
9621 Administration of Transportation
9660 Space Research and Technology
9700 NATIONAL SECURITY AND INTL. AFFAIRS

K NONCLASSIFIABLE ESTABLISHMENTS

Ref: Standard Industrial Classification Manual. Executive Office of the President. Office of Management and Budget. 1987. p. 423-443.

Note: NEC - Not Elsewhere Classified MISC - Miscellaneous

South Coast Air Quality
Management District
21865 East Copley Drive
Diamond Bar, CA 91765
(909) 396- 2000

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) APPLICABILITY FORM 400 - CEQA

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project[1] has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines §15060(a)].[2] Refer to the attached instructions for guidance in completing this form.[3] For each Form 400-A application, also complete and submit one Form 400-CEQA. If submitting multiple Form 400-A applications for the same project at the same time, only one 400-CEQA form is necessary for the entire project If you need assistance completing this form, contact Lori Inga at (909) 396-3109.

FACILITY INFORMATION

Facility Name: _____ **Facility ID** (6-Digit): _____

Project Description: _____

_____

_____

REVIEW FOR EXEMPTION FROM FURTHER CEQA ACTION

Check "Yes" or "No" as applicable

	Yes	No	Is this application for:
A.	☐	☐	**A request for a change of permittee only (without equipment modifications)?**
B.	☐	☐	**Equipment certification or equipment registration?**
C.	☐	☐	**A CEQA and/or NEPA document previously or currently prepared that specifically evaluates this project?** If yes, a permit cannot be issued until a Final CEQA document and Notice of Determination is submitted.
D.	☐	☐	**Equipment damaged as a result of a disaster during state of emergency?**
E.	☐	☐	**A Title V permit renewal (without equipment modifications)?**
F.	☐	☐	**A Title V administrative permit revision?**
G.	☐	☐	**The conversion of an existing permit into an initial Title V permit?**
H.	☐	☐	**A functionally identical permit unit replacement with no increase in rating or emissions?**
I.	☐	☐	**A change of daily VOC permit limit to a monthly VOC permit limit?**

If **"Yes"** is checked for any question above, your application does not require additional evaluation for CEQA applicability. Skip to page 2, "SIGNATURES" and sign and date this form.

REVIEW OF IMPACTS WHICH MAY TRIGGER CEQA

Complete Sections I-VI by checking "Yes" or "No" as applicable. To avoid delays in processing your application(s), explain all "Yes" responses on a separate sheet and attach it to this form.

	Yes	No	Section I – General
1.	☐	☐	**Has this project generated any known public controversy regarding potential adverse impacts that may be generated by the project?** Controversy may be construed as concerns raised by local groups at public meetings; adverse media attention such as negative articles in newspapers or other periodical publications, local news programs, environmental justice issues, etc.
2.	☐	☐	**Is this project part of a larger project?**
			Section II – Air Quality
3.	☐	☐	**Will there be any demolition, excavating, and/or grading construction activities that encompass an area exceeding 20,000 square feet?**
4.	☐	☐	**Does this project include the open outdoor storage of dry bulk solid materials that could generate dust?** If Yes, include a plot plan with the application package.

[1] A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry-cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc.

[2] To download the CEQA guidelines, visit http://ceres.ca.gov/env_law/state.html.

[3] To download this form and the instructions, visit http://www.aqmd.gov/ceqa or http://www.aqmd.gov/permit

	Yes	No	
5.	☐	☐	**Would this project result in noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements?** For example, compost materials or other types of greenwaste (i.e., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to Rule 402 – Nuisance.
6.	☐	☐	**Does this project cause an increase of emissions from marine vessels, trains and/or airplanes?**
7.	☐	☐	**Will the proposed project increase the QUANTITY of hazardous materials stored aboveground onsite or transported by mobile vehicle to or from the site by greater than or equal to the amounts associated with each compound on the attached Table 1?**[4]
			Section III – Water Resources
8.	☐	☐	**Will the project increase demand for water at the facility by more than 5,000,000 gallons per day?** The following examples identify some, but not all, types of projects that may result in a "yes" answer to this question: 1) projects that generate steam; 2) projects that use water as part of the air pollution control equipment; 3) projects that require water as part of the production process; 4) projects that require new or expansion of existing sewage treatment facilities; 5) projects where water demand exceeds the capacity of the local water purveyor to supply sufficient water for the project; and 6) projects that require new or expansion of existing water supply facilities.
9.	☐	☐	**Will the project require construction of new water conveyance infrastructure?** Examples of such projects are when water demands exceed the capacity of the local water purveyor to supply sufficient water for the project, or require new or modified sewage treatment facilities such that the project requires new water lines, sewage lines, sewage hook-ups, etc.
			Section IV – Transportation/Circulation
10.			**Will the project result in** (Check all that apply)**:**
	☐	☐	**a. the need for more than 350 new employees?**
	☐	☐	**b. an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?**
	☐	☐	**c. increase customer traffic by more than 700 visits per day?**
			Section V – Noise
11.	☐	☐	**Will the project include equipment with a noise specification GREATER THAN 90 decibels (dB)?**
			Section VI – Public Services
12.			**Will the project create a permanent need for new or additional public services in any of the following areas** (Check all that apply)**:**
	☐	☐	**a. Solid waste disposal?** Check "No" if the projected potential amount of wastes generated by the project is less than five tons per day.
	☐	☐	**b. Hazardous waste disposal?** Check "No" if the projected potential amount of hazardous wastes generated by the project is less than 42 cubic yards per day (or equivalent in pounds).

REMINDER: For each "Yes" checked in the sections above, attach all pertinent information including but not limited to estimated quantities, volumes, weights, etc.

SIGNATURES

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. I UNDERSTAND THAT THIS FORM IS A SCREENING TOOL AND THAT THE SCAQMD RESERVES THE RIGHT TO CONSIDER OTHER PERTINENT INFORMATION IN DETERMINING CEQA APPLICABILITY.

SIGNATURE OF RESPONSIBLE OFFICIAL OF FIRM:	***TITLE OF RESPONSIBLE OFFICIAL OF FIRM:***	
TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL OF FIRM:	***RESPONSIBLE OFFICIAL'S TELEPHONE NUMBER:***	***DATE Signed:***
SIGNATURE OF PREPARER, *IF PREPARED BY PERSON OTHER THAN RESPONSIBLE OFFICIAL OF FIRM:*	***TITLE OF PREPARER:***	
TYPE OR PRINT NAME OF PREPARER:	***PREPARER'S TELEPHONE NUMBER:***	***DATE Signed:***

THIS CONCLUDES FORM 400-CEQA. INCLUDE THIS FORM AND THE ATTACHMENTS WITH FORM 400-A.

[4] Table 1 – Regulated Substances List and Threshold Quantities for Accidental Release Prevention can be found in the Instructions for Form 400-CEQA.

FORM 400-CEQA INSTRUCTIONS

Background:

The California Environmental Quality Act (CEQA) is a state law designed to inform the public of any potential adverse environmental impacts resulting from local projects. The SCAQMD has formalized its environmental review process by developing Form 400-CEQA to be completed by the applicant for each project. Form 400-CEQA is a screening tool used by the SCAQMD to determine if the project is exempt from CEQA, or if an analysis of potential environmental impacts is necessary. If a CEQA analysis is necessary, the SCAQMD will contact the project applicant to discuss and assist with the steps necessary to fulfill the requirements of CEQA.

A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc.

Most every permit application must be evaluated for CEQA applicability EXCEPT if the application is for:

- A request for a change of permittee only (without equipment modifications);
- Equipment certification or equipment registration;
- A CEQA and/or NEPA document previously or currently prepared that specifically evaluates this project;
- Equipment damaged as a result of a disaster during state of emergency;
- A Title V permit renewal (without equipment modifications);
- A Title V administrative permit revision;
- The conversion of an existing permit into an initial Title V permit;
- A functionally identical permit unit replacement with no increase in rating or emissions; or,
- A change of daily VOC permit limit to a monthly VOC permit limit.

If your project is one of the items listed above, you do NOT need to complete the section "Review of Impacts Which May Trigger CEQA" of Form 400-CEQA. Otherwise, all other types of permit applications must complete the entire Form 400-CEQA before your application can be deemed complete. If submitting multiple applications for the same project, only one Form 400-CEQA is necessary. Form 400-CEQA and these instructions are available by hardcopy or for downloading from http://www.aqmd.gov/ceqa/400CEQA.html

Instructions to complete Form 400-CEQA:

1. Provide facility-specific information and briefly describe the project.
2. Answer **all** questions in "Review For Exemption From Further CEQA Action." If there are any "Yes" responses, skip to Instruction 6.
3. Answer **all** questions in "Review of Impacts Which May Trigger CEQA."
4. Refer to the attached Table 1 for additional guidance with Section II, Question #7.
5. Attach pertinent information regarding any environmental topic to explain "yes" responses (e.g. estimated quantities, volume, weights, etc.).
6. Sign page 2 of the form (by the responsible official of the firm, the preparer or both, as necessary).
7. Include Form 400-CEQA and its attachments to the main project application submitted with Form 400-A and the other appropriate documents.
8. No additional fee is required for processing the 400-CEQA form.

Turn Page Over

Notice of Exemption (Optional):
Once a project is evaluated by SCAQMD staff to be exempt from CEQA and the permit is issued, the applicant has the option to file a Notice of Exemption (NOE) with the county where the project is located. Though filing a NOE is optional, doing so within 5 days after the permit is issued will limit the period of time someone can file a court action challenging the approval of the project to 30 days. This is known as a "statute of limitations" for public review of the NOE. However, if an NOE is not filed, the statute of limitations will be 180 days.

To file a NOE, it is the responsibility of the applicant to complete the attached template and submit it to the appropriate county within the deadline. A fee is required from three of the four counties to file a NOE with the following county clerks:

County of Los Angeles $25* County Clerk, Gina Morla 12400 E. Imperial Hwy, Room 2001 Norwalk, California 90650 (562) 462-2057	County of Orange $43* County Clerk, EIR Desk 12 Civic Center Plaza, Room 106 Santa Ana, California 92702 (714) 834-4625
County of Riverside $78* County Clerk, Cherrie Seager 2724 Gateway Drive Riverside, California 92507 (909) 486-7077	County of San Bernardino $0* County Clerk 385 N. Arrowhead Ave. San Bernardino, California 92415 (909) 387-4578

* Since fees are subject to change, contact the county clerks at the above phone numbers to verify the correct fee.

If the applicant would like the SCAQMD to prepare the NOE for their project, a preparation fee pursuant to Rule 301 (i)(1) will need to be collected by the SCAQMD at the same time the 400-CEQA form is submitted to the SCAQMD. Because of the time limits imposed by CEQA, if a project is deemed exempt, submitting the appropriate preparation and county fees up front will ensure the NOE is filed in a timely manner. If the project does not qualify for an NOE, the full amount will be returned.

The SCAQMD will also submit the NOE to the appropriate county on behalf of the applicant. However, before submitting the NOE to Los Angeles, Orange or Riverside counties, the SCAQMD will need to collect the appropriate county fee, listed above, from the applicant. If the SCAQMD prepares the NOE, the project applicant must submit a check to the SCAQMD made out to the county clerk of the county in which the project is located (do not name an individual on the check), and not to the SCAQMD. No county fee is required for projects located in San Bernardino County.

Questions regarding Form 400-CEQA may be directed to Ms. Lori Inga at (909) 396-3109.

Table 1 – Regulated Substances List and Threshold Quantities for Accidental Release Prevention*
(344 Substances)

To assist you in determining what type(s) of chemicals or compounds are contained in the products used at your facility, the following resources may be helpful:

1) Refer to each product's Material Safety Data Sheet (MSDS) which typically identifies the chemical, either by brand name, common name, chemical name, or Chemical Abstract Service number (CAS). If the MSDS isn't included as part of the product shipment, it may be obtained directly from the supplier, distributor, vendor or manufacturer.
2) Refer to the equipment manufacturer's specifications to establish what products are suitable for proper operation of the equipment.

For assistance in quantifying the amount (in pounds) of each chemical or compound used at your facility, contact:

1) Provider of the MSDS sheet(s);
2) Chemical manufacturer;
3) Permitting Engineering Consultant; or,
4) SCAQMD Small Business Assistance and Outreach Office.

Chemical Name	CAS No.	Threshold Quantity (lbs)
Acetone Cyanohydrin[1]	75-86-5	1,000
Acetone Thiosemicarbazide	1752-30-3	1,000/10,000[2]
Acetaldehyde	75-07-0	10,000
Acetylene [Ethyne]	74-86-2	10,000
Acrolein [2-Propenal]	107-02-8	500
Acrylamide	79-06-1	1,000/10,000[2]
Acrylonitrile [2-Propenenitrile]	107-13-1	10,000
Acrylyl chloride [2-Propenoyl chloride]	814-68-6	100
Aldicarb	116-06-3	100/10,000[2]
Aldrin	309-00-2	500/10,000[2]
Allyl alcohol [2-Propen-1-o1]	107-18-61	1,000
Allylamine [2-Propen-1-amine]	107-11-9	500
Aluminum Phosphide[3]	20859-73-8	500
Aminopterin	54-62-6	500/10,000[2]
Amiton Oxalate	3734-97-2	100/10,000[2]
Ammonia[4]	7664-41-7	500
Aniline[1]	62-53-3	1,000
Antimycin A	1397-94-0	1,000/10,000[2]
ANTU	86-88-4	500/10,000[2]
Arsenic Pentoxide	1303-28-2	100/10,000[2]
Arsenous Oxide	1327-53-3	100/10,000[2]
Arsenous Trichloride	7784-34-1	500
Arsine	7784-42-1	100
Azinphos-Ethyl	2642-71-9	100/10,000[2]
Azinphos-Methyl	86-50-0	10/10,000[2]
Benzene, 1-(Chloromethyl)-4-Nitro-	100-14-1	500/10,000[2]
Benzenearsonic Acid	98-05-5	10/10,000[2]
Benzimidazole, 4,5-Dichloro-2-(Trifluoromethyl)-	3615-21-2	500/10,000[2]

* Extracted from California Accidental Release Prevention (CalARP) Program, final regulations published on November 16, 1998 in California Code of Regulations (CCR), Title 19, Division 2, Chapter 4.5.

Chemical Name	CAS No.	Threshold Quantity (lbs)
Benzotrichloride[1]	98-07-7	100
Bicyclo[2.2.1]Heptane-2-Carbonitrile, 5-Chloro-6-((((Methylamino)Carbonyl)Oxy)Imino)-,(1-alpha, 2-beta, 4-alpha, 5alpha, 6E))-.	15271-41-7	500/10,000[2]
Bis(Chloromethyl) Ketone	534-07-6	10/10,000[2]
Bitoscanate	4044-65-9	500/10,000[2]
Boron trichloride [Borane, trichloro-]	10294-34-5	500
Boron trifluoride [Borane, trifluoro-]	7637-07-2	500
Boron trifluoride compound with methyl ether (1:1)	353-42-4	1,000
Bromadiolone	28772-56-7	100/10,000[2]
Bromine	7726-95-6	500
Bromotrifluorethylene [Ethene, bromotrifluoro-]	598-73-2	10,000
Butane	106-97-8	10,000
Butene	25167-67-3	10,000
1-Butene	106-98-9	10,000
2-Butene	107-01-7	10,000
2-Butene-cis	590-18-1	10,000
2-Butene-trans [2-Butene, (E)]	624-64-6	10,000
1,3-Butadiene	106-99-0	10,000
Cadmium Oxide	1306-19-0	100/10,000[2]
Cadmium Stearate	2223-93-0	1,000/10,000[2]
Calcium Arsenate	7778-44-1	10,000
Camphechlor	8001-35-2	500/10,000[2]
Cantharidin	56-25-7	100/10,000[2]
Carbachol Chloride	51-83-2	500/10,000[2]
Carbamic Acid, Methyl-,o-(((2,4-Dimethyl-1,3-Dithiolan-2-yl)Methylene)Amino)-.	26419-73-8	100/10,000[2]
Carbofuran	1563-66-2	10/10,000[2]
Carbon disulfide	75-15-0	10,000
Carbon oxysulfide [Carbon oxide sulfide (COS)]	463-58-1	10,000
Chlorine	7782-50-5	100
Chlorine dioxide [Chlorine oxide (C102)]	10049-04-4	1,000
Chlorine monoxide [Chlorine oxide]	7791-21-1	10,000
Chlormequat Chloride	999-81-5	100/10,000[2]
Chloroacetic Acid	79-11-8	100/10,000[2]
Chloroform [Methane, trichloro-]	67-66-3	10,000
Chloromethyl ether [Methane, oxybis [chloro-]	542-88-1	100
Chloromethyl methyl ether [Methane, chloromethoxy-]	107-30-2	100
Chlorophacinone	3691-35-8	100/10,000[2]
1-Chloropropylene [1-Propene, 1-chloro-]	590-21-6	10,000
2-Chloropropylene [1-Propene, 2-chloro-]	557-98-2	10,000
Chloroxuron	1982-47-4	500/10,000[2]
Chromic Chloride	10025-73-7	1/10,000[2]
Cobalt Carbonyl	10210-68-1	10/10,000[2]
Cobalt, ((2,2'-(1,2-Ethanediylbis (Nitrilomethylidyne))Bis(6-Fluorophenolato))(2-)-N,N',O,O')-	62207-76-5	100/10,000[2]
Colchicine	64-86-8	10/10,000[2]
Coumaphos	56-72-4	100/10,000[2]
Coumatetralyl	5836-29-3	500/10,000[2]

Chemical Name	CAS No.	Threshold Quantity (lbs)
Cresol, o-	95-48-7	1,000/10,000[2]
Crimidine	535-89-7	100/10,000[2]
Crotonaldehyde	4170-30-3	1,000
Crotonaldehyde, (E)	123-73-9	1,000
Cyanogen Bromide	506-68-3	500/10,000[2]
Cyanogen [Ethanedinitrile]	460-19-5	10,000
Cyanogen chloride	506-77-4	10,000
Cyanogen Iodide	506-78-5	1,000/10,000[2]
Cyanuric Fluoride	675-14-9	100
Cycloheximide	66-81-9	100/10,000[2]
Cyclohexylamine [Cyclohexanamine]	108-91-8	10,000
Cyclopropane	75-19-4	10,000
Decaborane(14)	17702-41-9	500/10,000[2]
Dialifor	10311-84-9	100/10,000[2]
Diborane	19287-45-7	2,500
Dichlorosilane [Silane, dichloro-]	4109-96-0	10,000
Diepoxybutane[1]	1464-53-5	500
Difluoroethane [Ethane, 1,1-difluoro-]	75-37-6	10,000
Digitoxin	71-63-6	100/10,000[2]
Digoxin	20830-75-5	10/10,000[2]
Dimethoate	60-51-5	500/10,000[2]
Dimethyldichlorosilane	75-78-5	500
Dimethylamine [Methanamine, N-methyl-]	124-40-3	10,000
Dimethyldrazine	57-14-7	1,000
Dimethyl-p-Phenylenediamine	99-98-9	10/10,000[2]
Dimethyl Sulfate[1]	77-78-1	500
Dimetilan	644-64-4	500/10,000[2]
2,2-Dimethylpropane [Propane, 2,2-dimethyl-]	463-82-1	10,000
Dinitrocresol	534-52-1	10/10,000[2]
Dinoseb	88-85-7	100/10,000[2]
Dinoterb	1420-07-1	500/10,000[2]
Diphacinone	82-66-6	10/10,000[2]
Disulfoton[1]	298-04-4	500
Dithiazanine Iodide	514-73-8	500/10,000[2]
Dithiobiuret	541-53-7	100/10,000[2]
Emetine, Dihydrochloride	316-42-7	1/10,000[2]
Endosulfan	115-29-7	10/10,000[2]
Endothion	2778-04-3	500/10,000[2]
Endrin	72-20-8	500/10,000[2]
Epichlorohydrin [Oxirane, (chloromethyl)-]	106-89-8	1,000
EPN	2104-64-5	100/10,000[2]
Ergocalciferol	50-14-6	1,000/10,000[2]
Ergotamine Tartrate	379-79-3	500,10,000[2]
Ethane	74-84-0	10,000
Ethyl acetylene [1-Butyne]	107-00-6	10,000
Ethyl chloride [Ethane, chloro-]	75-00-3	10,000
Ethyl ether [Ethane, 1,1'-oxybis-]	60-29-7	10,000
Ethyl mercaptan [Ethanethiol]	75-08-1	10,000
Ethyl nitrite [Nitrous acid, ethyl ester]	109-95-5	10,000
Ethylamine [Ethanamine]	75-04-7	10,000
Ethylene [Ethene]	74-85-1	10,000

Chemical Name	CAS No.	Threshold Quantity (lbs)
Ethylene Fluorohydrin	371-62-0	10
Ethyleneimine	151-56-4	500
Ethylene oxide	75-21-8	1,000
Ethylenediamine [1,2-Ethanediamine]	107-15-3	10,000
Ethyleneimine [Aziridine]	151-56-4	10,000
Fenamiphos	22224-92-6	10/10,000[2]
Fluenetil	4301-50-2	100/10,000[2]
Fluorine	7782-41-4	500
Fluoroacetamide	640-19-7	100/10,000[2]
Fluoroacetic Acid	144-49-0	10/10,000[2]
Fluoroacetyl Chloride	359-06-8	10
Fluorouracil	51-21-8	500/10,000[2]
Formaldehyde[4]	50-00-0	500
Formetanate Hydrochloride	23422-53-9	500/10,000[2]
Formparanate	17702-57-7	100/10,000[2]
Fuberidazole	3878-19-1	100/10,000[2]
Furan	110-00-9	500
Gallium Trichloride	13450-90-3	500/10,000[2]
Hydrazine	302-01-2	1,000
Hydrocyanic acid	74-90-8	100
Hydrogen	1333-74-0	10,000
Hydrogen Chloride (gas only)	7647-01-0	500
Hydrogen Fluoride	7664-39-3	100
Hydrogen selenide	7783-07-5	10
Hydrogen sulfide	7783-06-4	500
Hydroquinone[5]	123-31-9	500/10,000[2]
Iron, pentacarbonyl- [Iron carbonyl (Fe(CO)5), (TB-5-11)-]	13463-40-6	100
Isobenzan	297-78-9	100/10,000[2]
Isobutane [Propane, 2-methyl]	75-28-5	10,000
Isobutyronitrile	78-82-0	1,000
Isocyanic Acid, 3,4-DichlorophenylEster	102-36-3	500/10,000[2]
Isodrin	465-73-6	100/10,000[2]
Isopentane [Butane, 2-methyl-]	78-78-4	10,000
Isophorone Diisocyanate	4098-71-9	100
Isoprene [1,3-Butadiene, 2-methyl-]	78-79-5	10,000
Isopropyl chloride [Propane, 2-chloro-]	75-29-6	10,000
Isopropyl chloroformate [Carbonochloridic acid, 1-methylethylester]	108-23-6	1,000
Isopropylamine [2-Propanamine]	75-31-0	10,000
Leptophos	21609-90-5	500/10,000[2]
Lewisite[1]	541-25-3	10
Lindane	58-89-9	1,000/10,000[2]
Lithium Hydride[3]	7580-67-8	100
Malononitrile	109-77-3	500/10,000[2]
Manganese, Tricarbonyl Methylcyclopentadienyl[1]	12108-13-3	100
Mechlorethamine[1]	51-75-2	10
Mercuric Acetate	1600-27-7	500/10,000[2]
Mercuric Chloride	7487-94-7	500/10,000[2]
Mercuric Oxide	21908-53-2	500/10,000[2]
Methacrylonitrile [2-Propenenitrile, 2-methyl-]	126-98-7	500

Chemical Name	CAS No.	Threshold Quantity (lbs)
Methacryloyl Chloride	920-46-7	100
MethacryloyloxyethylIsocyanate	30674-80-7	100
Methamidophos	10265-92-6	100/10,000[2]
Methane	74-82-8	10,000
Methanesulfonyl Fluoride	558-25-8	1,000
Methidathion	950-37-8	500/10,000[2]
Methiocarb	2032-65-7	500/10,000[2]
Methomyl	16752-77-5	500/10,000[2]
Methoxyethylmercuric Acetate	151-38-2	500/10,000
Methyl Bromide	74-83-9	1,000
2-Methyl-1-butene	563-46-2	10,000
3-Methyl-1-butene	563-45-1	10,000
Methyl chloride [Methane, chloro-]	74-87-3	10,000
Methyl 2-Chloroacrylate	80-63-7	500
Methyl chloroformate [Carbonochloridic acid, methylester]	79-22-1	500
Methyl ether [Methane, oxybis-]	115-10-6	10,000
Methyl formate [Formic acid, methyl ester]	107-31-3	10,000
Methyl Hydrazine	60-34-4	500
Methyl isocyanate [Methane, isocyanato-]	624-83-9	500
Methyl Isothiocyanate[3]	556-61-6	500
Methyl Mercaptan	74-93-1	500
Methylmercuric Dicyanamide	502-39-6	500/10,000[2]
Methyl Phosphonic Dichloride[3]	676-97-1	100
Methyl Thiocyanate	556-64-9	10,000
Methyltrichlorosilane	75-79-6	500
Methylamine [Methanamine]	74-89-5	10,000
2-Methylpropene [1-Propene, 2-methyl-]	115-11-7	10,000
Methyl Vinyl Ketone	78-94-4	10
Metolcarb	1129-41-5	100/10,000[2]
Mexacarbate	315-18-4	500/10,000[2]
Mitomycin C	50-07-7	500/10,000[2]
Monocrotophos	6923-22-4	10/10,000[2]
Muscimol	2763-96-4	500/10,000[2]
Mustard Gas[1]	505-60-2	500
Nickel carbonyl	13463-39-3	1
Nicotine Sulfate	65-30-5	100/10,000[2]
Nitric Acid	7697-37-2	1,000
Nitric oxide [Nitrogen oxide (NO)]	10102-43-9	100
Nitrobenzene[1]	98-95-3	10,000
Nitrogen Dioxide	10102-44-0	100
Norbormide	991-42-4	100/10,000[2]
Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide]	8014-95-7	10,000
Organorhodium Complex (PMN-82-147)	MIXTURE	10/10,000[2]
Ouabain	630-60-4	100/10,000[2]
Oxamyl	23135-22-0	100/10,000[2]
Ozone	10028-15-6	100
Paraquat Dichloride	1910-42-5	10/10,000[2]
Paraquat Methosulfate	2074-50-2	10/10,000[2]
Parathion-Methyl	298-00-0	100/10,000[2]

Chemical Name	CAS No.	Threshold Quantity (lbs)
Paris Green	12002-03-8	500/10,000[2]
Pentaborane	19624-22-7	500
Pentadecylamine	2570-26-5	100/10,000[2]
Pentane	109-66-0	10,000
1-Pentene	109-67-1	10,000
2-Pentene, (E)-	646-04-8	10,000
2-Pentene, (Z)-	627-20-3	10,000
Peracetic acid [Ethaneperoxoic acid]	79-21-0	500
Perchloromethylmercaptan [Methanesulfenyl chloride, trichloro-]	594-42-3	500
Phenol	108-95-2	500/10,000[2]
Phenol, 2,2'-Thiobis(4-Chloro-6-Methyl)-	4418-66-0	100/10,000[2]
Phenol, 3-(Methylethyl)-,Methylcarbamate	64-00-6	500/10,000[2]
Phenoxarsine, 10, 10' – Oxydi-	58-36-6	500/10,000[2]
Phenyl Dichloroarsine[1]	696-28-6	500
Phenylhydrazine Hydrochloride	59-88-1	1,000/10,000[2]
Phenylmercury Acetate	62-38-4	500/10,000[2]
Phenylsilatrane	2097-19-0	100/10,000[2]
Phenylthiourea	103-85-5	100/10,000[2]
Phorate[1]	298-02-2	10
Phosacetim	4104-14-7	100/10,000[2]
Phosfolan	947-02-4	100/10,000[2]
Phosgene [Carbonic dichloride]	75-44-5	10
Phosmet	732-11-6	10/10,000[2]
Phosphine	7803-51-2	500
Phosphonothioic Acid, Methyl-, S-(2-(Bis(1-Methylethyl)Amino)Ethyl)O-Ethyl Ester.[1]	50782-69-9	100
Phosphorus[3]	7723-14-0	100
Phosphorus oxychloride [Phosphoryl chloride]	10025-87-3	500
Phosphorus Pentachloride[3]	10026-13-8	500
Phosphorus Trichloride	7719-12-2	1,000
Physostigmine	57-47-6	100/10,000[2]
Physostigmine, Salicylate (1:1)	57-64-7	100,10,000[2]
Picrotoxin	124-87-8	500/10,000[2]
Piperidine	110-89-4	1,000
Potassium Arsenite	10124-50-2	500/10,000[2]
Potassium Cyanide[3]	151-50-8	100
Potassium Silver Cyanide[3]	506-61-6	500
Promecarb	2631-37-0	500/10,000[2]
Propadiene [1,2-Propadiene]	463-49-0	10,000
Propane	74-98-6	10,000
Propargyl Bromide	106-96-7	10
Propiolactone, Beta-[1]	57-57-8	500
Propionitrile	107-12-0	500
Propiophenone, 4-Amino-	70-69-9	100/10,000[2]
Propyl Chloroformate	109-61-5	500
Propylene [1-Propene]	115-07-1	10,000
Propylene Oxide	75-56-9	10,000
Propyleneimine [Aziridine, 2-methyl-]	75-55-8	10,000
Propyne [1-Propyne]	74-99-7	10,000
Prothoate	2275-18-5	100/10,000[2]

Chemical Name	CAS No.	Threshold Quantity (lbs)
Pyrene	129-00-0	1,000/10,000[2]
Pyridine, 4-Amino	504-24-5	500/10,000[2]
Pyridine, 4-Nitro-, 1-Oxide	1124-33-0	500/10,000[2]
Pyriminil	53558-25-1	100/10,000[2]
1,3-Pentadiene	504-60-9	10,000
Salcomine	14167-18-1	500,10,000[2]
Sarin[1]	107-44-8	10
Selenious Acid	7783-00-8	1,000/10,000[2]
Semicarbazide Hydrochloride	563-41-7	1,000/10,000[2]
Silane	7803-62-5	10,000
Sodium Arsenate	7631-89-2	1,000/10,000[2]
Sodium Arsenite	7784-46-5	500/10,000[2]
Sodium Azide (Na (N3))[3]	26628-22-8	500
Sodium Cacodylate	124-65-2	100/10,000[2]
Sodium Cyanide (Na (CN))[3]	143-33-9	100
Sodium Fluoroacetate	62-74-8	10/10,000[2]
Sodium Selenate	13410-01-0	100/10,000[2]
Sodium Selenite	10102-18-8	100/10,000[2]
Sodium Tellurite	10102-20-2	500/10,000[2]
Stannane, Acetoxytriphenyl-	900-95-8	500/10,000[2]
Strychnine	57-24-9	100/10,000[2]
Strychnine Sulfate	60-41-3	100/10,000[2]
Sulfur Dioxide	7446-09-5	500
Sulfur tetrafluoride [Sulfur fluoride (SF4), (T-4)-]	7783-60-0	100
Sulfuric Acid[6]	7664-93-9	1,000
Sulfur Trioxide[3]	7446-11-9	100
Tabun[1]	77-81-6	10
Tellurium Hexafluoride	7783-80-4	100
Tetrafluoroethylene [Ethene, tetrafluoro-]	116-14-3	10,000
Tetramethyllead [Plumbane, tetramethyl-]	75-74-1	100
Tetramethylsilane [Silane, tetramethyl-]	75-76-3	10,000
Tetranitromethane	509-14-8	500
Thallium Sulfate	10031-59-1	100/10,000[2]
Thallous Carbonate	6533-73-9	100/10,000[2]
Thallous Chloride	7791-12-0	100/10,000[2]
Thallous Malonate	2757-18-8	100/10,000[2]
Thallous Sulfate	7446-18-6	100/10,000[2]
Thiocarbazide	2231-57-4	1,000/10,000[2]
Thiofanox	39196-18-4	100/10,000[2]
Thiosemicarbazide	79-19-6	100/10,000[2]
Thiourea, (2-Chlorophenyl)-	5344-82-1	100/10,000[2]
Thiourea, (2-Methylphenyl)-	614-78-8	500/10,000[2]
Titanium tetrachloride [Titanium chloride (TiCl4) (T-4)-]	7550-45-0	100
Toluene 2, 4-Diisocyanate[7]	584-84-9	500
Toluene 2, 6-Diisocyanate[7]	91-08-7	100
Toluene diisocyanate (unspecified isomer) [Benzene, 1,3-diisocyanatomethyl-]	26471-62-5	10,000
Triamiphos	1031-47-6	500/10,000[2]
Trichloro(Chloromethyl)Silane	1558-25-4	100
Trichloro(Dichlorophenyl)Silane	27137-85-5	500

Chemical Name	CAS No.	Threshold Quantity (lbs)
Trichlorosilane [Silane, trichloro-]	10025-78-2	10,000
Triethoxysilane	998-30-1	500
Trifluorochloroethylene [Ethene, chlorotrifluoro-]	79-38-9	10,000
Trimethylamine [Methanamine, N,N-dimethyl-]	75-50-3	10,000
Trimethylchlorosilane [Silane, chlorotrimethyl-]	75-77-4	1,000
Trimethylolpropane Phosphite	824-11-3	100/10,000[2]
Trimethyltin Chloride	1066-45-1	500/10,000[2]
Triphenyltin Chloride	639-58-7	500/10,000[2]
Tris(2-Chloroethyl)Amine[1]	555-77-1	100
Valinomycin	2001-95-8	1,000/10,000[2]
Vanadium Pentoxide	1314-62-1	100/10,000[2]
Vinyl Acetate Monomer	108-05-4	1,000
Vinyl acetylene [1-Buten-3-yne]	689-97-4	10,000
Vinyl chloride [Ethene, chloro-]	75-01-4	10,000
Vinyl ethyl ether [Ethene, ethoxy-]	109-92-2	10,000
Vinyl fluoride [Ethene, fluoro-]	75-02-5	10,000
Vinyl methyl ether [Ethene, methoxy-]	107-25-5	10,000
Vinylidene chloride [Ethene, 1,1-dichloro-]	75-35-4	10,000
Vinylidene fluoride [Ethene, 1,1-difluoro-]	75-38-7	10,000
Warfarin	81-81-2	500/10,000[2]
Warfarin Sodium	129-06-6	100/10,000[2]
Xylylene Dichloride	28347-13-9	100/10,000[2]
Zinc, Dichloro(4,4-Dimethyl-5((((Methylamino)Carbonyl)Oxy)Imino) Pentanenitrile)-,(T-4)-.	58270-08-9	100/10,000[2]
Zinc Phosphide[3]	1314-84-7	500

END NOTES

[1] Substances that failed the evaluation pursuant to Health and Safety Code (H&S) §25532(g)(2) but remain listed pursuant to potential health impacts. The exemption in the California Code of Regulations (CCR), Title 19, Division 2, Chapter 4.5, Article 8, §2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.

[2] These extremely hazardous substances are solids. The lesser quantity listed applies only if in powdered form and with a particle size of less than 100 microns; or if handled in solution or in molten form; or the substance has an NFPA rating for reactivity of 2, 3, or 4. Otherwise, a 10,000 pound threshold applies. The exemption in CCR § 2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.

[3] These extremely hazardous substances are reactive solids. The exemption in CCR §2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.

[4] Appropriate synonyms or mixtures of extremely hazardous substances with the same CAS number are also regulated, e.g., formalin. The listing of ammonia includes anhydrous and aqueous forms of ammonia pursuant to H&S §25532(g)(2).

[5] Hydroquinone is exempt in crystalline form.

[6] Sulfuric acid fails the evaluation pursuant to H&S §25532(g)(2) but remains listed as Regulated Substance only under the following conditions:

a. If concentrated with greater than 100 pounds of sulfur trioxide or the acid meets the definition of oleum. (The threshold for sulfur trioxide is 100 pounds and the threshold for oleum is 10,000 pounds.)

b. If in a container with flammable hydrocarbons (flash point <73° F).

[7] The exemption in CCR §2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.

NOTICE OF EXEMPTION

To: *County Clerk*
County of _____

From: *South Coast Air Quality Management District*
21865 E. Copley Drive
Diamond Bar, CA 91765

Facility Name:

Project Address (street number, street name, city, zip and county):

Project Description:

Name of Public Agency Approving Project:
South Coast Air Quality Management District (SCAQMD)

Name of Person or Agency Carrying Out Project:
South Coast Air Quality Management District (SCAQMD)

Exempt Status:
Three Step Process:
State CEQA Guidelines §15002 (k)(1)
Review for Exemption:
State CEQA Guidelines §15061(b)(3)

Reasons why project is exempt:
The proposed project was evaluated pursuant to state CEQA Guidelines §15002 (k)(1) and because it can be seen with certainty that there is no possibility that the project in question may have a significant effect on the environment, the project is not subject to CEQA pursuant to state CEQA Guidelines §15061(b)(3).

SCAQMD Contact Person:
Lori Inga

Telephone
(909) 396-3109

Project Contact Person:

Telephone

Attach a copy of the reviewed 400-CEQA Form (certified document of exemption finding).
Please note that an NOE has NOT been filed by the public agency approving this project.
Date Received for Filing _____ **Applicant Signature** _____

Turn Page Over

Table 1 – Regulated Substances List and Threshold Quantities for Accidental Release Prevention*
(344 Substances)

To assist you in determining what type(s) of chemicals or compounds are contained in the products used at your facility, the following resources may be helpful:

3) Refer to each product's Material Safety Data Sheet (MSDS) which typically identifies the chemical, either by brand name, common name, chemical name, or Chemical Abstract Service number (CAS). If the MSDS isn't included as part of the product shipment, it may be obtained directly from the supplier, distributor, vendor or manufacturer.
4) Refer to the equipment manufacturer's specifications to establish what products are suitable for proper operation of the equipment.

For assistance in quantifying the amount (in pounds) of each chemical or compound used at your facility, contact:

5) Provider of the MSDS sheet(s);
6) Chemical manufacturer;
7) Permitting Engineering Consultant; or,
8) SCAQMD Small Business Assistance and Outreach Office.

Chemical Name	CAS No.	Threshold Quantity (lbs)
Acetone Cyanohydrin[1]	75-86-5	1,000
Acetone Thiosemicarbazide	1752-30-3	1,000/10,000[2]
Acetaldehyde	75-07-0	10,000
Acetylene [Ethyne]	74-86-2	10,000
Acrolein [2-Propenal]	107-02-8	500
Acrylamide	79-06-1	1,000/10,000[2]
Acrylonitrile [2-Propenenitrile]	107-13-1	10,000
Acrylyl chloride [2-Propenoyl chloride]	814-68-6	100
Aldicarb	116-06-3	100/10,000[2]
Aldrin	309-00-2	500/10,000[2]
Allyl alcohol [2-Propen-1-ol]	107-18-61	1,000
Allylamine [2-Propen-1-amine]	107-11-9	500
Aluminum Phosphide[3]	20859-73-8	500
Aminopterin	54-62-6	500/10,000[2]
Amiton Oxalate	3734-97-2	100/10,000[2]
Ammonia[4]	7664-41-7	500
Aniline[1]	62-53-3	1,000
Antimycin A	1397-94-0	1,000/10,000[2]
ANTU	86-88-4	500/10,000[2]
Arsenic Pentoxide	1303-28-2	100/10,000[2]
Arsenous Oxide	1327-53-3	100/10,000[2]
Arsenous Trichloride	7784-34-1	500
Arsine	7784-42-1	100
Azinphos-Ethyl	2642-71-9	100/10,000[2]
Azinphos-Methyl	86-50-0	10/10,000[2]
Benzene, 1-(Chloromethyl)-4-Nitro-	100-14-1	500/10,000[2]
Benzenearsonic Acid	98-05-5	10/10,000[2]
Benzimidazole, 4,5-Dichloro-2-(Trifluoromethyl)-	3615-21-2	500/10,000[2]
Benzotrichloride[1]	98-07-7	100
Bicyclo[2.2.1]Heptane-2-Carbonitrile, 5-Chloro-6-((((Methylamino)Carbonyl)Oxy)Imino)-,(1-alpha, 2-beta, 4-alpha, 5alpha, 6E))-.	15271-41-7	500/10,000[2]
Bis(Chloromethyl) Ketone	534-07-6	10/10,000[2]

* Extracted from California Accidental Release Prevention (CalARP) Program, final regulations published on November 16, 1998 in California Code of Regulations (CCR), Title 19, Division 2, Chapter 4.5

Chemical Name	CAS No.	Threshold Quantity (lbs)
Bitoscanate	4044-65-9	500/10,000[2]
Boron trichloride [Borane, trichloro-]	10294-34-5	500
Boron trifluoride [Borane, trifluoro-]	7637-07-2	500
Boron trifluoride compound with methyl ether (1:1)	353-42-4	1,000
Bromadiolone	28772-56-7	100/10,000[2]
Bromine	7726-95-6	500
Bromotrifluorethylene [Ethene, bromotrifluoro-]	598-73-2	10,000
Butane	106-97-8	10,000
Butene	25167-67-3	10,000
1-Butene	106-98-9	10,000
2-Butene	107-01-7	10,000
2-Butene-cis	590-18-1	10,000
2-Butene-trans [2-Butene, (E)]	624-64-6	10,000
1,3-Butadiene	106-99-0	10,000
Cadmium Oxide	1306-19-0	100/10,000[2]
Cadmium Stearate	2223-93-0	1,000/10,000[2]
Calcium Arsenate	7778-44-1	10,000
Camphechlor	8001-35-2	500/10,000[2]
Cantharidin	56-25-7	100/10,000[2]
Carbachol Chloride	51-83-2	500/10,000[2]
Carbamic Acid, Methyl-,o-(((2,4-Dimethyl-1,3-Dithiolan-2-yl)Methylene)Amino)-.	26419-73-8	100/10,000[2]
Carbofuran	1563-66-2	10/10,000[2]
Carbon disulfide	75-15-0	10,000
Carbon oxysulfide [Carbon oxide sulfide (COS)]	463-58-1	10,000
Chlorine	7782-50-5	100
Chlorine dioxide [Chlorine oxide (C102)]	10049-04-4	1,000
Chlorine monoxide [Chlorine oxide]	7791-21-1	10,000
Chlormequat Chloride	999-81-5	100/10,000[2]
Chloroacetic Acid	79-11-8	100/10,000[2]
Chloroform [Methane, trichloro-]	67-66-3	10,000
Chloromethyl ether [Methane, oxybis [chloro-]	542-88-1	100
Chloromethyl methyl ether [Methane, chloromethoxy-]	107-30-2	100
Chlorophacinone	3691-35-8	100/10,000[2]
1-Chloropropylene [1-Propene, 1-chloro-]	590-21-6	10,000
2-Chloropropylene [1-Propene, 2-chloro-]	557-98-2	10,000
Chloroxuron	1982-47-4	500/10,000[2]
Chromic Chloride	10025-73-7	1/10,000[2]
Cobalt Carbonyl	10210-68-1	10/10,000[2]
Cobalt, ((2,2'-(1,2-Ethanediylbis (Nitrilomethylidyne))Bis(6-Fluorophenolato))(2-)-N,N',O,O')-	62207-76-5	100/10,000[2]
Colchicine	64-86-8	10/10,000[2]
Coumaphos	56-72-4	100/10,000[2]
Coumatetralyl	5836-29-3	500/10,000[2]
Cresol, o-	95-48-7	1,000/10,000[2]
Crimidine	535-89-7	100/10,000[2]
Crotonaldehyde	4170-30-3	1,000
Crotonaldehyde, (E)	123-73-9	1,000
Cyanogen Bromide	506-68-3	500/10,000[2]
Cyanogen [Ethanedinitrile]	460-19-5	10,000
Cyanogen chloride	506-77-4	10,000
Cyanogen Iodide	506-78-5	1,000/10,000[2]
Cyanuric Fluoride	675-14-9	100
Cycloheximide	66-81-9	100/10,000[2]

Chemical Name	CAS No.	Threshold Quantity (lbs)
Cyclohexylamine [Cyclohexanamine]	108-91-8	10,000
Cyclopropane	75-19-4	10,000
Decaborane(14)	17702-41-9	500/10,000[2]
Dialifor	10311-84-9	100/10,000[2]
Diborane	19287-45-7	2,500
Dichlorosilane [Silane, dichloro-]	4109-96-0	10,000
Diepoxybutane[1]	1464-53-5	500
Difluoroethane [Ethane, 1,1-difluoro-]	75-37-6	10,000
Digitoxin	71-63-6	100/10,000[2]
Digoxin	20830-75-5	10/10,000[2]
Dimethoate	60-51-5	500/10,000[2]
Dimethyldichlorosilane	75-78-5	500
Dimethylamine [Methanamine, N-methyl-]	124-40-3	10,000
Dimethyldrazine	57-14-7	1,000
Dimethyl-p-Phenylenediamine	99-98-9	10/10,000[2]
Dimethyl Sulfate[1]	77-78-1	500
Dimetilan	644-64-4	500/10,000[2]
2,2-Dimethylpropane [Propane, 2,2-dimethyl-]	463-82-1	10,000
Dinitrocresol	534-52-1	10/10,000[2]
Dinoseb	88-85-7	100/10,000[2]
Dinoterb	1420-07-1	500/10,000[2]
Diphacinone	82-66-6	10/10,000[2]
Disulfoton[1]	298-04-4	500
Dithiazanine Iodide	514-73-8	500/10,000[2]
Dithiobiuret	541-53-7	100/10,000[2]
Emetine, Dihydrochloride	316-42-7	1/10,000[2]
Endosulfan	115-29-7	10/10,000[2]
Endothion	2778-04-3	500/10,000[2]
Endrin	72-20-8	500/10,000[2]
Epichlorohydrin [Oxirane, (chloromethyl)-]	106-89-8	1,000
EPN	2104-64-5	100/10,000[2]
Ergocalciferol	50-14-6	1,000/10,000[2]
Ergotamine Tartrate	379-79-3	500,10,000[2]
Ethane	74-84-0	10,000
Ethyl acetylene [1-Butyne]	107-00-6	10,000
Ethyl chloride [Ethane, chloro-]	75-00-3	10,000
Ethyl ether [Ethane, 1,1'-oxybis-]	60-29-7	10,000
Ethyl mercaptan [Ethanethiol]	75-08-1	10,000
Ethyl nitrite [Nitrous acid, ethyl ester]	109-95-5	10,000
Ethylamine [Ethanamine]	75-04-7	10,000
Ethylene [Ethene]	74-85-1	10,000
Ethylene Fluorohydrin	371-62-0	10
Ethyleneimine	151-56-4	500
Ethylene oxide	75-21-8	1,000
Ethylenediamine [1,2-Ethanediamine]	107-15-3	10,000
Ethyleneimine [Aziridine]	151-56-4	10,000
Fenamiphos	22224-92-6	10/10,000[2]
Fluenetil	4301-50-2	100/10,000[2]
Fluorine	7782-41-4	500
Fluoroacetamide	640-19-7	100/10,000[2]
Fluoroacetic Acid	144-49-0	10/10,000[2]
Fluoroacetyl Chloride	359-06-8	10
Fluorouracil	51-21-8	500/10,000[2]
Formaldehyde[4]	50-00-0	500
Formetanate Hydrochloride	23422-53-9	500/10,000[2]
Formparanate	17702-57-7	100/10,000[2]
Fuberidazole	3878-19-1	100/10,000[2]

Chemical Name	CAS No.	Threshold Quantity (lbs)
Furan	110-00-9	500
Gallium Trichloride	13450-90-3	500/10,000[2]
Hydrazine	302-01-2	1,000
Hydrocyanic acid	74-90-8	100
Hydrogen	1333-74-0	10,000
Hydrogen Chloride (gas only)	7647-01-0	500
Hydrogen Fluoride	7664-39-3	100
Hydrogen selenide	7783-07-5	10
Hydrogen sulfide	7783-06-4	500
Hydroquinone[5]	123-31-9	500/10,000[2]
Iron, pentacarbonyl- [Iron carbonyl (Fe(CO)5), (TB-5-11)-]	13463-40-6	100
Isobenzan	297-78-9	100/10,000[2]
Isobutane [Propane, 2-methyl]	75-28-5	10,000
Isobutyronitrile	78-82-0	1,000
Isocyanic Acid, 3,4-DichlorophenylEster	102-36-3	500/10,000[2]
Isodrin	465-73-6	100/10,000[2]
Isopentane [Butane, 2-methyl-]	78-78-4	10,000
Isophorone Diisocyanate	4098-71-9	100
Isoprene [1,3-Butadiene, 2-methyl-]	78-79-5	10,000
Isopropyl chloride [Propane, 2-chloro-]	75-29-6	10,000
Isopropyl chloroformate [Carbonochloridic acid, 1-methylethylester]	108-23-6	1,000
Isopropylamine [2-Propanamine]	75-31-0	10,000
Leptophos	21609-90-5	500/10,000[2]
Lewisite[1]	541-25-3	10
Lindane	58-89-9	1,000/10,000[2]
Lithium Hydride[3]	7580-67-8	100
Malononitrile	109-77-3	500/10,000[2]
Manganese, Tricarbonyl Methylcyclopentadienyl[1]	12108-13-3	100
Mechlorethamine[1]	51-75-2	10
Mercuric Acetate	1600-27-7	500/10,000[2]
Mercuric Chloride	7487-94-7	500/10,000[2]
Mercuric Oxide	21908-53-2	500/10,000[2]
Methacrylonitrile [2-Propenenitrile, 2-methyl-]	126-98-7	500
Methacryloyl Chloride	920-46-7	100
MethacryloyloxyethylIsocyanate	30674-80-7	100
Methamidophos	10265-92-6	100/10,000[2]
Methane	74-82-8	10,000
Methanesulfonyl Fluoride	558-25-8	1,000
Methidathion	950-37-8	500/10,000[2]
Methiocarb	2032-65-7	500/10,000[2]
Methomyl	16752-77-5	500/10,000[2]
Methoxyethylmercuric Acetate	151-38-2	500/10,000
Methyl Bromide	74-83-9	1,000
2-Methyl-1-butene	563-46-2	10,000
3-Methyl-1-butene	563-45-1	10,000
Methyl chloride [Methane, chloro-]	74-87-3	10,000
Methyl 2-Chloroacrylate	80-63-7	500
Methyl chloroformate [Carbonochloridic acid, methylester]	79-22-1	500
Methyl ether [Methane, oxybis-]	115-10-6	10,000
Methyl formate [Formic acid, methyl ester]	107-31-3	10,000
Methyl Hydrazine	60-34-4	500
Methyl isocyanate [Methane, isocyanato-]	624-83-9	500
Methyl Isothiocyanate[3]	556-61-6	500
Methyl Mercaptan	74-93-1	500

Chemical Name	CAS No.	Threshold Quantity (lbs)
Methylmercuric Dicyanamide	502-39-6	500/10,000[2]
Methyl Phosphonic Dichloride[3]	676-97-1	100
Methyl Thiocyanate	556-64-9	10,000
Methyltrichlorosilane	75-79-6	500
Methylamine [Methanamine]	74-89-5	10,000
2-Methylpropene [1-Propene, 2-methyl-]	115-11-7	10,000
Methyl Vinyl Ketone	78-94-4	10
Metolcarb	1129-41-5	100/10,000[2]
Mexacarbate	315-18-4	500/10,000[2]
Mitomycin C	50-07-7	500/10,000[2]
Monocrotophos	6923-22-4	10/10,000[2]
Muscimol	2763-96-4	500/10,000[2]
Mustard Gas[1]	505-60-2	500
Nickel carbonyl	13463-39-3	1
Nicotine Sulfate	65-30-5	100/10,000[2]
Nitric Acid	7697-37-2	1,000
Nitric oxide [Nitrogen oxide (NO)]	10102-43-9	100
Nitrobenzene[1]	98-95-3	10,000
Nitrogen Dioxide	10102-44-0	100
Norbormide	991-42-4	100/10,000[2]
Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide]	8014-95-7	10,000
Organorhodium Complex (PMN-82-147)	MIXTURE	10/10,000[2]
Ouabain	630-60-4	100/10,000[2]
Oxamyl	23135-22-0	100/10,000[2]
Ozone	10028-15-6	100
Paraquat Dichloride	1910-42-5	10/10,000[2]
Paraquat Methosulfate	2074-50-2	10/10,000[2]
Parathion-Methyl	298-00-0	100/10,000[2]
Paris Green	12002-03-8	500/10,000[2]
Pentaborane	19624-22-7	500
Pentadecylamine	2570-26-5	100/10,000[2]
Pentane	109-66-0	10,000
1-Pentene	109-67-1	10,000
2-Pentene, (E)-	646-04-8	10,000
2-Pentene, (Z)-	627-20-3	10,000
Peracetic acid [Ethaneperoxoic acid]	79-21-0	500
Perchloromethylmercaptan [Methanesulfenyl chloride, trichloro-]	594-42-3	500
Phenol	108-95-2	500/10,000[2]
Phenol, 2,2'-Thiobis(4-Chloro-6-Methyl)-	4418-66-0	100/10,000[2]
Phenol, 3-(Methylethyl)-,Methylcarbamate	64-00-6	500/10,000[2]
Phenoxarsine, 10, 10' – Oxydi-	58-36-6	500/10,000[2]
Phenyl Dichloroarsine[1]	696-28-6	500
Phenylhydrazine Hydrochloride	59-88-1	1,000/10,000[2]
Phenylmercury Acetate	62-38-4	500/10,000[2]
Phenylsilatrane	2097-19-0	100/10,000[2]
Phenylthiourea	103-85-5	100/10,000[2]
Phorate[1]	298-02-2	10
Phosacetim	4104-14-7	100/10,000[2]
Phosfolan	947-02-4	100/10,000[2]
Phosgene [Carbonic dichloride]	75-44-5	10
Phosmet	732-11-6	10/10,000[2]
Phosphine	7803-51-2	500
Phosphonothioic Acid, Methyl-, S-(2-(Bis(1-Methylethyl)Amino)Ethyl)O-Ethyl Ester.[1]	50782-69-9	100
Phosphorus[3]	7723-14-0	100

Chemical Name	CAS No.	Threshold Quantity (lbs)
Phosphorus oxychloride [Phosphoryl chloride]	10025-87-3	500
Phosphorus Pentachloride[3]	10026-13-8	500
Phosphorus Trichloride	7719-12-2	1,000
Physostigmine	57-47-6	100/10,000[2]
Physostigmine, Salicylate (1:1)	57-64-7	100,10,000[2]
Picrotoxin	124-87-8	500/10,000[2]
Piperidine	110-89-4	1,000
Potassium Arsenite	10124-50-2	500/10,000[2]
Potassium Cyanide[3]	151-50-8	100
Potassium Silver Cyanide[3]	506-61-6	500
Promecarb	2631-37-0	500/10,000[2]
Propadiene [1,2-Propadiene]	463-49-0	10,000
Propane	74-98-6	10,000
Propargyl Bromide	106-96-7	10
Propiolactone, Beta-[1]	57-57-8	500
Propionitrile	107-12-0	500
Propiophenone, 4-Amino-	70-69-9	100/10,000[2]
Propyl Chloroformate	109-61-5	500
Propylene [1-Propene]	115-07-1	10,000
Propylene Oxide	75-56-9	10,000
Propyleneimine [Aziridine, 2-methyl-]	75-55-8	10,000
Propyne [1-Propyne]	74-99-7	10,000
Prothoate	2275-18-5	100/10,000[2]
Pyrene	129-00-0	1,000/10,000[2]
Pyridine, 4-Amino	504-24-5	500/10,000[2]
Pyridine, 4-Nitro-, 1-Oxide	1124-33-0	500/10,000[2]
Pyriminil	53558-25-1	100/10,000[2]
1,3-Pentadiene	504-60-9	10,000
Salcomine	14167-18-1	500,10,000[2]
Sarin[1]	107-44-8	10
Selenious Acid	7783-00-8	1,000/10,000[2]
Semicarbazide Hydrochloride	563-41-7	1,000/10,000[2]
Silane	7803-62-5	10,000
Sodium Arsenate	7631-89-2	1,000/10,000[2]
Sodium Arsenite	7784-46-5	500/10,000[2]
Sodium Azide (Na (N3))[3]	26628-22-8	500
Sodium Cacodylate	124-65-2	100/10,000[2]
Sodium Cyanide (Na (CN))[3]	143-33-9	100
Sodium Fluoroacetate	62-74-8	10/10,000[2]
Sodium Selenate	13410-01-0	100/10,000[2]
Sodium Selenite	10102-18-8	100/10,000[2]
Sodium Tellurite	10102-20-2	500/10,000[2]
Stannane, Acetoxytriphenyl-	900-95-8	500/10,000[2]
Strychnine	57-24-9	100/10,000[2]
Strychnine Sulfate	60-41-3	100/10,000[2]
Sulfur Dioxide	7446-09-5	500
Sulfur tetrafluoride [Sulfur fluoride (SF4), (T-4)-]	7783-60-0	100
Sulfuric Acid[6]	7664-93-9	1,000
Sulfur Trioxide[3]	7446-11-9	100
Tabun[1]	77-81-6	10
Tellurium Hexafluoride	7783-80-4	100
Tetrafluoroethylene [Ethene, tetrafluoro-]	116-14-3	10,000
Tetramethyllead [Plumbane, tetramethyl-]	75-74-1	100
Tetramethylsilane [Silane, tetramethyl-]	75-76-3	10,000
Tetranitromethane	509-14-8	500
Thallium Sulfate	10031-59-1	100/10,000[2]
Thallous Carbonate	6533-73-9	100/10,000[2]

Chemical Name	CAS No.	Threshold Quantity (lbs)
Thallous Chloride	7791-12-0	100/10,000[2]
Thallous Malonate	2757-18-8	100/10,000[2]
Thallous Sulfate	7446-18-6	100/10,000[2]
Thiocarbazide	2231-57-4	1,000/10,000[2]
Thiofanox	39196-18-4	100/10,000[2]
Thiosemicarbazide	79-19-6	100/10,000[2]
Thiourea, (2-Chlorophenyl)-	5344-82-1	100/10,000[2]
Thiourea, (2-Methylphenyl)-	614-78-8	500/10,000[2]
Titanium tetrachloride [Titanium chloride (TiCl4) (T-4)-]	7550-45-0	100
Toluene 2, 4-Diisocyanate[7]	584-84-9	500
Toluene 2, 6-Diisocyanate[7]	91-08-7	100
Toluene diisocyanate (unspecified isomer) [Benzene, 1,3-diisocyanatomethyl-]	26471-62-5	10,000
Triamiphos	1031-47-6	500/10,000[2]
Trichloro(Chloromethyl)Silane	1558-25-4	100
Trichloro(Dichlorophenyl)Silane	27137-85-5	500
Trichlorosilane [Silane, trichloro-]	10025-78-2	10,000
Triethoxysilane	998-30-1	500
Trifluorochloroethylene [Ethene, chlorotrifluoro-]	79-38-9	10,000
Trimethylamine [Methanamine, N,N-dimethyl-]	75-50-3	10,000
Trimethylchlorosilane [Silane, chlorotrimethyl-]	75-77-4	1,000
Trimethylolpropane Phosphite	824-11-3	100/10,000[2]
Trimethyltin Chloride	1066-45-1	500/10,000[2]
Triphenyltin Chloride	639-58-7	500/10,000[2]
Tris(2-Chloroethyl)Amine[1]	555-77-1	100
Valinomycin	2001-95-8	1,000/10,000[2]
Vanadium Pentoxide	1314-62-1	100/10,000[2]
Vinyl Acetate Monomer	108-05-4	1,000
Vinyl acetylene [1-Buten-3-yne]	689-97-4	10,000
Vinyl chloride [Ethene, chloro-]	75-01-4	10,000
Vinyl ethyl ether [Ethene, ethoxy-]	109-92-2	10,000
Vinyl fluoride [Ethene, fluoro-]	75-02-5	10,000
Vinyl methyl ether [Ethene, methoxy-]	107-25-5	10,000
Vinylidene chloride [Ethene, 1,1-dichloro-]	75-35-4	10,000
Vinylidene fluoride [Ethene, 1,1-difluoro-]	75-38-7	10,000
Warfarin	81-81-2	500/10,000[2]
Warfarin Sodium	129-06-6	100/10,000[2]
Xylylene Dichloride	28347-13-9	100/10,000[2]
Zinc, Dichloro(4,4-Dimethyl-5((((Methylamino)Carbonyl)Oxy)Imino) Pentanenitrile)-,(T-4)-.	58270-08-9	100/10,000[2]
Zinc Phosphide[3]	1314-84-7	500

END NOTES

[1] Substances that failed the evaluation pursuant to Health and Safety Code (H&S) §25532(g)(2) but remain listed pursuant to potential health impacts. The exemption in the California Code of Regulations (CCR), Title 19, Division 2, Chapter 4.5, Article 8, §2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.

[2] These extremely hazardous substances are solids The lesser quantity listed applies only if in powdered form and with a particle size of less than 100 microns; or if handled in solution or in molten form; or the substance has an NFPA rating for reactivity of 2, 3, or 4. Otherwise, a 10,000 pound threshold applies. The exemption in CCR § 2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.

[3] These extremely hazardous substances are reactive solids. The exemption in CCR §2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.

[4] Appropriate synonyms or mixtures of extremely hazardous substances with the same CAS number are also regulated, e.g., formalin. The listing of ammonia includes anhydrous and aqueous forms of ammonia pursuant to H&S §25532(g)(2).

[5] Hydroquinone is exempt in crystalline form.

[6] Sulfuric acid fails the evaluation pursuant to H&S §25532(g)(2) but remains listed as Regulated Substance only under the following conditions:

c. If concentrated with greater than 100 pounds of sulfur trioxide or the acid meets the definition of oleum. (The threshold for sulfur trioxide is 100 pounds and the threshold for oleum is 10,000 pounds.)

d. If in a container with flammable hydrocarbons (flash point $<73^0$ F).

[7] The exemption in CCR §2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.

SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE---

South Coast
Air Quality Management District
21865 E. Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • http://www.aqmd.gov

PLAN ISSUE DATE: xx/xx/xx

COMPANY I.D. #: XXXXXX

MITIGATION PLAN #: XXXXXX

Company: NAME
ADDRESS
CITY, STATE ZIP CODE
Site: ADDRESS
Attn: CONTACT NAME
Phone (XXX) XXX-XXXX **Fax** (XXX) XXX-XXXX

SITE SPECIFIC
RULE 1166 CONTAMINATED SOIL MITIGATION PLAN

Reference is made to your Application **(A/N XXXXXX)** for the excavation and handling of VOC-contaminated soil **starting at (SITE ADDRESS)**. In accordance with Rule 1166 (c), this plan is required prior to commencing excavation of any underground storage tank or transfer piping which has previously been used to store or transfer volatile organic compounds (VOC) and during the excavation, handling, or storage of VOC-contaminated soils.

The rights and privileges granted through the issuance of this plan are restricted exclusively to the plan holder to whom it was issued, and are non-transferable, even with the written or expressed consent of the plan holder listed above.

This plan has been approved under the provisions of Rule 1166 of the Rules and Regulations of the AQMD and is subject to the following conditions.

PLAN CONDITIONS:

SECTION I – GENERAL REQUIREMENTS

1. THIS EXCAVATION PLAN SHALL EXPIRE UPON COMPLETION **(DATE PROVIDED BY APPLICANT.)**
2. A SIGNED COPY OF THIS PLAN SHALL BE PRESENT AT EACH EXCAVATION SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
3. THIS PLAN IS NOT VALID FOR THE EXCAVATION OF VOC CONTAMINATED SOILS AT LANDFILLS OR SITES USED FOR DISPOSAL OF REFUSE OR OTHER TYPES OF WASTE.

SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE---

4. THIS PLAN SHALL NOT BE USED IN CONJUNCTION WITH ANY ON SITE TREATMENT PROCESS, WITHOUT ADDITIONAL EVALUATION BY THE AQMD. THIS PLAN DOES NOT ALLOW THE TREATMENT OF VOC-CONTAMINATED SOIL BY THERMAL, CHEMICAL, OR MECHANICAL PROCESSES. ANY OF THE ABOVE TREATMENT PROCESSES REQUIRES A PERMIT TO OPERATE FROM THE AQMD.

5. THE TOTAL QUANTITY OF VOC-CONTAMINATED SOIL EXCAVATED UNDER THIS PLAN SHALL NOT EXCEED **XXXXX CUBIC YARDS. AT NO TIME SHALL THE TOTAL QUANTITY OF VOC CONTAMINATED SOIL STOCKPILED AT THIS SITE EXCEED 2,000 CUBIC YARDS.**

6. THE AQMD SHALL BE IMMEDIATELY NOTIFIED OF ANY COMPLAINTS RECEIVED AS A RESULT OF ACTIVITIES CONDUCTED UNDER THIS PLAN. SUCH NOTIFICATION SHALL INCLUDE THE NATURE OF THE COMPLAINT, NUMBER OF COMPLAINANTS AND THE ACTION TAKEN BY THE PLAN HOLDER TO MITIGATE THE SOURCE OF THE COMPLAINT.

7. DURING EACH STEP OF THE PROCESS UP TO AND INCLUDING THE REMOVAL AND DISPOSAL PROCESS, ALL PRECAUTIONS AND MEASURES SHALL BE TAKEN TO MINIMIZE THE RELEASE OF VOC, ODOR AND DUST. THIS INCLUDES BUT IS NOT LIMITED TO THE USE OF ADDITIONAL PLASTIC SHEETING OR SUPPRESSANTS ON EXPOSED SOIL SURFACES & WORK AREAS AND MAINTAINING PAVED PUBLIC STREETS FREE OF SOIL DEPOSITS.

SECTION II – PRIOR TO EXCAVATION

8. AT LEAST **24 HOURS** PRIOR TO COMMENCING AT THE SITE/AREAS DESIGNATED FOR THIS PLAN, THE EXECUTIVE OFFICER OR DESIGNEE SHALL BE NOTIFIED BY TELEPHONE OF ALL INFORMATION ITEMS LISTED IN RULE 1166(c)(1)(B), THE NAME OF THE COMPANY PERFORMING THE EXCAVATION, AND THE APPLICATION NUMBER LISTED ON THIS MITIGATION PLAN. THE NOTIFICATION SHALL BE MADE BY FAXING THE NOTIFICATION FORM TO (909) 396-3342 OR CALLING (909) 396-2326, DURING NORMAL BUSINESS HOURS. FAX NOTIFICATIONS WILL RECEIVE A REFERENCE NUMBER BY RETURN FAX OR CAN BE OBTAINED FROM THE AQMD BY PHONE. THE REFERENCE NUMBER SHALL BE RETAINED AS PROOF OF COMPLIANCE WITH THIS REQUIREMENT.

REFERENCE NO:_____ NOTIFICATION DATE:_____

9. COMPLETE VERIFICATION INFORMATION IN CONDITION NO. 30 AND OBTAIN REQUIRED SIGNATURES, PRIOR TO COMMENCING EXCAVATION.

SECTION III – EXCAVATION ACTIVITIES

10. DURING THE EXCAVATION PROCESS, AN ORGANIC VAPOR ANALYZER (OVA) SHALL BE ON SITE AT ALL TIMES. THE OVA SHALL BE MAINTAINED IN GOOD WORKING ORDER AT ALL TIMES AND SHALL BE CALIBRATED BY THE MANUFACTURER AT LEAST ONCE EVERY THREE MONTHS. THE CALIBRATION OF THE OVA SHALL BE VERIFIED USING CERTIFIED CALIBRATION GAS AT THE BEGINNING OF EACH WORKING DAY WITH THE PROCEDURES SPECIFIED BY THE MANUFACTURER. IF A CALIBRATION GAS OTHER THAN HEXANE IS USED, EACH MEASURED READING SHALL BE CORRELATED TO AND EXPRESSED AS HEXANE, USING EQUIVALENCY FACTORS PROVIDED BY THE MANUFACTURER. IN THE EVENT THAT INCONSISTENT OR ERRATIC READINGS ARE EXPERIENCED, OR THE OVA BECOMES OTHERWISE INOPERABLE, ALL EXCAVATION ACTIVITIES WILL CEASE UNTIL THE OVA IS REPAIRED OR REPLACED.

11. ALL MONITORING SHALL BE CONDUCTED AT A DISTANCE NO MORE THAN 3 INCHES ABOVE THE SOIL SURFACE USING AN OVA DESCRIBED IN CONDITION NO. 10 ABOVE. MONITORING SHALL BE INITIALLY CONDUCTED AT A MINIMUM FREQUENCY OF ONE READING EVERY FIFTEEN MINUTES. UPON DETECTION OF VOC CONTAMINATION, MONITORING SHALL BE CONDUCTED AT A MINIMUM RATE OF ONE READING FOR EVERY FIVE CUBIC YARDS EXCAVATED. ALL READINGS SHALL BE TAKEN NO LATER THAN THREE (3) MINUTES AFTER EACH LOAD OF SOIL IS EXCAVATED.

12. ALL MONITORING SHALL BE CONDUCTED BY TRAINED PERSONNEL WHO ARE PROFICIENT IN THE USE OF THE HYDROCARBON MONITOR SELECTED FOR USE AT THIS SITE.

13. WRITTEN RECORDS OF OVA MONITORING AND CALIBRATIONS REQUIRED ABOVE, SHALL BE KEPT IN A FORMAT APPROVED BY THE AQMD. THE APPROVED FORMAT IS INCLUDED ON PAGE 7 OF THIS PLAN. THE CERTIFICATION ON ALL RECORDS SHALL BE SIGNED AND DATED ON THE DAY THE MEASUREMENTS ARE OBSERVED.

14. UPON DETECTION OF VOC CONTAMINATED SOIL (READINGS 50 PPM OR GREATER), THE EXECUTIVE OFFICER OR DESIGNEE SHALL BE NOTIFIED **WITHIN 24 HOURS** OF THE FIRST DETECTION OF VOC CONTAMINATION. THE NOTIFICATION SHALL BE MADE BY FAXING THE NOTIFICATION FORM TO (909) 396-3342 OR CALLING (909) 396-2326. A REFERENCE NUMBER WILL BE FAXED BACK OR WILL BE ISSUED WHEN THE PHONE NOTIFICATION IS RECEIVED. ALL PHONE NOTIFICATIONS SHALL BE FOLLOWED BY MAILING THE NOTIFICATION FORM TO THE DISTRICT POSTMARKED **WITHIN 48 HOURS**. THE REFERENCE NUMBER WILL BE RETAINED AS PROOF OF COMPLIANCE WITH THIS REQUIREMENT.

REFERENCE NO:_____ NOTIFICATION DATE:_____

15. ALL VOC-CONTAMINATED SOIL SHALL BE STOCKPILED SEPARATELY FROM NON-VOC-CONTAMINATED SOIL.

16. A VOC-CONTAMINATED STOCKPILE SHALL NOT CONTAIN MORE THAN 500 CUBIC YARDS OF SOIL.

17. IF THE OVA MEASUREMENT SPECIFIED IN CONDITION NO. 11 IS GREATER THAN 50 PPMV, BUT LESS THAN 1000 PPMV,

    A) THE AFFECTED WORK AREA AND LOAD OF SOIL SHALL BE SPRAYED WITH WATER AND/OR APPROVED VAPOR SUPPRESSANT.

    B) CONTAMINATED SOIL IN STOCKPILES SHALL BE COVERED WITH PLASTIC SHEETING WHICH OVERLAP A MINIMUM OF TWENTY FOUR INCHES AND ARE SECURED SO THAT NO PORTION OF THE CONTAMINATED SOIL IS EXPOSED TO THE ATMOSPHERE. IN THE COURSE OF HANDLING THE STOCKPILE, ONLY THE WORKING FACE OF THE STOCKPILE MAY BE UNCOVERED.

18. IF THE OVA MEASUREMENT SPECIFIED IN CONDITION NO. 11 EQUALS OR IS GREATER THAN 1000 PPMV,

    A) THE AFFECTED SOIL AND WORKING AREA SHALL BE SPRAYED WITH WATER OR AN APPROVED VAPOR SUPPRESSANT, AND EITHER:

    B) THE CONTAMINATED SOIL EXCAVATED WILL BE IMMEDIATELY PLACED IN AQMD APPROVED SEALED CONTAINERS, EQUIPPED WITH VAPOR TIGHT LIDS; OR,

    C) THE SOIL EXCAVATED WILL BE DIRECTLY LOADED IN TRUCKS, MOISTENED WITH ADDITIONAL WATER, COVERED, AND TRANSPORTED IMMEDIATELY OFF SITE TO AN APPROVED TREATMENT FACILITY, OR,

    D) BY OTHER ALTERNATIVE STORAGE METHODS WITH PRIOR WRITTEN APPROVAL FROM THE AQMD.

SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE---

19. DURING EXCAVATION, THE ONLY EXPOSED VOC CONTAMINATED SOIL SHALL BE RESTRICTED TO THE IMMEDIATE WORKING AREA OF THE STOCKPILE ONLY. ALL OTHER PORTIONS OF THE STOCKPILE SHALL BE COVERED WITH PLASTIC SHEETING, WITH SEAMS WHICH OVERLAP A MINIMUM OF TWENTY-FOUR (24) INCHES AND ARE SECURED WITH DUCT TAPE. ANY EXPOSED VOC-CONTAMINATED SOIL SURFACES (WORK FACE) SHALL BE KEPT MOIST WITH WATER OR OTHER APPROVED SUPPRESSANTS AT ALL TIMES, AND SHALL BE RECOVERED DURING PERIODS OF INACTIVITY LONGER THAN ONE (1) HOUR. AT THE END OF EACH WORKING DAY, ALL STOCKPILES SHALL BE COMPLETELY COVERED AND SECURELY ANCHORED TO PREVENT ANY EXPOSURE OF SOIL TO THE ATMOSPHERE.

20. ONCE COVERED WITH PLASTIC SHEETING, STOCKPILE SHALL BE DISTURBED FOR SAMPLING PURPOSES ONLY, OTHERWISE, ALL VOC-CONTAMINATED STOCKPILES SHALL REMAIN COVERED AND UNDISTURBED UNTIL BACKFILLED OR REMOVED FROM THE SITE.

21. IN THE EVENT THAT ANALYTICAL RESULTS FROM THE SAMPLING OF VOC-CONTAMINATED STOCKPILES INDICATE ONLY THE PRESENCE OF COMPOUNDS MEETING THE EXEMPTION(S) STATED IN RULE 1166(d)(1), THE PLAN HOLDER SHALL SUBMIT ALL PERTINENT INFORMATION TO THE AQMD FOR REVIEW. ALL SUSPECT STOCKPILES SHALL CONTINUE TO BE HANDLED AS VOC CONTAMINATED UNTIL THE EXEMPTION CAN BE CONFIRMED BY THE AQMD.

22. DAILY INSPECTIONS SHALL BE CONDUCTED OF ALL COVERED VOC-CONTAMINATED STOCKPILES TO ENSURE THE INTEGRITY OF THE PLASTIC COVER. SUCH INSPECTIONS SHALL INCLUDE A VISUAL INSPECTION OF ALL SEAMS AND PLASTIC COVER SURFACES. ANY HOLES, TEARS OR ANY OTHER POTENTIAL SOURCES OF FUGITIVE VOC EMISSIONS SHALL BE REPAIRED IMMEDIATELY. DAILY RECORDS SHALL BE MAINTAINED TO ENSURE COMPLIANCE WITH THIS CONDITION.

23. VOC-CONTAMINATED SOIL SHALL NOT BE SPREAD ON-SITE OR OFF-SITE. THIS INCLUDES ANY UNNECESSARY MOVEMENT OR AGITATION OF SOIL THAT MAY CAUSE THE UNCONTROLLED EVAPORATION OF VOCS INTO THE ATMOSPHERE, INCLUDING THE RESHAPING OR RELOCATING OF STOCKPILES.

24. A WRITTEN REPORT SHALL BE GENERATED WHICH INCLUDES:

    A) THE FACILITY SELECTED TO TREAT THE VOC-CONTAMINATED SOIL, QUANTITY OF SOIL REMOVED FROM SITE, STATUS OF EXCAVATION PIT, AND ANY VOC-CONTAMINATED SOIL REMAINING ON SITE.

    B) A BRIEF SUMMARY INDICATING IF ADDITIONAL CLEAN UP EFFORTS ARE NECESSARY, THE ADDITIONAL QUANTITY OF VOC CONTAMINATED SOILS TO BE EXCAVATED AND THE PROJECTED SCHEDULE OF THE EXCAVATION.

25. ALL VOC-CONTAMINATED SOIL SHALL BE REMOVED FROM THE SITE WITHIN **THIRTY (30) DAYS** OF ITS EXCAVATION.

SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE---

26. ALL VOC-CONTAMINATED SOIL REMOVED FROM THE SITE SHALL COMPLY WITH THE FOLLOWING:

A) BE TRANSPORTED TO AN APPROVED TREATMENT/DISPOSAL FACILITY. IT SHALL BE THE RESPONSIBILITY OF THE PLAN HOLDER TO ENSURE THAT THE RECEIVING TREATMENT/DISPOSAL FACILITY HAS RECEIVED APPROVAL FROM THE APPROPRIATE ENVIRONMENTAL OVERSIGHT AGENCIES TO HANDLE AND TREAT VOC CONTAMINATED SOILS.

B) WHEN LOADING IS COMPLETED AND DURING TRANSPORTATION, NO EXCAVATED MATERIAL SHALL EXTEND ABOVE THE SIDES OR REAR OF THE TRUCK OR TRAILER.

C) PRIOR TO COVERING/TARPING, LOADED CONTAMINATED SOIL SHALL BE WETTED BY SPRAYING WITH MIST INHIBITORS.

D) THE TRUCK OR TRAILER SHALL BE COMPLETELY COVERED/TARPED PRIOR TO LEAVING THE SITE TO PREVENT PARICULATED EMISSIONS TO THE ATMOSPHERE.

E) THE EXTERIOR OF THE TRUCKS (INCLUDING THE TIRES) SHALL BE CLEANED OFF PRIOR TO THR TRUCKS LEAVING THE EXCAVATION SITE.

27. RECORDS OF TREATMENT/DISPOSAL SHALL BE MAINTAINED FOR ALL VOC-CONTAMINATED SOIL REMOVED FROM THIS SITE. SUCH RECORDS SHALL BE CLEARLY LABELED "**SCAQMD RULE 1166 - VOC-CONTAMINATED SOIL**" AND SHALL INCLUDE THE IDENTIFICATION AND THE LOCATION OF: THE GENERATOR, THE TRANSPORTER AND THE RECEIVING FACILITY. IN ADDITION, SUCH RECORDS SHALL BE SIGNED AND DATED BY EACH OF THE ABOVE PARTIES INDICATING RECEIPT OR RELINQUISHMENT OF THE VOC-CONTAMINATED SOIL AT THE TIME CUSTODY IS TRANSFERRED

28. RECORDS OF DISPOSAL/TREATMENT OF VOC-CONTAMINATED SOIL SHALL BE MAINTAINED FOR A PERIOD OF TWO (2) YEARS AND MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.

29. WITHIN **FORTY (40) DAYS** OF INITIAL DETECTION OF VOC-CONTAMINATION, THE WRITTEN RECORDS UNDER CONDITIONS NO. 13, 22, 24, AND 27 SHALL BE SUBMITTED TO THE AQMD AT THE FOLLOWING ADDRESS.

SOUTH COAST AIR QUALITY MGMT DISTRICT
STATIONARY SOURCE COMPLIANCE DIVISION.
RULE 1166 TOXICS AND WASTE MANAGEMENT SECTION
21865 E. COPLEY DR.
DIAMOND BAR, CA. 91765-4182

30. THIS PLAN IS NOT VALID UNTIL ALL PARTIES HAVE REVIEWED AND SIGNED THE VERIFICATION STATEMENT BELOW.

SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE---

Site Name		Type of Business	
Address	City		Zip
Responsible Party (Owner/Operator)		Phone/Fax	
Address	City		Zip

I CERTIFY THAT I HAVE REVIEWED AND UNDERSTAND THE CONDITIONS CONTAINED WITHIN THIS PLAN. IN SIGNING BELOW, I ACKNOWLEDGE THAT UNDER THE PROVISIONS OF RULE 1166, I CAN BE HELD RESPONSIBILE FOR THE REQUIREMENTS SET FORTH IN THIS PLAN.

Responsible Party	Responsible Party Signature	Date Signed
General Contractor	General Contractor Signature	Date Signed
Excavation Contractor	Excavation Contractor Signature	Date Signed
Environmental Consultant	Environmental Consultant Signature	Date Signed

DEFINITIONS

Organic Vapor Analyzer (OVA)	For the purposes of this plan, is an hydrocarbon monitor utilizing flame ionization, photo ionization or other analytical methods complying with 40 CFR PART 60 APPENDIX A, EPA METHOD 21 SECTION 3, "DETERMINATION OF VOLATILE ORGANIC COMPOUND LEAKS, MONITORING INSTRUMENT SPECIFICATIONS. The monitor shall be capable of being calibrated using hexane at a range of 0 parts per million by volume (PPMV) to 50 PPMV, and at a detection range of at least 30 PPMV to 1100 PPMV
Responsible Party	For the purposes of this plan, is the party financially responsible for initiating the excavation. This may include the property owner or the tank operator. This excludes contractors working for the property owner or operator, and any other party that lacks the direct authority to immediately treat all VOC contaminated soils generated at the excavation site.
VOC Contaminated Soil	Is a soil which registers a concentration of 50 PPM or greater of volatile organic compounds, when measured at a distance of no more than three inches from the surface of the excavated soil, with an organic vapor analyzer or equivalent (calibrated to hexane). If other calibration gases are used, then the measured readings are correlated to and expressed as hexane.
Volatile Organic Compound (VOC)	Any volatile compound of carbon, excluding methane, carbon monoxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds as defined in Rule 102 – Definitions of Terms.

SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--

Once issued, this plan is subject to further review by the AQMD and may be revoked if excavation activities are found in violation of plan conditions or AQMD's Rules and Regulations. Failure to comply with one or more of the conditions contained within this plan constitutes a violation of Rules 221 and 1166.

Other governmental agencies may require approval before any excavation begins. It shall be the responsibility of the applicant to obtain that approval. The South Coast Air Quality Management District shall not be responsible or liable for any losses because of measures required or taken pursuant to the requirements of this approved 1166 Contaminated Soil Mitigation Plan.

If you have any questions concerning this plan, please call Ranjit Vishwanath at (909) 396-2682.

Very truly yours,

David Jones
Air Quality Analysis & Compliance Supervisor

SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--

Rule 1166 Soil Monitoring Records

COID: Company ID No <Company> «Addno» «dir» «Streetname» «TYPE» «Suiteno» «City», «St», «Zip»	**Facility/Site Information** Name: Address:
Reference No(s)	City: Zip:

Monitor Information	**Calibration Data**	**Monitoring Personnel**	**Excavation Summary** (Upon completion of each page)	
Brand:	Gas:	Name:	Total Cubic Yds (This page)	
Model:	Date	Company:	Total Cubic Yds (To date)	
Type	By	Phone:	Removed from Site (To date)	

Time	VOC Concentration (PPMV) @ Excavated Load			Comment	Time	VOC Concentration (PPMV)@ Excavated Load			Comment
Every 15 min.	Reading	Hexane Factor	Adjusted Reading		Every 15 min.	Reading	Hexane Factor	Adjusted Reading	

I certify that the information contained in the above document is true and correct. I further certify that the above listed hydrocarbon monitor was operated in a manner consistent with the manufacturer's specifications and the conditions specified within this plan. In addition, I certify that the above readings represent the actual measurements I observed and recorded during the excavation process.

SIGNATURE:_____ DATE:_____

INSTRUCTIONS FOR RULES 1149 AND 1166 NOTIFICATION FORM

AQMD requires notification for Tank Degassing (Rule 1149), Tank Excavation (Rule 1166), VOC-Soil Contamination of >50 ppm VOC, and VOC Site Mitigation.

NOTIFICATION TYPE:

Check (√) the appropriate box for the notification type. *A separate notification is required for each type of notification.*

SITE INFORMATION:

- Give the site name and address: number and street name, city, and zip code, and nearest cross street. Give more detailed directions, if you think the site is difficult to locate.
- Give the name of the owner/operator of the tank. Give the name and phone number of the contact person.
- Give the contractor's name, phone number, and fax number who is performing the degassing, excavation, handling of VOC-contaminated soil, and/or doing site mitigation.
  - Give the project start and end dates, and expected start time.
  - List each tank that will be degassed, cleaned, or excavated; specify its capacity in gallons, and the material stored in the tank. Also, identify if the tank is underground or above ground.

TANK DEGASSING NOTIFICATION ONLY:

- Give the name and phone number of the person in charge of the degassing/cleaning operation at the site.
- Give the company name to whom the degassing equipment permit is issued and the permit's AQMD number.

TANK EXCAVATION NOTIFICATION ONLY:

- Give the name and phone number of the person in charge of the excavation at the site.
- Give the name of the company to whom the Mitigation Plan is issued and the plan's AQMD number.
- An approved Mitigation Plan is required prior to any excavation of VOC transfer and storage equipment, and VOC contaminated sites.
- Monitor excavated soil for VOC contamination every 15 minutes and record all VOC concentrations.

VOC-CONTAMINATED SOIL NOTIFICATION ONLY:

- Give the name of the person in charge of monitoring at the site.
- Give the name of the company to whom the Mitigation Plan is issued and the Plan's AQMD number.
- Notify within 24 hours of detecting VOC soil contamination greater than 50 ppm.
- Implement an approved soil mitigation plan.

VOC SITE MITIGATION NOTIFICATION ONLY:

- Give the name of the person in charge of the soil excavation, decontamination, and/or vapor extraction at the site.
- Give the name of the company to whom the Site Mitigation permit is issued and the Permit's AQMD number.
- Any soil excavation > 5,000 cubic yards requires an approved Rule 403 Fugitive Dust Plan.

INFORMATION CERTIFICATION:

- The notification must be signed and submitted by the contractor doing the work, or an authorized representative.
- Use a "wet" or stamp signature to confirm that information given in the notification form is complete and accurate.

WHEN AND WHERE TO FAX YOUR NOTIFICATION: (909) 396-3342

- For tank degassing only, fax your notification at least 24 hours and no more than 10 days prior to the start date.
- For tank excavation only, fax your notification at least 24 hours prior to the start date.
- Fax a re-notification when VOC contamination of 50 ppm or greater is detected during excavation.
- For VOC site mitigation, fax a notification in accordance with the permit condition requirements.
- Always fax a re-notification if the start date of the project does not commence as initially notified.
- Always fax a copy of an agency Order or Emergency Declaration, and provide details of the emergency.

PHONE INQUIRIES:

- For phone inquiries or messages, dial (909) 396-2326.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

21865 E. Copley Drive, Diamond Bar, CA 91765-4182 WWW.AQMD.GOV

[ ] R1149 – TANK DEGASSING NOTIFICATION
[ ] R1166 – TANK EXCAVATION NOTIFICATION
[ ] R1166 – VOC-CONTAMINATED SOIL NOTIFICATION
[ ] R1166 – VOC SITE MITIGATION NOTIFICATION

To notify, please fax this form to:
(909) 396-3342
This form will be faxed back to you with the notification Reference Number.

For AQMD Use Only

REFERENCE NO.	RECEIVED			ENTERED		RE-NOTIFICATION		PRIOR REFERENCE NO.
	BY	DATE	TIME	BY	DATE	YES	NO	

SITE INFORMATION: *(TO BE COMPLETED FOR EVERY NOTIFICATION)*

NAME:
ADDRESS: CROSS STREET
CITY: ZIP:
NAME OF TANK OWNER/OPERATOR
CONTACT PERSON: PHONE:
CONTRACTOR: AQMD ID# PHONE: FAX:
START DATE: TIME: END DATE:

# OF TANKS	EACH	CAPACITY (GAL)	MATERIAL STORED IN TANK	ABOVE GROUND?
_____	@	_____	_____	_____Y/N
_____	@	_____	_____	_____Y/N
_____	@	_____	_____	_____Y/N
_____	@	_____	_____	_____Y/N
_____	@	_____	_____	_____Y/N

TANK DEGASSING ONLY: PERSON IN CHARGE: PHONE:
EQUIPMENT PERMIT ISSUED TO: PERMIT AQMD#:

TANK EXCAVATION ONLY: PERSON IN CHARGE: PHONE:
MITIGATION PLAN ISSUED TO: PLAN AQMD#:

VOC-CONTAMINATED SOIL ONLY: PERSON IN CHARGE: PHONE:
HIGHEST READING (PPM): DATE REGISTERED: TIME:

VOC SITE MITIGATION ONLY: PERSON IN CHARGE: PHONE:
MITIGATION PERMIT ISSUED TO: PERMIT AQMD#:

IF EMERGENCY: GIVE THE DATE: TIME: OF THE EMERGENCY.
PERSON WHO DECLARED THE EMERGENCY: PHONE:
(FOR AN EMERGENCY ORDER OR DECLARATION, FAX A COPY).

COMMENTS:

INFORMATION CERTIFICATION: I certify that the above information is complete and accurate.

Company Name *Print name* *Signature* *Date*

NOTE: If you need to call, please dial (909) 396-2326

California Regional Water Quality Control Board, Santa Ana Region Letter to the Department of the Navy

17 August 2001

ETS 1S1/0302

California Regional Water Quality Control Board
Santa Ana Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov/rwqcb8
3737 Main Street, Suite 500, Riverside, California 92501-3348
Phone (909) 782-4130 - FAX (909) 781-6288

Gray Davis
Governor

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.swrcb.ca.gov/rwqcb8.

August 17, 2001

Mr. M. Good
Department of the Navy
Southwest Division
Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, CA 92132-5190

REQUEST FOR REGIONAL WATER QUALITY CONTROL BOARD (RWQCB) APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs) FOR IR SITES 73 (WATER TOWER AREA) AND SWMU 24 (STATIONARY DEMILITARIZATION FURNACE), NAVAL WEAPONS STATION, SEAL BEACH

Dear Mr. Good:

On June 25, 2001, we received your requests for ARARs for a proposed non-time critical removal action at Sites 73 and SWMU 24 at NWS Seal Beach, in compliance with Section 121 (d) (2) (A) of CERCLA and the National Contingency Plan 40 CFR Section300.400 (g) and 300.515(d) and (h). The following is a list of our ARARS:

- **Water Quality Control Plan Santa Ana River Basin 1995 (Basin Plan)**

Citation: Chapter 3, Beneficial Uses

Description: Defines beneficial uses for groundwater beneath NWS Seal Beach as municipal, agricultural, industrial service and industrial process supply.

Comments: The identification of the groundwater as a potential drinking water source forms a basis for selection of concentration limits, cleanup levels and treatment levels.

ARAR Status: Applicable, Action

Citation: Chapter 4, Water Quality Objectives

Description: Defines the groundwater quality objectives for non-degradation, taste and odor, bacteria, chemical constituents, toxic substances, radioactivity and minerals.

Comments: Applies to all cleanups of discharges that may affect water quality.

ARAR Status: Applicable, Action, Chemical

- **Statement of Policy with Respect to Maintaining High Quality of Waters in California**

Citation: State Water Resources Control Board Resolution No. 68-16

Description: Establishes policy on maintaining the high quality of California's surface waters and groundwater.

Comments: Applies to discharges of waste to waters of the State, including discharges to soil that may affect surface or groundwater. In-situ cleanup levels for contaminated soils must be set so that groundwater will not be degraded, unless degradation is consistent with the maximum benefit to the people of the State. If degradation is allowed, the discharge must meet standards for best practical treatment or control, and must result in the highest water quality possible, consistent with the maximum benefit to the people of the State. In no case may water quality objectives be exceeded.

ARAR Status: Applicable, Action, Chemical, Location

- **Sources of Drinking Water Policy**

Citation: State Water Resources Control Board Resolution No. 88-63 and Regional Board Resolution No. 89-42.

Description: Defines all groundwater and surface waters as existing or potential sources of drinking water, with a few specified exceptions (these exceptions are specified in Chapter 3, Beneficial Uses of the Basin Plan).

Comments: The identification of the groundwater beneath Site 73 and SWMU 24 as potential sources of drinking water provides information to determine concentration limits, cleanup levels and treatment levels.

ARAR Status: Applicable, Location

- **Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under the Water Code Section 13304**

Citation: State Water Resources Control Board Resolution No. 92-49 (as Amended April 21, 1994 and October 2, 1996).

Description: Requires the investigation, cleanup and abatement to extend to any location affected by a discharge or threatened discharge, and sets policies and procedures for all investigations and cleanup and abatement activities.

Comments: These policies and procedures are applicable to investigations and remedial activities at Sites 73 and SWMU 24.

ARAR Status: Applicable, Action, Chemical, and Location

- **Porter-Cologne Water Quality Control Act 1998**

Citation: California Water Code Section 13000

Description: Defines the legislative intent to attain the highest water quality reasonable, considering all demands being made.

Comments: Basis for selection of background levels as the goal for cleanup criteria.

ARAR Status: Applicable, Action

Citation: California Water Code Section 13176

Description: Requires that the analysis of material be performed in a State-certified laboratory.

Comments: Applies to all investigations and remedial actions.

ARAR Status: Applicable, Action

Citation: California Water Code Chapter 4, Article 4

Description: Requires the submission of information regarding waste discharges, and states that requirements shall be placed to implement water quality control plans. Technical or monitoring reports may be required for investigation of water quality. Provides for penalties for noncompliance.

Comments: Removal and remedial actions must comply with substantive requirements.

ARAR Status: Applicable, Action, Chemical, Location

Citation: California Water Code Chapter 5, Article 1

Description: Requires cleanup and abatement of conditions of pollution or nuisance or threatened pollution or nuisance.

Comments: Applies to all investigation and remedial actions.

ARAR Status: Applicable, Action

Citation: California Water Code, Chapter 10, Article 3

Description: Specifies the requirements for water wells, monitoring wells, and cathodic protection wells.

Comments: Applies to all well installations.

ARAR Status: Applicable, Action

Citation: California Water Code Sections 13240, 13241, 13242, 13243

Description: Establishes water quality objectives, including narrative and numerical standards, that protect the beneficial uses of surface waters and groundwater in the Region. Describes control measures designed to ensure compliance with State plans and policies, and provides comprehensive water quality planning. Includes implementation actions for setting soil cleanup levels for soils that threaten water quality.

Comments: Any activity, including a new discharge of contaminated soils or containment of contaminated soils, that may affect water quality must not result in exceeding water quality objectives. Implementation plans and other policies and requirements may apply.

ARAR Status: Applicable, Action

- **Discharges of Waste to Land**

Citation: California Code of Regulations, Title 27, Section 20090(d)

Description: Actions taken by public agencies to cleanup unauthorized releases are exempt from Title 27, except that wastes removed from immediate place of release and discharged to land must be managed in accordance with classification and siting requirements of CCR Title 27 (Sections 20200 and 20240), and wastes contained or left in place must comply with Title 27 to the extent feasible.

Comments: Applies to remediation and monitoring of sites.

ARAR Status: Applicable, Action

Citation: California Code of Regulations, Title 27, Section 20410

Description: Requires monitoring for compliance with remedial action objectives for three years from the date of achieving cleanup levels.

Comments: Applies to all soil cleanup activities.

ARAR Status: Relevant and Appropriate, Action

Citation: California Code of Regulations, Title 27, Section 20430

Description: Requires implementation of corrective action measures that ensure that cleanup levels are achieved throughout the zone affected by the release by removing the waste constituents or treating them in place. Source control may be required. Also requires monitoring to determine the effectiveness of the corrective actions.

Comments: If water quality is threatened or adversely impacted, this section applies to all soil cleanup activities.

ARAR Status: Relevant and Appropriate, Action

Citation: California Code of Regulations, Title 27, Sections 20200(c) and 20210

Description: Requires that designated waste be discharged to Class I or Class II waste management units.

Comments: Applies to discharges of designated waste (non-hazardous waste that could cause degradation of surface or ground water) to land for treatment, storage, or disposal.

ARAR Status: Applicable, Action

Citation: California Code of Regulations, Title 27, Section 20230

Description: Specifies that inert waste does not need to be discharged at classified units.

ARAR Status: Applicable, Action

Citation: California Code of Regulations, Title 27, Sections 20200(c), 20220

Description: Requires that non-hazardous solid waste be discharged to a classified waste management unit.

Comments: Applies to discharges of non-hazardous solid waste to land for treatment, storage or disposal.

ARAR Status: Applicable, Action

- **Storm Water Activities**

Citation: 40 CFR, Parts 122, 123, 124, National Pollutant Discharge Elimination System, implemented by California Storm Water Permit for Industrial Activities, State Water Resources Control Board Order No. 97-03-DWQ

Description: Regulates pollutants in discharge of storm water associated with hazardous waste treatment, storage, and disposal facilities, wastewater treatment plants, landfills, land application sites, and open dumps. Contains requirements to ensure that storm water discharges do not contribute to a violation of surface water quality standards. Regulates pollutants in discharge of storm water associated with construction activity (clearing, grading, or excavation) involving the disturbance of five acres or more.

Comments: Applies to storm water discharges from industrial areas. Includes measures to minimize and/or eliminate pollutants in storm water discharges, and specifies monitoring and reporting requirements to demonstrate compliance. Applies to construction areas over five acres in size.

ARAR Status: Applicable, Action

If you should have any questions regarding the details of the ARARs listed in this letter, please call me at (909) 782-4498 or send e-mail to phannon@rb8.swrcb.ca.gov.

Sincerely,

Patricia A. Hannon

Patricia A. Hannon
SLIC/DoD/AGT Section

cc: Ms. Pei-Fen Tamashiro, Naval Weapons Station, Seal Beach
Ms. Katherine Leibel, Dept of Toxic Substances Control
Mr. Si Le, Naval Facilities Engineering Command, SWDIV
Mr. John Bradley, Seal Beach National Wildlife Refuge

The Department of the Navy Follow-Up Request to Various Agencies

15 October 2001

DEPARTMENT OF THE NAVY
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132-5190

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15 OCT 01

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

To: Interested Parties

Pursuant to the Federal Facility Site Remediation Agreement (FFSRA) for Seal Beach Naval Weapons Station, Section 7.7 (C), we request your office identify potential chemical-specific, location-specific and action specific Applicable or Relevant and Appropriate Requirements (ARARs) for proposed non-time critical removal actions at Site 73 (water tower area), and Solid Waste Management Unit (SWMU) 24 (station demilitarization furnace), Naval Weapons Station, Seal Beach. The Department of Toxic Substances Control (DTSC) sent a letter to your office in July 2001 requesting ARARs for Site 73 and SWMU 24. However, your office did not respond to DTSC's request. Therefore, the Navy is required per the FFSRA to solicit ARARs from non-responding agencies directly.

To expedite the removal process, the Department of the Navy (DoN) is requesting action-specific ARARs along with the chemical-specific and location-specific ARARs. Enclosure (1) is a summary of background information for non-time critical removal action at Site 73 and SWMU 24 to help you with this effort.

In addition, the DoN is requesting your office to identify any other criteria, advisories, guidance, and proposed standards that your agency requests be considered for the above-identified installation restoration (IR) sites.

The DoN is requesting timely identification of potential ARARs consistent with Section 121 (d) (2) (A) of CERCLA and the National Contingency Plan 40 CFR SS300.400 (g) and 300.515(d) &(h). Experience to date around the country has shown that a failure to identify ARARs with sufficient precision, early in the process, can cause severe disruptions in timely implementation of removal actions. To ensure timely and complete ARARs identification, for the IR sites listed above, please include the following information:

1. A specific citation to the statutory or regulatory provision(s) for the potential ARAR and the date of enactment or promulgation.

2. A brief description of why the potential ARAR is applicable or relevant and appropriate to the particular IR site.

3. A description of how the potential ARAR would apply to potential remedial action, including: specific numeric discharge, effluent, or emission limitations; hazardous substance/constituent action or cleanup levels; etc., if your office intends to take the position that the potential ARAR includes such limitations, levels, etc.

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4. If your office believes its proposed ARAR is more stringent than the corresponding Federal ARAR, please provide the rationale and technical justification for this position.

5. If your office determines that there is not enough information to fully respond to our request, please identify any additional information that would be required to support identification of ARARs and their application.

Consistent with 40 CFR S300.515 (h) (2), we are requesting that you send a response via first class mail addressed to me and postmarked within 30 calendar days of receipt of this request. Please direct any technical questions concerning this request to Si Le at (619) 532-1235 and any legal questions to Marc Rosen, Associate Counsel (Environmental), at (619) 532-1662.

Sincerely,

M. R. GOOD
By direction of the Commander

Enclosure (1): Summary of Background Information for Non-Time Critical Removal Action at IR Site 73 and SWMU 24, Naval Weapons Station, Seal Beach

Distribution:
Mr. Jim Raives
Federal Consistency Coordinator
California Coastal Commission
45 Freemont Street, Suite 2000
Sacramento, CA 94105

Ms. Penny Leinwander
Department of Health Services
P.O. Box 942732
Sacramento, CA 94234

Ms. Karen Hodel
Orange County Health Care Agency
2009 Edinger Avenue
Santa Ana, CA 92705

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Mr. James Colston
Orange County Sanitation District
P.O. Box 8127
Fountain Valley, CA 92728-8127

Mr. William R. Mills, Jr
Orange County Water District
P.O. Box 8300
Fountain Valley, CA 92728-8300

Mr. Lee Whitenberg
City of Seal Beach
Planning Department
211 8th Street
Seal Beach, CA 90740

South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765

Copy to (w/o encl.):
Commanding Officer (Code 045)
Attn: Ms. Pei-Fen Tomashiro
Naval Weapons Station, Seal Beach, Bldg 110
800 Seal Beach Boulevard
Seal Beach, CA 90740-5000

Mr. Robert Schilling
Naval Weapons Station Seal Beach
Bechtel Field Office (trailer southeast of Bldg. 112)
800 Seal Beach Blvd.
Seal Beach, CA. 90740-5000

SUMMARY OF BACKGROUND INFORMATION FOR NON-TIME-CRITICAL REMOVAL ACTION AT IR SITE 73 AND SWMU 24 NAVAL WEAPONS STATION SEAL BEACH

The following information is provided to assist the Navy and state regulatory agencies in early identification of chemical-, location-, and action-specific applicable or relevant and appropriate requirements (ARARs) to support the engineering evaluation/cost analyses (EE/CAs) for soil at Installation Restoration (IR) Program Site 73 and Solid Waste Management Unit (SWMU) 24, Naval Weapons Station (NAVWPNSTA) Seal Beach.

As part of the EE/CAs for these sites, potential non-time-critical removal actions will be evaluated with consideration given to the nine criteria stipulated in the National Oil and Hazardous Substances Pollution Contingency Plan: overall protection of human health and the environment; compliance with ARARs; long-term effectiveness; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability; cost; state acceptance; and community acceptance.

NAVWPNSTA Seal Beach, located about 30 miles south of the Los Angeles urban center, consists of about 5,000 acres of land located on the Pacific Coast. NAVWPNSTA Seal Beach is part of the Commander Navy Region Southwest, and its major claimant is the Commander-In-Chief Pacific Fleet. The Station provides fleet combatants with ready-for-use ordnance. Because of its geographic location, the Station serves as a supply point for the operating Navy and Marine Corps forces in the southern California region.

IR Site 73 – Water Tower

IR Site 73 is the area under and surrounding the Station water tower. Since its construction around 1944, the water tower has been periodically painted and sandblasted an unknown number of times. The most recent painting took place around 1994. Previous painting activities resulted in a release of sandblast paint chips to the area surrounding the water tower.

As shown on the Site Location Map and IR Site 73 Base Map below, the site is located east of Seal Beach Boulevard, south of the Main Gate, and southwest of Building 206. The site falls within a known archeological site, CA-ORA-322/1,118; and, in 1997, an archaeological investigation documented by Ogden reconfirmed the significance of the site's cultural resources.

RISK SCREENING RESULTS FOR IR SITE 73

The chemicals of potential concern (COPCs) at IR Site 73 are metals and semi-volatile organic compounds (SVOCs). Human health risk screening for soils at IR Site 73 was performed as part of a Focused Site Inspection (FSI). The screening compared the soil analytical data with stationwide upper limit background values (ULBVs) and residential preliminary remediation goals (PRGs), and estimated the excess lifetime cancer risk (ELCR) and non-cancer hazard quotient (HQ) for each COPC. The 95 percent upper confidence limit (UCL) concentration of metals in soil at the site yielded an ELCR of 2×10^{-9} and a non-cancer hazard index (HI) of 0.7. The ELCR associated with the SVOCs in soil is 1×10^{-5}, primarily as a result of polynuclear aromatic hydrocarbon (PAH) benzo(a)pyrene. The non-cancer HI is less that 0.1 for SVOCs at IR Site 73.

Based on the ecological risk screening performed as part of the FSI, ecologically significant risks to terrestrial receptors exist from metals in soil. Safe ecological PRGs for most receptors are exceeded by the 95 percent UCL concentrations of lead. The maximum concentrations of metals in soils, primarily lead, exceed the lowest safe PRGs for the receptors selected at the site. Lead is the primary contributor to ecological risks at the site.

Most of the PAH compounds (except the most volatile) were detected in soil at IR Site 73. However, maximum concentration of anthracene, benzo(a)pyrene, and dibenzo(a,h)anthracene did not exceed safe ecological PRGs for any receptor. Therefore, PAHs do not contribute to the risks to ecological receptors at IR Site 73.

POTENTIAL REMOVAL ACTION ALTERNATIVES FOR IR SITE 73

Removal action alternatives being considered for evaluation in the IR Site 73 EE/CA range from no action, partial removal of impacted soil, to complete removal of impacted soil. Soil removal would be followed by disposal.

Depending on the removal action goals developed during the EE/CA, the area of impacted soil subject to removal action may range from approximately 600 square yards to in excess of 5,000 square yards. The depth of the removal area is expected to range from 1 to 3 feet. Therefore, the volume of impacted soil subject to a removal action could range from 200 to 5,000 cubic yards. Since IR Site 73 is known to contain cultural resources, the volume of soil subject to removal action and/or disturbance will be limited to the maximum extent practicable.

SWMU 24 – Stationary Demilitarization Furnace

Prior to its decommissioning in 1998, SWMU 24 housed the stationary demilitarization furnace facility (SDFF). The SDFF was used primarily from 1985 to 1994 for the removal of explosive residue from expended munitions. When it was decommissioned in 1998, the structures were demolished and removed; and the areas known to contain residual quantities of hazardous materials were decontaminated. After the demolition of the SDFF, the area was graded.

SWMU 24 is located in the center of the Station south of Westminster Street, bounded by Building 95 to the west and agricultural fields to the east and south, as shown in the Site Location Map and SWMU 24 Base Map below.

RISK SCREENING RESULTS FOR SWMU 24

The COPCs at SWMU 24 are metals. Human health risk screening for soils at SWMU 24 was performed as part of an FSI. The screening compared the soil analytical data with stationwide ULBVs and residential PRGs, and estimated the ELCR and HQ for each COPC. The total ELCR for metals in soil, based on 95 percent UCL concentrations, is 1×10^{-8}. The HI for metals at the site is 1.0. Therefore, there are no significant human-health risks from metals at the site.

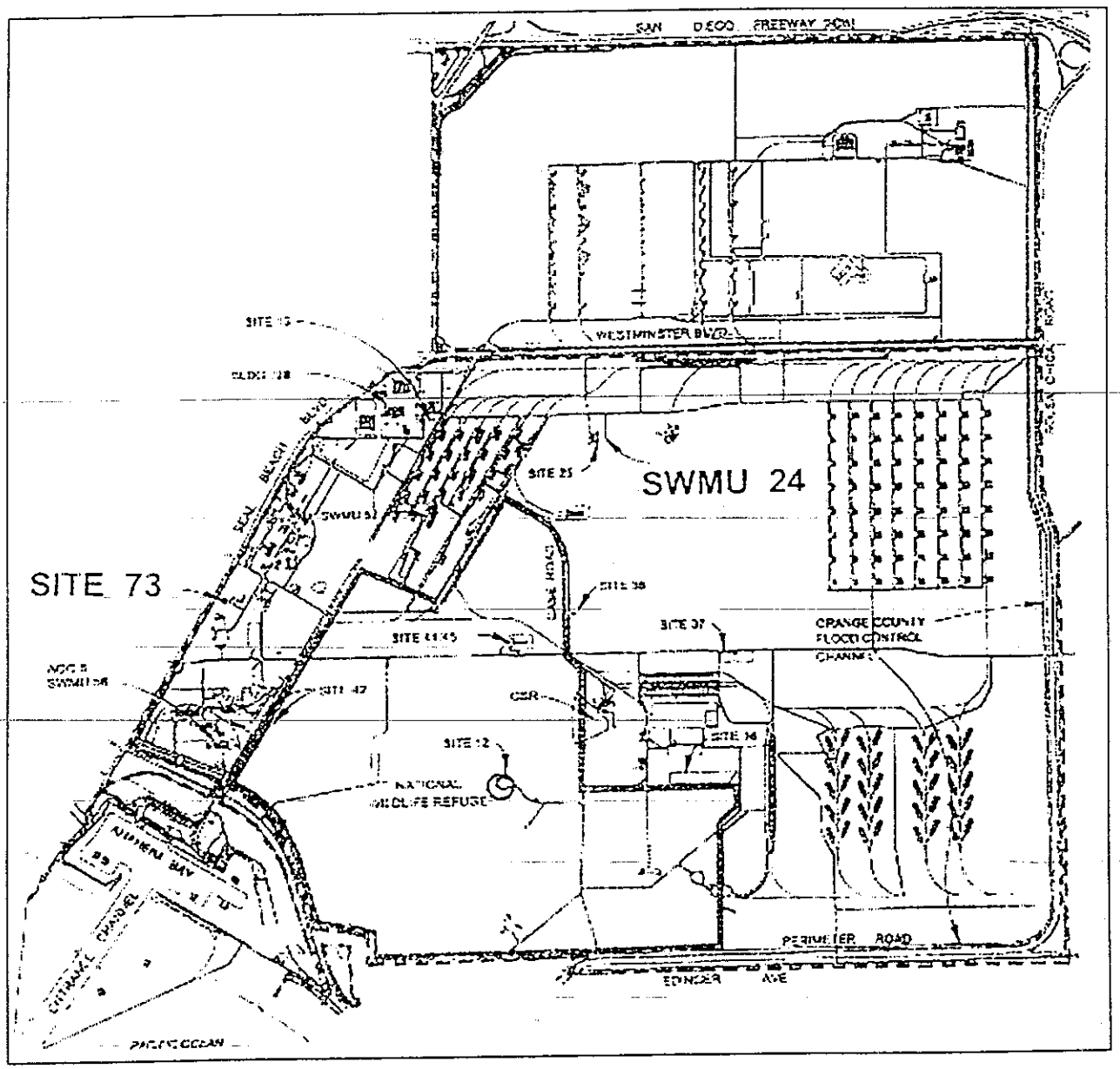
Based on the ecological risk screening performed as part of the FSI, there are significant risks to terrestrial receptors from metals in soil. Safe ecological PRGs for most receptors are exceeded by the arithmetic mean concentrations of lead. The maximum

concentrations of metals in soils, primarily lead and copper, exceed the lowest safe PRG for the receptors selected at the site. These metal exceedances occurred predominantly within two localized areas.

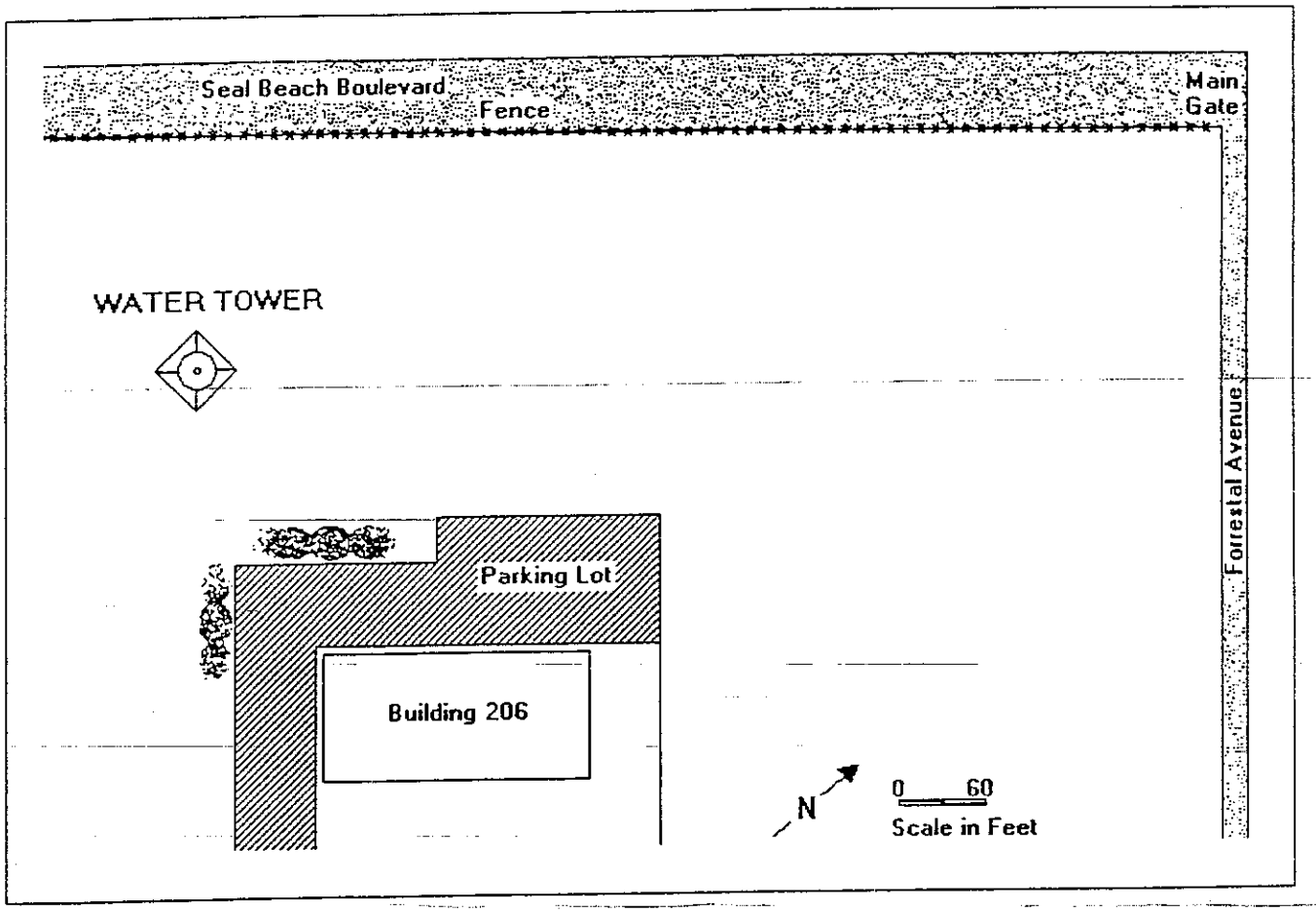
POTENTIAL REMOVAL ACTION ALTERNATIVES FOR SWMU 24

Removal action alternatives being considered for evaluation in the SWMU 24 EE/CA range from no action, partial removal of impacted soil, to complete removal of impacted soil. Soil removal would be followed by disposal. Another possible removal action alternative for this site is consolidation. Under consolidation, the surface area of impacted soil at the site would be reduced by up to a third of the original surface area. Placement of a cover may also be considered.

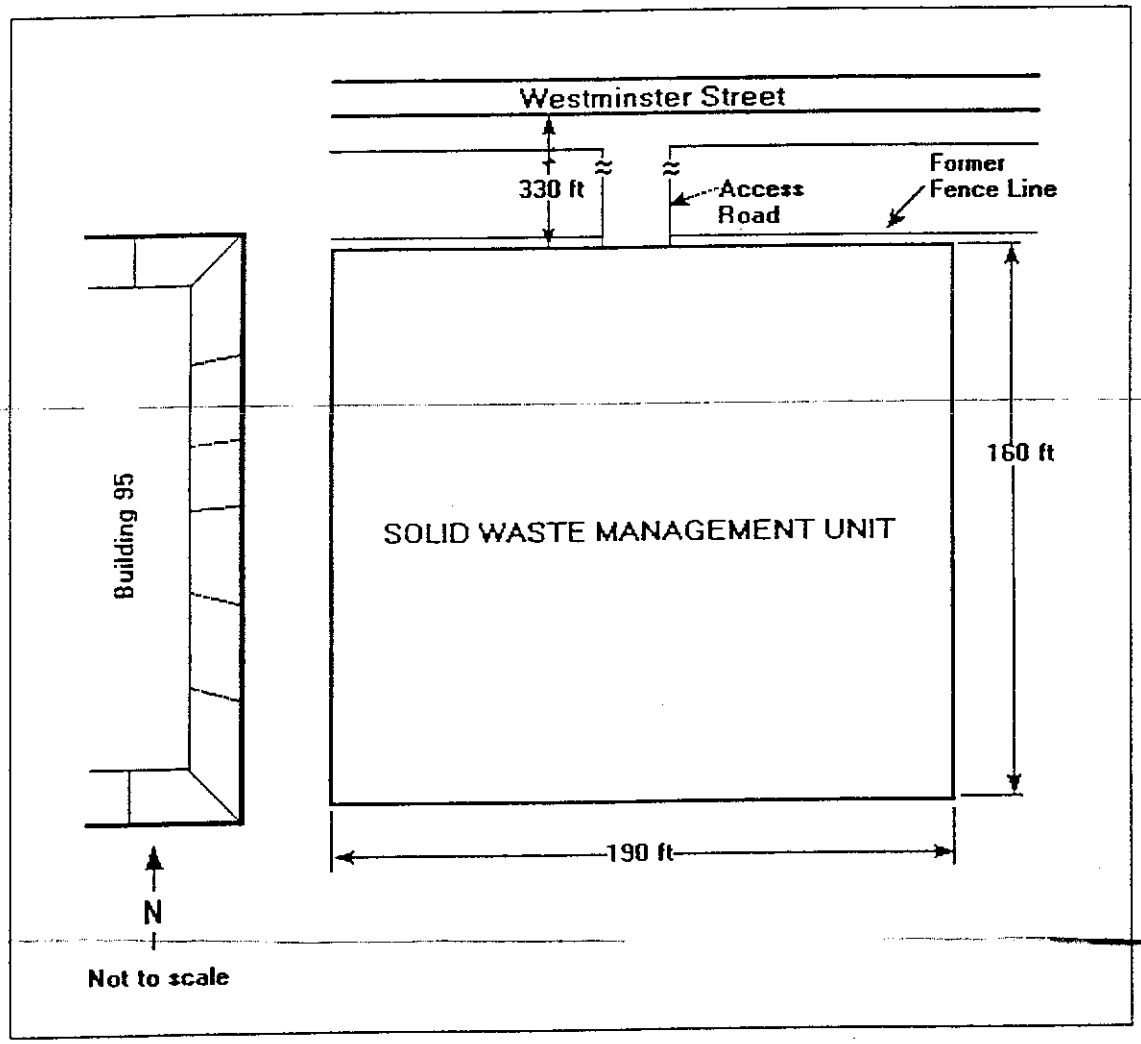
For SWMU 24, the area of impacted soil subject to a removal action could range from approximately 200 square yards to nearly 1,500 square yards, depending on the removal action goals developed during the EE/CA. With the exception of one soil sample collected from 2 to 2.5 feet below ground surface, the majority of lead concentrations significantly above the stationwide ULBV lead concentration was reported in surface soil samples only. Therefore, the depth of the removal area is expected to be approximately 1 foot below ground surface resulting in an estimated soil volume of 70 to 500 cubic yards.



Site Location Map



IR Site 73 Base Map



SWMU 24 Base Map

California Coastal Commission Letter to the Department of the Navy

22 October 2001

STATE OF CALIFORNIA – THE RESOURCES AGENCY GRAY DAVIS, Governor

CALIFORNIA COASTAL COMMISSION
45 FREMONT STREET, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200

October 22, 2001

M.R. Good
Department of the Navy
Southwest Division
Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, CA 92132-5190

Re: ARARs, Seal Beach Naval Weapons Station

Dear Mr. Good:

In response to your letter to our agency of October 15, 2001, we did not respond to the request for ARARs because it limited the request to chemical-specific, location-specific and action specific ARARs. Historically our comments to ARAR requests is to identify our agency's general procedural requirements and focus mostly on the impacts on coastal resources and uses from cleanup activities.

To clarify applicable Coastal Commission authority, please note the provisions of Section 307 of the federal Coastal Zone Management Act (CZMA) (16 U.S.C. Section 1456, with implementing regulations at 15 CFR Part 930). The CZMA requires that activities on federal land, such as Navy cleanup operations at the Seal Beach Naval Weapons Station, that have the potential to affect the coastal zone may trigger the need for a consistency or negative determination, depending on the potential impact of any particular cleanup activity. We do not have specific (i.e., chemical, location and action specific) requirements; rather the Commission's review focuses on coastal effects from the clean-up activities, (e.g. impacts to sensitive habitat from cleanup or associated activities). Procedurally, we ask that you coordinate the cleanup activities with us to determine whether a consistency or negative determination is needed. Substantively, any requirements that cleanup projects would need to be consistent with are those found in Chapter 3 of the Coastal Act (see attachment for most likely applicable policies).

Please note that if a consistency determination needs to be submitted for this activity, it should include a finding as to whether the project is consistent to the maximum extent practicable with the California Coastal Management Program and the necessary information to support that conclusion, including an analysis of the project's consistency with Chapter 3 of the Coastal Act. (See CFR Section 930.39 for a full listing of the information required for a complete consistency

determination.) If you have any questions about the need for or preparation of a consistency or negative determination, please contact James Raives, federal consistency coordinator for the Commission staff, at (415) 904-5289.

Sincerely,

MARK DELAPLAINE
Federal Consistency Supervisor

cc: Long Beach District Office
James Raives

Attachment

Applicable Chapter 3 Policies
California Coastal Act

PUBLIC ACCESS

Section 30210.

In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse

MARINE ENVIRONMENT

Section 30230.

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231.

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams

Section 30232.

Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.

Section 30233.

(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

(3) In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for boating facilities, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities, shall not exceed 25 percent of the degraded wetland.

(4) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

(5) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

(6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(7) Restoration purposes.

(8) Nature study, aquaculture, or similar resource dependent activities.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable long shore current systems.

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division.

For the purposes of this section, "commercial fishing facilities in Bodega Bay" means that not less than 80 percent of all boating facilities proposed to be developed or improved, where such improvement would create additional berths in Bodega Bay, shall be designed and used for commercial fishing activities.

(d) Erosion control and flood control facilities constructed on water courses can impede the movement of sediment and nutrients which would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for such purposes are the method of placement, time of year of placement, and sensitivity of the placement area.

LAND RESOURCES

Section 30240.

(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Section 30251.

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

Orange County Sanitation District Letter to the Department of the Navy

31 October 2001

ORANGE COUNTY SANITATION DISTRICT

October 31, 2001

M. R. Good
Department of the Navy
South West Division
Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, CA 92132-5190

SUBJECT: ARARs Request

In response to your request to identify applicable Orange County Sanitation District's (District) requirements regarding the removal actions at Site 73 and SWMU 24, Seal Beach Naval Weapon Station, Seal Beach, California, we are enclosing our Wastewater Discharge Regulations that outline the District's requirements in case of your need to discharge to the sewerage system. Should discharge to the sewerage system be necessary, the District needs to be notified immediately in order to determine permitting and monitoring requirements and to provide the applicable authorization and permits to discharge.

For your information, in August, 2000 I provided similar information to Katherine Leibel, Remedial Project Manager.

Also, please be advised that the contact for the District is no longer James Colston but the undersigned.

If you have any questions please feel to call me at (714) 593-7435.

Adriana Renescu, P.E.
Engineering Supervisor

AR:hk
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APPENDIX C

SUPPORTING COST INFORMATION

TABLE OF CONTENTS

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ACRONYMS/ABBREVIATIONS

EE/CA	engineering evaluation/cost analysis
O&M	operations and maintenance
OMB	Office of Management and Budgeting
RACER 2001	Remedial Action Cost Engineering and Requirements
UPB	Unit Price Book
U.S. EPA	United States Environmental Protection Agency

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Appendix C
SUPPORTING COST INFORMATION

The cost estimate presented in this Engineering Evaluation/Cost Analysis (EE/CA) was developed using the Remedial Action Cost Engineering and Requirements (RACER 2001) System developed by the United States Environmental Protection Agency (U.S. EPA) and the U.S. Air Force, and cost information from other site assessment and removal/remedial activities conducted at Naval Weapons Station Seal Beach. A description of the RACER cost system is provided below.

C1 DESCRIPTION OF RACER

RACER cost models are based on generic engineering solutions for environmental projects, technologies, and processes. The generic engineering solutions were derived from historical project information, government laboratories, construction management agencies, vendors, contractors, and engineering analysis. RACER 2001 incorporates the most technologically up-to-date engineering practices and procedures to accurately reflect today's removal/remediation processes and pricing. When an estimate is developed in RACER 2001, generic engineering solutions are tailored by adding site-specific parameters to reflect the project-specific conditions and requirements. The tailored plan is then translated into specific quantities of work items, priced using the current cost data. The RACER assembly cost database was developed from the U.S. Army Corps of Engineers *Unit Price Book* (UPB) and supplemented by vendor and contractor quotes. RACER 2001 incorporates and summarizes cost by the code of accounts that was developed by the interagency Cost Estimating Group for Hazardous, Toxic and Radiological Waste Remediation.

The cost estimates have a ±30 percent accuracy and are escalated from January 2001 to the midpoint of the project using escalation rates from the Remediation Cost Escalation Table published by the Office of the Secretary of Defense. Cost estimates prepared for this EE/CA can increase during the design and/or implementation phases as a result of unforeseen conditions or items not reflected in the conceptual plans.

C2 COST-ESTIMATE COMPONENTS

Cost estimates for the removal action alternatives include direct and indirect capital costs and operation and maintenance (O&M) costs, if applicable. Direct capital costs may include detailed design/engineering (removal design), construction, construction materials, revegetation, direct labor, equipment, removal action oversight (removal action professional labor), and maintenance and reporting. Included with the direct cost is an estimate for professional labor support to this removal action. This support is calculated on the basis of the technology being employed and covers the costs associated with construction oversight and preparation of work plans (e.g., Safety and Health, Quality Control). Indirect capital costs may include contractor general conditions, prime and subcontractor overhead and profit, taxes, bonds and insurance, prime contractor home office costs, and overhead associated with professional labor. O&M costs include site inspections, maintenance, auxiliary materials, administration, purchased services,

operating labor, postclosure maintenance, energy costs, environmental monitoring, testing and analysis, and postclosure site inspections.

Total direct and indirect costs for estimated capital and O&M costs are escalated in a Microsoft® Excel spreadsheet cost summary at a rate of 3 percent per year based on January 2001 costs. The escalated costs are shown to present actual future costs based on today's dollar.

Contingency has been added to the total direct and indirect capital costs and escalation has been added at a rate of 20 percent to cover cost increases that may occur as a result of unforeseen conditions or changes.

C3 NET PRESENT WORTH

Present worth analysis is a method of evaluating expenditures that occur over different time periods. The costs for different removal action alternatives can be compared on the basis of a single figure for each alternative by discounting all costs to a common base year. This single figure—the present worth or value of a project—represents the amount of money, which, if invested in the initial year of the removal action and disbursed as needed, would be sufficient to cover all the costs associated with the alternative.

The present value of expenditures occurring over the life of the removal action is determined using

$$PW = \sum_{t=1}^{t=n} \frac{x_t}{(1+i)^t}$$

where

PW = present worth
x_t = expenditures for the removal action in year t
i = net annual discount rate (7 percent discount rate [U.S. EPA 1993] minus 3 percent escalation rate equals net 4 percent discount rate)
t = year in which expenditure occurs following construction
n = number of years following the start of construction (assumed July 2002)

The net present worth is calculated by adding the capital costs to the net present worth of the O&M annual expenditures priced as of July 2002 (including indirect costs and contingencies). Because the alternatives may be completed at different times, the net present worth was calculated for each alternative based on the prime rate (7 percent). Interest was compounded monthly.

The following assumptions were made for calculating present worth:

- inflation or escalation rate – 3 percent per year for the duration of O&M annual expenditures
- discount rate – 7 percent

- net discount rate – 4 percent
- period of performance – (project duration) years including construction

C4 GENERAL ASSUMPTIONS

The following general assumptions were made to develop the cost estimate.

- Installation of capital equipment will be implemented in July 2002, and the capital cost expenditure will be committed by October 2001.
- There are no O&M costs.
- The site is generally accessible. Specialized equipment will be required to complete the work.
- Work plan and safety and health plan preparation, technical oversight during planning, and implementation of work are included in the cost for professional labor. Personal protective equipment Level D was assumed for the professional labor/removal action oversight costs for all alternatives.
- Contingencies are 20 percent of direct capital costs, indirect capital costs, and O&M costs.

C5 REFERENCES

United States Environmental Protection Agency. 1993. Revision to OMB Circular A-94 on Guidelines and Discount Rates for Benefit-Cost Analysis. Office of Solid Waste and Emergency Response (OSWER), Directive No. 9355. 3-20. Washington, DC. 25 June.

U.S. EPA. *See* United States Environmental Protection Agency.

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APPENDIX D

RESPONSES TO COMMENTS

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by:	**James M. Polisini, Ph.D., California Department of Toxic Substances Control, Human and Ecological Risk Division (HERD)**
Dated:	**11 March 2002**
Response by:	**Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.**
Date:	**22 May 2002 – 2nd Revision (Original Responses – 9 April 2002, 1st Revision – 10 April 2002)**

Number	Comment	Response
GENERAL COMMENTS		
	HERD was unable to duplicate some of the ecologically-based proposed Remedial Action Objectives (RAOs). The Specific Comments outline our analysis of these difficulties. The Refined Ecological Risk Assessment for metals is contained in Appendix A in the document submitted for review.	Comment noted. See responses to specific comments below.
SPECIFIC COMMENTS		
1.	*Duplicate samples were averaged to obtain a single value for the sample location (Section A2.1, page A-3) at locations where duplicate samples were taken. Averaging is appropriate if the duplicate sample is a split sample. Averaging may not be appropriate, depending on the aerial distribution of soil concentrations, if the duplicate is a true field duplicate (i.e., a second soil sample in approximately the same location. Please identify whether the values averaged where true split samples or field duplicates.*	The data that were evaluated were reported by CH2MHill (1999). Upon review of the information presented by CH2MHill (1999) it appears that the samples that were described as duplicates were field duplicates. The regular sample value and the field duplicate value were averaged during the data analysis phase by CH2MHill (1999) and the Draft EE/CA (BNI 2001). In response to this comment, the data were subsequently re-analyzed using only the regular sample values and a lead EPC of 169 mg/kg was calculated. This lead EPC is only slightly different than the EPC presented in the Draft EE/CA (170 mg/kg). After reanalysis, there was no change in the copper EPC. Bechtel National, Inc. 2001. Draft Engineering Evaluation/Cost Analysis Non-Time-Critical Removal Action for Solid Waste Management Unit 24, Naval Weapons Station Seal Beach, Seal Beach, California. December. BNI. See Bechtel National, Inc. CH2M Hill. 2000. Draft Focused Site Inspection Phase II Report. Naval Weapons Station Seal Beach, Seal Beach, California. December.

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by:	**James M. Polisini, Ph.D., California Department of Toxic Substances Control, Human and Ecological Risk Division (HERD)**
Dated:	**11 March 2002**
Response by:	**Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.**
Date:	**22 May 2002 – 2nd Revision (Original Responses – 9 April 2002, 1st Revision – 10 April 2002)**

Number	Comment	Response
2.	*The Exposure Dose formula provided in the text does not include incidental soil ingestion (Section A2.2, page A-12). The same comment was recently made for Installation Restoration Site 73. A more detailed formula was forwarded to HERD in response to discussions regarding Site 73. That material is included as Attachment A to this memorandum. Please amend the formula to include incidental soil ingestion.*	The exposure dose formula presented in Section A2.2 will be revised as follows: $$Exposure\ Dose = \sum_{i=1}^{n}\left(\frac{Concentration_{media} * Ingestion\ Rate * Fractional\ Intake * AE * SUF}{Body\ Weight}\right)$$ where Exposure Dose = dose of chemical of potential concern (COPC) from ingestion ($mg_{COPC}/kg_{Body\ Weight}$-day) n = number of ingested media for a wildlife receptor (unitless) Concentration $_{media}$ = concentration of COPC in an ingested medium (soil or food item) ($mg_{COPC}/kg_{food\ item}$ dry weight) Ingestion Rate = ingestion rate of food for an ecological receptor (kg_{food}/day dry weight) Fractional Intake = diet component of ingested medium (soil or food item) (percent of diet) AE = assimilation efficiency, bioavailability (unitless) SUF = site use factor (unitless) Body Weight = body weight for wildlife receptor ($kg_{Body\ Weight}$) For consistency, the PRG and IR_i equations presented in Section A3 will be replaced with the following:

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Number	Comment	Response
		$$PRG = \frac{TRV * BW}{\sum_{k}^{i=1} [UF_i * IR * FI_i * AE_i * SUF]}$$ where PRG = concentration of chemical in soil. Value is expressed as mg/kg_{dw}. TRV = toxicity reference value. A dose expressed as quantity of chemical per body weight per day, $mg_{chemical}/kg_{BW}$-day. BW = body weight of the animal, expressed as kg_{BW}. UF_i = ingested-media-specific uptake factor (soil or food item). Value is expressed as kg_{soil}/kg_{tissue}. UF for soil is 1. IR = receptor specific ingestion rate, expressed as quantity of food (weight) per day, $kg_{food\ dw}$/ day. FI_i = receptor specific fractional intake rate for each medium (including plant and animal food items). Dietary composition. Value has no units. AE_i = chemical specific gastrointestinal absorption efficiency (bioavailability) for each ingested medium (including soil and food items) for each representative species. Value has no units. SUF = site use factor, receptor specific. Value has no units. k = number of ingested media types (i.e., soil, plant, invertebrate, mammal).

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Number	Comment	Response
3.	*The American robin was the ecological receptor which drove the selection of lead in soil for IR Site 73. The American robin is not the most sensitive receptor in the development of Ecological RAOs for SWMU 24. This appears to be mostly due to the Home Range selected. The American robin home range listed (Table A-3, page A-19) is 17.53 hectares based on an average from the literature according to footnote j. The EPA Wildlife Factors Handbook (EPA 1993) lists a range of territory size of 0.12 – 0.84 hectares with a mean of 0.42 hectares for a Tennessee campus. The average foraging home range when feeding fledglings in an Ontario deciduous forest is given as 0.81 hectares. While the habitats differ from the non-native grasses postulated as the most likely habitat after the removal action, the difference between 17.53 hectares and 0.8 hectares is striking. Please provide copies of the literature articles reviewed to develop the 17.53 hectare value for HERD review.*	The mean home range value reported by Weatherhead and McRae (1990) for adults feeding nestling and fledgling young is 0.48 hectares (ha), as cited in the Wildlife Exposure Factor Handbook (U.S. EPA 1993). Additional estimates of American robin home range are presented in "California's Wildlife" (Zeiner et al. 1990) and "The Birds of North America" (Sallabanks and James 1999). The type of habitat can influence home range. Dense foliage presents a greater food resource and therefore a smaller home range is used. Conversely, a sparsely vegetated area such as this site presents less of a food source and a larger home range is needed. The following table presents available home range data for the American robin that were used to estimate a home range value for SWMU 24. After consultation with HERD staff, the robin home range estimate will be revised. The home range value presented by Hirth et al. (1969) and cited in Zeiner et al. (1990), 50 ha, is nearly twice as large as the next home range value. Because of this difference and to provide a conservative estimate of robin home range for SWMU 24, the 50 ha value will not be used to calculate the home range estimate for SWMU 24. Since none of the reported values are for coastal California or for wetland or scrub habitats, the average (11.04 ha) of the remaining five home range values will be used to estimate home range at SWMU 24 NAVWPNSTA Seal Beach. Revising the robin home range estimate results in a modified robin EPRG of 1548 mg/kg.

Home Range (ha)[a]	Habitat Type	Location	Reference
0.15, 0.81 mean 0.48	Deciduous forest	Ontario, Canada	Weatherhead and McRae 1990, as cited in U.S. EPA 1993
2	Ponderosa pine forest	Arizona	Haldeman et al. 1973, as cited in Zeiner et al. 1990
4.4	Riparian	California, central valley	Gaines 1974, as cited in Zeiner et al. 1990
20	Fir-pine-aspen forest	Arizona	Haldeman et al. 1973, as cited in Zeiner et al. 1990

Number	Comment	Response

28.3	Forest	Maine	Knupp et al. 1977, as cited in Sallabanks and James 1999
50	Rural, cropland, orchard	Amherst, Massachusetts	Hirth et al. 1969, as cited in Zeiner et al. 1990

Notes:
a – hectares (ha). 1 ha = 2.47 acre = 10,000 square meters (m^2)

References

Gaines, D. 1974. A new look at the nesting riparian avifauna of the Sacramento Valley, California. West. Birds 5:61-80.

Haldeman, J.R., R.P. Balda, and S.W. Carothers. 1973. Breeding birds of a ponderosa pine forest and a fir, pine, aspen forest in the San Francisco Mountain area, Arizona. In S.W. Carothers, J.R. Haldeman, R.P. Balda, eds. Breeding Birds of the San Francisco Mountain Area and the White Mountains, Arizona. Mus. North. Ariz. Tech. Ser. 12. 54 pp.

Hirth, D.H., A.E. Hester, and F. Greeley. 1969. Dispersal and flocking of marked young robins (*Turdus migratorius*) after fledging. Bird-Banding 40:208-215.

Knupp, D.M., R.B. Owen, Jr., and J.B. Dimond. 1977. Reproductive biology of the American Robin in northern Maine. Auk 94:80-85.

Sallabanks, R. and F. C. James. 1999. American Robin (*Turdus migratorius*). In The Birds of North America, No. 462 (A. Poole and F. Gill, eds.) The Birds of North America, Inc. Philadelphia, PA.

United States Environmental Protection Agency. 1993. *Wildlife Exposure Factors Handbook*. Volume I. EPA/600/R-93/187a. Office of Research and Development, Washington, DC.

U.S. EPA. *See* United States Environmental Protection Agency.

Comments by: James M. Polisini, Ph.D., California Department of Toxic Substances Control, Human and Ecological Risk Division (HERD)
Dated: 11 March 2002
Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.
Date: 22 May 2002 – 2nd Revision (Original Responses – 9 April 2002, 1st Revision – 10 April 2002)

Number	Comment	Response
		Weatherhead, P.J. and S. B. McRae. 1990. Brood care in American robins: implications for mixed reproductive strategies by females. Animal Behavior 39: 1179-1188. Zeiner, D.C., W.F. Laudenslayer, K.E. Mayer, and M. White (eds.). 1990. California's Wildlife, Volume II: Birds. State of California, Department of Fish and Game. Sacramento, California.
4.	*The other wildlife exposure factors (Table A2-3, page A-19) were checked at random and found to agree with the references cited.*	Comment noted.
5.	*In the absence of determination of the form of lead present in soil at SWMU 24, HERD agrees to the use of a bioavailability factor of 0.25 for lead in soil. Bioavailability of lead in tissue should be completely available as presented in Attachment A for IR Site 73. This agreement is specific to SWMU 24 given the fact that the lead in soil most probably passes through the SDFF and the distance of SWMU from the National Wildlife Refuge (NWR). HERD may request determination of the form of lead in soil for other sites closer to the NWR. Proposed methods for evaluating the form of lead are contained in HERD EcoNOTE 4 which is available on the DTSC web page.*	Comment noted. As the lead state agency, DTSC will be provided the opportunity to review other IRP documents where lead contamination in soil may be a potential threat to human health or the environment.

RESPONSES TO COMMENTS*
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6.	*The lead uptake factor of 0.0093 from soil to plants was checked and is the average uptake factor developed for Sites 1 and 7 (Appendix A, Section A2.2, page A-21). This is a site-specific value developed for NWS Seal Beach.*	Comment noted.
7.	*The discussion of the toxicity of antimony (Section A2.3.2, page A-23) presents a Lowest Observable Adverse Effect Level (LOAEL) discussing the toxic effects on mice exposed to cupric sulfate. This is most probably a typographic error. Please check and verify the arithmetic value of the TRV and correct the typographic error.*	The arithmetic value for the antimony TRV is valid. The associated text will be modified to: "LOAEL based on 4-year study of survival effects for rats exposed to antimony (Schroeder et al. 1970)."
8.	*Please indicate the units for the columns presented in Table A-8 (page A-28).*	Units will be included for applicable columns. The five Dose columns are in units of mg/kg-day. The HQ columns are unitless.
9.	*The current plant community is described as ruderal habitat with little vegetation (Section A3, page A-30). HERD does not agree that plants will not be a significant component of any future biological community. Non-native grasses are not necessarily 'poor quality' habitat. Continuation of the management practice of mowing any non-native grasses would not be protective of the plants themselves, but would be required to break exposure pathways to higher herbivorous trophic levels. The Navy might consider habitat improvement of this site as part of the removal action. Habitat improvement might be as simple*	The second sentence of the fourth paragraph will be deleted. The Navy will consider the reviewers recommendation for habitat improvement as part of future land use planning, which is outside the scope of the Navy's IRP. NAVWPNSTA Seal Beach is not slated for closure or changes in land use, should the land use change, the Navy will use the Base Master Plan to track and control the changes and determine the need for reassessment of human-health and/or ecological risk. In addition, the National Environmental Policy Act (NEPA) review process is in place to determine the adequacy of a site to be used for any purpose other than its current use. Should the planned usage of SWMU 24 change in the future, analysis and documentation of historical land use and cleanup activities will be conducted in accordance with the NEPA provisions.

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	as removing the gravel and sowing native grass seeds. Several sources of native grass seed are available in California. Some internet links include www.sssseeds.com *and* www.wildflower-seed.com.	
10.	*HERD does not agree that a soil lead concentration of 2,458 mg/kg is considered a 'minimum value that is protective of wildlife' (Section A3, page A-31). Nor would HERD agree that a cleanup goal protective of wildlife may range as high as 113,200 mg/kg lead in soil. Even elemental lead exposed to the weathering will be converted to other forms of lead which are more highly bioavailable and any form of lead can serve as a source for further release. This comment is provided to clarify HERD's opinion on high concentrations of lead in soil. No response is required.*	Comment noted.
11.	*Given the non-native grasses and grave description, lack of quality habitat at this site, lack of rare, threatened or endangered (RTE) species and distance from the National Wildlife Refuge (NWR), HERD will accept the 25 percent bioavailability proposed (Maddaloni, et al. 1998) based on human ingestion when fasting (Appendix A, Section A2.2, page A021). For sites with sufficient ecological habitat to be used by a range of species or sites within reasonable distance of*	Comment noted. As the lead state agency, DTSC will be provided the opportunity to review other IRP documents where lead contamination in soil may be a potential threat to human health or the environment.

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	the NWR, HERD would recommend an evaluation of the form and/or site-specific bioavailability of the soil lead as suggested (Section A2.2, page A-21).	
12.	*The copy of the Validation Study (CH2MHILL, 1999) for Sites 1 and 7 was checked and the average of the invertebrate lead uptake factor for these sites is arithmetically correct. Using the highest invertebrate lead uptake factor (0.93 mg/kg /79.9 mg/kg or 0.01164) would decrease the EPRG by approximately 25 percent making the EPRG SWMU EPRG 375 mg/kg, approximately equal to the 317 mg/kg proposed for the American robin at IR Site 73. HERD requires further information regarding the home range for the American robin prior to final review.*	As noted, a soil-invertebrate uptake factor of 0.01164 is 25 percent larger than the uptake factor of 0.0093 used in the Draft EE/CA. Using the larger soil-invertebrate uptake factor would only result in a 6 percent reduction in the American robin EPRG, because the exposure dose from incidental soil ingestion is larger than the exposure dose from food ingestion. The 0.0093 uptake factor used in the Validation Study will be retained for the SWMU 24 EE/CA. None of these variations produce an EPRG of 375 mg/kg. It is important to note that the recommended cleanup goal for SWMU 24 is 500 mg/kg based on soil invertebrates as a representative ecological receptor. EPRG for wildlife, such as the robin, are higher than the EPRG for soil invertebrates. The only factor that is different for the EPRG calculations between the SWMU 24 and IR Site 73 is the size of the site. SWMU 24 is 0.2824 ha and IR Site 73 is 2.19 ha. The SWMU 24 area is 12.895 percent of the IR Site 73 area. The cleanup goal of 500 mg/kg for soil-lead will be retained for SWMU 24.
CONCLUSIONS		
	Additional information is required to fully evaluate the proposed Ecological Preliminary Remediation Goal (EPRG) of 500 mg/kg lead for the site.	See response to specific comments above.

RESPONSES TO COMMENTS*
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Dated:	**11 March 2002**
Response by:	**Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.**
Date:	**22 May 2002 – 2nd Revision (Original Responses – 9 April 2002, 1st Revision – 10 April 2002)**

Number	Comment	Response
	HERD is willing to consider an Ecological PRG (EPRG) above the EPRG of 317 mg/kg for the American robin at IR Site 73 for SWMU 24. However, this is based on the small size of SWMU 24 and the lack of quality habitat, the lack of RTE species and the fact that the Site 1 and Site 7 habitat, where the uptake factors were developed, is reasonably similar to projected future habitat.	See response to specific comments above.
	The Navy might consider habitat enhancement during the removal action. This might be as minimal as removing the gravel and sowing the seeds of native plant species. This comment is offered as part of the DTSC obligation as a designated California co-trustee for natural resources.	See response to Comment 9.

REFERENCES

CH2MHill, 1999. Phase II Ecological Risk Assessment Sampling Results and Reevaluation of Ecological Chemicals of Concern and Ecological Cleanup Levels for Sites 1 and 7, at WPNSTA Seal Beach.

Maddaloni, M. N. Lolacono, W. Manton, C. Blum, J. Drexler and J. Graziano. 1998. Bioavailability of soilborne lead in adults by stable isotope dilution. Environmental Health Perspectives 106;1589-1594.

Note:
* These responses may identify proposed changes to the subject document text, tables and/or figures. The changes, as presented herein, have not undergone formal technical editing. The specific wording that appears in the next release of the document may differ slightly from that presented in these responses to comments, since the proposed changes will be technically edited as part of the overall document revision process. The edited version of the document will be reviewed by BNI to ensure that there are no substantive differences that would warrant further Navy and/or agency review and concurrence.

Attachment A - Electronic message from Brown and Caldwell risk assessor outlining calculation of EPRG for American Robin at NWS Seal Beach for Site 73.

Date: 9 January 2002
To: Jim Polisini, DTSC
From: Tom McDonnell, Brown and Caldwell
Subject: NAVWPNSTA Seal Beach, IR Site 73, Soil-Lead PRG for American Robin

$$PRG = \frac{TRV * BW}{\sum (UF_i * IR * FI_i * AE_i * SUF)}$$

The soil-lead PRG for the American robin is based on the following values, which include exposures via soil ingestion and invertebrate ingestion. The subscript "i" indicates dose source-specific factors.

TRV = 0.19 mg_{lead}/kg_{bw}–day (Section A2.3)
BW = 0.081 kg_{bw} (Table A2-3)
IR = 0.011333 kg_{food}/day (ingestion rate from Nagy 1987 allometric equation for "all birds")
SUF = 12.5 percent site use factor (Table A2-3)

UF_{soil} = 1 kg_{soil}/kg_{soil} (included for completeness, primary use is for modeling other media values based on soil values)
FI_{soil} = 10 percent soil ingestion (Table A2-3)
AE_{soil} = 25 percent gastrointestinal absorption factor for soil-lead (Section A2.2)

UF_{invert} = 0.0093 kg_{soil}/kg_{invert} (Section A2.2)
FI_{invert} = 100 percent of diet is invertebrates (Table A2-3)
AE_{invert} = 100 percent gastrointestinal absorption factor for lead in food items

$$PRG = \frac{0.19 \frac{mg_{lead}}{kg_{bw} - day} * 0.081\, kg_{bw}}{\sum \left(\left(1 \frac{kg_{soil}}{kg_{soil}} * 0.011333 \frac{kg_{food}}{day} * 10\% \frac{kg_{soil}}{kg_{food}} * 25\% * 12.5\% \right) + \left(0.0093 \frac{kg_{soil}}{kg_{invert}} * 0.011333 \frac{kg_{food}}{day} * 100\% \frac{kg_{invert}}{kg_{food}} * 100\% * 12.5\% \right) \right)} = 317 \frac{mg_{lead}}{kg_{soil}}$$

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Comments by: Marie T. McCrink, RG, CH, California Department of Toxic Substances Control, Geologic Services Unit (GSU)
Dated: 13 February 2002
Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.
Date: 9 April 2002

Number	Comment	Response
PROJECT SUMMARY		
	The objective of this EE/CA is to summarize the site characteristics, identify removal action objectives, describe the selected removal action alternatives, analyze the alternatives, and describe the recommended removal action alternative for soils at the former stationary demilitarization furnace (SDFF) located within SWMU 24. *The former SDFF was used primarily from 1985 to 1994 for the removal of explosive residue from expended munitions. Lead and copper were the most frequently detected metals in soil at SWMU 24. They were reported in 28 percent and 20 percent of the soil samples, respectively, at levels greater than the upper limit background values. The locations with the highest concentrations of other metals generally correspond to the locations of the highest concentrations of lead. The vertical extent of soil contamination appears to be limited to the shallow subsurface. Groundwater occurs at about 21 feet below ground surface (bgs) and is not impacted. Therefore, this removal action focuses on soil.* *Ecological risk is the primary concern at SWMU 24 and is driven by the concentration of lead. Based on the refined ecological risk assessment, the recommended cleanup goal for lead in soil is 500 mg/kg. Copper does not appear to pose a risk to ecological receptors, and will be remediated anyway by the recommended removal action for lead contaminated soils. The lateral extent of lead greater than*	During the removal action, the lateral extent of the excavation will first be based on the known extent of lead contamination. Confirmation samples will verify that soil containing lead at concentrations above the recommended cleanup goal has been removed. Otherwise, additional soil removal and confirmation sampling will be performed.

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Dated: 13 February 2002
Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.
Date: 9 April 2002

Number	Comment	Response
	the recommended cleanup goal does not appear sufficiently delineated in the northwest hot spot at the 0.5 to 1.0 feet bgs interval. However, the vertical extent of lead greater than the recommended cleanup goal appears to have been sufficiently defined.	
COMMENTS AND RECOMMENDATIONS		
1.	*Section 2.4.1 – Presentation of the Analytical Data. It is stated in the text that subsurface samples were collected from 2.0 to 2.5 feet bgs and from 4.0 to 4.5 feet bgs. This data is displayed graphically on Figures 2-5 and 2-6.* *The GSU recommends the text specify how many analyses for lead were conducted at each depth interval. In viewing Figure 2-6, we are uncertain if samples for lead were collected at all locations posted on Figure 2-6 from the 4.0 to 4.5 interval. If analysis for lead was not conducted at all deeper locations, the vertical extent of lead greater than the recommended cleanup goal may not have been defined.*	For most compounds, the available data includes 95 values: 45 from surface soil samples at 0.5 to 1.0 feet below ground surface (bgs), 43 from subsurface soil samples at 2.0 to 2.5 feet bgs, and 7 from subsurface soil samples at 4.0 to 4.5 feet bgs. For lead, the available data includes 104 values: 50 from surface soil samples at 0.5 to 1.0 feet bgs (shown on Figure 2-5), 47 from subsurface soil samples at 2.0 to 2.5 feet bgs (shown on Figure 2-6), and 7 from subsurface soil samples at 4.0 to 4.5 feet bgs (shown on Figure 2-6; lead concentrations are in parentheses). Field duplicate data are not included in this count. The vertical extent of lead greater than the recommended cleanup goal has been essentially defined. With the exception of sample location 28 (lead concentration reported at 680 mg/kg), none of the results for sample locations at 2.0 to 2.5 feet bgs exceeded the recommended cleanup goal of 500 mg/kg. In addition, of the few samples collected from 4.0 to 4.5 feet bgs, none of the lead results exceeded the recommended cleanup goal. During the removal action, it is anticipated that soil in the vicinity of sample location 28 will be excavated to approximately 3 feet. Confirmation samples will verify that soil containing lead at concentrations above the recommended cleanup goal has been removed. Otherwise, additional soil removal and confirmation sampling will be performed.

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Comments by: Marie T. McCrink, RG, CH, California Department of Toxic Substances Control, Geologic Services Unit (GSU)
Dated: 13 February 2002
Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.
Date: 9 April 2002

Number	Comment	Response
2.	*Section 3.5 – Removal Action Objectives. It is stated in the text that based on the refined ecological risk assessment, the recommended cleanup goal for lead in soil is 500 mg/kg.* *The GSU concurs with the recommended cleanup goal.*	Comment noted.
3.	*Section 7 – Recommended Removal Action Alternative. Based on the comparative analyses of the removal action alternatives, the recommended removal action is Alternative 2. This involves a complete removal of soil with lead concentrations above the proposed cleanup goal.*	Comment noted.
	The GSU concurs with the recommended removal action alternative, and the proposed plan to verify with confirmation sampling that all soil with reported lead concentrations above the cleanup goal have been removed. We recommend approval of the subject document and moving forward with the final EE/CA.	Comment noted.

Note:
* These responses may identify proposed changes to the subject document text, tables and/or figures. The changes, as presented herein, have not undergone formal technical editing. The specific wording that appears in the next release of the document may differ slightly from that presented in these responses to comments, since the proposed changes will be technically edited as part of the overall document revision process. The edited version of the document will be reviewed by BNI to ensure that there are no substantive differences that would warrant further Navy and/or agency review and concurrence.

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Comments by: Tizita Bekele, P.E., California Department of Toxic Substances Control, Engineering Services Unit (ESU)
Dated: 25 February 2002
Response by: Bob Schilling and June Wheaton, Bechtel National, Inc.
Date: 9 April 2002

Number	Comment	Response
GENERAL COMMENT		
	There were samples collected by Foster Wheeler Environmental Corp. at the site after demolition of the facility that showed lead concentrations of up to 1200 mg/kg. However, neither the results nor the locations of these samples are included in the subject document. The proposed removal action appears to be based only on data collected by CH2M Hill during the Focused Site Inspection Phase II. *Please provide the results of the investigation by Foster Wheeler along with a figure showing the sample locations to evaluate if the area with elevated levels of lead are incorporated within the targeted excavation area.*	Although the sampling performed by Foster Wheeler Environmental Corp. following decommissioning of the stationary demilitarization furnace facility provided the basis for further characterization during the Focused Site Inspection Phase II conducted by CH2M Hill, the data was not suitable for use in site characterization or risk assessment for the following reasons: • the quality of the data was unknown; • no third party data validation was performed; and • the samples were collected from random locations within approximately 40- by 48-foot grids and the sample locations were not surveyed. Therefore, it cannot be determined precisely where those lead concentrations are from and where they are in relation to the results from the sampling conducted by CH2M Hill.

Note:
* These responses may identify proposed changes to the subject document text, tables and/or figures. The changes, as presented herein, have not undergone formal technical editing. The specific wording that appears in the next release of the document may differ slightly from that presented in these responses to comments, since the proposed changes will be technically edited as part of the overall document revision process. The edited version of the document will be reviewed by BNI to ensure that there are no substantive differences that would warrant further Navy and/or agency review and concurrence.

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: Patricia Hannon, California Regional Water Quality Control Board
Dated: 19 February 2002
Response by: Bob Schilling and June Wheaton, Bechtel National, Inc.
Date: 9 April 2002

Number	Comment	Response
1.	*We have completed our review of the above-referenced document, dated December 2001, which we received on December 24, 2001. This document "identifies removal action alternatives to reduce the risk to ecological receptors for lead in soil at SWMU 24." The two alternatives are no action and soil excavation with offsite disposal. The Navy recommends the selection of Alternative 2, soil excavation with offsite disposal.* *Based on the information in this document, we do not have any comments.*	Comment noted.

Note:
* These responses may identify proposed changes to the subject document text, tables and/or figures. The changes, as presented herein, have not undergone formal technical editing. The specific wording that appears in the next release of the document may differ slightly from that presented in these responses to comments, since the proposed changes will be technically edited as part of the overall document revision process. The edited version of the document will be reviewed by BNI to ensure that there are no substantive differences that would warrant further Navy and/or agency review and concurrence.

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: Joseph E. Porter III, City of Seal Beach
Dated: 30 January 2002
Response by: Bob Schilling and June Wheaton, Bechtel National, Inc.
Date: 9 April 2002

Number	Comment	Response
	The City of Seal Beach has reviewed Draft Engineering Evaluation/Cost Analysis, Non-Time Critical Removal Action for Solid Waste Management Unit 24, Seal Beach, December, 2001. The City agrees fully with the recommended alternative, Alternative 2. Cleaning the site through excavation and off site disposal will help remedy any contamination left from the disposal unit. The City would like to thank the Navy for allowing the City to comment on this matter.	Comment noted.

Note:
* These responses may identify proposed changes to the subject document text, tables and/or figures. The changes, as presented herein, have not undergone formal technical editing. The specific wording that appears in the next release of the document may differ slightly from that presented in these responses to comments, since the proposed changes will be technically edited as part of the overall document revision process. The edited version of the document will be reviewed by BNI to ensure that there are no substantive differences that would warrant further Navy and/or agency review and concurrence.

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: Charlie Huang, Ph.D., California Department of Fish and Game Office of Spill Prevention and Response
Dated: 22 February 2002 (and additional comments dated 23 April 2002)
Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.
Date: 4 June 2002 – 1st Revision (Original Responses – 9 April 2002)

Number	Comment	Response
COMMENTS		
1.	*DFG-OSPR appreciates this opportunity to provide guidance on the planned cleanup at NAVWPNSTA Seal Beach. This memo will serve to inform the Navy of our continuing interest in coordinating any natural resource issues, as one of the designated State natural resource trustees. This may be necessary should release(s) of any hazardous materials at the subject site affect State natural resources.*	Comment noted.
2.	***Page A-21, Section A2.3:*** *The text incorrectly states that the high TRVs are based on lowest-observable-adverse-effect levels. High TRVs were derived based on the mid-range of ecologically relevant effect levels observed for each receptor exposed to a series of doses. We suggest that the statement be changed to: The low TRV represents the no-adverse-effect- level, below which adverse ecological impacts are not expected to occur. In contrast, the high TRV represents the approximate mid-point of observed adverse effect levels, and as such, represents a level at which ecologically significant adverse effects are likely to occur.*	The third sentences of the second paragraph of Section A2.3 of Appendix A will be revised to read as follows: "The High-TRV, based on an approximate midpoint of the range of effects levels, represents a threshold above which adverse effects are likely to occur."
3.	***Page A-24, Section A2.3.3:*** *We do not agree with the approach of using an additional TRV 0.19 mg/kg-day to derive higher preliminary remediation goals (PRGs) for lead at SWMU 24. PRGs should be derived from the DON/BTAG lead TRV 0.014 mg/kg-day. The DON/BTAG low-TRV was developed in a consensus process that involved the Navy, and should be thought of as a standard. This does not mean that the TRVs can not be changed with new data, but rather, that until new data are presented and*	PRG values were prepared based on the Navy/BTAG Low TRV and High TRV. In addition, a recommended TRV was presented for calculation of a recommended cleanup goal. Navy/BTAG TRV values were prepared for the purpose of characterizing the relative potential ecological risk at a site, not for setting cleanup goals. The recommended TRV is presented in light of the site characterization, ecological setting, and receptor use of the site. The exposure evaluation for the American robin includes a bioavailability factor that estimates the gastro-intestinal availability of ingested chemical compounds.

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: Charlie Huang, Ph.D., California Department of Fish and Game Office of Spill Prevention and Response
Dated: 22 February 2002 (and additional comments dated 23 April 2002)
Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.
Date: 4 June 2002 – 1st Revision (Original Responses – 9 April 2002)

Number	Comment	Response
	evaluated in consensus process, the original TRVs should be used. We strongly recommended that exposure factors for the American Robin be re-evaluated. The exposure factors (concentrations) should be based on the bioavailability of the lead form present in soils at SWMU 24 relative to the lead form used in laboratory studies that were used to develop DON/BTAG low-TRVs. This re-evaluation should include the relative absorption of the different types of lead, and the estimation of an ingested dose. The bioavailability of lead is briefly described in Econote 4 at http://www.dtsc.ca.gov/ScienceTechnology/ftp/econote4.pdf. *Considering these variables, the Navy may be able to derive a toxicologically more realistic intake value for lead at SWMU 24.*	The bioavailability factor is presented as a relative factor compared to the bioavailability present under laboratory conditions that existed when the reference study was conducted. For the Draft EE/CA Report, bioavailability was estimated based on pertinent available literature. The estimate of bioavailability would likely be improved by additional analysis of soil samples for specific chemical forms. However, no site-specific data is available for specific chemical forms present in SWMU 24 soils and the additional cost of collecting more soil samples to speciate the lead is not justified due to the small volume of soil affected by the removal action. Therefore, the literature based estimated was used.
4.	***Page A-27, Tables A-8 and A-9:*** *After requesting a more detailed summary of the calculation for PRGs (Attachment A), we were able to confirm the 2,458 mg/kg PRG for the American Robin. The PRG for the American Robin calculation was checked and found to be arithmetically correct. The text should be modified to include the equation in Attachment A.*	Tables A-3 and A-8 will be revised for consistency with this equation. Also, for consistency, the PRG and IR_i equations presented in Section A3 will be replaced with the following: $$PRG = \frac{TRV * BW}{\sum_{k}^{i=1} [UF_i * IR * FI_i * AE_i * SUF]}$$ where PRG = concentration of chemical in soil. Value is expressed as mg/kg_{dw}. TRV = toxicity reference value. A dose expressed as quantity of chemical per body weight per day, $mg_{chemical}/kg_{BW}$-day. BW = body weight of the animal, expressed as kg_{BW}.

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by:	**Charlie Huang, Ph.D., California Department of Fish and Game Office of Spill Prevention and Response**
Dated:	**22 February 2002 (and additional comments dated 23 April 2002)**
Response by:	**Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.**
Date:	**4 June 2002 – 1st Revision (Original Responses – 9 April 2002)**

Number	Comment	Response
		UF_i = ingested-media-specific uptake factor (soil or food item). Value is expressed as kg_{soil}/kg_{tissue}. UF for soil is 1. IR = receptor specific ingestion rate, expressed as quantity of food (weight) per day, $kg_{food\ dw}$/ day. FI_i = receptor specific fractional intake rate for each medium (including plant and animal food items). Dietary composition. Value has no units. AE_i = chemical specific gastrointestinal absorption efficiency (bioavailability) for each ingested medium (including soil and food items) for each representative species. Value has no units. SUF = site use factor, receptor specific. Value has no units. k = number of ingested media types (i.e., soil, plant, invertebrate, mammal).
CONCLUSIONS		
	We concur with the Navy-recommended removal action, Alternative 2. However, regarding PRG derivation, it is recommended that the Navy prepare a revised EE/CA document that addresses DFG-OSPR comments in this memo.	See responses to comments above.

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by:	**Charlie Huang, Ph.D., California Department of Fish and Game Office of Spill Prevention and Response**
Dated:	**22 February 2002 (and additional comments dated 23 April 2002)**
Response by:	**Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.**
Date:	**4 June 2002 – 1st Revision (Original Responses – 9 April 2002)**

Number	Comment	Response
ADDITIONAL COMMENTS (dated 23 April 2002)		
	[With respect to Comment No. 3] I reiterated the following reasons to disagree with the approach of using an alternative TRV of 0.19 mg/kg-day to derive higher preliminary remediation goals (PRGs) for lead at SWMU 24 in the Navy's response to comment. *I agree with the Navy that Navy/BTAG TRVs were prepared for the purpose of characterizing the relative potential ecological risk at a site, not for setting cleanup goals. However, I continue to feel that once TRVs are exceeded, information from the literature on toxicity and life history characteristics of the site receptors should be gathered to better estimate the exposure on the site. The focus should then be on what is happening at the site. The Navy wants to use alternate TRV because Navy/BTAG lead TRV appears too low. What will the Navy propose when the exposure dose is above the TRV (i.e., HQ>1). I am afraid that with the approach that the Navy is taking at SWMU 24, instead of getting a better estimate of the site specific exposure, efforts to change the lead TRV or to use alternate TRV will continue forever and ever at other sites and other bases.* *I understand that the Navy needs to meet the deadline for the cleanup of SWMU 24. We wish to work cooperatively with the Navy to survey, assess, and restore any injured releases of hazardous materials on SWMU 24, so that I proposed two solutions:*	Since the purpose of the Navy/BTAG TRVs is for site characterization, the Navy has proposed a TRV upon which site cleanup goals may be based. When the screening-level HQ values exceed 1, further evaluation may be implemented for the exposure assessment, effects assessment, or cleanup strategy. The best option for SWMU 24 is to direct further evaluation toward a cleanup strategy because the site has been well characterized, the site is small, the Navy desires to expedite site closure, and further evaluation of site-specific exposure assessment or site-specific effects assessment would require a lengthy process of investigation. A re-evaluation of the exposure assessment indicates that revising the estimate would require lengthy supplemental field investigations of site-specific receptor exposure factors. The bioavailability of the lead forms present in the site soil was estimated for the exposure assessment. A quick method, such as the WET test, would not provide sufficient data to revise the bioavailability estimate; but would indicate if such an estimate were warranted (the probable condition). These methods are most beneficial at the screening-level / site characterization phase. The Navy agrees that similarity exists between site conditions for IR Site 73 and SWMU 24. The sites are of generally similar habitat and are of similar distance to the National Wildlife Refuge. The most significant difference between the two sites is their areas: IR Site 73 is 2.19 ha and SWMU 24 is 0.2824 ha. The only reason for a difference between the ecological PRGs for these sites is that SWMU 24 represents only 12.895 percent of the area of IR Site 73. As discussed in the response to DTSC-HERD Comment 12, it is important to note that the recommended cleanup goal for SWMU 24 is 500 mg/kg based on soil invertebrates as a representative ecological receptor. EPRG for wildlife, such as the robin, are higher than the EPRG for soil invertebrates. The cleanup goal of 500 mg/kg for soil-lead will be retained for SWMU 24, as agreed to by DTSC.

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by:	**Charlie Huang, Ph.D., California Department of Fish and Game Office of Spill Prevention and Response**
Dated:	**22 February 2002 (and additional comments dated 23 April 2002)**
Response by:	**Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.**
Date:	**4 June 2002 – 1st Revision (Original Responses – 9 April 2002)**

Number	Comment	Response
	1. *I recommend that exposure factors for the American Robin be re-evaluated using lead TRV 0.014 mg/kg-day. Before the DON/BTAG TRVs can be changed with new data, the original TRVs should be used consistently statewide. Based on this TRV, back-calculated lead PRG for the American robin is 181 mg/kg. But if the exposure factors (concentrations) are incorporated with the bioavailability of the lead form present in soils, the Navy can re-evaluate the exposure from the relative absorption of the different types of lead and the estimation of an ingested dose.* *The toxicity experiments for the DON/BTAG avian low TRV used lead acetate in dosing the Japanese quail. Lead acetate solubility is relatively high compared to other forms of lead. The form of lead in SWMU 24 soils is certainly not all lead acetate. The absorption of inorganic lead would be lower than the absorption of lead acetate used in the critical toxicity study and could be used to "adjust" the avian dose from an administered dose to an absorbed dose. A "modified" Waste Extraction Test (WET) using deionized water should be performed on at least five soil samples from SWMU 24. The concentration of lead in the overlaying water should be measured at end of the WET test. The lead concentration in the overlaying water will serve as supporting evidence that the form of lead in the SWMU 24 soils is not lead acetate. The concentration of lead in the WET test liquid is not to be used as a direct measure of bioavailability, but only to verify that the*	

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by:	**Charlie Huang, Ph.D., California Department of Fish and Game Office of Spill Prevention and Response**
Dated:	**22 February 2002 (and additional comments dated 23 April 2002)**
Response by:	**Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.**
Date:	**4 June 2002 – 1st Revision (Original Responses – 9 April 2002)**

Number	Comment	Response
	form of lead in SWMU 24 soils is less soluble that lead acetate. 2. *In order to keep the removal action moving, I am willing to consider a lead ecological PRG of 317 mg/kg for SWMU24. This is based on SWMU 24 being close to IR Site 73 and I already agree on 317 mg/kg as the ecological cleanup goal at IR Site 73. This is a site-specific cleanup goal and should not be applied to other sites.*	

Note:
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ATTACHMENT A

Date: 31 January 2002
To: Charlie Huang, DFG
From: Tom McDonnell, Brown and Caldwell
Subject: NAVWPNSTA Seal Beach, SWMU 24, Soil-Lead PRG for American Robin

$$PRG = \frac{TRV * BW}{\sum (UF_i * IR * FI_i * AE_i * SUF)}$$

The soil-lead PRG for the American robin is based on the following values, which include exposures via soil ingestion and invertebrate ingestion. The subscript "i" indicates dose source-specific factors.

TRV = 0.19 mg_{lead}/kg_{bw}–day (Section A2.3.3)
BW = 0.081 kg_{bw} (Table A-3)
IR = 0.011333 kg_{food}/day (ingestion rate from Nagy 1987 allometric equation for "all birds")
SUF = 1.611 percent site use factor (Table A-3)

UF_{soil} = 1 kg_{soil}/kg_{soil} (included for completeness, primary use is for modeling other media values based on soil values)
FI_{soil} = 10 percent soil ingestion (Table A-3)
AE_{soil} = 25 percent gastrointestinal absorption factor for soil-lead (Section A2.2)

UF_{invert} = 0.0093 kg_{soil}/kg_{invert} (Table A-4)
FI_{invert} = 100 percent of diet is invertebrates (Table A-3)
AE_{invert} = 100 percent gastrointestinal absorption factor for lead in food items

$$PRG = \frac{0.19 \frac{mg_{lead}}{kg_{bw} - day} * 0.081\, kg_{bw}}{\sum \left(\left(1 \frac{kg_{soil}}{kg_{soil}} * 0.011333 \frac{kg_{food}}{day} * 10\% \frac{kg_{soil}}{kg_{food}} * 25\% * 1.611\% \right) + \left(0.0093 \frac{kg_{soil}}{kg_{invert}} * 0.011333 \frac{kg_{food}}{day} * 100\% \frac{kg_{invert}}{kg_{food}} * 100\% * 1.611\% \right) \right)} = 2458 \frac{mg_{lead}}{kg_{soil}}$$

ATTACHMENT C

FIGURES AND TABLES

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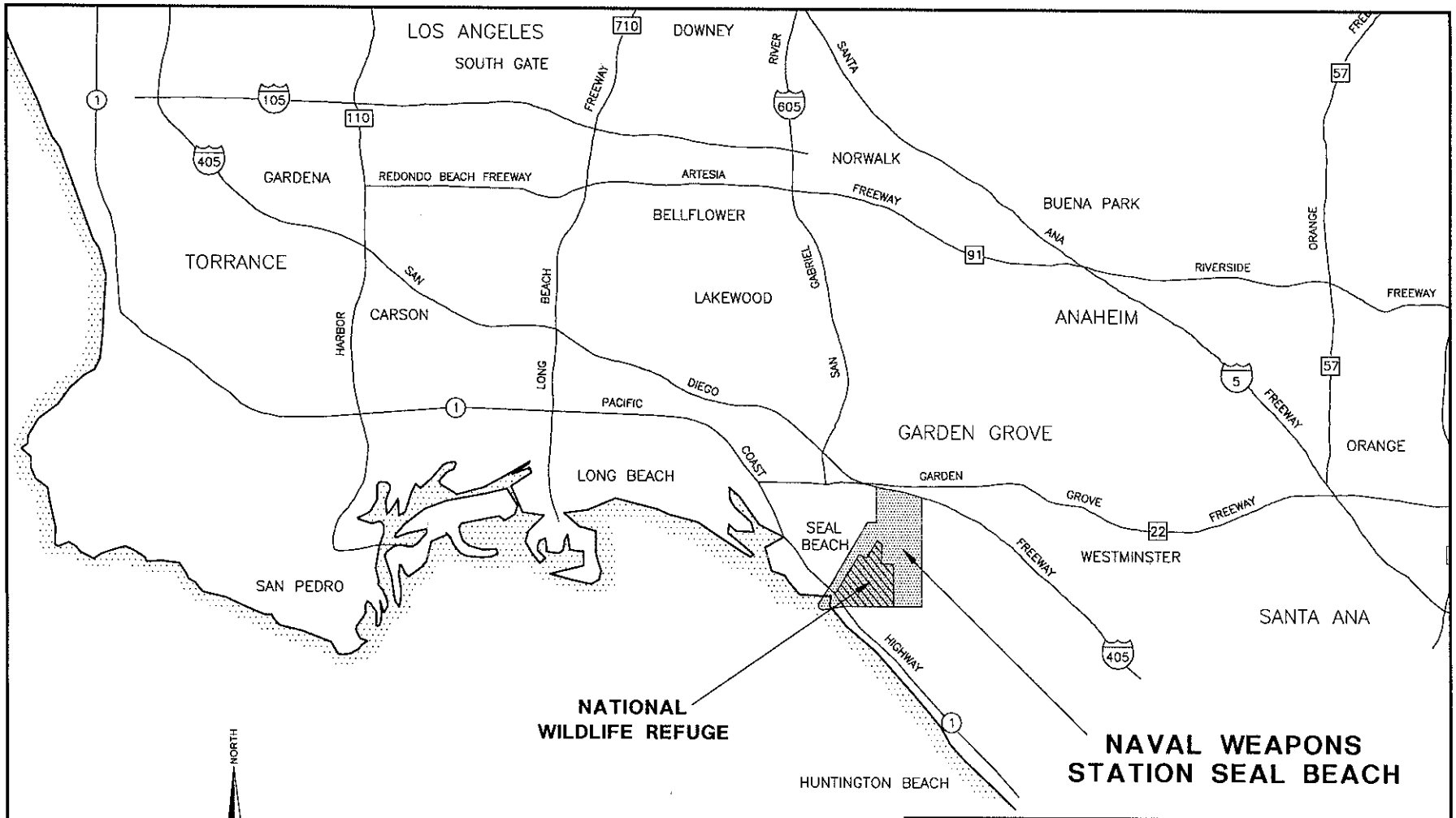


Action Memorandum, SWMU 24

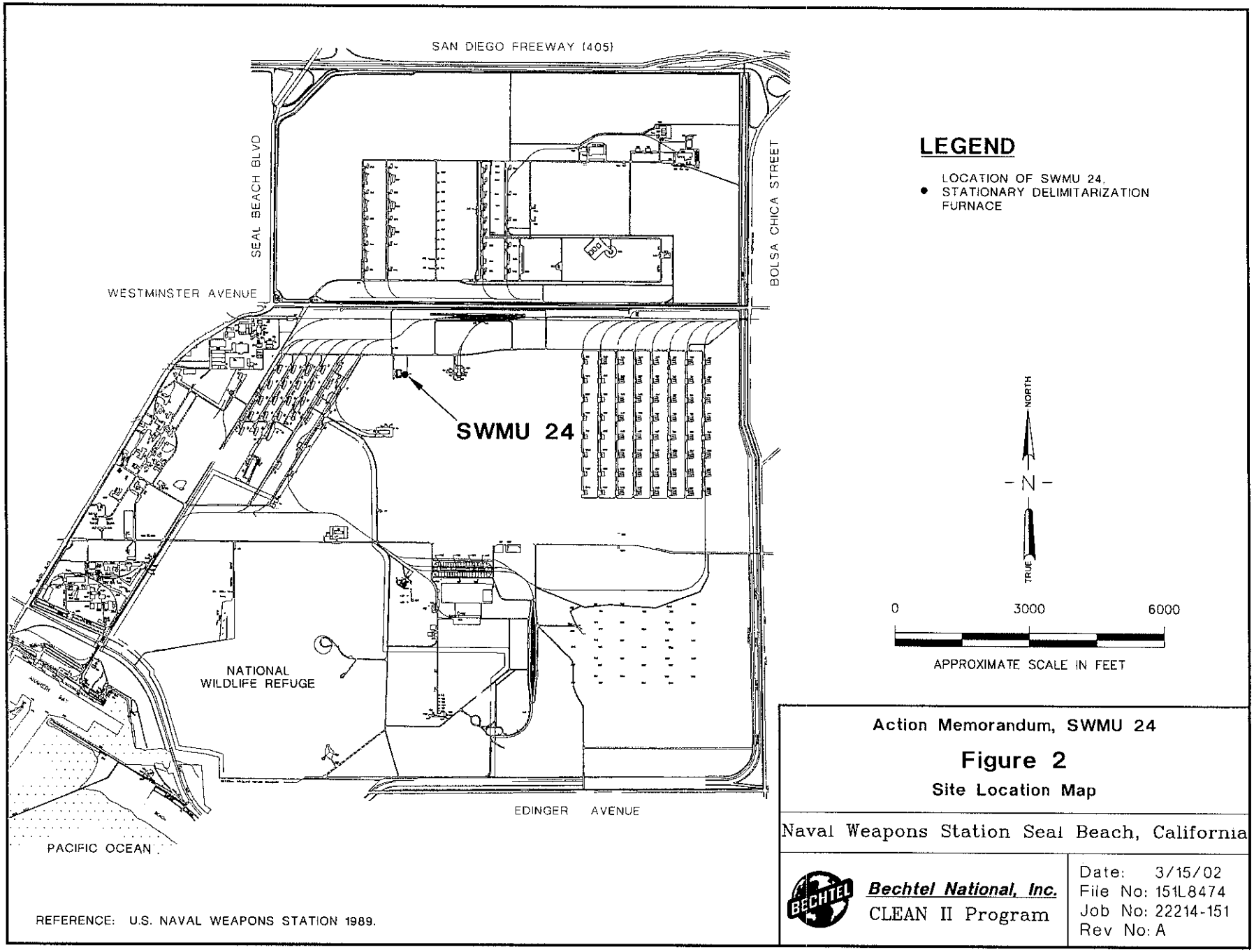
Figure 1

Regional Map

Naval Weapons Station Seal Beach, California

Bechtel National, Inc.
CLEAN II Program

Date: 3/15/02
File No: 151R8473
Job No: 22214-151
Rev No: A



Action Memorandum, SWMU 24

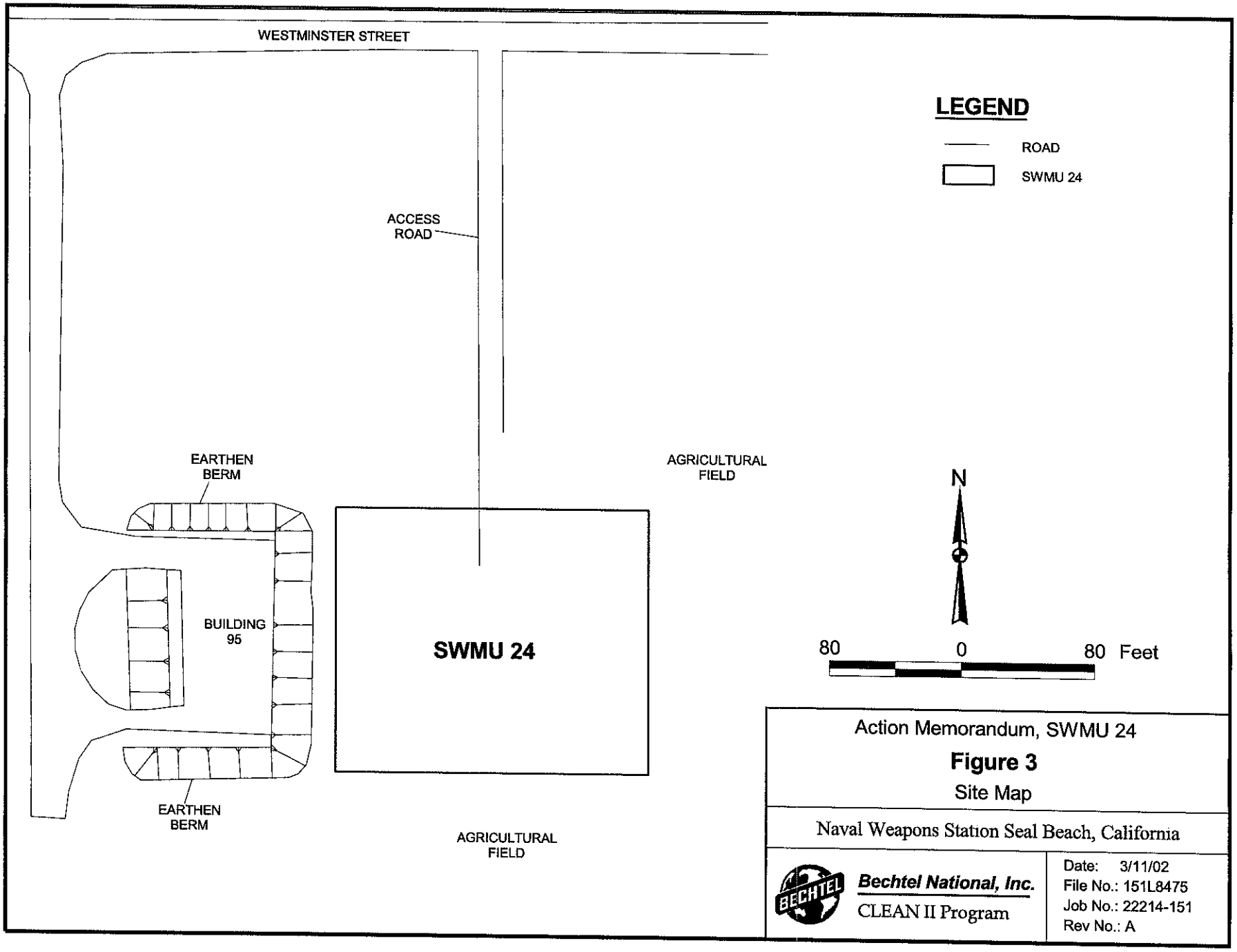
Figure 2

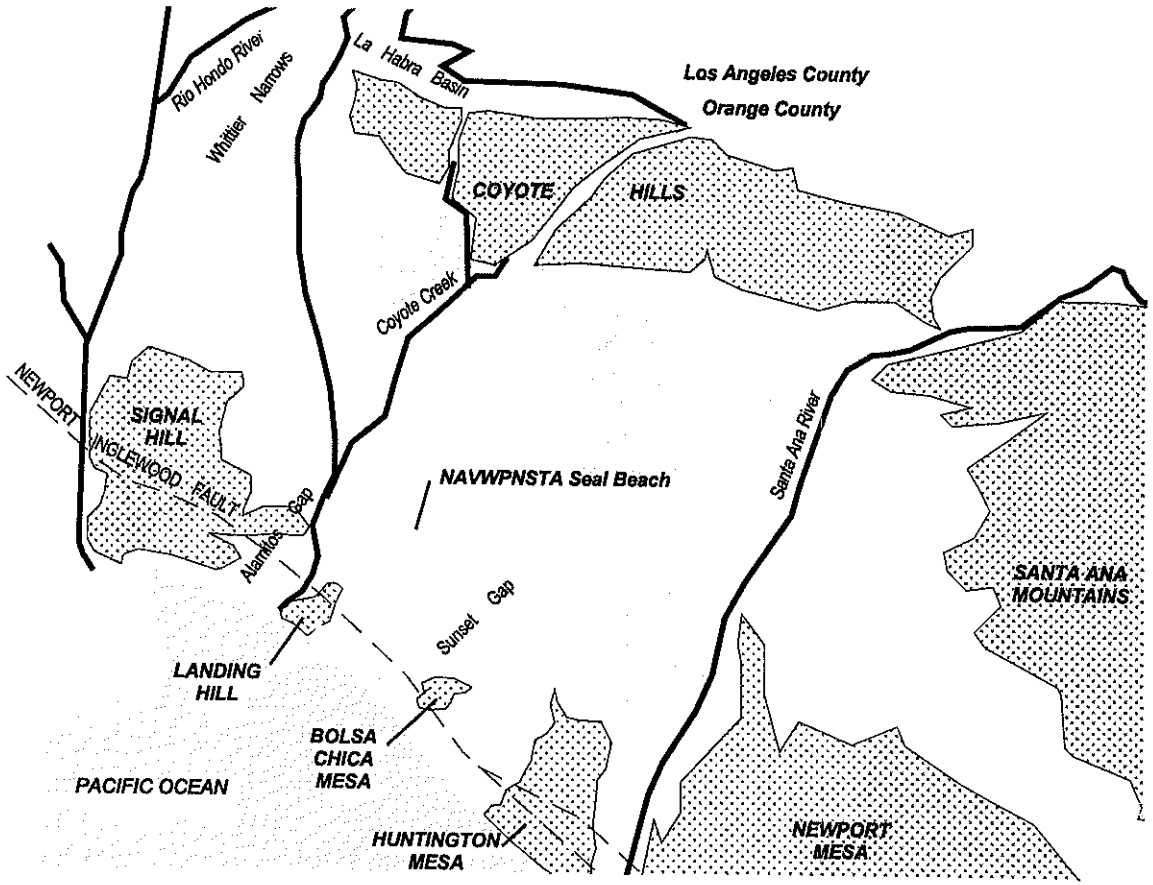
Site Location Map

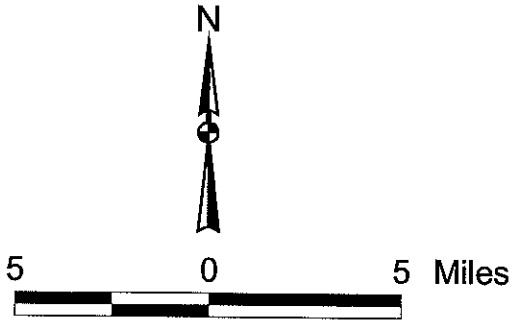
Naval Weapons Station Seal Beach, California

Bechtel National, Inc.
CLEAN II Program

Date: 3/15/02
File No: 151L8474
Job No: 22214-151
Rev No: A


WESTMINSTER STREET
ACCESS ROAD
EARTHEN BERM
BUILDING 95
EARTHEN BERM
SWMU 24
AGRICULTURAL FIELD
AGRICULTURAL FIELD
LEGEND
ROAD
SWMU 24
N
80
0
80 Feet
Action Memorandum, SWMU 24
Figure 3
Site Map
Naval Weapons Station Seal Beach, California
Bechtel National, Inc.
CLEAN II Program
Date: 3/11/02
File No.: 151L8475
Job No.: 22214-151
Rev No.: A





REFERENCE: ADAPTED FROM JEG 1995.

Action Memorandum, SWMU 24

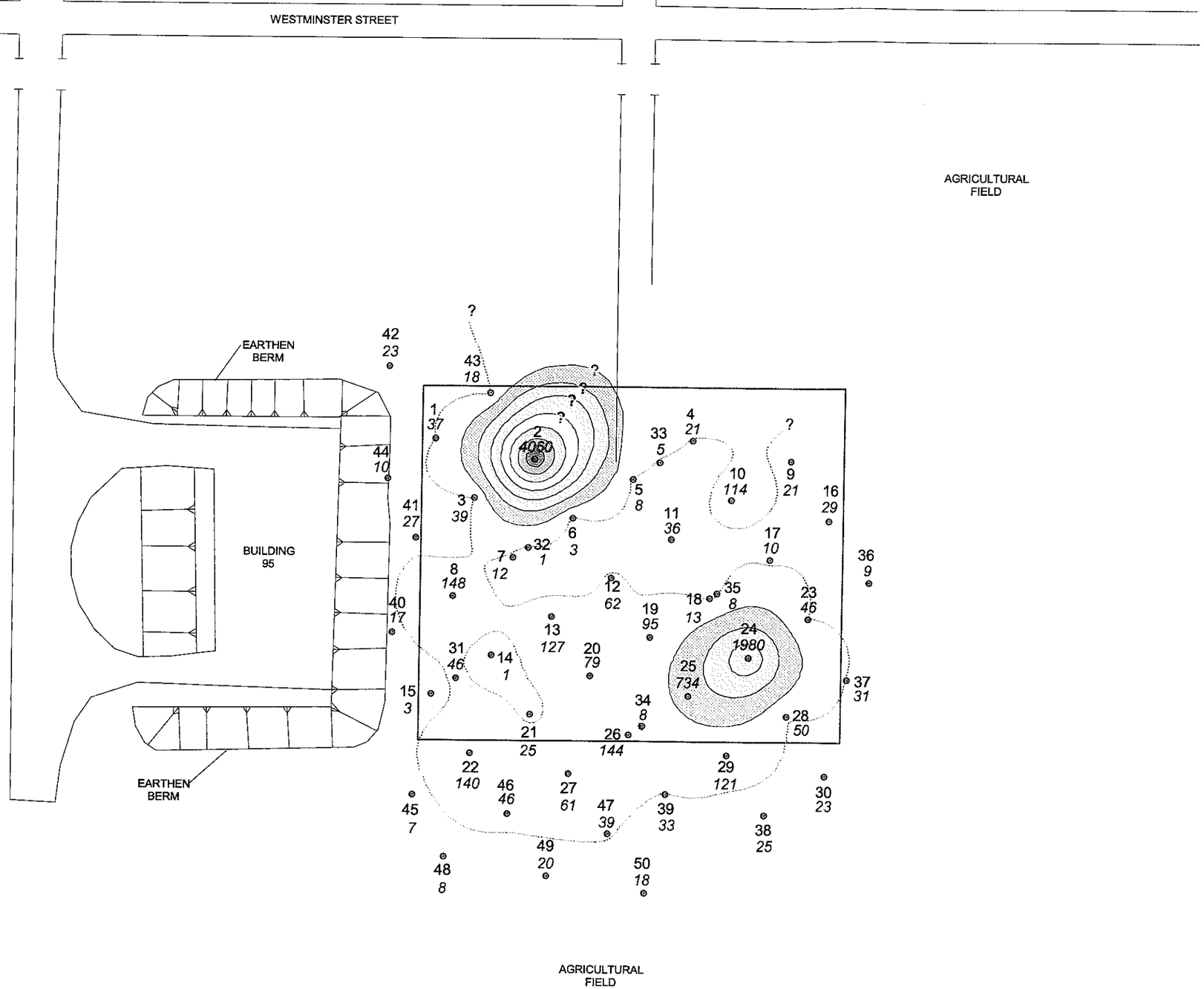
Figure 4

Surface Features

Naval Weapons Station Seal Beach, California

Bechtel National, Inc.
Clean II Program

Date: 7/10/02
File No: 151R8476
Job No: 22214-151
Rev No: C



LEGEND

- ROAD
- SWMU 24
- 9 SAMPLE LOCATION
- 21 LEAD CONCENTRATION (MG/KG)
- CONTOUR AT 36 MG/KG THE UPPER LIMIT BACKGROUND VALUE
- ? ISOCONCENTRATION LINE QUERIED WHERE INTERPRETED

LEAD CONCENTRATION INTERVALS AT 0.5 - 1.0 FT BGS

- 500 - 1000 MG/KG
- 1000 - 1500 MG/KG
- 1500 - 2000 MG/KG
- 2000 - 2500 MG/KG
- 2500 - 3000 MG/KG
- 3000 - 3500 MG/KG
- GREATER THAN 3500 MG/KG

NOTES:

DATA FROM DRAFT FOCUSED SITE INSPECTION PHASE II REPORT CH2MHILL 18 DECEMBER 2000.

DATA QUALIFIERS ARE NOT SHOWN. THE MAXIMUM LEAD CONCENTRATION FOR DUPLICATE SAMPLES IS USED, AND THE LEAD RESULTS ARE ROUNDED TO WHOLE NUMBERS.

THIS FIGURE IS NOT INTENDED FOR ENGINEERING DESIGN, BUT ONLY TO PROVIDE THE READER WITH AN APPROXIMATION OF THE METAL DISTRIBUTION.

N

50 0 50 Feet

Action Memorandum, SWMU 24

Figure 5

Lead Concentrations in Soil at 0.5 - 1.0 ft bgs

Naval Weapons Station Seal Beach, California

Bechtel National, Inc.
CLEAN II Program

Date: 5/8/02
File No.: 151A8823
Job No.: 22214-151
Rev No.: A

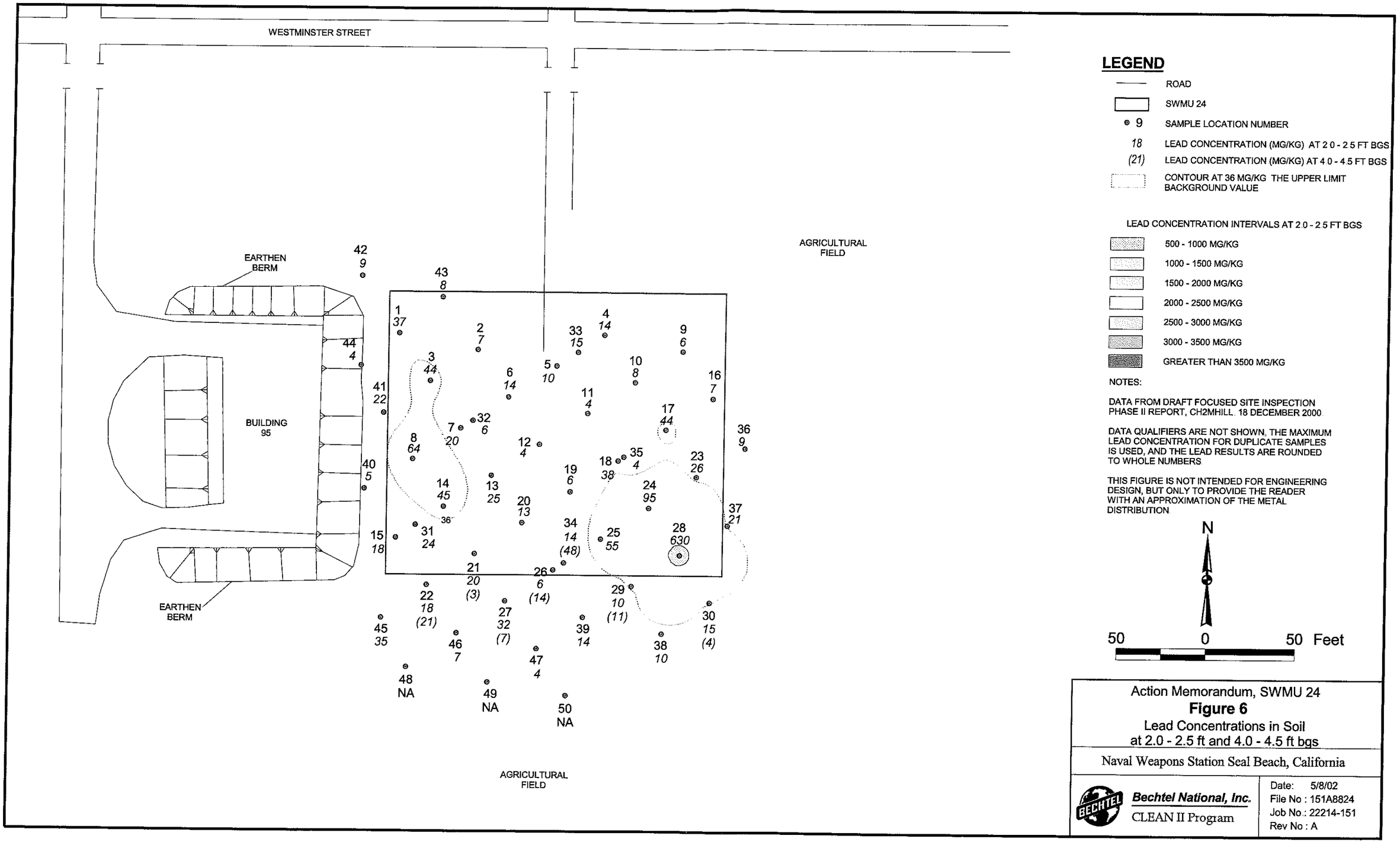

WESTMINSTER STREET
EARTHEN BERM
BUILDING 95
EARTHEN BERM
AGRICULTURAL FIELD
AGRICULTURAL FIELD
LEGEND
ROAD
SWMU 24
9 SAMPLE LOCATION NUMBER
18 LEAD CONCENTRATION (MG/KG) AT 2.0 - 2.5 FT BGS
(21) LEAD CONCENTRATION (MG/KG) AT 4.0 - 4.5 FT BGS
CONTOUR AT 36 MG/KG THE UPPER LIMIT BACKGROUND VALUE
LEAD CONCENTRATION INTERVALS AT 2.0 - 2.5 FT BGS
500 - 1000 MG/KG
1000 - 1500 MG/KG
1500 - 2000 MG/KG
2000 - 2500 MG/KG
2500 - 3000 MG/KG
3000 - 3500 MG/KG
GREATER THAN 3500 MG/KG
NOTES:
DATA FROM DRAFT FOCUSED SITE INSPECTION PHASE II REPORT, CH2MHILL, 18 DECEMBER 2000.
DATA QUALIFIERS ARE NOT SHOWN, THE MAXIMUM LEAD CONCENTRATION FOR DUPLICATE SAMPLES IS USED, AND THE LEAD RESULTS ARE ROUNDED TO WHOLE NUMBERS.
THIS FIGURE IS NOT INTENDED FOR ENGINEERING DESIGN, BUT ONLY TO PROVIDE THE READER WITH AN APPROXIMATION OF THE METAL DISTRIBUTION.
N
50 0 50 Feet
Action Memorandum, SWMU 24
Figure 6
Lead Concentrations in Soil
at 2.0 - 2.5 ft and 4.0 - 4.5 ft bgs
Naval Weapons Station Seal Beach, California
Bechtel National, Inc.
CLEAN II Program
Date: 5/8/02
File No : 151A8824
Job No.: 22214-151
Rev No : A

Table 1
Evaluation of Technologies and Process Options

General Response Action	Technology	Process Option
No action	No action	None
Engineering controls	Access restrictions	Fencing *
		Alarms
	Caps/covers	Soil/vegetative cover
Treatment	Physical/chemical treatment	Electrokinetic remediation
		Soil washing
		Solidification/stabilization
	Biological treatment	Phytoremediation
Excavation/backfilling	Excavation	Selective excavation
	Backfilling	Selective backfilling
Disposal	On-site disposal	On-site beneficial reuse
	Off-site disposal	Off-site disposal/recycling

Note:
* shaded process options were eliminated during screening

Table 2
Cost Estimate for Alternative 2, Excavation With Off-Site Disposal

Description	Cost
Direct capital costs[a]	
Mobilization/demobilization	$2,300
Clear and grub (0.15 acre)	$500
Excavation (450 bcy) and backfill (575 lcy)	$7,900
Load and transport excavated material for disposal (575 lcy)	$35,600
Confirmation soil sampling (one sample per 10- by 10-foot area + 20 percent for QC = 76 samples analyzed for total lead (U.S. EPA Method 7000 series)	$4,900
Profile soil sampling for disposal (one composite sample per 125 lcy = 4 samples analyzed for total metals [U.S. EPA Method 6010/7000 series], TCLP metals [U.S. EPA Method 1311 and U.S. EPA Method 6010B/7000 series], and STLC [California WET]	$2,600
Professional labor (project oversight)	$7,000
Total direct capital costs (based on January 2001 cost database)	**$60,800**
Indirect costs (e.g., overhead, profit) (based on January 2001 cost database)	**$33,200**
Contingency[b]	**$18,800**
Escalation[c]	**$5,100**
TOTAL COST (assumed start date of July 2002)	**$117,900**
NET PRESENT VALUE (January 2001 dollars)	**$110,200**

Notes:
[a] includes equipment and material costs
[b] a 20 percent contingency has been added to cover cost increases that may occur as a result of unforeseen conditions and changes that typically occur on remediation projects
[c] escalation modifies the costs in the Remedial Action Cost Engineering and Requirements database from January 2001 to the assumed project start date of July 2002

Acronyms/Abbreviations:
bcy – bank cubic yard
lcy – loose cubic yard
QC – quality control
STLC – soluble threshold limit concentration
TCLP – toxic characteristic leaching procedure
U.S. EPA – United States Environmental Protection Agency
WET – (California) Waste Extraction Test

Table 3
Total Costs of Removal Action Alternatives

Alternatives	Total Cost	Net Present Value
Alternative 1, no action	$0	$0
Alternative 2, excavation with off-site disposal	$117,900	$110,200

Table 4
Ranking of Alternatives

Alternative	Effectiveness	Implementability	Cost	TOTAL
Alternative 1	1	2	4	7
Alternative 2	4	4	3	11

Table 5
Potential Hazardous Waste Determination for Analytes Reported in Soil Samples Collected From SWMU 24

Analyte[a]	Detected Results[a]	Maximum[a]	Mean[a,b]	TTLC Max[c] (Wet-Weight) mg/kg	STLC Max[c] mg/L	TCLP Max[c] mg/L	Exceeds TTLC Max (potentially California hazardous)		Exceeds 10 × STLC Max (potentially California hazardous)		Exceeds 20 × TCLP Max (potentially RCRA hazardous)	
Metals							**Max**	**Mean**	**Max**	**Mean**	**Max**	**Mean**
Aluminum	95 of 95	29,900	13,477	—[d]	—	—	—	—	—	—	—	—
Antimony[e]	2 of 95	115 N	7.0	500	15	—	No	No	No	No	—	—
Arsenic[f]	67 of 95	6.4	3.1	500	5.0	5.0	No	No	No	No	No	No
Barium[g,h]	95 of 95	1,390	104	10,000[i]	100	100	No	No	Yes	No	No	No
Beryllium[j]	41 of 95	1.0 B	0.43	75	0.75	—	No	No	No	No	—	—
Cadmium[k]	15 of 95	526	6.2	100	1.0	1.0	Yes	No	Yes	No	Yes	No
Calcium	95 of 95	80,200 N	17,807	—	—	—	—	—	—	—	—	—
Chromium[l]	95 of 95	36	19	2,500	5.0[m]	5.0	No	No	No	No	No	No
Cobalt[n]	94 of 95	15	7.9	8,000	80	—	No	No	No	No	—	—
Copper[o]	95 of 95	1,110	43	2,500	25	—	No	No	Yes	No	—	—
Iron	95 of 95	37,200	18,845	—	—	—	—	—	—	—	—	—
Lead[p]	104 of 104	4,060 J	98	1,000	5.0	5.0	Yes	No	Yes	Yes	Yes	No
Magnesium	95 of 95	16,000	7,956	—	—	—	—	—	—	—	—	—
Manganese	95 of 95	772	329	—	—	—	—	—	—	—	—	—
Mercury[q]	29 of 95	0.56	0.037	20	0.2	0.2	No	No	No	No	No	No
Molybdenum	3 of 95	6.2	2.4	—	—	—	—	—	—	—	—	—
Nickel[r]	70 of 95	36	13	2,000	20	—	No	No	No	No	—	—
Potassium	94 of 95	8,120	3,805	—	—	—	—	—	—	—	—	—
Selenium	9 of 94	3.9	0.43	100	1.0	1.0	No	No	No	No	No	No
Silver	3 of 95	3.0 N	1.1	500	5.0	5.0	No	No	No	No	No	No
Sodium	95 of 95	3,680 J	834	—	—	—	—	—	—	—	—	—

(table continues)

Table 5 (continued)

Analyte[a]	Detected Results[a]	Maximum[a]	Mean[a,b]	TTLC Max[c] (Wet-Weight) mg/kg	STLC Max[c] mg/L	TCLP Max[c] mg/L	Exceeds TTLC Max (potentially California hazardous)		Exceeds 10 × STLC Max (potentially California hazardous)		Exceeds 20 × TCLP Max (potentially RCRA hazardous)	
Thallium[s]	16 of 95	1.9 B	0.73	700	7.0	—	No	No	No	No	—	—
Vanadium[t]	95 of 95	70	36	2,400	24	—	No	No	No	No	—	—
Zinc[u]	95 of 95	1,130	94	5,000	250	—	No	No	No	No	—	—

Notes:

[a] CH2M Hill 2000
[b] when the analytes were not detected, the arithmetic means were calculated by assuming that the analyte was detected at half the method detection limit
[c] Cal. Code Regs. Title 22, Division 4.5, ch. 11, Article 3, § 66261.24, updated on 09 January 2002; current as of Register 2001, No. 52, dated 28 December 2001
[d] dash indicates not applicable
[e] antimony and/or antimony compounds
[i] arsenic and/or arsenic compounds
[g] barium and/or barium compounds (excluding barite)
[h] shading indicates potentially hazardous
[i] excluding barium sulfate
[j] beryllium and/or beryllium compounds
[k] cadmium and/or cadmium compounds
[l] chromium and/or chromium (III) compounds
[m] if the soluble chromium, as determined by the TCLP set forth in Cal. Code Regs., Appendix I of ch. 18 of § 66261.24 is less than 5 mg/L, and the soluble chromium, as determined by the procedures set forth in Appendix II of Chapter 11 (California Waste Extraction Test), equals or exceeds 560 mg/L and the waste is not otherwise identified as a RCRA hazardous waste pursuant to § 66261.100, then the waste is a non-RCRA hazardous waste
[n] cobalt and/or cobalt compounds
[o] copper and/or copper compounds
[p] lead and/or lead compounds
[q] mercury and/or mercury compounds
[r] nickel and/or nickel compounds
[s] thallium and/or thallium compounds
[t] vanadium and/or vanadium compounds
[u] zinc and/or zinc compounds

(table continues)

Table 5 (continued)

Acronyms/Abbreviations:
- Cal. Code Regs. – *California Code of Regulations*
- ch. – chapter
- mg/kg – milligrams per kilogram
- mg/L – milligrams per liter
- RCRA – Resource Conservation and Recovery Act
- § – section
- STLC – solubility threshold limit concentration
- SWMU – solid waste management unit
- TCLP – toxicity characteristic leaching procedure
- TTLC – total threshold limit concentration

Data Qualifiers:
- B – estimated – below contract required detection limit and above instrument detection limit
- J – estimated – below contract required quantitation limit and above method detection limit
- N – spiked sample recovery not within control limits

Table 6
Potential Federal Chemical-Specific[a] ARARs by Medium

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
		SOIL		
Resource Conservation and Recovery Act (42 U.S.C., ch. 82, §§ 6901–6991[i])[c]				
Definition of RCRA hazardous waste.	Waste.	Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100	Applicable	Applicable for determining whether waste is hazardous.
A solid waste is characterized as toxic, based on the TCLP, if the waste exceeds the TCLP maximum concentrations.	Waste.	40 C.F.R. pt. 261.24(a) Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B)	Applicable	Applicable for determining whether waste is hazardous.

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 Department of the Navy 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:
- ARAR – applicable or relevant and appropriate requirement
- Cal. Code Regs. – *California Code of Regulations*
- C.F.R. – *Code of Federal Regulations*
- ch. – chapter
- pt. – part
- RCRA – Resource Conservation and Recovery Act
- § – section
- TCLP – toxicity characteristic leaching procedure
- tit. – title
- U.S.C. – *United States Code*

Table 7
Potential State Chemical-Specific[a] ARARs by Medium

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
GROUNDWATER, SURFACE WATER, SOIL, SEDIMENTS, AND AIR				
Resource Conservation and Recovery Act (42 U.S.C., ch. 82, §§ 6901–6991[i])[c]				
Definition of "non-RCRA hazardous waste."	Waste.	Cal. Code Regs. tit. 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	Applicable for determining whether waste is a non-RCRA hazardous waste. However, the soil subject to removal will be treated as potential RCRA hazardous waste during on-site activities.

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 Department of the Navy 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:
- ARAR – applicable or relevant and appropriate requirement
- Cal. Code Regs. – *California Code of Regulations*
- ch. – chapter
- RCRA – Resource Conservation and Recovery Act
- § – section
- tit. – title
- U.S.C. – *United States Code*

Table 8
Potential State Location-Specific ARARs

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
California Endangered Species Act (Cal. Fish & Game Code §§ 2050–2116)[b]					
Wildlife species	Prohibits the taking (including poisoning) of birds and mammals.	Activity that would involve the taking of birds or mammals.	Cal. Fish & Game Code § 3005(a)	Relevant and appropriate	The soil at the site may potentially be a risk to birds at the site that is similar to a poison. The removal action alternative at SWMU 24 will not involve the taking of birds or mammals.

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 Department of the Navy accepts the entire statutes or policies as potential ARARs; specific potential ARARs follow each general heading; only substantive requirements of the specific citations are considered potential ARARs

Acronyms/Abbreviations:
ARAR – applicable or relevant and appropriate requirement
Cal. Fish & Game Code – *California Fish and Game Code*
§ – section
SWMU – solid waste management unit

Table 9
Potential Federal Action-Specific ARARs

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal

Action	Requirement	Prerequisites	Citation	ARAR Determination A	ARAR Determination RA	ARAR Determination TBC	Comments
Resource Conservation and Recovery Act (42 U.S.C. §§ 6901–6991[i])[b]							
On-site waste generation	Person who generates waste shall determine if that waste is a hazardous waste.	Generator of waste.	Cal. Code Regs. tit. 22, § 66262.10(a), 66262.11	2			Applicable for any operation where hazardous waste is generated. There is a potential for excavated soils to be classified as RCRA hazardous waste due to localized concentrations of lead. The determination of whether wastes generated during removal 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.	Cal. Code Regs. tit. 22, § 66264.13(a) and (b)	2			Applicable for any operation where hazardous waste is generated. There is a potential for excavated soils to be classified as RCRA hazardous waste due to localized concentrations of lead. The determination of whether wastes generated during removal activities are hazardous will be made at the time the wastes are generated.

(table continues)

Table 9 (continued)

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**	**RA**	**TBC**	**Comments**
Hazardous waste accumulation	On-site hazardous waste accumulation is allowed for up to 90 days as long as the waste is stored in containers or tanks, on drip pads, inside buildings, and is labeled and dated, etc.	Accumulation of hazardous waste.	Cal. Code Regs. tit. 22, § 66262.34	2			Applicable for any operation where hazardous waste is generated. The determination of whether wastes generated during removal action activities are hazardous will be made at the time the wastes are generated.
Staging pile	A staging pile must facilitate a remedy that is reliable, effective, and protective and be designed using appropriate measures (e.g., liners, covers, run-on/runoff controls, groundwater monitoring system) to prevent or minimize releases and cross-medium transfers of hazardous wastes and constituents. Closure requirements for the piles are specified. The staging piles do not trigger LDRs.	Temporary (up to 2 years) storage of hazardous waste.	40 C.F.R. § 264.554	2			Potentially applicable for accumulating waste, generated during removal action, for characterization and staging prior to off-site disposal.
Clean Air Act (42 U.S.C. §§ 7401–7671)[b]							
Fugitive dust emissions	Shall not cause or allow emissions of fugitive dust such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source and shall not cause or allow PM_{10} levels to exceed 50 $\mu g/m^3$ when determined, by simultaneous sampling, as the difference between upwind and downwind samples.	Applies to any source of dust or fumes, including lead-contaminated soil.	SCAQMD Rule 403	2			Dust emissions may occur during removal activities. Engineering controls will be used to limit dust emissions.

(table continues)

Table 9 (continued)

Notes:

[a] discussion of compliance with action-specific ARARs is not appropriate

[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 Department of the Navy accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of specific citations are considered potential ARARs

Acronyms/Abbreviations:

A – applicable
ARAR – applicable or relevant and appropriate requirement
Cal. Code Regs. – *California Code of Regulations*
C.F.R. – *Code of Federal Regulations*
EE/CA – engineering evaluation/cost analysis
LDR – land disposal restriction
$\mu g/m^3$ – micrograms per cubic meter
PM_{10} – particulate matter, less than 10 micrometers in diameter
RA – relevant and appropriate
RCRA – Resource Conservation and Recovery Act
§ – section
SCAQMD – South Coast Air Quality Management District
TBC – to be considered
tit. – title
U.S.C. – *United States Code*

Table 10
Potential State Action-Specific ARARs

EE/CA Alternatives: 1 – No action[a] and 2 – Excavation with off-site disposal

Action	Requirement	Prerequisites	Citation	ARAR Determination			Comments
				A	RA	TBC	
California Fish and Game Code[b]							
Actions impacting birds or mammals	Prohibits the taking of birds and mammals, including the taking by poison.	Birds and mammals.	Cal. Fish & Game Code § 3005(a)	2			Procedural aspects are not ARARs; certain substantive provisions pertaining to take of birds or mammals with a poisonous substance are potentially applicable. The removal activity will prevent "take" of birds and mammals by removing soil contaminants.

Notes:
[a] discussion of compliance with action-specific ARARs is not appropriate
[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 Department of the Navy accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of the specific actions are considered potential ARARs

Acronyms/Abbreviations:
A – applicable
ARAR – applicable or relevant and appropriate requirement
Cal. Fish & Game Code – *California Fish and Game Code*
EE/CA – engineering evaluation/cost analysis
RA – relevant and appropriate
§ – section
TBC – to be considered

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ATTACHMENT D

ADMINISTRATIVE RECORD INDEX

SEAL BEACH NWS

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

DOCUMENTS RELATED TO SWMU 24

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 000418 RPT NONE 0150	03-02-1995 03-01-1989 NONE 01.1	A.T. KEARNEY, INC. SOUTHWEST DIVISION	RCRA FACILITY ASSESSMENT REPORT	ADMIN RECORD	RFA	SWMU 1 SWMU 10 SWMU 11 SWMU 13 SWMU 16 SWMU 18 SWMU 19 SWMU 2 SWMU 20 SWMU 21 SWMU 22 SWMU 23 SWMU 24 SWMU 26 SWMU 27 SWMU 28 SWMU 3 SWMU 35 SWMU 36 SWMU 37 SWMU 4 SWMU 40 SWMU 44 SWMU 46 SWMU 49 SWMU 5 SWMU 50 SWMU 54	BECHTEL NATIONAL

This Administrative Record (AR) Index includes references to documents which cite bibliography sources. These bibliographic citations are considered to be part of this AR but may not be cited separately in the index.

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
						SWMU 56 SWMU 59 SWMU 7 SWMU 8 SWMU 9	

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 000864 MOUNTAIN NONE MISC NONE 0004	06-19-1997 **11-17-1992** NONE 10.3	NWS SEAL PUBLIC	ENVIRONMENTAL FACT SHEET 1	ADMIN RECORD INFO REPOSITORY	ESI FACT SHEET IRP PIM PR PUBNOT RI SI	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 022 023 024 025 035 036 037 038 040 041 042 043 044 045	IRON 136773782 IMAGED SEAL_007

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						046	
						047	
						048	
						070	
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						072	
						OU 1	
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						OU 4	
						OU 5	
						OU 6	
						OU 7	
						OU 8	
						SWMU 17	
						SWMU 22	
						SWMU 24	
						SWMU 41	
						SWMU 42	
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						SWMU 51	
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						SWMU 63	
						SWMU 64	

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						SWMU 65 SWMU 66 SWMU 69	

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 000367 PLAN PLAN N68711-89-D-9296 0090	12-29-1994 **01-01-1993** 00229 10.2	JACOBS ENGINEERING B. WONG B. WONG NAVFAC - SOUTHWEST DIVISION	DRAFT COMMUNITY RELATIONS PLAN (MONTH AND DAY ON DOCUMENT LEFT BLANK)	ADMIN RECORD	CRP	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 022 023 024 025 035 036 037 038 039 040 041 042 044 045	BECHTEL NATIONAL

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
						046 OU 1 OU 2 OU 3 OU 4 OU 5 OU 6 OU 7 SWMU 22 SWMU 24 SWMU 48 SWMU 51 SWMU 52 SWMU 53 SWMU 54 SWMU 55 SWMU 56 SWMU 57 SWMU 58 SWMU 59 SWMU 61 SWMU 62 SWMU 63 SWMU 64 SWMU 65 SWMU 66 SWMU 69	

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N60701 / 000421 MOUNTAIN	03-02-1995	JACOBS	FINAL HEALTH AND SAFETY PLAN SITE	ADMIN RECORD	H&SP	AOC 1	IRON
PLAN N6871189D9296 0102	**06-09-1993** 00255 01.2	ENGINEERING D. SMITH SOUTHWEST DIVISION	INSPECTION WORK PLAN OU 6 & 7		SI	AOC 2 AOC 3 AOC 4 AOC 5 AOC 6 AOC 7 AOC 8 AOC 9 OU 6 OU 7 SWMU 11 SWMU 16 SWMU 17 SWMU 22 SWMU 24 SWMU 48 SWMU 51 SWMU 52 SWMU 53 SWMU 68 SWMU 69	136773773 IMAGED SEAL_011

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 000693 MOUNTAIN	04-09-1997	JACOBS	AUGUST 10, 1995 PROGRAM MANAGERS	ADMIN RECORD	FS	004	IRON
CLE-C01-01F229-I2- 0027 MM N68711-89-D-9296 N68711-89-D-9296 0006	**08-25-1995** 00229 03.6	ENGINEERING B. WONG SOUTHWEST DIVISION G. MC CLAIN	MEETING MINUTES		GW MTG MINS RAB RI SI SOIL UST	005 008 009 012 014 016 020 021 039 040 041 044 046 BLDG. 10 BLDG. 69 BLDG. 923 OU 1 OU 2 OU 3 OU 4 OU 5 OU 6 OU 7 OU 8 SWMU 24 SWMU 56	136773779 IMAGED SEAL_007

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N60701 / 000769 MOUNTAIN	04-17-1997	NAVFAC -	AUGUST 10, 1995 PROJECT MANAGERS'	ADMIN RECORD	BACKGROUND	004	IRON
	09-07-1995	SOUTHWEST DIVISION	MEETING MINUTES (W/ENCL) {SEE AR #847}		GW	005	136773780
MM	NONE 10.4	D. RINGEL			MTG MINS SI	008 009	IMAGED SEAL_008 SEAL_008
NONE		CRWQCB RIVERSIDE					
0008		L. VITALE				012 014 016 020 039 040 041 044 046 BLDG. 10 BLDG. 69 BLDG. 923 OU 1 OU 2 OU 3 OU 4 OU 5 OU 6 OU 7 OU 8 SWMU 24 SWMU 56	
N60701 / 000976 MOUNTAIN	12-17-1997	NWS SEAL	RESPONSE LETTER TO THE SUMMARY OF	ADMIN RECORD	RESPONSE	SWMU 24	IRON
	06-17-1996	J. W. KEESEE	POTENTIAL VIOLATIONS(SOV) PRESENTED TO NWS ON APRIL 23, 1996;				136773784
LTR NONE 0009	NONE 01.6	DTSC BERKELEY	INFORMATION REQUESTED BY DTSC W/O				IMAGED SEAL_008

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 000293 MOUNTAIN NONE LTR LTR NONE 0002	05-24-2000 **10-11-1999** NONE	CITY OF SEAL BEACH W. HURLEY W. HURLEY NWS SEAL P.F. TAMASHIRO	COMMENTS BY THE CITY OF SEAL BEACH ON THE DRAFT FOCUSED SITE INSPECTION PHASE II WORK PLAN (REFERENCE AR #57, #269, #278, #281, & #285)	ADMIN RECORD	DQO SI SWMU	073 SWMU 24	IRON 136773767 IMAGED IMAGED SEAL_002
N60701 / 000278 MOUNTAIN NONE LTR NONE 0001	05-22-2000 **10-28-1999** NONE	CRWQCB P. HANNON NWS SEAL P.F. TAMASHIRO	CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD HAS REVIEWED THE DRAFT FOCUSED SITE INSPECTION PHASE II WORK PLAN DATED AUGUST 30, 1999 AND HAS APPROVED IT AS PROPOSED (REFERENCE AR #57, #269, #281, #285 & #293)	ADMIN RECORD	GW SOIL WORK PLAN	012 016 025 037 038 042 044 045 AOC 6 BLDG. 128 SWMU 24 SWMU 56 SWMU 57	IRON 136773767 IMAGED SEAL_002

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 000322 MOUNTAIN PROJ # 149228.07.WP 149228.07.WP PLAN PLAN N68711-96-D-2299 0498	06-01-2000 **01-27-2000** DO007 DO007	CH2MHILL NAVFAC - NAVFAC - SOUTHWEST DIVISION	DRAFT FINAL FOCUSED SITE INSPECTION PHASE II WORK PLAN (SEE AR #57 - DRAFT WORK PLAN, #269, & #323, AR #384 - DTSC COMMENTS, AR #385 - CRWQCB COMMENTS)	ADMIN RECORD INFO REPOSITORY REPOSITORY	AOC BTEX COPC DQO EOD EPRG H&SP IAS IRP NFA OU PA PAH PCB PRG QAPP RCRA RFA SI SVOC SWMU TPH UST VOC WORK PLAN	012 013 016 016 025 037 038 042 044 045 073 AOC 6 BLDG. 128 SWMU 24 SWMU 56 SWMU 57	IRON 136773768 IMAGED IMAGED SEAL_003 SEAL_003

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 000385 MOUNTAIN NONE LTR LTR NONE 0001	09-20-2000 **03-08-2000** NONE	CRWQCB, SANTA ANA P. HANNON P. HANNON NAVFAC - SOUTHWEST DIVISION P. TAMASHIRO	REVIEW AND COMMENT ON DRAFT FINAL FOCUSED SITE INSPECTION PHASE II WORK PLAN. THE WORK PLAN IS APPROVED AS PROPOSED.	ADMIN RECORD	AOC SI SWMU	012 016 025 037 038 042 044 045 AOC 6 BLDG. 128 SWMU 24 SWMU 56 SWMU 57	IRON 136773771 IMAGED IMAGED SEAL_005
N60701 / 001332 SOUTHWEST SWDIV SER 5NEN.SL/578 5NEN.SL/578 MM MM NONE 0010	08-06-2001 **07-17-2001** NONE	NAVFAC - SOUTHWEST DIVISION M. GOOD VARIOUS OFFICES DISTRIBUTION LIST	MINUTES OF THE 7 JULY 2001, PROJECT MANAGERS MEETING FOR REVIEW (DISTRIBUTION LIST CONTAINS CONFIDENTIAL ADDRESS)	ADMIN RECORD CONFIDENTIAL	ACTMEMO CRP EE/CA FFSRA FS GW MONITORING MTG MINS MW RAB RD REMEDIAL REMOVAL ROD RSE SI SMP SWMU WELLS	001 004 005 006 007 014 019 022 040 070 073 SWMU 24	DIVISION

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N60701 / 001339 SOUTHWEST SWDIV SER 5NEN.SL/616 5NEN.SL/616 MM MM NONE 0009	08-29-2001 **08-27-2001** NONE	NAVFAC - SOUTHWEST DIVISION M. GOOD DTSC - CYPRESS K. LEIBEL	TRANSMITTAL OF THE MINUTES OF THE AUGUST 8, 2001 PROJECT MANAGERS MEETING FOR REVIEW	ADMIN RECORD	ACTMEMO CRP EE/CA FFSRA FS GW METALS MONITORING MTG MINS RAB RD REMOVAL RSE SI SMP SWMU	001 004 005 006 007 014 019 022 040 070 073 SWMU 24	DIVISION
N60701 / 000652 SOUTHWEST SWDIV SER 5NEN.SL/674 5NEN.SL/674 MM MM NONE 0009	11-02-2001 **10-30-2001** NONE	NAVFAC - SOUTHWEST DIVISION M. GOOD DTSC - CYPRESS K. LEIBEL	TRANSMITTAL OF THE MINUTES OF THE OCTOBER 10, 2001 PROJECT MANAGERS MEETING FOR REVIEW	ADMIN RECORD	ACTMEMO ARAR CRP EE/CA FFSRA FS GW MONITORING MTG MINS MW RAB RD REMOVAL ROD RSE SI SMP WELLS	001 004 005 006 007 014 019 022 040 070 073 SWMU 24	DIVISION

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 001357 SOUTHWEST NWSSB SER N45W/0307 N45W/0307 MM NONE NONE 0012	12-28-2001 **11-14-2001** NONE NONE	NWS SEAL P. F. TAMASHIRO COMMUNITY MEMBERS	MINUTES OF 48TH RESTORATION ADVISORY BOARD MEETING OF NOVEMBER 14, 2001 - INCLUDES AGENDA FOR JANUARY 9, 2002 MEETING	ADMIN RECORD INFO REPOSITORY REPOSITORY	ACTMEMO CEQA EE/CA FS GW LF MONITORING MTG MINS MW PIM PUBNOT RAB REMOVAL ROD RSE SI SMP SOIL SWMU	004 005 006 006 007 014 022 040 070 073 SWMU 24	DIVISION
N60701 / 001351 SOUTHWEST SWDIV SER 5NEN.SL/695 5NEN.SL/695 MM MM NONE 0011	12-12-2001 **11-30-2001** NONE	NAVFAC - SOUTHWEST DIVISION M. GOOD DTSC - CYPRESS K. LEIBEL	MINUTES OF THE 14 NOVEMBER 2001 PROJECT MANAGERS MEETING (DISTRIBUTION LIST CONTAINS CONFIDENTIAL ADDRESS)	ADMIN RECORD CONFIDENTIAL	ACTMEMO CRP EBS EE/CA FFSRA FS MTG MINS RD REMOVAL RSE SMP WORK PLAN	001 004 005 006 007 014 019 022 040 070 073 SWMU 24	DIVISION

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N60701 / 001358 SOUTHWEST CTO-0151/0325 MISC MISC N68711-92-D-4670 0350 0350	12-28-2001 **12-18-2001** 00151	BECHTEL NATIONAL, INC. J. FRENCH J. FRENCH NAVFAC - SOUTHWEST DIVISION	DRAFT ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) NON-TIME CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24 (W/ TRANSMITTALS TO VARIOUS REGULATORS & RAB MEMBERS) {SEE AR #1375 - RESPONSE TO REGULATOR COMMENTS}	ADMIN RECORD CONFIDENTIAL INFO REPOSITORY	ARAR CERCLA COC COPC EE/CA EM FFSRA GW NTCRA PRG QC RCRA REMEDIAL REMOVAL RFA SLUDGE SOIL SWMU WATER	BLDG. 95 OU 7 SWMU 24	 DIVISION

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N60701 / 000549 SOUTHWEST SWDIV SER 5NEN.SL/705 5NEN.SL/705 MM MM NONE 0010	01-11-2002 **01-03-2002** NONE	NAVFAC - SOUTHWEST DIVISION M. GOOD DTSC - CYPRESS K. LEIBEL	TRANSMITTAL OF MINUTES OF 12 DECEMBER 2001 PROJECT MANAGERS MEETING FOR REVIEW	ADMIN RECORD	ACTMEMO ARAR EE/CA EOD FFSRA GW MONITORING MTG MINS MW NFA ORDNANCE RAB RD REMEDIAL REMOVAL RSE SI SMP SOIL WELLS	001 004 005 006 007 014 019 022 040 070 073 SWMU 24	DIVISION
N60701 / 001362 SOUTHWEST NWSSB SER N45W/0031 N45W/0031 MM NONE 0007	02-06-2002 **01-09-2002** NONE NONE	NWS SEAL P. F. TAMASHIRO GENERAL PUBLIC GENERAL PUBLIC RAB MEMBERS	TRANSMITTAL OF THE MINUTES FROM THE 49TH RESTORATION ADVISORY BOARD MEETING OF JANUARY 9, 2002 - INCLUDES AGENDA FOR MARCH 13, 2002 MEETING	ADMIN RECORD INFO REPOSITORY REPOSITORY	EE/CA GW MONITORING MTG MINS NTCRA PIM PUBNOT RAB SWMU	005 014 022 022 SWMU 24	DIVISION

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N60701 / 001360 SOUTHWEST SWDIV SER 5NEN.SL/720 5NEN.SL/720 MM MM NONE 0010	01-17-2002 **01-16-2002** NONE	NAVFAC - SOUTHWEST DIVISION S. LE DTSC - CYPRESS & VARIOUS K. LEIBEL & REGULATORS	MINUTES OF THE 9 JANUARY 2002 PROJECT MANAGERS MEETING (DISTRIBUTION LIST CONTAINS CONFIDENTIAL ADDRESS)	ADMIN RECORD CONFIDENTIAL	ACTMEMO EE/CA FFSRA FS GW MTG MINS RAB REMEDIAL REMOVAL RSE SI SMP	001 004 005 006 007 014 019 022 040 070 073 SWMU 24	DIVISION

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 001398 SOUTHWEST CH2MHILL PROJECT NO. 149228.07.RT RPT	05-01-2002 **01-28-2002** DO 7	CH2M HILL NAVFAC - SOUTHWEST DIVISION	FOCUSED SITE INSPECTION PHASE II REPORT	ADMIN RECORD INFO REPOSITORY	ARSENIC BTEX COEC COPC	012 013 016 025	DIVISION
N68711-96-D-2299 0600					DCA DCE DQO DRUMS EM EOD GC/MS GPR GW HAZ WASTE MEK METALS MW NFA ORDNANCE PAH PCB PCE PESTICIDES PRG SARA SEDIMENTS SI SOIL SOIL BORING SWMU TCA TCE TPH UST UXO	037 038 042 044 045 073 074 AOC 6 BLDG. 128 BLDG. 235 BLDG. 236 BLDG. 88 BLDG. 89 BLDG. 95 OU 4 OU 5 SWMU 24 SWMU 56 SWMU 57	

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					VOC WATER WELLS WORK PLAN		
N60701 / 001364 SOUTHWEST SWDIV SER 5NEN.SL/756 5NEN.SL/756 MM NONE NONE 0010	03-05-2002 **02-25-2002** NONE	NAVFAC - SOUTHWEST DIVISION M. GOOD DTSC; REGULATORS & OTHERS K. LEIBEL & DISTRIBUTION	MINUTES OF THE 13 FEBRUARY 2002 PROJECT MANAGERS MEETING (DISTRIBUTION LIST CONTAINS CONFIDENTIAL ADDRESS)	ADMIN RECORD CONFIDENTIAL INFO REPOSITORY	ACTMEMO EE/CA EOD FFSRA FS GW MTG MINS PCE RAB RD ROD SI SMP SOIL SWMU TCE WELLS	001 004 005 007 014 019 022 040 070 073 SWMU 24	DIVISION

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N60701 / 001371 SOUTHWEST SWDIV SER 5NEN.SL/788 5NEN.SL/788 MM NONE NONE 0012	03-27-2002 **03-25-2002** NONE	NAVFAC - SOUTHWEST DIVISION M. GOOD DTSC, CYPRESS & VARIOUS K. LEIBEL & DISTRIBUTION	TRANSMITTAL OF THE MINUTES OF THE PROJECT MANAGERS MEETING OF 13 MARCH, 2002 (DISTRIBUTION LIST CONTAINS A CONFIDENTIAL ADDRESS)	ADMIN RECORD CONFIDENTIAL INFO REPOSITORY	ACTMEMO AOPC EE/CA EOD FFSRA FS GW MONITORING MTG MINS ORDNANCE RAB RD REMOVAL SI SMP SOIL SWMU WELLS	004 005 007 014 022 040 070 073 SWMU 24	DIVISION

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N60701 / 001374 SOUTHWEST NWSSB SER N45W/0142 N45W/0142 MM MM NONE NONE 0010	04-02-2002 **03-25-2002** NONE NONE	NWS SEAL P.F. TAMASHIRO RESTORATION RESTORATION ADVISORY BOARD MEMBERS COMMUNITY	TRANSMITTAL OF THE MINUTES FROM THE 50TH RESTORATION ADVISORY BOARD MEETING OF 13 MARCH 2002 WITH AGENDA FOR 10 APRIL 2002 MEETING	ADMIN RECORD INFO REPOSITORY REPOSITORY	FS GW MONITORING MTG MINS MW NTCRA ORDNANCE PCE PIM RAB ROD SOIL SOIL BORING SWMU TCE UST UXO WELLS	005 007 014 014 040 070 073 SWMU 24	DIVISION
N60701 / 001375 SOUTHWEST CTO-0151/0371 MISC MISC N68711-92-D-4670 0023 0023	04-10-2002 **04-09-2002** 00151	BECHTEL NATIONAL, INC. NAVFAC - SOUTHWEST DIVISION	COMPILED RESPONSE TO COMMENTS ON THE DRAFT ENGINEERING EVALUATION/ COST ANALYSIS NON-TIME CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24 (SEE AR #1358 - EE/CA)	ADMIN RECORD	COMMENTS COPC EE/CA GW METALS NTCRA PRG REMOVAL SOIL SWMU	BLDG. 95 OU 7 SWMU 24	DIVISION

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 001376 SOUTHWEST CTO-0151/0371-1 MISC MISC N68711-92-D-4670 0013 0013	04-10-2002 **04-09-2002** 00151	BECHTEL NATIONAL, INC. NAVFAC - SOUTHWEST DIVISION	REVISED COMPILED RESPONSE TO COMMENTS ON THE DRAFT ENGINEERING EVALUATION/ COST ANALYSIS NON-TIME CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24 (SEE AR #1358 - EE/CA & AR #1375 - ORIGINAL RESPONSE TO COMMENTS)	ADMIN RECORD	COMMENTS EE/CA NTCRA REMOVAL RESPONSE SOIL SWMU	OU 7 SWMU 24	DIVISION
N60701 / 001400 SOUTHWEST SWDIV SER 5NEN.MR/851 5NEN.MR/851 MM MM NONE 0010	05-08-2002 **04-26-2002** NONE	NAVFAC - SOUTHWEST DIVISION M. GOOD DTSC - CYPRESS K. LEIBEL	TRANSMITTAL OF MINUTES OF PROJECT MANAGERS MEETING OF 10 APRIL 2002 FOR REVIEW	ADMIN RECORD	ACTMEMO AOPC CEQA EE/CA EOD FFSRA FS GW LEAD MONITORING MTG MINS ORDNANCE QA QC RAB RD REMOVAL ROD SI SMP SOIL SWMU WELLS	001 004 005 006 007 014 019 022 040 070 073 SWMU 24	DIVISION

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 001401 SOUTHWEST CTO-0151/0378 PLAN PLAN N68711-92-D-4670 0150	05-15-2002 **05-10-2002** 00151	BECHTEL NATIONAL, INC. D. CROSSLEY D. CROSSLEY NAVFAC - SOUTHWEST DIVISION	DRAFT ACTION MEMORANDUM/REMOVAL ACTION WORK PLAN, NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24, STATIONARY DEMILITARIZATION FURNACE	ADMIN RECORD	ACTMEMO ARAR CANCER COPC EE/CA FFSRA HAZ WASTE LEAD METALS NCP NEPA NPL NTCRA PRG RCRA REMOVAL RFA SOIL SWMU WORK PLAN	OU 7 SWMU 24	DIVISION
N60701 / 001402 SOUTHWEST SWDIV SER 5NEN.SL/878 5NEN.SL/878 MM MM NONE 0011	05-23-2002 **05-21-2002** NONE	NAVFAC - SOUTHWEST DIVISION M. GOOD DTSC - CYPRESS K. LEIBEL	TRANSMITTAL OF MINUTES OF PROJECT MANAGERS MEETING OF 8 MAY 2002 FOR REVIEW	ADMIN RECORD	ACTMEMO CEQA EE/CA ERA FFSRA GW LEAD MONITORING MTG MINS RAB RD REMOVAL SI SOIL UST	001 004 005 006 007 014 019 022 040 070 073 074 SWMU 24	DIVISION

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N60701 / 001407 SOUTHWEST	07-01-2002	FOSTER	DRAFT PROJECT WORK PLAN,	ADMIN RECORD	ACTMEMO	BLDG. 95	
FWSD-RAC-02-1153 PLAN PLAN	**06-17-2002** 00023	WHEELER H. H. HAMPARSUMIAN	NON-TIME-CRITICAL REMOVAL ACTION, SOLID WASTE MANAGEMENT UNIT 24, THE FORMER STATIONARY DEMILITARIZATION	IR-READY	ARAR CANCER	OU 7 SWMU 24	DIVISION
N68711-98-D-5713 0200 0200		NAVFAC - NAVFAC - SOUTHWEST	FURNACE (INCLUDES SWDIV TRANSMITTAL LETTERS TO REGULATORS AND RAB MEMBERS)		COC COPC		
		DIVISION			EE/CA GPR LF METALS NCP NTCRA PRG QC RAB RCRA REMOVAL RFA SAP SOIL SSHP SWMU TSDF WORK PLAN		

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 001408 SOUTHWEST CTO-0151/0395 RPT RPT N68711-92-D-4670 0300	07-01-2002 **06-19-2002** 00151	BECHTEL NATIONAL, INC. J. FRENCH J. FRENCH NAVFAC - SOUTHWEST DIVISION	FINAL ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) NON-TIME CRITICAL REMOVAL ACTION, FOR SOLID WASTE MANAGEMENT UNIT 24, THE FORMER STATIONARY DEMILITARIZATION FURNACE	ADMIN RECORD IR-READY	ARAR CANCER COC COPC COST DUST EE/CA EM FFSRA METALS PRG QC RAB RCRA RFA SLUDGE SOIL SWMU	BLDG. 95 OU 7 SWMU 24	 DIVISION
N60701 / 001409 SOUTHWEST SB SER N45S/0287 MM NONE 0011 0011	07-01-2002 **06-20-2002** NONE	NWS SEAL P.F. TAMASHIRO COMMUNITY MEMBERS	TRANSMITTAL OF MINUTES FOR 52ND RESTORATION ADVISORY BOARD MEETING OF 12 JUNE 2002	ADMIN RECORD IR-READY	ACTMEMO DCE EE/CA GW MTBE MTG MINS PCE RAB REMOVAL SOIL UST	005 007 014 040 070 073 074 OU 7 SWMU 24	 DIVISION

UIC=N60701
No Keywords
Sites=SWMU 24
No Classification

ATTACHMENT E

PUBLIC NOTICES

AFFIDAVIT OF PUBLICATION

STATE OF CALIFORNIA,)
) ss
County of Orange)

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter I am the principal clerk of **The Orange County Register**, a newspaper of general circulation, published in the city of Santa Ana, County of Orange, and which newspaper has been adjudged to be a newspaper of general circulation by the Superior Court of the County of Orange, State of California, under the date of November 19, 1905, Case No A-21046, that the notice, of which the annexed is a true printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

January 10, 2002

"I certify (or declare) under the penalty of perjury under the laws of the State of California that the foregoing is true and correct":

Executed at Santa Ana, Orange County, California, on

Date: January 10, 2002

Signature

The Orange County Register
625 N. Grand Ave.
Santa Ana, CA 92701
(714) 796-7000 ext. 3002

PROOF OF PUBLICATION

Naval Weapons Station Seal Beach

Proposal to Clean Up Lead-Contaminated Soil at Former Stationary Demilitarization Furnace Facility

Public Comment Invited

The Department of the Navy (DON) invites public comment on a proposal for removing soil contaminated with lead in the vicinity of the former stationary demilitarization furnace facility at Naval Weapons Station Seal Beach, California. This area is known as Solid Waste Management Unit (SWMU) 24. Although the lead contamination does not pose a threat to humans, it does pose risk to local wildlife. The proposal, called an Engineering Evaluation/Cost Analysis (EE/CA), includes the results of environmental investigations at the site, the cleanup alternatives considered, and the removal action proposed as the best remedy. The public is encouraged to review and comment on this EE/CA during the 30-day public comment period of January 10, 2002 through February 9, 2002 (see details at the end of this notice). Both the investigation and this proposed removal action have been carried out with oversight from the California Environmental Protection Agency Department of Toxic Substances Control and the Regional Water Quality Control Board.

The former stationary demilitarization furnace facility was used to remove explosive residue from expended munitions and ceased operation in 1994. It was decommissioned in 1998 and all associated equipment, buildings, and storage containers were removed, decontaminated, and sent for recycling or disposal. The draft EE/CA evaluated two alternatives that could be used in the removal action (clean up) of contaminated soil where the facility used to be. Alternatives evaluated in detail include: 1) no action and 2) excavation with off-site disposal

The DON is recommending Alternative 2, which involves mechanical (e.g., backhoe) excavation of approximately 450 cubic yards of soil. The excavated soil will be transported by truck for off-site disposal at a permitted landfill. After excavation, soil samples will be collected from the site to verify that all contamination has been removed. Clean fill material would be added and compacted to return the site to its original grade. The area will then be allowed to naturally revegetate. The on-site field activities are expected to begin in July 2002 and be completed by August 2002.

After all public comments have been considered, a decision will be made and documented in an Action Memorandum/Removal Action Work Plan. All comments will be formally addressed in a responsiveness summary, which will be sent to everyone who provided a comment. A copy will also be placed in the information repositories below.

The draft EE/CA and other reports about the site are available for public review and copying at the following public information repositories:

Seal Beach Public Library, Mary Wilson Branch
707 Electric Avenue, Seal Beach, CA
(562) 431-3584

Building 110, Naval Weapons Station Seal Beach
800 Seal Beach Blvd., Seal Beach, CA
(562) 626-7897

The full Administrative Record and files pertaining to this matter are available for public review at:

Southwest Division, Naval Facilities Engineering Command
1220 Pacific Highway, San Diego, CA 92132-5190
Ms. Diane Silva, Code 4MG.DS, (619) 532-3676

Written comments will be accepted beginning January 10, 2002 and ending February 9, 2002. Comments must be postmarked (or emailed or faxed) by February 9, 2002 and sent to the address below to be considered.

Commanding Officer
Environmental Department, Attn: Ms. Pei-Fen Tamashiro, Code N45S
Naval Weapons Station Seal Beach
800 Seal Beach Blvd., Seal Beach, CA 90740
FAX: (562) 626-7131
email: tamashiro.peifen@sbeach.navy.mil

The Naval Weapons Station Seal Beach has established a Restoration Advisory Board (RAB), made up of members of the community and representatives from local regulatory agencies, which holds regular public meetings to discuss ongoing environmental investigation and clean up work at the facility. For more information about the RAB or this proposed removal action, please contact:

Ms. Pei-Fen Tamashiro, Naval Weapons Station Seal Beach (562) 626-7897
Mr. Gregg Smith, Public Affairs Officer, Naval Weapons Station Seal Beach (562) 626-7215
Ms. Katherine Leibel, California EPA, Department of Toxic Substances Control (714) 484-5446
Ms. Lindi Willhite, RAB Community Co-Chair (714) 839-5663

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PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA,
County of Orange

I am a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of the HUNTINGTON HARBOUR SUN, a newspaper of general circulation, printed and published weekly in the City of Seal Beach, County of Orange and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Orange, State of California, under the date of 2/24/75. Case Number A82583; that the notice of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

1/10/02

all in the year 2002.

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Seal Beach, CA,
this 10 day of January 2002.

Jay M. Diaz
Signature

PUBLICATION PROCESSED BY:
THE HUNTINGTON HARBOUR SUN
16835 Algonquin
Seal Beach, CA 92649
(562) 430-7555

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Proof of Publication of _____

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in This Space

Naval Weapons Station Seal Beach
Proposal to Clean Up Lead-Contaminated Soil at
Former Stationary Demilitarization Furnace Facility
*****Public Comment Invited*****

The Department of the Navy (DON) invites public comment on a proposal for removing soil contaminated with lead in the vicinity of the former stationary demilitarization furnace facility at Naval Weapons Station Seal Beach, California. This area is known as Solid Waste Management Unit (SWMU) 24. Although the lead contamination does not pose a threat to humans, it does pose risk to local wildlife. The proposal, called an Engineering Evaluation/Cost Analysis (EE/CA), includes the results of environmental investigations at the site, the cleanup alternatives considered, and the removal action proposed as the best remedy. The public is encouraged to review and comment on this EE/CA during the 30-day public comment period of January 10, 2002 through February 9, 2002 (see details at the end of this notice). Both the investigation and this proposed removal action have been carried out with oversight from the California Environmental Protection Agency Department of Toxic Substances Control and the Regional Water Quality Control Board.

The former stationary demilitarization furnace facility was used to remove explosive residue from expended munitions and ceased operation in 1994. It was decommissioned in 1998 and all associated equipment, buildings, and storage containers were removed, decontaminated, and sent for recycling or disposal. The draft EE/CA evaluated two alternatives that could be used in the removal action (clean up) of contaminated soil where the facility used to be. Alternatives evaluated in detail include: 1) no action, and 2) excavation with off-site disposal.

The DON is recommending Alternative 2, which involves mechanical (e.g., backhoe) excavation of approximately 450 cubic yards of soil. The excavated soil will be transported by truck for off-site disposal at a permitted landfill. After excavation, soil samples will be collected from the site to verify that all contamination has been removed. Clean fill material would be added and compacted to return the site to its original grade. The area will then be allowed to naturally revegetate. The on-site field activities are expected to begin in July 2002 and be completed by August 2002.

After all public comments have been considered, a decision will be made and documented in an Action Memorandum/Removal Action Work Plan. All comments will be formally addressed in a responsiveness summary, which will be sent to everyone who provided a comment. A copy will also be placed in the information repositories below.

The draft EE/CA and other reports about the site are available for public review and copying at the following public information repositories:

Seal Beach Public Library, Mary Wilson Branch
707 Electric Avenue, Seal Beach, CA
(562) 431-3584

Building 110, Naval Weapons Station Seal Beach
800 Seal Beach Blvd., Seal Beach, CA
(562) 626-7897

The full Administrative Record and files pertaining to this matter are available for public review at:

Southwest Division, Naval Facilities Engineering Command
1220 Pacific Highway, San Diego, CA 92132-5190
Ms. Diane Silva, Code 4MG.DS, (619) 532-3676

Written comments will be accepted beginning January 10, 2002 and ending February 9, 2002. Comments must be postmarked (or emailed or faxed) by February 9, 2002 and sent to the address below to be considered.

Commanding Officer
Environmental Department, Attn: Ms. Pei-Fen Tamashiro, Code N45S

Naval Weapons Station Seal Beach
800 Seal Beach Blvd., Seal Beach, CA 90740
FAX: (562) 626-7131
email: tamashiro.peifen@sbeach.navy.mil

The Naval Weapons Station Seal Beach has established a Restoration Advisory Board (RAB), made up of members of the community and representatives from local regulatory agencies, which holds regular public meetings to discuss ongoing environmental investigation and clean up work at the facility. For more information about the RAB or this proposed removal action, please contact:

Ms. Pei-Fen Tamashiro, Naval Weapons Station Seal Beach (562) 626-7897
Mr. Gregg Smith, Public Affairs Officer, Naval Weapons Station Seal Beach (562) 626-7215
Ms. Katherine Leibel, California EPA, Department of Toxic Substances Control (714) 484-5446
Ms. Lindi Willhite, RAB Community Co-Chair (714) 839-5663

ATTACHMENT F

RESPONSES TO SIGNIFICANT COMMENTS

Table F-1

RESPONSES TO COMMENTS*
DRAFT ACTION MEMORANDUM/REMOVAL ACTION WORK PLAN
NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24 – STATIONARY DEMILITARIZATION FURNACE
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: Katherine Leibel, California Department of Toxic Substances Control
Dated: 10 July 2002 (email correspondence)
Response by: Bob Schilling and June Wheaton, Bechtel National, Inc.
Date: 11 July 2002

Number	Comment	Response
	We [DTSC] concur with the draft AM. The formal letter will be sent for the final AM.	Comment acknowledged.

Note:
* These responses may identify proposed changes to the subject document text, tables and/or figures. The changes, as presented herein, have not undergone formal technical editing. The specific wording that appears in the next release of the document may differ slightly from that presented in these responses to comments, since the proposed changes will be technically edited as part of the overall document revision process. The edited version of the document will be reviewed by BNI to ensure that there are no substantive differences that would warrant further Navy and/or agency review and concurrence.

Table F-2

RESPONSES TO COMMENTS*
DRAFT ACTION MEMORANDUM/REMOVAL ACTION WORK PLAN
NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24 – STATIONARY DEMILITARIZATION FURNACE
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: Patricia Hannon, California Regional Water Quality Control Board
Dated: 03 July 2002
Response by: Bob Schilling and June Wheaton, Bechtel National, Inc.
Date: 11 July 2002

Number	Comment	Response
	We have completed our review of the above-referenced document, dated May 10, 2002, which we received on May 14, 2002. The proposed action is to excavate the lead contaminated soil and dispose of it at an appropriate offsite facility. Based on the information in the work plan, we do not have any significant comments.	Comment acknowledged.

Note:
* These responses may identify proposed changes to the subject document text, tables and/or figures. The changes, as presented herein, have not undergone formal technical editing. The specific wording that appears in the next release of the document may differ slightly from that presented in these responses to comments, since the proposed changes will be technically edited as part of the overall document revision process. The edited version of the document will be reviewed by BNI to ensure that there are no substantive differences that would warrant further Navy and/or agency review and concurrence.

Table F-3

RESPONSES TO COMMENTS*
DRAFT ACTION MEMORANDUM/REMOVAL ACTION WORK PLAN
NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE MANAGEMENT UNIT 24 – STATIONARY DEMILITARIZATION FURNACE
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: William G. Hurley, City of Seal Beach Environmental Quality Control Board
Dated: 29 May 2002
Response by: Bob Schilling and June Wheaton, Bechtel National, Inc.
Date: 11 July 2002

Number	Comment	Response
1.	*The City of Seal Beach Environmental Quality Control Board (Board) has reviewed the "Draft Action Memorandum/Removal Action Work Plan – Non-Time Critical Removal Action for Solid Waste Management Unit 24 – Stationary Demilitarization Furnace", dated May 10, 2002, including all attachments. The Board concurs with the proposed removal action of lead-contaminated soils and the proposed work plan.*	Comment acknowledged.
2.	*The City again expresses its full support for the proposed removal action, Alternative 2, Excavation With Off-Site Disposal. This alternative greatly reduces risks to ecological receptors and the environment by removing soil contaminated with lead concentrations above the cleanup goal.*	Comment acknowledged.

Note:
* These responses may identify proposed changes to the subject document text, tables and/or figures. The changes, as presented herein, have not undergone formal technical editing. The specific wording that appears in the next release of the document may differ slightly from that presented in these responses to comments, since the proposed changes will be technically edited as part of the overall document revision process. The edited version of the document will be reviewed by BNI to ensure that there are no substantive differences that would warrant further Navy and/or agency review and concurrence.

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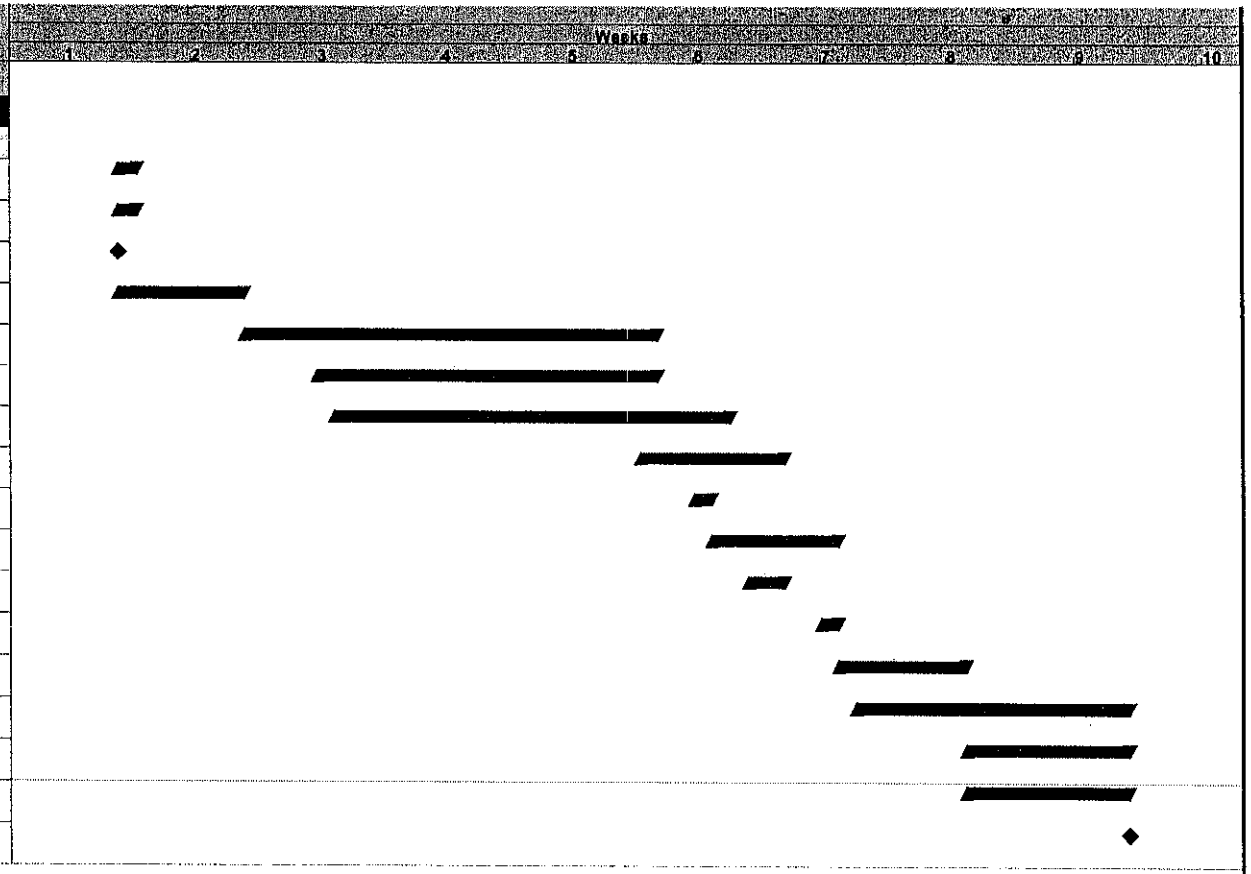
ATTACHMENT G

PROJECT SCHEDULE

Activity Description	Orig Dur
SWMU 24 Soil Removal	
Construction	
TASK I	
Pre-Construction Site Survey (Site 24)	i
Geophysical Survey (Site 24)	i
Mobilization Start (Site 24)	0
Mobilization/Site Preparation (Site 24)	5
Excavate Contaminated Soils (Site 24)	17
Soil Sampling - verification samples (Site 24)	15
Soil Analysis - verification (Site 24)	16
Backfill / Compaction (Site 24)	6
Waste Sampling Solid/Liquid (Site 24)	i
Stockpile Solid Waste Analysis (Site 24)	5
Compaction Testing (Site 24)	2
Post Construction Site Survey (Site 24)	i
Trans Waste to Disp Facility (Solid) (S24)	5
Waste Disposal (Solid/Liquid) (Site 24)	9
Decon Water Analysis (Site 24)	5
Demobilization (Site 24)	5
Demobilization Complete (Site 24)	0



Start Date	24MAR00
Finish Date	20AUG03
Data Date	29APR02
Run Date	03MAY02 13:20

Early Bar
Progress Bar
Critical Activity

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Foster Wheeler Environmental Corp.
Southwest Division RAC III
CTO 0023 - Seal Beach
SWMU 24 Soil Removal

Sheet 1 of 1

Figure 6-1

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