NAVAL AIR FACILITY
EL CENTRO
IMPERIAL COUNTY, CALIFORNIA 92243

FINAL
ACTION MEMORANDUM/
REMOVAL ACTION WORK PLAN
NON-TIME-CRITICAL REMOVAL ACTION
SITES 12 AND 17,
NAVAL AIR FACILITY EL CENTRO
IMPERIAL COUNTY, CALIFORNIA

CTO-0100/0661

SITE STATUS:	NON-NPL
CATEGORY:	NON-TIME-CRITICAL REMOVAL ACTION
CERCLIS ID:	CA6170090017
SITE ID:	SITE 12, OPEN BURN PIT SITE 17, FIRE-FIGHTING TRAINING AREA
DATE:	JANUARY 1999

SUMMARY

This Action Memorandum/Removal Action Work Plan (Action Memorandum) for Non-Time-Critical Removal Action at Sites 12 and 17 was developed in accordance with current United States Environmental Protection Agency and Navy 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 and Safety Code (Ca-HSC). This Action Memorandum describes the site characteristics, removal action objectives, removal action alternatives, and the recommended removal action alternative for Sites 12 and 17 at Naval Air Facility El Centro.

CERCLA, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR Part 300), and Ca-HSC §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 "removal of drums, barrels, tanks, or other bulk containers that contain or may contain hazardous substances or pollutants or contaminants—where it will reduce the likelihood of spillage; leakage; exposure to humans, animals, or the food chain. . ."

Both Sites 12 and 17 were used as shallow burn areas, and the primary chemicals of concern are dioxins. The incremental cancer risk associated with dioxin-contaminated soil under a residential scenario is approximately 1×10^{-5} for each site.

Site 12 consists of an open burn pit used for burning illegal drugs, drug paraphernalia, and various household debris (wood, cardboard, jars, tin cans, and ceramic pipe). It measures approximately 36 by 48 feet by 4.5 feet deep and, was used from 1986 until mid-1987.

Site 17 is a former fire-fighting training area. It was reportedly built in 1980 and was used for monthly fire-fighting training exercises until 1990. The exercises involved pouring fuel on a water layer, igniting the fuel, and extinguishing the fire. When the area was closed, several layers of plastic sheeting were placed across it. Soil was placed on the sheeting, which raised the site approximately 2 feet above existing grade.

The recommended removal action will reduce concentrations in soils contaminated primarily with dioxins and furans to acceptable levels. To meet the removal action objectives, soil contaminated with dioxins above the residential soil preliminary remediation goal will be excavated from the site and transported off-site for disposal, thus achieving clean closure of the sites.

Potential impacts to groundwater are not a factor in the proposed removal alternatives, because the shallow depth of contamination and low mobility of the contaminants of concern make it unlikely that groundwater is affected. Soil samples collected during preliminary investigations support this conclusion; however, discrete groundwater samples will be collected during the preremoval characterization activities to support this conclusion.

SUMMARY

The associated Engineering Evaluation/Cost Analysis (included as Attachment A to this Action Memorandum) evaluated eight removal action alternatives:

- Alternative 1, excavation, off-site Class I landfill disposal;
- Alternative 2, excavation, off-site high-temperature incineration;
- Alternative 3, excavation, on-site treatment using solidification/stabilization, and on-site disposal;
- Alternative 4, excavation, on-site treatment using soil washing, and on-site disposal;
- Alternative 5, excavation, on-site treatment using soil washing, and off-site disposal;
- Alternative 6, *in situ* stabilization/solidification;
- Alternative 7, on-site containment (capping); and
- Alternative 8, no action.

Based on this analysis, the Navy recommends Alternative 1, which includes excavation and off-site disposal at a California Class I landfill facility. This alternative best meets the NCP criteria of overall protectiveness of human health; compliance with applicable 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.

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ACRONYMS/ABBREVIATIONS

Action Memorandum	Action Memorandum/Removal Action Work Plan
ARAR	applicable or relevant and appropriate requirement
BNI	Bechtel National, Inc.
BTEX	benzene, toluene, ethylbenzene, and xylenes
Cal-EPA	California Environmental Protection Agency
Ca-HSC	*California Health and Safety Code*
CCR	*California Code of Regulations*
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	*Code of Federal Regulations*
COC	chemical of concern
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
DON	Department of the Navy
DTSC	(Cal-EPA) Department of Toxic Substances Control
EE/CA	Engineering Evaluation/Cost Analysis
ERC	ERC Environmental and Energy Services Co.
ESA	Extended Site Assessment
LUFT	(California) Leaking Underground Fuel Tank (Program)
mg/kg	milligrams per kilogram
NAF	Naval Air Facility
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEESA	Naval Energy and Environmental Support Activity
Ogden	Ogden Environmental and Energy Services
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
POC	Point of Contact
PRG	(U.S. EPA Region IX) preliminary remediation goal
RCRA	Resource Conservation and Recovery Act
RWQCB	(California) Regional Water Quality Control Board

SVOC	semivolatile organic compound
TCDD	tetrachlorodibenzodioxin
TPH	total petroleum hydrocarbons
USC	*United States Code*
U.S. EPA	United States Environmental Protection Agency
VOC	volatile organic compound

Section 1
PURPOSE

The Department of the Navy (DON) has decided to undertake a non-time-critical removal action to clean up soil contaminated with polychlorinated dibenzodioxins and polychlorinated dibenzofurans (hereafter referred to solely as dioxin) at Site 12, Open Burn Pit, and Site 17, Fire-Fighting Training Area, at the Naval Air Facility (NAF) El Centro in Imperial County, California. This Action Memorandum/Removal Action Work Plan (Action Memorandum) documents that decision for the Administrative Record. The Department of Defense (DoD) has the authority to undertake Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response actions, including removal actions, under 42 *United States Code* (USC) §9604, 10 USC §2705, and federal Executive Order 12580. Furthermore, this removal action is consistent, to the maximum extent possible, with Chapter 6.8, *California Health and Safety Code* (Ca-HSC).

This removal action will reduce the potential exposure of human receptors to contaminated soil resulting from past practices at Sites 12 and 17. By doing this, the proposed action will reduce the identified pathways of exposure to hazardous substances and chemicals of concern (COC) to acceptable levels. The proposed removal action involves removing soil contaminated primarily with dioxins at a concentration that results in a lifetime incremental cancer risk greater than 1×10^{-6} or a hazard index of 1 or greater. Although the primary COCs at the sites are dioxins, isolated occurrences of polychlorinated biphenyls (PCBs), semivolatile organic compounds, and metals are also reported at concentrations that may adversely affect human health. These isolated occurrences of other contaminants are associated with the dioxin-contaminated soil and will be removed as part of the proposed removal action. Soil contaminated with petroleum hydrocarbons, present below the dioxin-contaminated soil at Site 17, will also be removed as part of the proposed removal action.

Even though ecological receptors are not present at the sites, the proposed cleanup will also be protective of ecological receptors. The removal of contaminated soil and backfilling of the excavations will remove the potential for animals to come in contact with contaminated soil should land use change in the future and animals routinely occupy the site.

Potential impacts to groundwater are not a factor in the proposed remedial alternatives because the depth and mobility of the COCs is such that the potential for contaminants to impact the groundwater is low.

The proposed removal action for these sites is excavation of contaminated soil for off-site disposal (Alternative 1). This action is deemed consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) 40 CFR Part 300, and Chapter 6.8, Ca-HSC, 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" (40 CFR 1994).

No nationally significant or precedent-setting issues are associated with Sites 12 and 17.

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Section 2

SITE CONDITIONS AND BACKGROUND

Site 12, Open Burn Pit, is located along the eastern boundary of the base about 75 feet north of Patrol Road (Figures 2-1 and 2-2) and Site 17, Fire-Fighting Training Area, is located south of Fourth Street, between C and D Streets in the western portion of the base (Figures 2-1 and 2-3). The following subsections discuss site history, location of NAF El Centro, site characteristics, potential contaminants at the site, and state and local government involvement in the site cleanup.

2.1 REMOVAL SITE EVALUATION

Previous burning activities at Sites 12 and 17 resulted in soil contamination near the ground surface. Previous investigations have characterized the nature and extent of soil and groundwater contamination. The results of the studies are summarized below.

2.1.1 Site 12 – Open Burn Pit

Site 12 is a former burn pit used for burning illegal drugs, drug paraphernalia, and various household debris such as wood, cardboard, glass jars, tin cans, and ceramic pipe. Site 12 measures approximately 35 by 50 feet and approximately 4.5 feet deep. This pit was used from 1986 until mid-1987 (NEESA 1987). Dioxins were reported in the shallow soil at concentrations with the potential to cause adverse human-health effects and are the primary COCs at Site 12.

2.1.2 Site 17 – Fire-Fighting Training Area

Site 17 consists of a rectangular area approximately 100 by 145 feet. Site 17 was built in 1980 and used once a month for fire-fighting training exercises until February 1990 (ERC 1990). These exercises involved pouring fuel on a water layer, burning it, and then extinguishing the fire. At the time of operation, the fire-fighting training area was contained by earthen berms approximately 1 foot high, with the floor of the training area roughly coinciding with the adjacent grade. Base personnel reported that Site 17 was originally 120 by 120 feet until 1988 when the burn area was decreased to 57 by 112 feet. Site 17 remained 57 by 112 feet until closure in 1990, when a soil cap of approximately 100 by 145 feet was placed on the training area (ERC 1990). When Site 17 was closed, several layers of plastic sheeting were placed across it, and a layer of soil was placed on the sheeting, raising the site approximately 2 feet above existing grade. Dioxins were reported in shallow soil at concentrations with the potential to cause adverse human-health effects and are the primary COCs at Site 17. Soil contaminated predominantly with petroleum hydrocarbons is also present to a depth of approximately 3 feet below grade.

2.1.3 Preremoval Field Activities

Before excavation, the soil at Sites 2 and 17 will be characterized to assess disposal options. Soil will be classified using the decision process shown in Figure 2-4 as one of three types: Resource Conservation and Recovery Act (RCRA) or California hazardous waste, inert waste, or designated or nonhazardous waste (including soil containing petroleum hydrocarbons).

2.1.3.1 SOIL SAMPLING

Soil samples will be collected at each site from the proposed locations shown in Figures 2-5 and 2-6. Approximately three samples will be collected from each location at depths corresponding to the maximum reported dioxin concentrations, as well as from above and below this interval. The result of the soil sampling will be used to assess the disposal options (see Section 2.6, above) and more fully characterize the zone of soil to be excavated.

2.1.3.2 GROUNDWATER CHARACTERIZATION

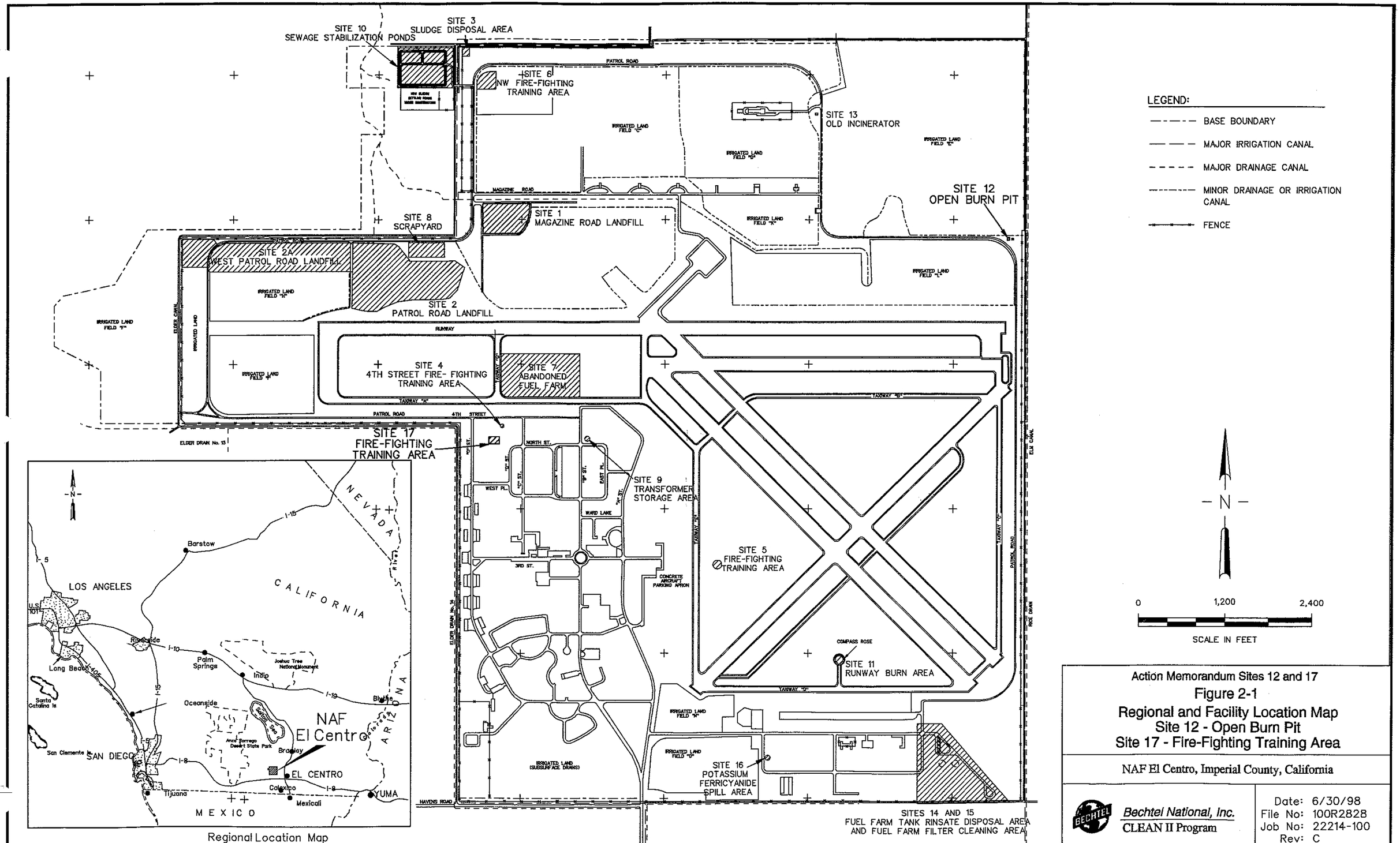
Groundwater was not assessed during the previous sampling event. Therefore, groundwater will be assessed as part of the preremoval field activities. Groundwater samples will be collected using a HydroPunch® (or equivalent method) from three locations downgradient at Site 12 (Figure 2-5). Groundwater samples will be collected from the first identified water-bearing unit and analyzed for the following parameters:

- volatile organic compounds by United States Environmental Protection Agency (U.S. EPA) Method 8260A,
- semivolatile organic compounds by CLP Method 625-M, and
- polychlorinated dibenzodioxin by U.S. EPA Method 8290.

Based on the results of the groundwater characterization, one of three decisions will be made jointly between the Navy and lead regulatory agency:

- no further action for groundwater;
- installation of groundwater monitoring wells and further groundwater sampling; or
- remediation of groundwater.

The action will be selected based on the concentration of contaminants reported in groundwater samples. If further action for groundwater is required, then it will be addressed as a phase of work separate from the removal action for soil.



Action Memorandum Sites 12 and 17

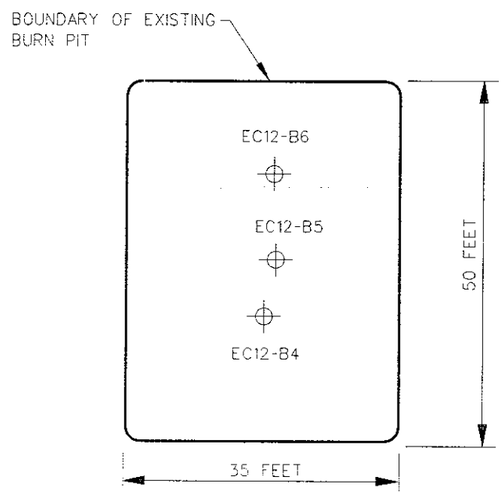
Figure 2-1

Regional and Facility Location Map
Site 12 - Open Burn Pit
Site 17 - Fire-Fighting Training Area

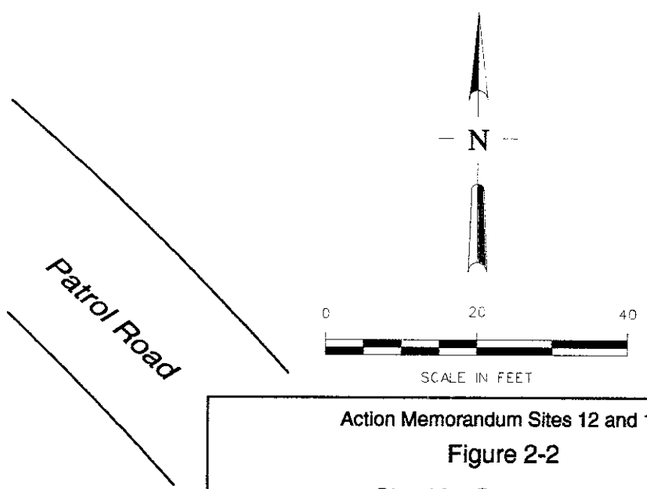
NAF El Centro, Imperial County, California

Bechtel National, Inc.
CLEAN II Program

Date: 6/30/98
File No: 100R2828
Job No: 22214-100
Rev: C



SITE 12



Action Memorandum Sites 12 and 17

Figure 2-2

Site 12 - Open Burn Pit

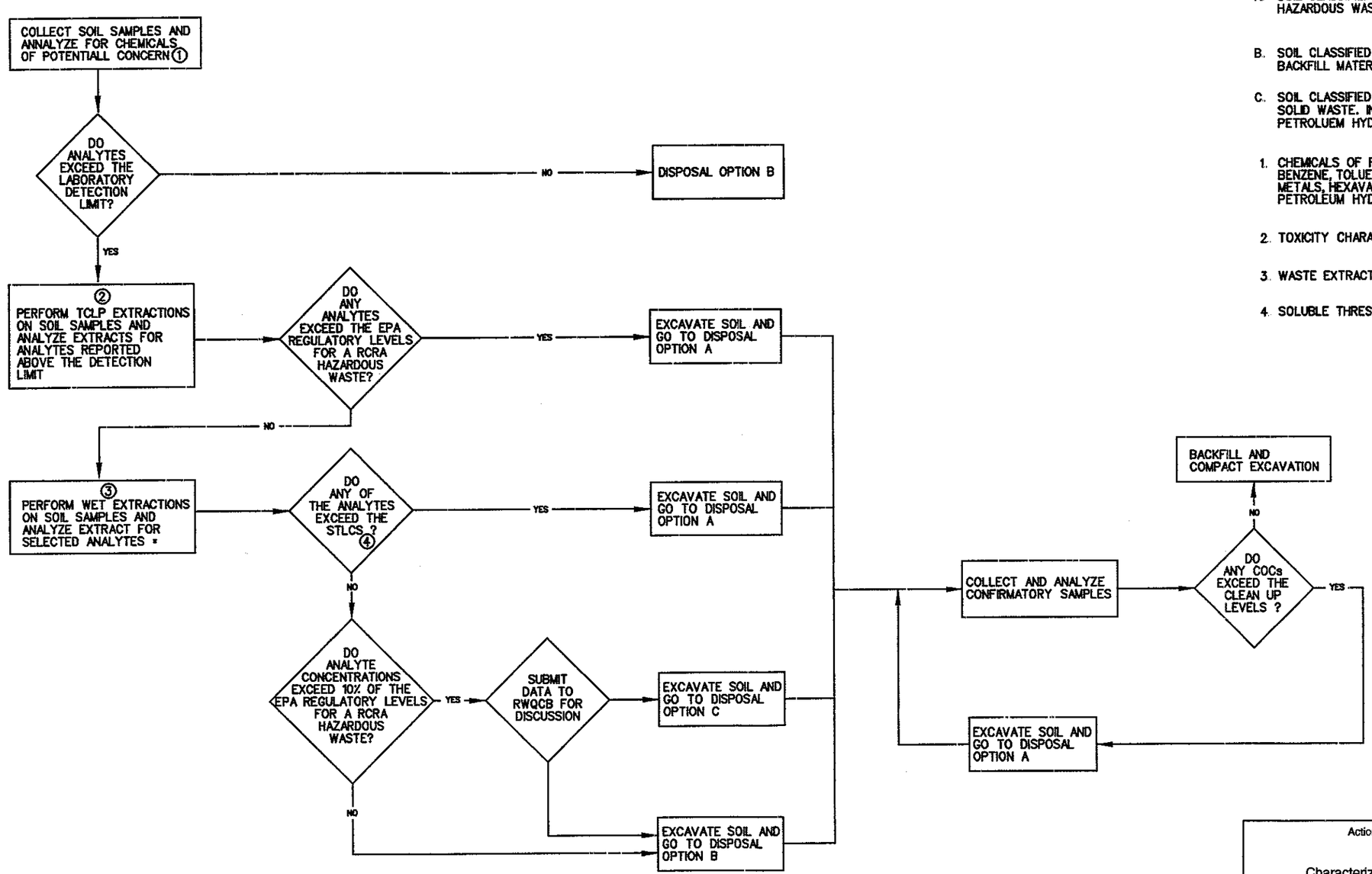
NAF El Centro, Imperial County, California

LEGEND

EC12-B4 SOIL BORING LOCATION

Bechtel National, Inc.
CLEAN II Program

Date: 10/28/98
File No: 100L2647
Job No: 22214-100
Rev: G



DISPOSAL OPTIONS

A. SOIL CLASSIFIED AS A RCRA OR CALIFORNIA HAZARDOUS WASTE.

B. SOIL CLASSIFIED AS INERT. CAN BE USED AS BACKFILL MATERIAL

C. SOIL CLASSIFIED AS DESIGNATED OR NON-HAZARDOUS SOLID WASTE. INCLUDES SOIL CONTOURING PETROLUEM HYDROCARBONS

1. CHEMICALS OF POTENTIAL CONCERN: DIOXINS; BENZENE, TOLUENE, ETHYLBENZENE, XYLENE, METALS, HEXAVALENT CHROMIUM, TOTAL PETROLEUM HYDROCARBONS

2. TOXICITY CHARACTERS LEACHING PROCEDURE

3. WASTE EXTRACTION TEST

4. SOLUBLE THRESHOLD LIMIT CONCENTRATIONS

Action Memorandum Sites 12 and 17

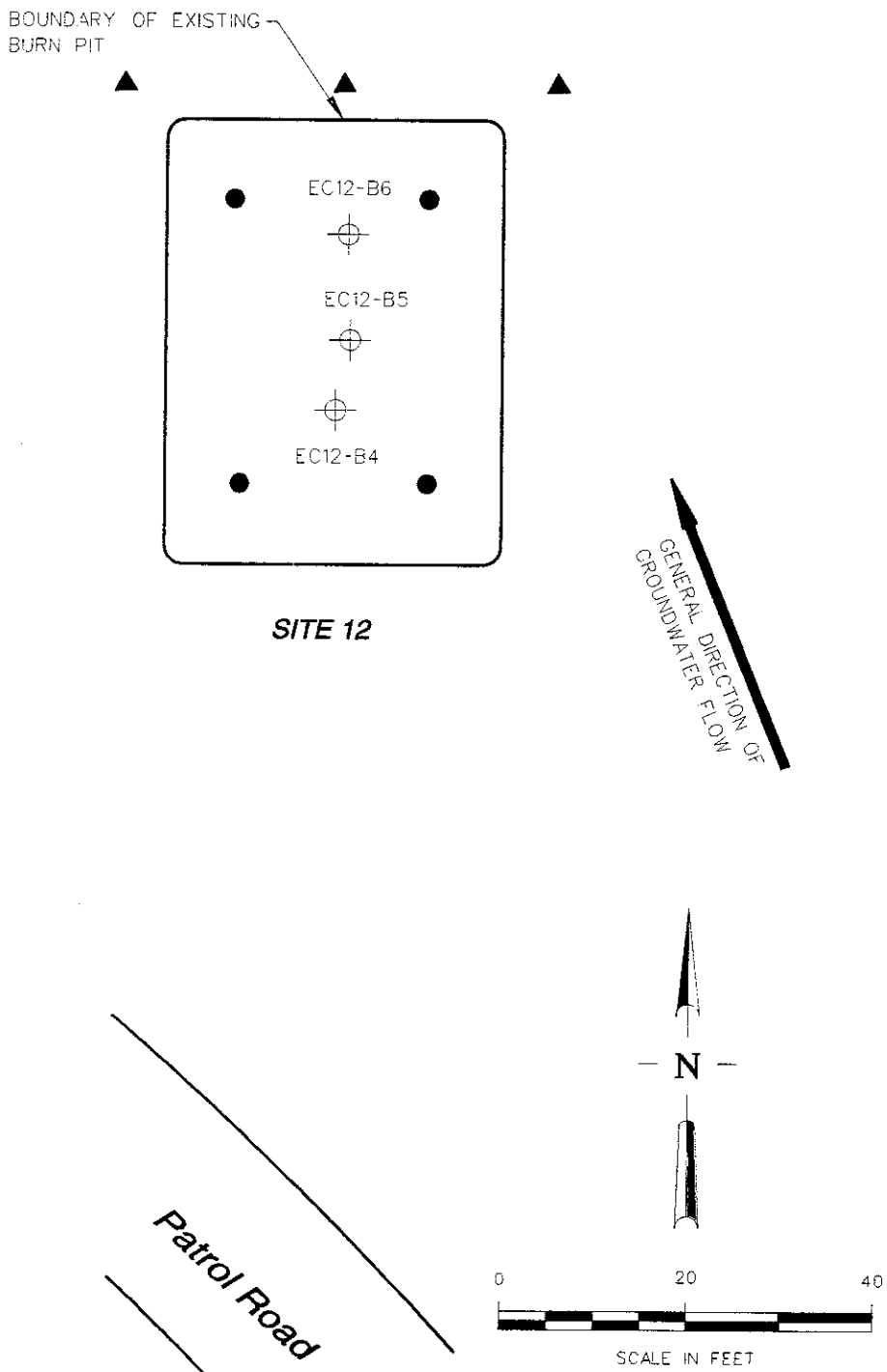
Figure 2-4

Characterization, Excavation, and Disposal Decision Flow Diagram

NAF El Cento, Imperial County, California

Bechtel National, Inc.
CLEAN II Program

Date: 10/29/98
File No: 100C3705
Job No: 22214-100
Rev: A



LEGEND

EC12-B4 — PREVIOUS SOIL BORING LOCATION

● PROPOSED CHARACTERIZATION SAMPLE LOCATION

▲ PROPOSED HYDROPUNCH LOCATION

Action Memorandum Sites 12 and 17

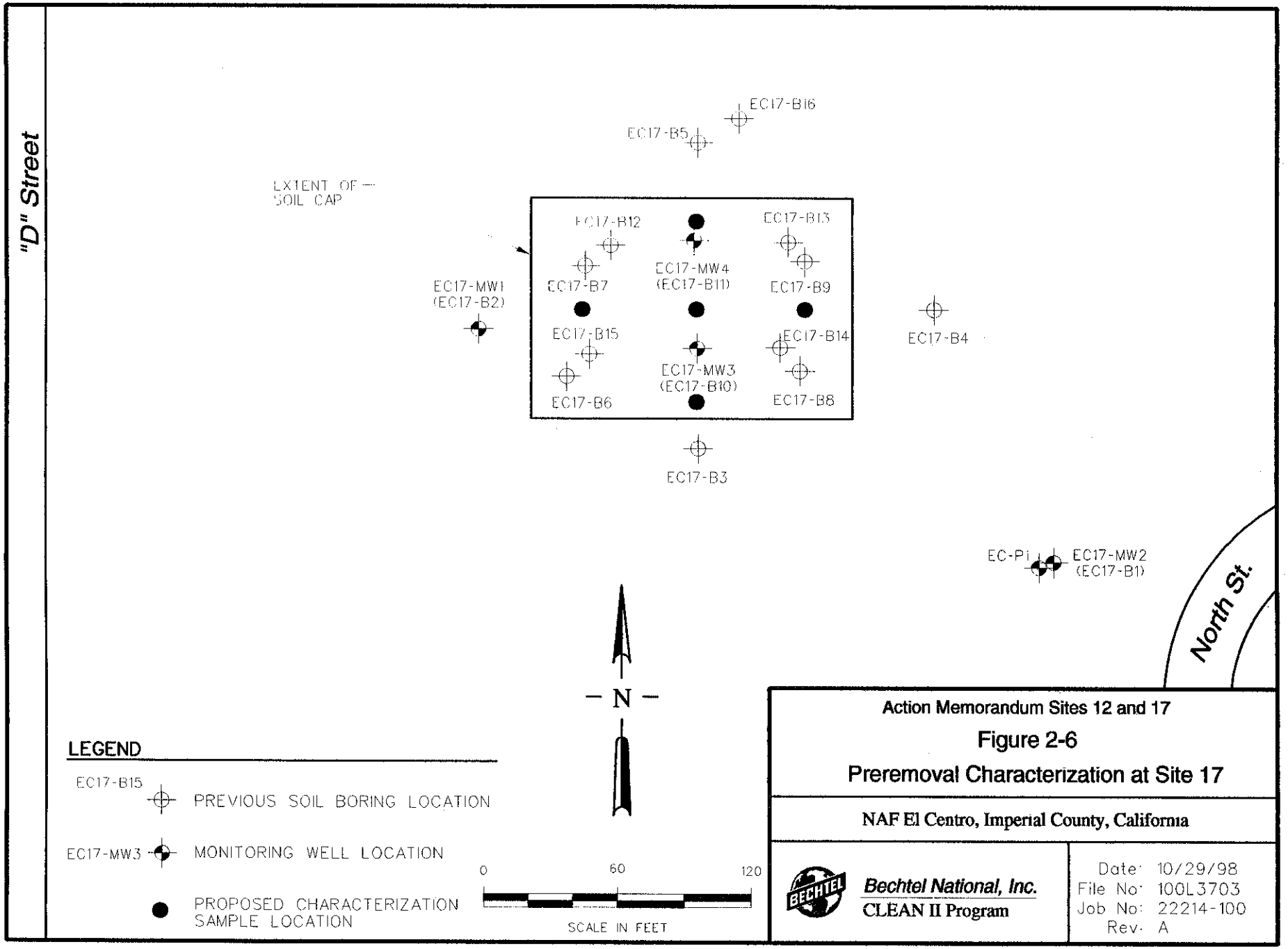
Figure 2-5

Pre-removal Characterization at Site 12

NAF El Centro, Imperial County, California

Bechtel National, Inc.
CLEAN II Program

Date: 10/29/98
File No: 100L3701
Job No: 22214-100
Rev: A



Action Memorandum Sites 12 and 17

Figure 2-6

Preremoval Characterization at Site 17

NAF El Centro, Imperial County, California

Bechtel National, Inc.
CLEAN II Program

Date: 10/29/98
File No: 100L3703
Job No: 22214-100
Rev: A

2.2 PHYSICAL LOCATION OF NAF EL CENTRO

NAF El Centro is located approximately 7 miles northwest of El Centro, California, 11 miles north of the Mexican border, and 85 miles east of San Diego, Imperial County, California (Figure 2-1).

The primary mission of NAF El Centro is to maintain and operate facilities and to provide services and materials to support naval operations (e.g., aviation activities and other activities designated by the Chief of Naval Operations). The climate in the NAF El Centro area is arid, with hot, dry summers and mild winters. The mean annual precipitation in the area is 2.91 inches. Rainfall occurs as gentle winter rains or intense summer thunderstorms. Residences, public areas, and facilities are located within a 1-mile radius of NAF El Centro. Sites 12 and 17 are not adjacent to vulnerable or sensitive populations, habitats, and natural resources.

2.3 SITE CHARACTERISTICS

Sites 12 and 17 are currently unused. Both sites consist of flat, cleared land with no nearby structures. Land use within the base is generally classified as a current and future military operating area, although significant portions of the northern part of the base are leased to local farmers for agricultural use. No wetlands or wildlife preserves are located in the vicinity of Sites 12 and 17.

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

Potential contaminants reported at the sites include dioxins, volatile and semivolatile organic compounds, PCBs, metals, and petroleum hydrocarbons. Analytical results from the previous investigations are presented in Appendix A of the Engineering Evaluation/ Cost Analysis (EE/CA) (Attachment A). Comparison of the reported concentrations to residential soil preliminary remediation goals (PRGs) (U.S. EPA 1996) identified dioxins, Aroclor 1260, phenanthrene, and hexavalent chromium (when chromium was assumed to be present in the hexavalent form) as the dominant risk drivers, which are contaminants that could adversely affect human health. Arsenic and beryllium also exceeded the residential soil PRGs. However, the reported concentrations are believed to result from naturally occurring conditions. Aroclor 1260 and phenanthrene each occurred as a single isolated occurrence. Therefore, dioxins are the primary contaminant present at the site that may adversely affect human health.

At Site 12, the primary risk drivers are dioxins. Speciation of chromium was not conducted during the previous investigations; therefore, if chromium is assumed to be present in the hexavalent form at the reported concentrations, then it will also be a dominant risk driver. Speciation of hexavalent chromium will be conducted prior to

disposal activities. See Section 2.5 of the EE/CA (Attachment A) for a more detailed explanation of the risk screening results.

At Site 17, the primary risk drivers are dioxins. Aroclor 1260 and phenanthrene were also reported at concentrations exceeding the residential soil PRG values; however, each of these were reported only one time and are considered isolated occurrences. They are not expected to be widespread throughout the site.

The soil contamination resulted from past site practices where petroleum-based fuels were used in burning confiscated drugs (Site 12) or as part of fire-fighting training exercises (Sites 17). Therefore, the expected contaminants are transformation products associated with burning. Dioxins and polynuclear aromatic hydrocarbons (PAHs) were reported at both sites; however, with the exception of one soil sample at Site 17, PAHs were not reported at connections above residential soil PRGs. The estimated volume of dioxin-contaminated soil for Sites 12 and 17 is approximately 50 and 500 cubic yards, respectively. However, because excavation activities will remove additional soil above and below the contaminated interval, the total volume of soil to be removed for off-site disposal is estimated to be 100 and 1,000 cubic yards for Sites 12 and 17, respectively.

2.5 NATIONAL PRIORITIES LIST STATUS

Sites 12 and 17 have not been proposed for the National Priorities List nor is either site being evaluated by the Agency for Toxic Substances and Disease Registry for the need to separate residents from threats.

2.6 PREVIOUS ACTIONS

Previous activities at Sites 12 and 17 have included preliminary assessments (NEESA 1987; ERC 1990), soil sample collection and analysis (Ogden 1992; BNI 1998), and an interim measure to reduce the potential for contact with contaminated soil by covering the site with a layer of plastic sheeting and a 2-foot soil cap.

In addition, as the lead federal agency, the DON initiated a community relations program at NAF El Centro. In 1993, a community relations plan for NAF El Centro was published (Brown and Caldwell 1993) and implemented. To comply with CERCLA requirements for community relations and to involve the interested community in the cleanup process, an Administrative Record file (Attachment B) was established. The Administrative Record is updated as needed. Three information repository locations were established. These repositories contain the following documents: responses to regulatory comments and public comments received during three public meetings and one open house since March 1995 (Attachment C); solicitations to interested parties for participation in a Restoration Advisory Board; fact sheets and brochures describing the Navy's cleanup program and background (Attachment D); and other required documents.

The Administrative Record file is located at the Environmental Technical Library, Southwest Division Naval Facilities Engineering Command, 1220 Pacific Highway,

Building 129, San Diego, CA 92132-5190. The point of contact (POC) is Chris Potter at (619) 532-1144. An index of the Administrative Record file has been included as Attachment B.

Three information repositories have been established at NAF El Centro, City of El Centro Public Library, and City of Brawley Public Library. The addresses and POCs are listed below.

NAF El Centro
Public Works Department
El Centro, CA 92243-5001
POC: Mr. Fred Rivera (619) 339-2201

City of El Centro Public Library
539 State Street
El Centro, CA 92243
POC: Ms. Margaret Gotti (619) 337-4565

City of Brawley Public Library
400 Main Street
Brawley, CA 92227
POC: Librarian (619) 344-1891

2.7 CURRENT ACTIONS

The EE/CA for Sites 12 and 17 (Attachment A) summarizes the previous investigations conducted at these sites and has been included in the Administrative Record file, which is available for public review at each of the information repository locations (see Section 2.6). This Action Memorandum will also be included in the Administrative Record file and made available for public review and comment at each of the information repository locations.

2.8 STATE AND LOCAL ACTIONS TO DATE

Federal Executive Order 12580 delegates to the DoD the President's 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 USC §2701-2705. Both CERCLA §120(f) and 10 USC §2705 require DON facilities to ensure that state and local officials have opportunity to review and comment on DON response actions, such as this removal action for Sites 12 and 17. CERCLA §120 further requires DON to apply state removal and remedial action law requirements at its facilities.

Accordingly, California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC) and California Regional Water Quality Control Board (RWQCB) have provided technical advice, oversight, assistance, and approval during previous activities conducted for Sites 12 and 17.

2.9 POTENTIAL FOR CONTINUED STATE AND LOCAL RESPONSE

Cal-EPA DTSC and RWQCB will continue to provide technical advice, oversight, assistance, and approval throughout the cleanup process. It is expected that funding will continue under DERP.

Section 3
THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT

In accordance with the 1994 NCP, the following threats must be considered in determining the appropriateness of a removal action (40 CFR §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; and

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

3.1 THREATS TO PUBLIC HEALTH OR WELFARE

Item (i) has been identified as the primary threats for both public health or welfare and the environment at Sites 12 and 17. This section describes the potential threats posed to human and ecological receptors by exposure to dioxin-contaminated soil at Sites 12 and 17.

As part of the Data Gaps Study (BNI 1998), a streamlined risk evaluation was performed using residential soil PRGs to identify dominant risk drivers from a list of chemicals of potential concern. Sites 12 and 17 were included in this assessment. The primary dominant risk drivers for the incremental cancer risk for Site 12 include dioxins (Table 3-1). Chromium, if it is assumed to be present in the hexavalent form, would also be a dominant risk driver at Site 12. Speciation of hexavalent chromium will be conducted prior to soil disposal. Arsenic and beryllium are believed to result from naturally occurring conditions and are therefore not considered risk drivers for Site 12 (BNI 1998).

The dominant risk drivers for the incremental cancer risk at Site 17 include dioxins and furans (Table 3-2). Aroclor 1260 (a PCB) and phenanthrene also were reported as risk drivers for Site 17; however, they were present as isolated occurrences and are not

Table 3-1
Human-Health Risk for Chemicals of Concern at Site 12

Analyte	Maximum Concentration (mg/kg)[a]	Background Threshold Concentration[b]	Hazard Index[c]	Incremental Risk[c]
Antimony	0 83	0.68	0.027	[d]
Arsenic[e]	8	6.3	0.36	4.47E-06
Beryllium	1 13	1 1	0.003	2.14E-07
Cadmium	2 63	2.2	0.07	
Chromium, hexavalent[e]	73.2	0	0.19	**3.66E-04**
Chromium, total[g]	73.2	19	0.001	2.68E-07
Copper	111	22	0 04	
Lead	81	17	0 62	
Nickel	30.6	20	0.02	7.07E-08
Silver	0.19	0.6	0.001	
Thallium	0 27	0 3	0.05	
Zinc	1,200	70	0.052	
2,3,7,8-TCDD[h] (dioxin) equivalent[i]	0.000041			**1.07E-05**
Total assuming Cr as total chromium[f]			**0.63**	**1.6E-05**
Total assuming Cr as Cr^{+6} [g]			**0.82**	**3.8E-04**

Notes:
- [a] mg/kg – milligrams per kilogram
- [b] BNI 1995 and 1997a
- [c] refer to Sections 2.5.1 and 2.5.2 of the Engineering Evaluation/Cost Analysis (Attachment A) for corresponding preliminary remediation goal (PRG) values and total risk values
- [d] empty field indicates not applicable
- [e] boldface indicates dominant risk drivers
- [f] assumes total chromium is hexavalent chromium (Cr^{+6}), California Environmental Protection Agency-modified PRG (i.e , 0.2 mg/kg) used in risk calculation
- [g] assumes trivalent (Cr^{+3}) and hexavalent (Cr^{+6}) chromium in the same proportions as the United States Environmental Protection Agency Region IX PRG for total chromium
- [h] TCDD – tetrachlorodibenzodioxin
- [i] toxicity equivalent concentration = (maximum concentration) x (toxicity equivalence factor)

Table 3-2
Human-Health Risk for Chemicals of Concern at Site 17

Analyte	Maximum Concentration (mg/kg)[a]	Background Threshold Concentration[b] (mg/kg)	Hazard Index[c]	Incremental Risk[c]
Arsenic	5.9	6.3	0.27	0.00E+00
Beryllium	1.1	1.1	0.0029	0.00E+00
Cadmium	2	2.2	0.05	0.00E+00
Chromium	14.5	19	0.0001	0.00E+00
Copper	21.1	22	0.012	[d]
Lead	60.7	17	0.47	
Nickel	17.5	20	0.012	0.00E+00
Silver	0.62	0.6	0.002	
Zinc	61.2	70	0.0027	
Acetone	7.1		0.0034	
2-butanone (MEK)	0.29		0.00004	
Benzene	0.13		0.02000	2.06E-07
Toluene	2.9		0.0037	
Dibenzofuran	3.9		0.03[e]	
Ethylbenzene	2.5		0.01[e]	
Fluorene	9.7		0.11[e]	
Xylenes (total)	16		0.05[e]	
4-methylphenol	0.54		0.0016	
di-n-butyl phthalate	2.6		0.0040	
Naphthalene	14		0.06[e]	
2-methylnaphthalene	34		0.14[e]	
Phenanthrene[f]	19		**3.33[e]**	
Tetrachloroethene	0.97		0.02	1.80E-07
2,4′-dichlorodiphenyltrichloroethane	0.05		0.0014	3.62E-08
4,4′-dichlorodiphenyldichloroethane	0.04			2.21E-08
4,4′-dichlorodiphenyldichloroethene	0.04			3.23E-08
Aroclor 1260	0.11		0.08	**1.67E-06**
2,3,7,8-TCDD[g] (dioxin) equivalent[h]	0.00003			**9.82E-06**
Total hazard index and cancer risk			**0.50**	**1.20E-05**

(table continues)

Table 3-2 (continued)

Notes:
[a] mg/kg – milligrams per kilogram
[b] BNI 1995 and 1997a
[c] refer to Section 2.5.2 of Engineering Evaluation/Cost Analysis (Attachment A) for corresponding preliminary remediation goal values and total risk values
[d] empty field indicates not applicable
[e] soil saturation; not included in hazard index
[f] boldface indicates dominant risk drivers
[g] TCDD – tetrachlorodibenzodioxin
[h] toxicity equivalent concentration = (maximum concentration) x (toxicity equivalence factor)

expected to be widespread at the site. The following subsections discuss these risk drivers and possible health effects.

The potential exposure routes for human contact are:

- inhalation of airborne particles,
- dermal contact, and
- ingestion of contaminated food, water, or soil.

Base personnel and agricultural workers in the surrounding cultivated fields would have the greatest potential for exposure to COCs from Sites 12 and 17. However, Site 17 has been covered with soil; therefore, human exposure to the COCs is not likely unless the soil cover integrity diminishes. Site 12 has the greatest potential for human exposure, given that the former burn pit is open and has not been capped. Possible dermal exposure scenarios include: 1) a trespasser entering the pit and coming into dermal contact with the contaminated soil or 2) wind sufficiently disturbing the contaminated soil to generate fugitive dust, which could come into contact with nearby populations. Similarly, the ingestion pathway is a remote possibility and likely to be an incomplete exposure pathway. In addition to the two possible exposure scenarios indicated above for dermal contact, another remotely possible ingestion scenario could be deposition of contaminated dust on food crops. It is possible that nearby populations may be exposed to airborne COCs via inhalation of fugitive dust generated during dust storms and/or during remediation (i.e., soil excavation) activities at the sites.

3.1.1 Dioxins

The dioxin compounds can be generated and released to the environment from various combustion processes when chlorine donor compounds (i.e., chlorinated phenols, PCBs, phenoxy herbicides, chlorinated benzene, chlorinated aliphatic compounds, chlorinated catalysts, and halogenated diphenyl ethers) are present (Hites 1991).

Dioxins are not produced commercially; they are environmental contaminants associated with the production and incineration of chlorinated materials (e.g., PVC piping, PCB mixtures). Dioxins and furans have similar toxicological profiles and are experimental

carcinogens, teratogens, and reproductive toxicants in animals. Tetrachlorodibenzodioxin (TCDD) is extremely toxic to animals.

Chloracne, a severe acne-like condition, is the most common health effect observed in humans as a result of dioxin and furan exposure. In addition to chloracne, human exposure has been associated with other toxic effects, which include liver function impairment, peripheral nerve damage, hyperpigmentation, and other skin disorders. Epidemiological studies have failed to consistently demonstrate organ-specific illnesses attributable to dioxins and furans. Evidence for human carcinogenicity is limited and inconclusive. TCDD is classified as a probable human carcinogen by U.S. EPA. Tetrachlorodibenzofuran has not been classified as a carcinogenic.

3.1.2 Chromium

The most toxic form of chromium is hexavalent chromium; however, this form is generally unstable, and the trivalent form is the most common. Hexavalent chromium is considered a carcinogen (cancer-causing). Chromium has been reported to cause contact dermatitis, liver and kidney damage, lung congestion, and lung cancer in humans.

3.1.3 Polychlorinated Biphenyls

PCBs are a group of synthetic organic chemicals used extensively in the United States as coolants and lubricants in electrical transformers and other electrical equipment. Due to evidence that PCBs bioaccumulate in the environment and cause adverse effects, the manufacturing of PCBs in the United States was discontinued in October 1977.

PCBs are liver carcinogens in animals. In addition, animals fed PCBs in studies showed reproductive damage and toxic effects in the liver, stomach, and thyroid gland. Human exposure to PCBs causes chloracne similar to that produced by exposure to dioxins and furans (see Section 3.1). Other toxic effects reported in humans exposed to PCBs include liver toxicity and skin rashes. Evidence for human carcinogenicity is limited and inconclusive. PCBs are classified as probable human carcinogens by U.S. EPA, based on limited evidence in humans and sufficient evidence in animals.

Phenanthrene is one compound of a group of chemicals known as PAHs. PAHs are formed as a result of incomplete combustion of coal, oil, gas, garbage, or other organic substances. PAHs can occur naturally or are man-made. Phenanthrene is considered a noncarcinogenic (noncancer-causing) PAH. It causes human skin to be sensitive to the sun exposure. Additional data on human exposures and animal studies is inadequate and limited.

3.2 THREATS TO THE ENVIRONMENT

An Ecological Scoping Assessment (ESA) was prepared for NAF El Centro (BNI 1997b) to assess sites for potential adverse risks to ecological receptors. The ESA concluded that ecological receptors do not live, or routinely live, at the sites and that no complete

exposure pathway is present. No sensitive ecological populations live at or frequent Sites 12 or 17.

No wildlife refuges or state or federal parks are located within 10 miles of NAF El Centro. The nearest wildlife refuge is the Salton Sea National Wildlife Refuge in the southeastern portion of the Salton Sea, approximately 15 miles north of the base. With the exception of the New River, its tributary west of the base, and agricultural canals, no year-round areas of freshwater where waterfowl would congregate are located within 1 mile of the base. No wetlands are located within the base perimeter (BNI 1997b).

Section 4
ENDANGERMENT DETERMINATION

Human-health risk screening calculations and other information contained in the Administrative Record indicate that the reported concentrations of some COCs at Sites 12 and 17 could cause adverse effects to public health, welfare, or the environment.

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

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Section 5

PROPOSED ACTIONS AND ESTIMATED COSTS

Based on the results of the removal action alternative evaluation, Alternative 1 was selected as the recommended removal action.

5.1 PROPOSED ACTION

Alternative 1, excavation and off-site Class I landfill disposal is the recommended removal action because it is considered less expensive than Alternative 2, excavation and off-site high temperature incineration. Alternative 8, no action, is not recommended because it does not achieve the removal action objectives.

5.1.1 Proposed Action Description

Alternative 1 will implement an excavation and disposal remedy. Because of the apparent limited extent of contaminated soil and the long-term objective of no further action for Sites 12 and 17, Alternative 1 is considered an effective means for addressing soil contamination. Alternative 1 proposes excavation of dioxin-contaminated soils with 2,3,7,8-TCDD dioxin equivalent concentrations that exceed the incremental cancer risk of 1×10^{-6}. Contaminated soil will be transported to a Class I landfill facility for disposal as Cal-EPA non-RCRA hazardous waste.

5.1.1.1 EXCAVATION

The estimated extent of contaminated soil to be excavated is based on the results of the previous sampling activities conducted at the sites and will be further characterized before excavation as described in Section 2.6 of the EE/CA. The excavation plan assumes that the dioxin-contaminated material is in a 6-inch-thick layer at the bottom of each pit. It assumes that soil with contaminant concentrations greater than the target action levels (Table 5-1) will be removed. These action levels are not specific cleanup concentrations. It is assumed that isolated occurrences of contaminants may remain on-site if they do not pose a potential threat to human health or the environment. Decisions regarding which analytes and concentrations may remain on-site will depend upon the potential toxicity and reported depth. These decisions will be made jointly between the Navy and the lead regulatory agency. The estimated extent of dioxin and petroleum-contaminated soil to be removed is shown in Figures 5-1 through 5-4.

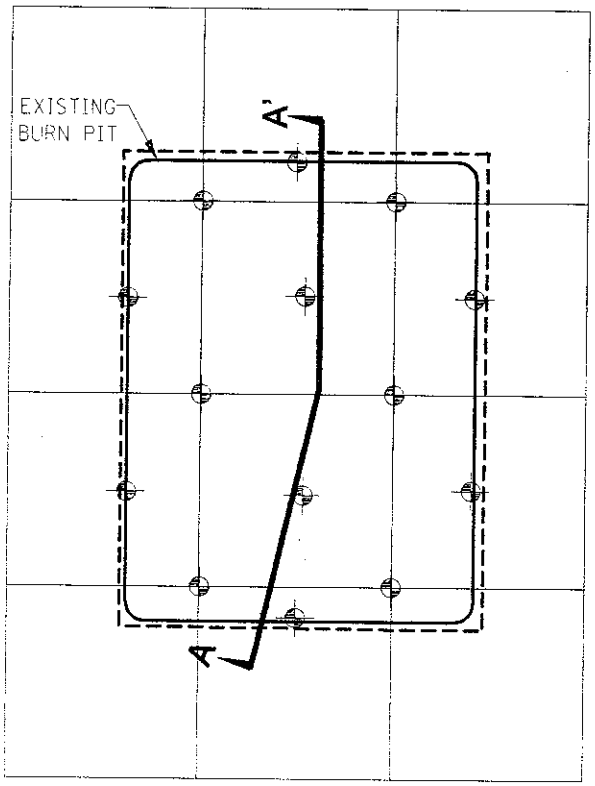
Excavation activities will be conducted as follows.

1. All material removed from the excavations will be placed on-site in stockpiles or covered containers according to classification. Nonhazardous soil will be placed on 10-mil plastic sheeting

Table 5-1
Proposed Target Action Levels

Parameters	Residential PRG[a] (mg/kg)[b]	Background Threshold Value (mg/kg)	Highest Detected Concentration (mg/kg)	Target Action Levels (mg/kg)
2,3,7,8-TCDD[c] (dioxin) equivalent[d]	0 0000038	—[e]	0 000041	0 0000038
Chromium, hexavalent	0 2[f]	—	—	0 2[f]
Chromium, total	210	19	73	19
Copper	2,800	22	111	22
Lead	130[g]	17	81	17
Nickel	150[g]	20	30 6	20
Zinc	23,000	70	1,200	70
Total petroleum hydrocarbons	—	—	20,000	100
SVOCs[h] and VOCs[i]	—	—	—	Detection limit
Other metals not listed above	—	—	—	Background threshold value

Notes:
- [a] PRG – United States Environmental Protection Agency Region IX residential preliminary remediation goal for soil (U S EPA 1996)
- [b] mg/kg – milligrams per kilogram
- [c] TCDD – tetrachlorodibenzo(p)dioxin
- [d] toxicity equivalent concentration = (maximum concentration) × (toxicity equivalence factor)
- [e] — – not applicable
- [f] the soil cleanup level will be the California Environmental Protection Agency (Cal-EPA)-modified PRG; if a laboratory detection limit equal to or less than the Cal-EPA-modified PRG is not available, the lowest available detection limit will be used as the cleanup level
- [g] Cal-EPA-modified PRG (DTSC 1994b)
- [h] SVOC – semivolatile organic compound
- [i] VOC – volatile organic compound



LEGEND

A A' CROSS SECTION LOCATION

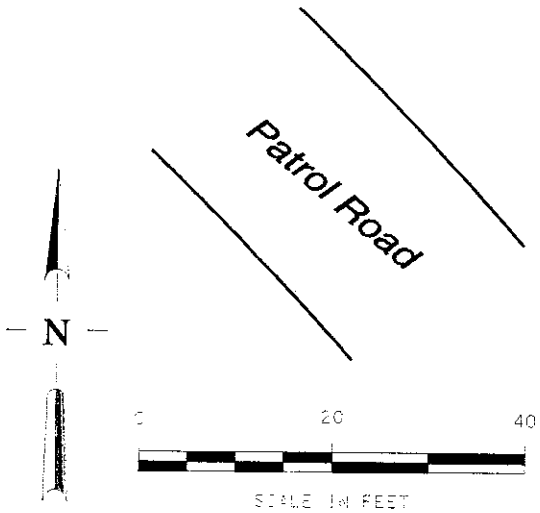
20-FOOT SAMPLING GRID

PROPOSED CONFIRMATION SAMPLING LOCATION

EC12-B4

SOIL BORING LOCATION

ESTIMATED EXTENT OF SOIL TO BE REMOVED



Action Memorandum Sites 12 and 17

Figure 5-1

Proposed Confirmation Sampling Locations

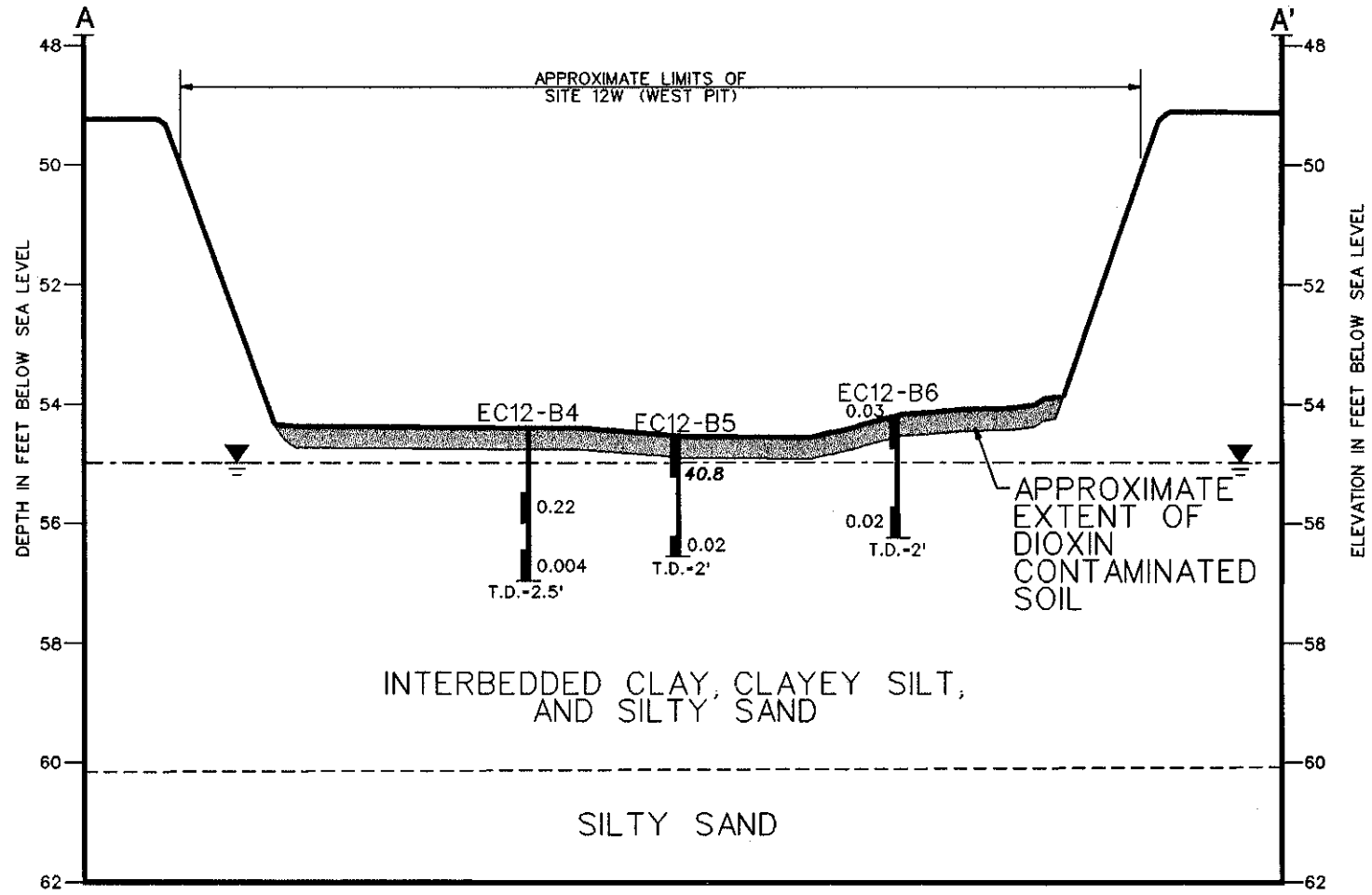
Site 12 - Open Burn Pit

NAF El Centro, Imperial County, California

Bechtel National, Inc.

CLEAN II Program

Date: 10/28/98
File No: 100L3288
Job No: 22214-100
Rev: D



LEGEND:

■	APPROXIMATE LOCATION OF SOIL SAMPLE WITH 2,3,7,8-TCDD (DIOXIN) EQUIVALENT CONCENTRATION IN ng/Kg
T.D.-2.5'	TOTAL DEPTH OF BORING (IN FEET BGS)
40.8	BOLD AND ITALIC NUMBER INDICATES VALUE ABOVE PRG
- - - - - -	INFERRED LITHOLOGIC CONTACT
▼ - - - -	GROUNDWATER FIRST ENCOUNTERED
▒	APPROXIMATE EXTENT OF DIOXIN CONTAMINATED SOIL TO BE REMOVED

0 9 18

HORIZONTAL SCALE IN FEET

Action Memorandum Sites 12 and 17

Figure 5-2

Cross Section A-A'

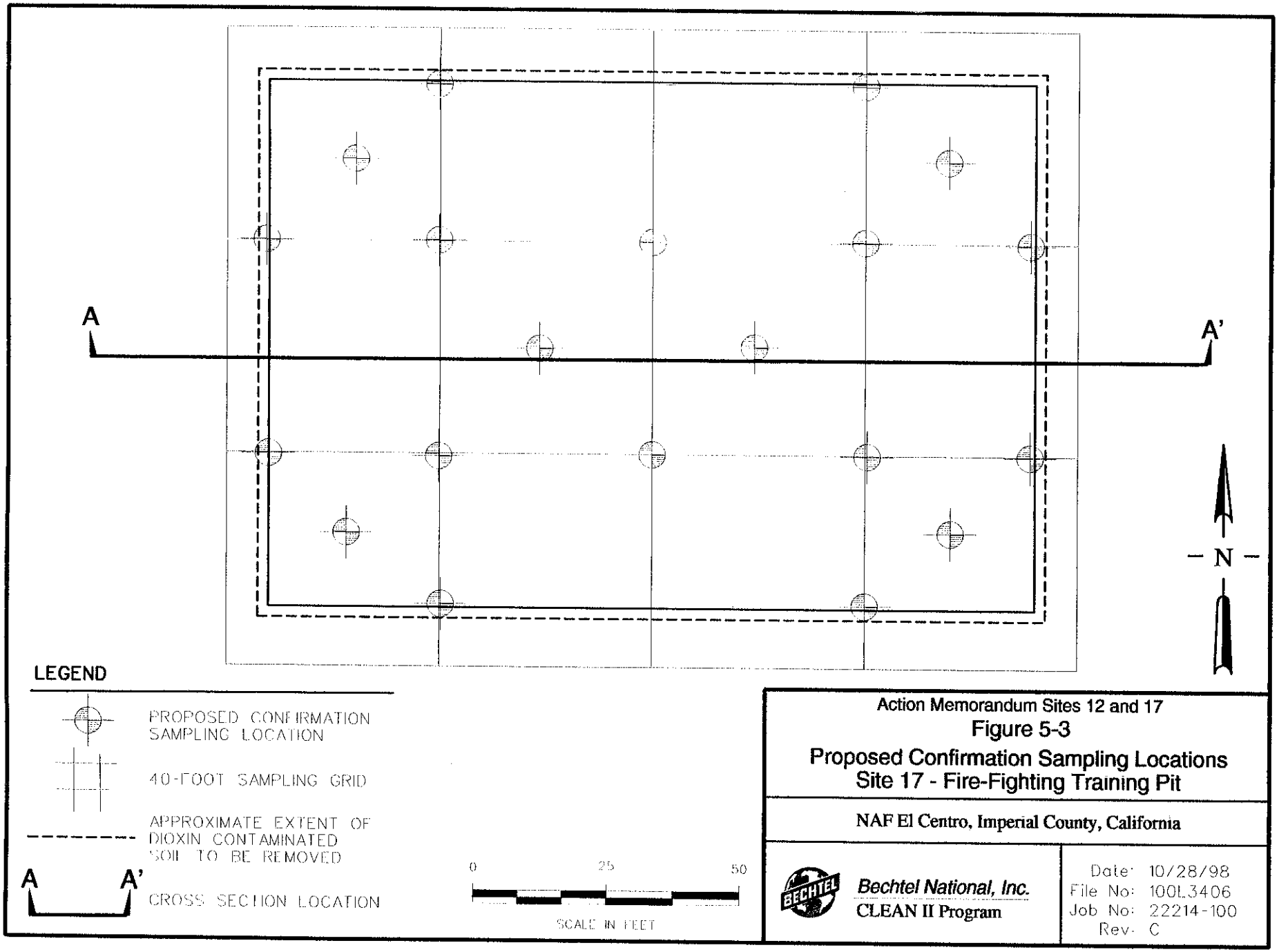
Site 12 - Open Burn Pit

NAF El Centro, Imperial Valley, California

Bechtel National, Inc.

CLEAN II Program

Date: 7/1/98
File No. 100X3286
Job No. 22214-100
Rev. No. C



Action Memorandum Sites 12 and 17

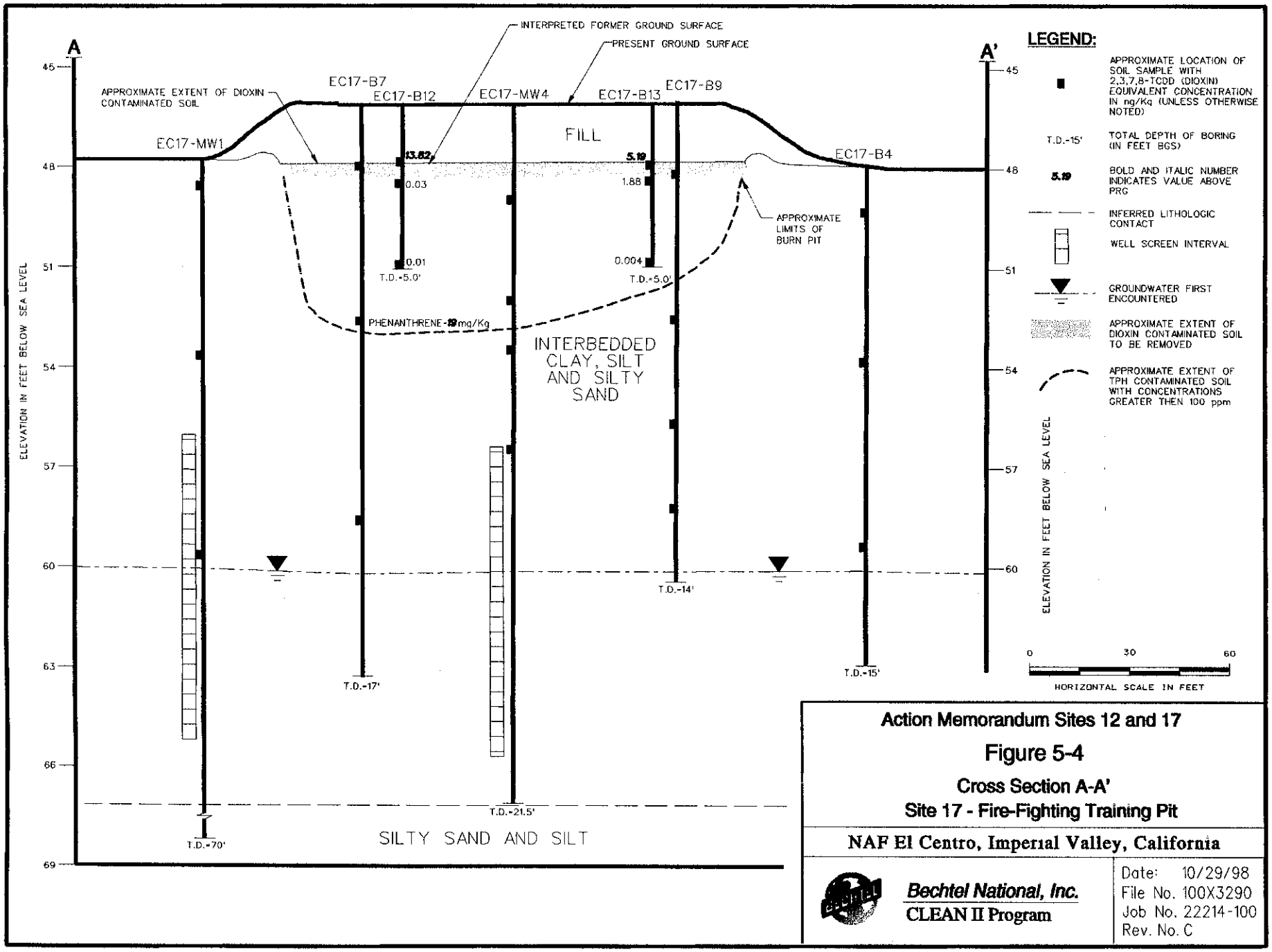
Figure 5-3

Proposed Confirmation Sampling Locations
Site 17 - Fire-Fighting Training Pit

NAF El Centro, Imperial County, California

Bechtel National, Inc.
CLEAN II Program

Date: 10/28/98
File No: 100L3406
Job No: 22214-100
Rev: C



Action Memorandum Sites 12 and 17

Figure 5-4

Cross Section A-A'

Site 17 - Fire-Fighting Training Pit

NAF El Centro, Imperial Valley, California

Bechtel National, Inc.

CLEAN II Program

Date: 10/29/98
File No. 100X3290
Job No. 22214-100
Rev. No. C

Noncontaminated cap material defined as inert waste (EE/CA, Section 2.6), at Site 17 will be excavated and segregated in stockpiles designated for noncontaminated soil.

- Fill material from Site 17 will be excavated to 0.5 feet above the contaminated interval.
- Noncontaminated soil removed for slope stability will be staged with the stockpiled material designated as noncontaminated, whenever possible.

2. Contaminated material corresponding to the bottom of each burn pit will be excavated to 0.5 feet below the vertical extent of contamination and segregated in stockpiles designated for off-site disposal.
3. Additional excavation will occur in any areas of discolored soil.

Noncontaminated soils will be sampled before using them to backfill the excavations. During the excavation, water will be sprayed on the stockpiled soil and around the excavated area, as needed, to control dust.

5.1.1.2 DISPOSAL

After the soil is excavated and stockpiled, profile samples will be collected from each contaminated soil stockpile to evaluate disposal classification. Based on the results of the characterization sampling, the soil will be disposed as follows.

- Inert soil will be used as backfill for the excavations.
- Designated or nonhazardous soil (including soil with petroleum hydrocarbons) will be transported off-site to a Class II landfill or other appropriate facility.
- Cal-EPA or RCRA hazardous soil will be transported to a licensed Class I facility.

5.1.1.3 CONFIRMATION SAMPLING

Confirmation sampling will be performed to check for remaining contaminants of concern following excavation. The confirmation sampling strategy was designed to collect a statistically valid number of samples to assure that a hot spot, approximately 10 feet in diameter, was not missed during the excavation activities, as well as achieve clean closure for the sites. Both sites were burn areas where fuel and water mixtures were used as the fuel for combustion. It is therefore assumed that the liquid would generally form a homogeneous layer on the bottom of each pit. The minimum quantity of fuel and water mixtures used for the burning activities was reported to be 50 gallons at Site 12 (NEESA 1987). It is assumed that this minimum reported volume of the liquid would have a maximum 1-inch depth in the bottom of the pit, which leads to a 10-foot-diameter area for the ponded fuel. This is a very conservative assumption because analytical sampling and field observations suggest that the hot spot size is actually the size of the entire pit and that COCs are present in a homogeneous layer corresponding to the bottom of the former pits.

The method recommended in U.S. EPA (1990) was used to evaluate the probability that the sampling strategy will identify a hot spot and uses the following equation:

$$PH = (\pi R^2)/D^2$$

where

PH is the probability that a grid point will fall on a hot spot
R is the assumed radius of the hot spot
D is the grid spacing

Using the above information and a target probability of 95 percent, a grid spacing of 18 feet was calculated. Therefore, for Site 12 a grid rounded off to a spacing of 20 feet should be sufficient to assess if the excavation activities missed a hot spot of approximately 10 feet in diameter and attain clean closure for the site

For Site 17 the grid spacing was doubled to 40 feet. This is because Site 17 is roughly ten times larger than Site 12. It was reported that the site was flooded with water bearing fuel prior to igniting the fire. The minimum size for a hot spot at Site 17 would be a minimum of 100 times the size of a hot spot for Site 12. A 40-foot grid spacing will conservatively identify if a hot spot was missed and attain clean closure for the site.

The following procedure will be used to collect confirmation samples.

- A 20-or 40-foot grid spacing will be staked out over each excavation area
- Soil samples will be collected from each grid node and submitted to an off-site laboratory for analysis. Sample locations may be modified in the field based on the grid spacing relative to the excavated size so samples are collected from the side and bottom of the excavation.
- All confirmation samples will be analyzed for polychlorinated dibenzodioxin and polychlorinated dibenzofuran (U.S. EPA Method 8290), semivolatile organics (U.S. EPA Contract Laboratory Program Method), volatile organics (U.S. EPA Method 8260), pesticides/PCBs (U.S. EPA Method 8080), and hexavalent chromium (U.S. EPA Method 7196).
- The results of the confirmation sample analyses will be compared to the target action levels listed in Table 5-1. If target analytes exceed the target action levels, additional excavation will be performed in that area, and additional samples (one sample per 500 square feet) will be collected. Sampling and excavation will continue until either analytical results are below the target action levels or only occur as sporadic isolated occurrences, posing a low threat to human health and the environment, and the lead regulatory concurs that they may remain in place.

5.1.1.4 BACKFILLING

When the results of the confirmation sample analyses indicate that the soil containing COCs at concentrations exceeding the soil cleanup levels has been removed from the site,

clean fill material will be imported to the site, and the excavation will be backfilled and compacted to American Society for Testing and Materials standards.

The source of the backfill material will not be known until the removal action construction contract is awarded. However, backfill sources that have been used during previous removal actions are listed below as potential sources for this removal action:

- wheeler pit, mixture of sand, silt, and clay; and
- crusher fines, sand and fine gravel from local rock-crushing construction activities to make gravel.

5.2 POTENTIAL IMPACTS ON SENSITIVE POPULATIONS AND HABITATS

No sensitive ecological or human populations live in or commonly frequent Sites 12 and 17 or the immediate vicinity. As detailed in the ESA (BNI 1997b), Sites 12 and 17 consist of cleared, graded land, and ecological receptors do not live at or near the site.

Site 12 is located in a restricted area near the runway and may occasionally be visited by base personnel and agricultural workers. The general NAF El Centro population does not have access to this area.

Site 17 is located near several base facilities and is possibly traversed by the occasional bicyclist, jogger, and/or walker. However, due to the 2-foot soil cover over the area of contamination, these occurrences would not result in potential contaminant exposure.

Given the current use and condition, contamination at Sites 12 and 17 has the potential to cause adverse effects to human health.

5.3 CONTRIBUTION TO REMEDIAL PERFORMANCE

The removal action objectives for Sites 12 and 17 are to reduce the potential for adverse effects to human health from exposure to dioxin-contaminated soil, reduce the potential threat to groundwater, and achieve clean closure without land-use restrictions.

The proposed removal action will eliminate immediate and potential exposure risks to human health and the environment by excavating dioxin-contaminated soil and properly disposing it in a Class I landfill facility. Remediation of petroleum hydrocarbon contaminated soil, if required, will be conducted under the LUFT Program.

5.4 DESCRIPTION OF ALTERNATIVE TECHNOLOGIES

To evaluate effectiveness, consideration was given to the overall protection of human-health and the environment, compliance with applicable or relevant and appropriate requirements (ARARs) and other guidance, and both the long- and short-term effectiveness of the alternative. Evaluation of the implementability of each alternative

included consideration of the technical feasibility, commercial availability, administrative feasibility, and public acceptance.

5.4.1 Description of Alternative 2 – Excavation, Off-Site High-Temperature Incineration

Alternative 2 involves excavation and off-site high-temperature incineration of dioxin-contaminated soil. This alternative is identical to Alternative 1, except that the dioxin-contaminated soil will be incinerated rather than disposed in a landfill. Because of the apparent limited extent of contaminated soil and the long-term objective of no further action for Sites 12 and 17, Alternative 2 is also considered an effective means for addressing the contaminated soil. However, incineration is a relatively expensive process. This alternative is discussed further in the EE/CA (Attachment A).

5.4.2 Description of Alternative 8 – No Action

Alternative 8 is no action (i.e., leaving the site as it is). This alternative will not reduce the risk of exposure to the contaminated soil at the site and will not meet removal action objectives. The toxicity, mobility, and volume of contaminants of concern will not be reduced. There are no costs associated with this alternative.

5.5 ENGINEERING EVALUATION/COST ANALYSIS

[This section to be completed after public comment period.] An EE/CA has been developed for this removal action (Attachment A). Several removal action alternatives for the dioxin-contaminated soil at Sites 12 and 17 were identified and evaluated in the EE/CA. The EE/CA will be released for public review and comment. An Administrative Record has been developed and is available for public review. The public comment period for the EE/CA and this draft Action Memorandum is scheduled to occur in October 1998. Responses to regulatory comments to the EE/CA are provided in Attachment C.

5.6 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 environmental or state environmental or facility citing laws that specifically address a hazardous substance, pollutant, or contaminant, remedial action, location, or other circumstances at a CERCLA site.

Section 300.5 of the NCP defines relevant and appropriate requirements as cleanup standards, standards of control, and other substantive requirements, criteria, or limitations

promulgated under federal environmental or state environmental or facility citing laws. While not "applicable" to a hazardous substance, pollutant, or contaminant, remedial action, location, or other circumstances at a CERCLA site, these laws address problems or situations sufficiently similar to those encountered at the 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 as possible ARARs. Administrative requirements (e.g., 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 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. ARARs must be identified based on information about chemicals at the site, features of the site location, and removal actions under consideration.

As the lead federal agency, the DON is primarily responsible for identifying federal ARARs at Sites 12 and 17. As the lead state agency, Cal-EPA has the responsibility for identifying state ARARs. In a letter dated 08 September 1997, the DON requested that Cal-EPA identify ARARs for Sites 12 and 17. On 06 October 1997, Cal-EPA DTSC submitted a letter to DON listing a potential state ARARs for Sites 12 and 17. Many of the ARARs identified by the state agencies were not relevant to the activities planned and are not discussed in this document. Other Cal-EPA departments did not respond to the ARARs request. The ARARs analysis presented in this Action Memorandum represents a summary of the information provided by Cal-EPA.

There are three types of ARARs. The first type includes "chemical-specific" requirements. These ARARs set limits on concentrations 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 activities based on site characteristics. These include restrictions on activities in wetlands, floodplains, and historic sites. The third type of ARAR includes "action-specific" requirements. These are technology-based restrictions triggered by the type of action under consideration. Examples of action-specific ARARs are RCRA regulations for waste storage and disposal.

In general, the federal and state hazardous waste management regulations promulgated in the *California Code of Regulations* (CCR) Title 22 will be the controlling ARARs for the removal action at Sites 12 and 17. These regulations characterize the hazardous nature of the excavated material, and they specify how it 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 (CCR Title 23, Chapter 15). Additionally, various rules and regulations of the Imperial County Air Pollution Control District, promulgated

pursuant to the Clean Air Act, are ARARs for soil excavation activities. A detailed evaluation of ARARs is provided as Attachment E.

5.7 PROJECT SCHEDULE

The removal action activities at Sites 12 and 17 are scheduled for funding in 2000. The schedule for the removal action at Sites 12 and 17 will be subject to changes, depending on the work schedules of the other sites.

The anticipated removal action schedule is as follows:

EE/CA and Action Memorandum issued for public comment	December 1 – 30, 1998
Response to public comments	January 1998
Final EE/CA and action memorandum	January 1998
Work Plan preparation	December 1999
Removal Action implementation	April 2000

5.8 ESTIMATED COSTS

The estimated costs for the proposed removal action (Alternative 1) are summarized in Table 5-2. Details of the cost-estimating procedure are provided in the EE/CA (Attachment A).

Table 5-2
Alternative 1 Cost Estimate for Sites 12 and 17

Cost Category	Alternative 1
Direct Costs	
Sites 12 and 17 sampling and analysis	$96,500
Excavation of dioxin	$22,300
Transport and disposal at off-site landfill	$240,200
Professional labor (project oversight)	$50,100
Remedial design	$16,800
Total Direct Costs	$425,900
Indirect Costs	$261,600
Escalation[a]	$90,200
Contingency[b]	$135,500
TOTAL	$913,200

Notes:
[a] escalation modifies the costs in the RACER database from January 1992 to the assumed project start date of January 2000
[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

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Section 6
EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If action should be delayed or not taken, exposure of human populations to dioxin-contaminated soil at Site 12 would continue. Contamination could possibly spread from each site to nearby areas from wind erosion and surface-water runoff. This spread of contamination would result in an increased health risk to the exposed population. Delayed action will also increase public health risks to the adjacent population through prolonged exposure to possible airborne, dermal, and ingestion contamination.

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Section 7
OUTSTANDING POLICY ISSUES

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

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Section 8
RECOMMENDATION

This Action Memorandum was performed in accordance with current U.S. EPA and U.S. Navy guidance documents for non-time-critical removal actions under CERCLA. The purpose of this Action Memorandum was to identify and analyze removal actions to address a non-time-critical removal action at NAF El Centro. Three alternatives were identified as feasible, evaluated for cost, and ranked:

- Alternative 1, excavation, off-site Class I landfill disposal;
- Alternative 2, excavation, off-site high-temperature incineration; and
- Alternative 8, no action.

The following alternatives were evaluated but they did not meet the removal action objective, were not technically feasible, or were expected to have public and regulatory disapproval:

- Alternative 3, excavation, on-site treatment using solidification/stabilization, and on-site disposal;
- Alternative 4, excavation, on-site treatment using soil washing, and on-site disposal;
- Alternative 5, excavation, on-site treatment using soil washing, and off-site disposal;
- Alternative 6, *in situ* stabilization/solidification; and
- Alternative 7, on-site containment (capping).

Based on comparative analysis of the removal action alternatives completed in Section 5 of the EE/CA, Alternative 1 removal action is recommended because it satisfies these six criteria:

- effective to the overall protection of human health and the environment,
- complies with ARAR and other guidance,
- technically and administratively feasible,
- commercially available,
- publicly acceptable, and
- cost competitive.

This decision document represents the selected removal action for Sites 12 and 17 at NAF El Centro, California, developed in accordance with CERCLA as amended and is not inconsistent with the NCP. This decision is based on the administrative record for these sites.

Signature: Carlos S. Badger Date: 13 Jan 99

Capt. Carlos S. Badger, Commanding Officer
Naval Air Facility El Centro

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Section 9
REFERENCES

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ATTACHMENT A

ENGINEERING EVALUATION/COST ANALYSIS

Southwest Division
Naval Facilities Engineering Command
Contracts Department
1220 Pacific Highway, Building 127, Room 112
San Diego, California 92132-5187

Contract No. N68711-92-D-4670

COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY

CLEAN II

ENGINEERING EVALUATION/COST ANALYSIS NON-TIME-CRITICAL REMOVAL ACTION SITE 12, OPEN BURN PIT, AND SITE 17, FIRE-FIGHTING TRAINING AREA NAVAL AIR FACILITY EL CENTRO, CALIFORNIA

CTO-0100/0638

November 1998

Prepared by:
BECHTEL NATIONAL, INC.
1230 Columbia Street, Suite 400
San Diego, California 92101

Signature: _____ Date: 11/18/98
Gregory A. Cagle, R G , CTO Leader

SUMMARY

This Engineering Evaluation/Cost Analysis (EE/CA) was performed in accordance with current United States Environmental Protection Agency and Navy 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 and Safety Code (Ca-HSC). This EE/CA identifies and describes the site characteristics, removal action objectives, removal action alternatives, and the recommended removal action alternative for Sites 12 and 17 at Naval Air Facility El Centro.

CERCLA, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR Part 300), and Ca-HSC §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 "removal of drums, barrels, tanks, or other bulk containers that contain or may contain hazardous substances or pollutants or contaminants—where it will reduce the likelihood of spillage; leakage; exposure to humans, animals, or the food chain . . ."

Both Sites 12 and 17 have similar characteristics. Site 12 consists of a burn pit, that was used from 1986 until mid-1987; it measures approximately 35 by 50 feet by 4.5 feet deep. It was used for burning illegal drugs, drug paraphernalia, and various household debris (wood, cardboard, jars, tin cans, and ceramic pipe). Site 12 is currently not covered.

Site 17 is a former fire-fighting training area. It was reportedly built in 1980 and was used for monthly fire-fighting training exercises until 1990. The exercises involved pouring fuel on a water layer, igniting the fuel, and extinguishing the fire. When the area was closed, several layers of plastic sheeting were placed across it and covered with approximately 2 feet of soil.

The purpose of this EE/CA is to identify and evaluate removal action alternatives for Sites 12 and 17 that will reduce concentrations in soils contaminated primarily with dioxins and furans to acceptable levels

Eight removal action alternatives were identified and considered:

- Alternative 1, excavation, off-site Class I landfill disposal;
- Alternative 2, excavation, off-site high-temperature incineration;
- Alternative 3, excavation, on-site treatment using solidification/stabilization, and on-site disposal;
- Alternative 4, excavation, on-site treatment using soil washing, and on-site disposal;
- Alternative 5, excavation, on-site treatment using soil washing, and off-site disposal;
- Alternative 6, *in situ* stabilization/solidification;
- Alternative 7, on-site containment (capping); and
- Alternative 8, no action.

Based on this analysis, the Navy recommends Alternative 1, which includes excavation and off-site disposal at a California Class I landfill facility. This alternative best meets the NCP criteria of overall protectiveness of human health, compliance with applicable 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.

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ACRONYMS/ABBREVIATIONS

ARAR	applicable or relevant and appropriate requirement
bgs	below ground surface
BNI	Bechtel National, Inc.
Ca-HSC	California Health and Safety Code
Cal-EPA	California Environmental Protection Agency
CCR	*California Code of Regulations*
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	*Code of Federal Regulations*
CLEAN	Comprehensive Long-Term Environmental Action Navy
COPC	chemical of potential concern
CTO	Contract Task Order
DDE	dichlorodiphenyldichloroethene
DON	Department of the Navy
DTSC	(Cal-EPA) Department of Toxic Substances Control
EE/CA	Engineering Evaluation/Cost Analysis
EO	Executive Order
ERC	ERC Environmental and Energy Services Co.
ESA	Ecological Scoping Assessment
°F	degrees Fahrenheit
ICAPCD	Imperial County Air Pollution Control District
mg/kg	milligrams per kilogram
MSL	mean sea level
NAF	Naval Air Facility
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEESA	Naval Energy and Environmental Support Activity
NFA	no further action
Ogden	Ogden Environmental and Energy Services, Inc.
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PRG	U.S. EPA Region IX preliminary remediation goal

ACRONYMS/ABBREVIATIONS (continued)

PPE	personal protective equipment
RACER	Remedial Action Cost Engineering Requirements
RAP	Remedial Action Plan
RAWP	Removal Action Work Plan
RCRA	Resource Conservation and Recovery Act
RWQCB	(California) Regional Water Quality Control Board
STLC	soluble threshold limit concentration
SVOC	semivolatile organic compound
SWDIV	Southwest Division Naval Facilities Engineering Command
TBC	to be considered
TCDD	tetrachlorodibenzo(p)dioxin
TCDF	tetrachlorodibenzofuran
TFH	total fuel hydrocarbons
TPH	total petroleum hydrocarbons
TRPH	total recoverable petroleum hydrocarbons
UL	upper limit
U.S. EPA	United States Environmental Protection Agency
VOC	volatile organic compound

ACRONYMS/ABBREVIATIONS (continued)

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Section 1
INTRODUCTION

This Engineering Evaluation/Cost Analysis (EE/CA) identifies proposed removal action alternatives for Site 12, the Open Burn Pit, and Site 17, the Fire-Fighting Training Area, at Naval Air Facility (NAF) El Centro in Imperial County, California, and has been prepared by Bechtel National, Inc., on behalf of the U.S. Department of the Navy (DON), Southwest Division Naval Facilities Engineering Command (SWDIV), under Contract Task Order-0100, issued under the Comprehensive Long-Term Environmental Action Navy (CLEAN) II, 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 to include "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 based on the circumstances surrounding the release or threat of release: emergency, time-critical, and non-time-critical. The removal action at Sites 12 and 17 has been determined to be a non-time-critical removal action, because on-site action will be taken more than 6 months after commencement of the planning period.

Additionally, the California Health and Safety Code (Ca-HSC) specifies the preparation of necessary documentation, which depends upon the costs of the removal action. The Ca-HSC requires development of either a Remedial Action Plan (RAP), for removal actions that cost $1 million or more, or a Removal Action Work Plan (RAWP), for removal actions that cost less than $1 million. Furthermore, Ca-HSC authorizes the California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC) to waive the RAP requirements, in favor of an RAWP or an RAP-equivalent document, for removal actions when an "Imminent and/or Substantial Endangerment" determination exists. DTSC may also waive the RAP requirements if an RAP-equivalent document that meets the requirements of Cal-HSC 25356.1(h)(3) is prepared. The removal actions for Sites 12 and 17 cost less than $1 million; therefore, the requirements for an RAWP apply. This EE/CA is intended to satisfy these requirements.

This document has been prepared for two sites with similar characteristics. Both were former burn areas where the contaminants of concern are polychlorinated dibenzodioxins and polychlorinated dibenzofurans (hereafter referred to as dioxins). Site 12, the Open Burn Pit, was used to burn illegal drugs, drug paraphernalia, and various household debris (wood, cardboard, jars, tin cans, and ceramic pipe). Site 17 was used for fire-fighting training exercises during which a layer of fuel and water were ignited and then extinguished. The removal action

objectives for these two sites are to reduce the potential for human and ecological exposure to dioxin-contaminated soil associated with the former burn areas.

The scope of this removal action does not include remediation of groundwater. If groundwater contamination is suspected, it will be addressed as a separate phase of work.

This EE/CA addresses the implementability, effectiveness, and cost for conducting a non-time-critical removal action and addresses 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 for the non-time-critical removal action. As the lead agency, the DON has the final approval authority of the recommended alternative selected and overall public participation activities with state concurrence. The DON is working in cooperation with DTSC and Cal-EPA in the implementation of this removal action.

This EE/CA is being issued in accordance with the public participation plan prepared by NAF El Centro to facilitate public involvement in the decision making process. The public is encouraged to review and comment on the proposed removal activities described in this EE/CA. To gain a more thorough understanding of the activities associated with this removal action, the public can review the administrative record for this and other NAF El Centro activities available at the following locations:

Southwest Division Naval Facilities Engineering Command
Environmental Technical Library
1220 Pacific Highway, Building 129
San Diego, CA 92132-5190
(619) 532-1144

NAF El Centro
Public Works Department
El Centro, CA 92243-5001
(619) 339-2201

City of El Centro Public Library
539 State Street
El Centro, CA 92243
(619) 337-4565

City of Brawley Public Library
400 Main Street
Brawley, CA 92227
(619) 344-1891

Section 2
SITE CHARACTERIZATION

In 1987, the Naval Energy and Environmental Support Activity (NEESA) conducted a Preliminary Assessment/Site Inspection in which 16 sites at NAF El Centro were evaluated for potential contamination (NEESA 1987). Based on findings for Site 12, no further action (NFA) was recommended. In 1997, a Data Gaps Study was performed to assess if no further action was an appropriate recommendation for Site 12 (BNI 1998a). Based on analytical results collected during the Data Gaps Study, Site 12 was recommended for further investigation.

In 1992, Ogden Environmental and Energy Services, Inc. (Ogden), performed a hydrogeological assessment report for Site 17 (Ogden 1992). Site 17 was recommended for further investigation. The information presented in the following sections were obtained primarily from the above-mentioned sources.

2.1 FACILITY DESCRIPTION AND BACKGROUND

NAF El Centro is an operational facility located approximately 7 miles northwest of El Centro, California, 11 miles north of the Mexican border, and 85 miles east of San Diego, California (Figure 2-1).

The facility has been in operation since 1942. Approximately 600 officers, enlisted personnel, and civilians currently occupy NAF El Centro. The mission of NAF El Centro is to maintain and operate facilities and provide services and materials to support naval operations such as aviation activities and other activities designated by the Chief of Naval Operations. NAF El Centro historically provided support to fleet squadrons that took advantage of the temperate climate and open space found in the Imperial Valley. The facility has supported a variety of activities, mostly in support of naval parachute testing and training, and aeronautical escape system testing, evaluation, and design. In the early 1990s, the NAF El Centro mission was redefined as a support and training facility for military aviation units and activities. The facility provides services and housing, and maintains and operates facilities to support the operations of aviation activities. Facilities associated with the base activities have included a machine and welding shop, photographic laboratory, instrument laboratory, fabric shop, and transportation garage. The base has never supported aircraft rework or industrial or aircraft maintenance operations. Malfunctioning parts are removed from the aircraft and shipped off-site for maintenance.

2.1.1 Site Location

Site 12, Open Burn Pit, is located along the eastern boundary of the base about 75 feet north of Patrol Road (Figures 2-1 and 2-2). Site 17, Fire-Fighting Training Area, is located south of Fourth Street, between C and D Streets in the western portion of the base (Figures 2-1 and 2-3).

2.1.2 Type of Facility and Operational Status

Site 12 is a former burn pit that measures approximately 35 by 50 feet and approximately 4.5 feet deep. It was used from 1986 until mid-1987 for burning illegal drugs, drug paraphernalia, and various household debris such as wood, cardboard, glass jars, tin cans, and ceramic pipe (NEESA 1987).

Site 17 is a former fire-fighting training area. At the time of its operation, the area was contained by earthen berms approximately 1 foot high. The floor of the training area roughly coincide with the adjacent grade. Base personnel reported that Site 17 was originally 120 by 120 feet, until 1988 when the burn area was downsized to 57 by 112 feet. Site 17 remained that size until its closure in 1990, when a soil cap (100 by 145 feet) was placed on the training area (ERC 1990).

Site 17 was built in 1980 and used for fire-fighting training exercises approximately once every month until February 1990. These exercises involved pouring fuel (JP-5) on a water layer, igniting the fuel, and extinguishing the fire. Approximately 1,000 gallons of fuel were used during each exercise. When Site 17 was closed, several layers of plastic sheeting were placed across it, and a layer of soil was placed on the sheeting, thus raising the site approximately 2 feet above the existing grade.

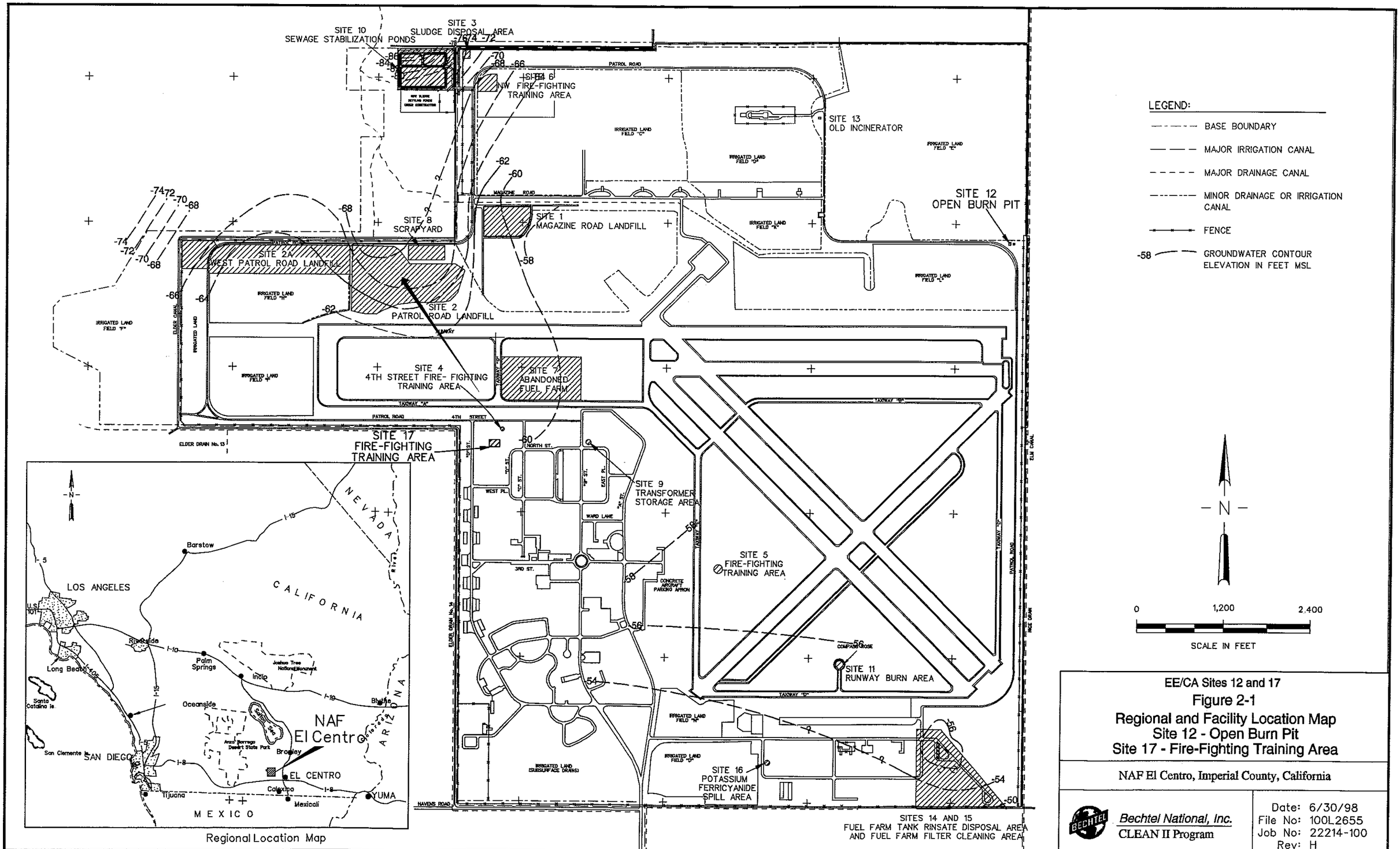
2.1.3 Structures/Topography

NAF El Centro is located on the western side of the central Imperial Valley at a elevation of approximately 50 feet below mean sea level (MSL). The central Imperial Valley is a broad, flat lowland that slopes northwestward from sea level near the international border to approximately 230 feet below MSL at the shore of the Salton Sea.

The topography in the vicinity of Sites 12 and 17 is relatively flat, consistent with the topography of NAF El Centro. Surface elevations range from 45 to 50 feet below MSL. The area surrounding NAF El Centro is also relatively flat, with the exception of bluffs adjacent to the New River, located west of NAF El Centro. No permanent structures are located on either site.

2.1.4 Geology and Hydrology

The soil at NAF El Centro and surrounding area consists primarily of luctustrine sediments. For additional information and detailed discussions regarding regional and site hydrogeologic conditions, refer to the following reports: Hydrogeological Assessment Report (Ogden 1992), the Annual Groundwater Monitoring Report (BNI 1998b), and the Data Gaps Study Report (BNI 1998a).



EE/CA Sites 12 and 17

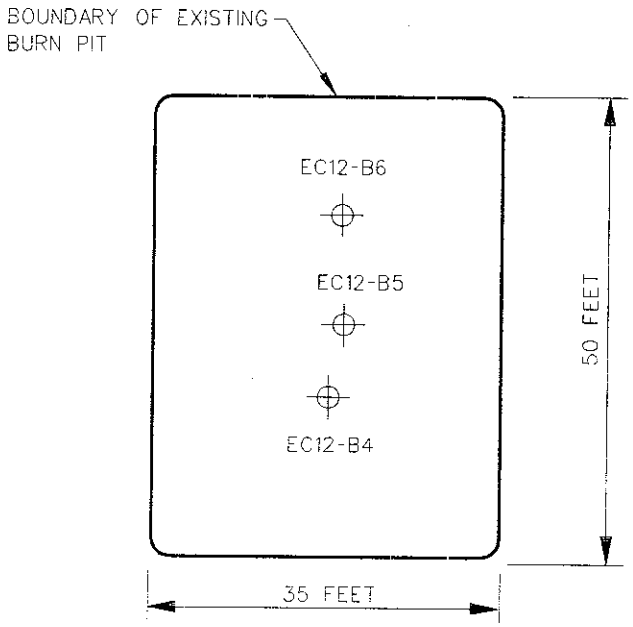
Figure 2-1

Regional and Facility Location Map
Site 12 - Open Burn Pit
Site 17 - Fire-Fighting Training Area

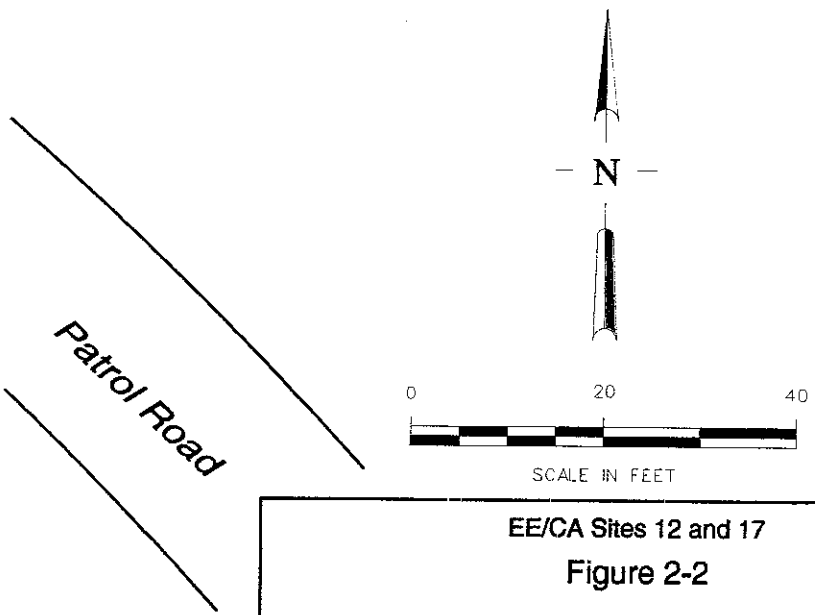
NAF El Centro, Imperial County, California

Bechtel National, Inc.
CLEAN II Program

Date: 6/30/98
File No: 100L2655
Job No: 22214-100
Rev: H



SITE 12



LEGEND

EC12-B4 ⊕ SOIL BORING LOCATION

EE/CA Sites 12 and 17

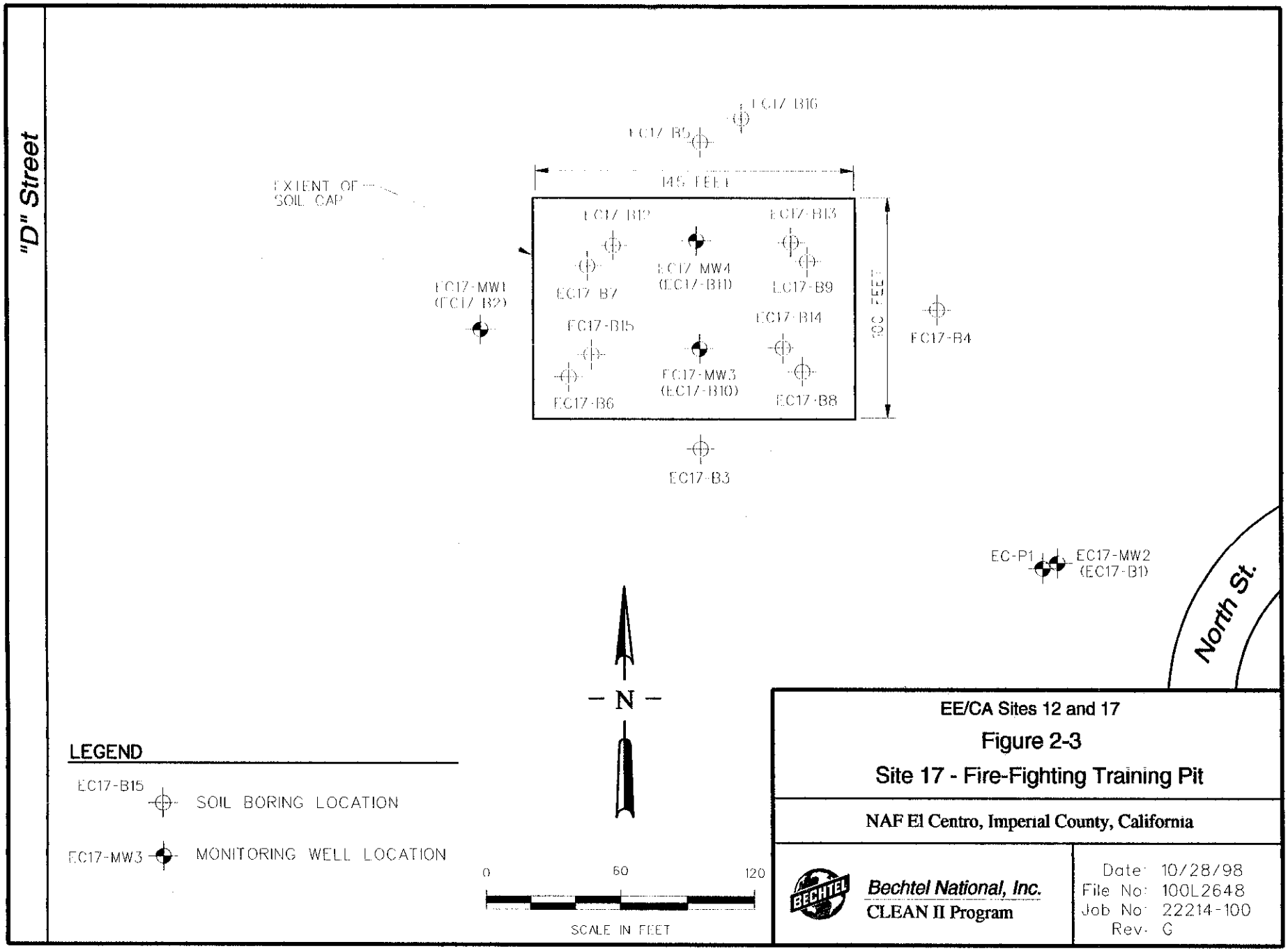
Figure 2-2

Site 12 - Open Burn Pit

NAF El Centro, Imperial County, California

Bechtel National, Inc.
CLEAN II Program

Date: 10/28/98
File No: 100L3403
Job No: 22214-100
Rev: A



EE/CA Sites 12 and 17

Figure 2-3

Site 17 - Fire-Fighting Training Pit

NAF El Centro, Imperial County, California

Bechtel National, Inc.
CLEAN II Program

Date: 10/28/98
File No: 100L2648
Job No: 22214-100
Rev: G

2.1.4.1 GEOLOGY

Soils in the vicinity of Sites 12 and 17 consist mainly of clays, silts, sands, or a combination of sand-silt-clay mixtures. Generally, the upper 10 feet of soil consist of predominantly clay and sandy clay with thin (less than 1 foot thick) interbedded layers of silt and fine-grained sand. From approximately 10 to 20 feet below grade, the soils consist predominantly of silty sand and sand. From 20 to 40 feet below grade, soils consist primarily of clay. Cross sections depicting the interpreted geology for each site are presented in Section 2.3.

2.1.4.2 GROUNDWATER

The water table in the central Imperial Valley is generally close to the ground surface due to intensive agricultural irrigation in the area. This shallow occurrence of groundwater is reported to be a discontinuous perched system recharged by local irrigation practices. In the vicinity of NAF El Centro, groundwater levels have been reported to be as shallow as 3 to 5 feet below ground surface (bgs) (United States Department of Agriculture 1981). Groundwater at Site 12 was encountered at approximately 6 feet bgs. January 1997 groundwater elevations at Site 17 indicated groundwater at approximately 10 feet bgs. Groundwater flow direction is generally to the northwest; however, it is influenced by local agricultural practices, former New River tributaries, and deeper agricultural drains (Figure 2-1).

2.1.4.3 SURFACE WATER

The nearest significant surface water bodies located within 1 mile of the sites are the New River and the Elder and Rice Canals (Figure 2-1). The New River originates primarily from agricultural return in the Imperial and Mexicali Valleys and flows north to the Salton Sea. The water quality of the New River is poor. Water samples collected by Ogden (1993), reported concentrations of total petroleum hydrocarbons (TPH), 1,1,1-trichloroethane, methylene chloride, and several heavy metals above tap water U.S. EPA Region IX preliminary remediation goal (PRG) values as well as total dissolved solid concentrations of over 3,000 milligrams per liter.

The Elder and Rice Canals provide raw water from the Colorado River for domestic and agricultural use in Imperial Valley. Both canals are lined and elevated above the adjacent grade in the vicinity of NAF El Centro. Therefore, potential contamination of the canals from on-site sources is extremely low.

2.1.5 Surrounding Land Use and Population

The land use within NAF El Centro is generally classified as a "military operating area" for both current and future use. The base is surrounded by unincorporated portions of Imperial County, where land use is primarily agricultural. Approximately 18 percent of the county is irrigated agricultural land. The developed areas, including the incorporated cities, unincorporated communities, and supporting facilities, compose less than one

percent of the total county area. Approximately 75 percent of the county consists of desert/mountains owned either by the federal government, Native American nations, or private parties. The Salton Sea occupies approximately 7 percent of the county area.

The Imperial County Ultimate Use Plan, cited in the Ogden report (1993), states that agriculture is the dominant economic sector of the county. The plan discourages new urban development within or adjacent to existing urban areas and agricultural margin lands. The plan encourages the preservation of prime agricultural land and also emphasizes the preservation of unique natural areas.

NAF El Centro has an average winter population of 1,500 and an annual summer population of 1,000. The closest community is Seeley, which is approximately 1 mile southwest of the base. The County of Imperial Community Economic Development estimated the mid-1991 population of Seeley to be 1,228.

2.1.6 Sensitive Ecosystems

An ecological scoping assessment (ESA) was prepared for NAF El Centro (BNI 1997a) to assess the sites for potential adverse health risks to ecological receptors. Unlike human-health risk assessments, ESAs focus on communities of plants and animals that are actually present on a site and/or in the surrounding area. Ecological communities can consist of several species of plants and animals. The ESA was performed to evaluate the need for additional risk screening or site remediation. The assessment was performed according to the guidance issued by the Cal-EPA DTSC (1994a).

Several site visits were made by a biologist to inspect the sites at NAF El Centro and identify habitats that are most likely to occur. The ecological scoping assessment concluded that ecological receptors do not live at or routinely use Sites 12 or 17. Both sites consist of cleared, graded land.

No wildlife refuges or state or federal parks are located within 10 miles of NAF El Centro. The nearest wildlife refuge is the Salton Sea National Wildlife Refuge in the southeastern portion of the Salton Sea, approximately 15 miles north of the base. With the exception of the New River, its tributary west of the base, and agricultural canals, no year-round areas of freshwater where waterfowl would congregate are located within 1 mile of the base. No wetlands are located within the base perimeter (BNI 1997a).

2.1.7 Meteorology

The climate in the NAF El Centro area is arid, with hot, dry summers and mild winters. Summer temperatures range from lows in the 70s to highs in the low 100s. During the hottest months (August and September), temperatures commonly exceed 110 degrees Fahrenheit (°F). During winter, the low temperatures are near 30°F, and the highs are in the 70s.

Rainfall in the area occurs as gentle winter rains or intense summer thunderstorms. The mean annual rainfall is 2.91 inches. Evapotranspiration exceeds 6 feet per year.

During the winter and spring, the prevailing winds are westerly; in the summer months, winds are generally from the southwest. Wind speeds are calm to 10 knots 78 percent of the time, 11 to 16 knots 12 percent of the time, and 16 to 27 knots about 8 percent of the time.

2.2 PREVIOUS REMOVAL ACTIONS, INVESTIGATIONS, AND ACTIVITIES

Previous activities at Sites 12 and 17 have included preliminary assessments (NEESA 1987; ERC 1990), soil sample collection and analysis (Ogden 1992; BNI 1998a), and interim measures to prevent contact with contaminated soil.

2.2.1 Previous Removal Actions

Although previous CERCLA removal actions have not been conducted at Sites 12 and 17, some interim measures have been taken to reduce the potential for human and ecological exposure to contaminated soil at each site. Previous action at Site 12 consisted of backfilling the former burn pit. Previous action at Site 17 consisted of covering the site with a layer of plastic sheeting and a 2-foot soil cap.

2.2.2 Previous Investigations

The following previous investigations have been conducted at Sites 12 and 17:

- Preliminary Assessment/Site Inspection for Sites 1–16 (NEESA 1987),
- Final Preliminary Assessment Site 17 (ERC 1990),
- Site Inspection Work Plan for Site 17 (ERC 1991),
- Hydrogeological Assessment Report for Site 17 (Ogden 1992), and
- Data Gaps Study Report (BNI 1998a).

2.2.2.1 SITE 12

During the preliminary assessment/site inspection, information from historical records, aerial photographs, on-site surveys, and personnel interviews was used to evaluate 16 potentially contaminated sites, including Site 12 (NEESA 1987). The evaluation consisted of assessing whether possible discharge of hazardous waste occurred; whether the contaminants had the potential to migrate via surface water, groundwater, and wind; and whether contaminants have the potential to affect humans and the ecology. The study recommended that 14 of the 16 sites undergo further investigation. Site 12 was recommended for NFA because the water-bearing fuel (JP-5) was applied immediately before burning, and the contents were allowed to burn completely (NEESA 1987). It was concluded that any hazardous constituents used at Site 12 had been burned up or volatilized.

Site 12 was included in the Data Gaps Study Report (BNI 1998a) to collect additional data in support of the NEESA recommendation. During the Data Gaps Study, soil samples were analyzed for TPH (gasoline and diesel), volatile aromatic compounds, polynuclear aromatic hydrocarbons (PAHs), priority pollutant metals, and dioxins. Soil sample results are presented in Appendix A. The human-health risk screening indicated that dioxins were present in the soil at concentrations with the potential to cause adverse effects to health and the environment. Therefore, a remedy under CERCLA was recommended to remove the dioxin-contaminated soil present at Site 12.

2.2.2.2 SITE 17

A preliminary assessment was initially performed for Site 17 (ERC 1990). The study concluded that further action was required. A hydrogeological assessment (Ogden 1992) was then conducted to assess the migration potential of hazardous waste constituents from the on-site impoundments into the vadose zone, or the groundwater system at concentrations that pollute or threaten to pollute such waters.

As part of the hydrogeological assessment, soil and groundwater samples were collected and analyzed for volatile organics, semivolatile organics, polychlorinated biphenyls (PCBs), cyanide, total phenols, TPH, ethylene dibromide, organolead, pH, volatile aromatic hydrocarbons, and metals. Petroleum hydrocarbons and related constituents were reported in soil samples at the site to depths of 7 feet (Appendix A). Human-health risk screening indicated that the reported concentrations had the potential to cause adverse effect to human health and the environment; therefore, further action was recommended.

Site 17 was included in the Data Gaps Study Report (BNI 1998a) because dioxins were not analyzed during the Hydrogeological Assessment. Dioxins were reported at levels greater than residential soil PRG values. Therefore, a remedy under CERCLA was recommended to remove the dioxin-contaminated soil present at Site 17.

2.3 SOURCE, NATURE, AND EXTENT OF CONTAMINATION

Previous investigations at Sites 12 and 17 focused on evaluating the presence and potential impacts of contaminants due to the past burning activities. Analytical results are presented in Appendix A. These previous investigations collected soil and water samples and analyzed them for:

- volatile organic compounds (VOCs),
- semivolatile organic compounds (SVOCs),
- metals,
- pesticides/PCBs,
- dioxins and furans, and
- TPH

Based on the streamlined risk screening (described in Section 2.5), the chemicals of potential concern (COPCs) for Site 12 are dioxins. The primary COPCs for Site 17 are dioxins. Aroclor 1260 and phenanthrene also exceeded the residential PRG; however, they were only reported once each and are not believed to be widespread at the site. The primary COPCs listed for both sites are commonly found combustion by-products associated with the combustion of chlorinated material and petroleum-based fuel.

2.3.1 Site 12

Contamination at the site is the result of burning illegal drugs, drug paraphernalia, and household debris such as wood, cardboard, ceramic pipe, glass jars, and tin cans. The debris was doused with jet fuel, ignited, and allowed to burn to completion.

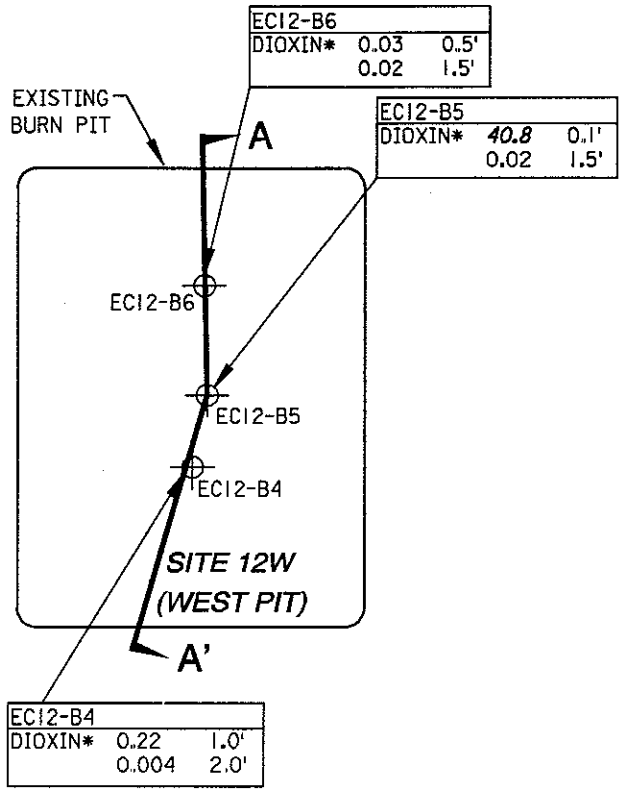
The lateral and vertical extent of contamination was not completely defined during the data gaps study (BNI 1998a) because the purpose of the study was only to assess if contaminants were present at concentrations requiring further action. Soil samples collected immediately below the contaminated interval had reported concentrations an order of magnitude below the residential PRG. Therefore, contamination is believed to be confined to a 6-inch-thick layer at the bottom of the former burn pit and should not extend laterally outside of the pit area.

With the exception of arsenic and beryllium, which occur naturally at concentrations above residential soil PRG values, dioxins were the only contaminants to exceed residential soil PRG values (Figure 2-4). The extent of dioxin contamination at Site 12 appears to be limited to a 0.5-foot-thick soil interval corresponding to the floor of the burn pits (Figure 2-5). The estimated volume of dioxin-contaminated soil at Site 12 is approximately 60 cubic yards. Dioxin-contaminated soil also had reported concentrations of various metals that were elevated relative to background threshold values but were below residential soil PRGs. Analysis for hexavalent chromium was not performed during sampling. Therefore, if hexavalent chromium is present at the reported concentrations for total chromiums, then hexavalent chromium will also exceed PRG values. Speciation of chromium will be conducted prior to disposal activities.

Also, no groundwater monitoring wells exist at Site 12. Due to the low solubility and mobility of dioxins, the vertical extent of dioxin-contaminated soil is assumed to be confined within the boundaries of the former burn pits. The potential for contaminants to leach from the soil to the groundwater is believed to be low. No associated groundwater monitoring is proposed for the removal action.

2.3.2 Site 17

Contamination at Site 17 is the result of burning fuel/water mixtures during fire-fighting training activities. The lateral and vertical extent of contamination at Site 17 was adequately characterized during the previous investigations (Ogden 1992; BNI 1998a). Dioxins, furans, Aroclor 1260, and phenanthrene were reported at concentrations above



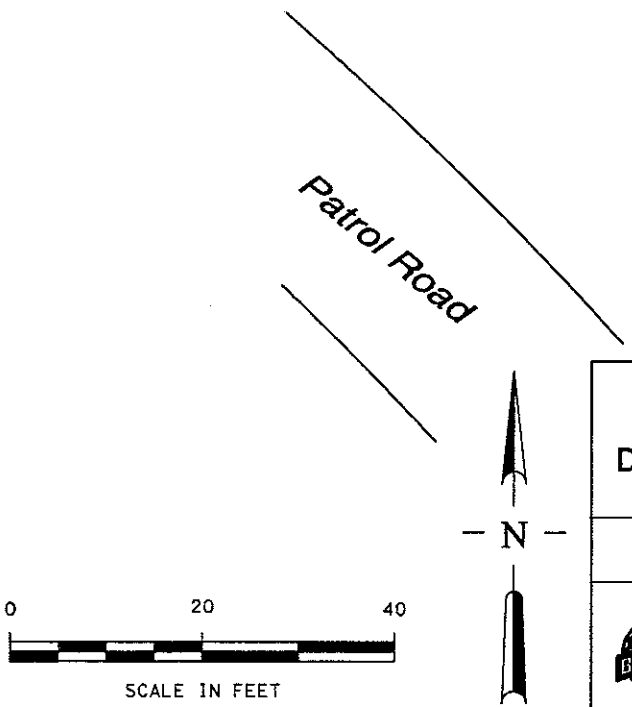
NOTES:
* = 2,3,7,8-TCDD (DIOXIN) EQUIVALENT
40.8 = BOLD AND ITALIC NUMBER INDICATES VALUE ABOVE PRG

LEGEND

EC12-B4 SOIL BORING LOCATION

SAMPLE LOCATION
EC12-B2
DIOXIN 47 12'
DEPTH (IN FEET)
CONCENTRATION IN ng/Kg, UNLESS OTHERWISE NOTED
ANALYTE

A A' CROSS SECTION LOCATION



EE/CA Sites 12 and 17

Figure 2-4

Dioxin Concentration and Analytes above PRG Values - Site 12-Open Burn Pit

NAF El Centro, Imperial County, California

Bechtel National, Inc.
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Date: 6/30/98
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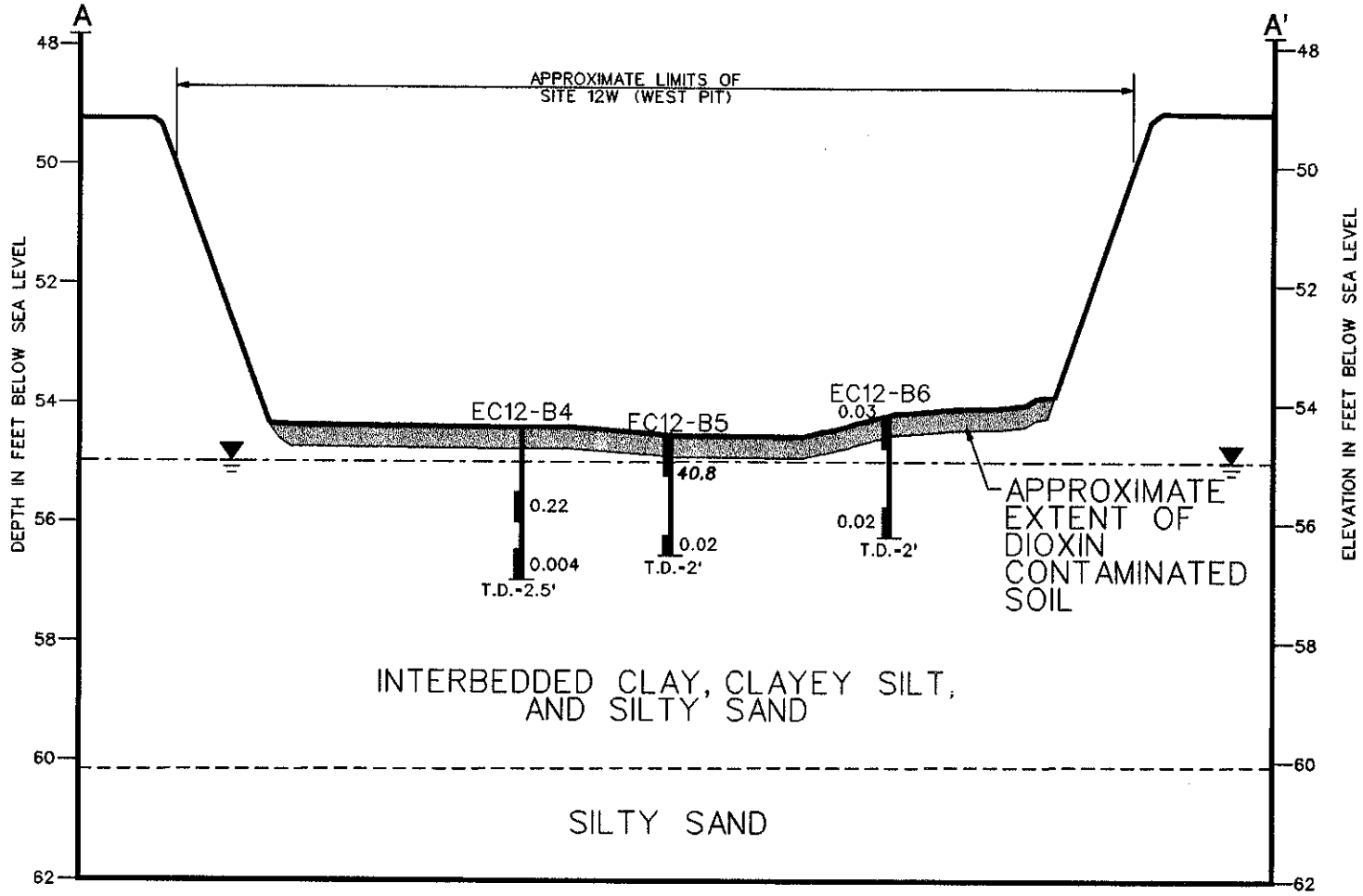
Job No: 22214-100
Rev: F



LEGEND:

■	APPROXIMATE LOCATION OF SOIL SAMPLE WITH 2,3,7,8-TCDD (DIOXIN) EQUIVALENT CONCENTRATION IN ng/Kg
T.D.-2.5'	TOTAL DEPTH OF BORING (IN FEET BGS)
40.8	BOLD AND ITALIC NUMBER INDICATES VALUE ABOVE PRG
- - - - - -	INFERRED LITHOLOGIC CONTACT
▼	GROUNDWATER FIRST ENCOUNTERED
▒	APPROXIMATE EXTENT OF DIOXIN CONTAMINATED SOIL TO BE REMOVED

0 9 18

HORIZONTAL SCALE IN FEET

EE/CA Sites 12 and 17

Figure 2-5

Cross Section A-A'

Site 12 - Open Burn Pit

NAF El Centro, Imperial Valley, California

Bechtel National, Inc.

CLEAN II Program

Date: 7/1/98
File No. 100X2699
Job No. 22214-100
Rev. No. I

residential soil PRG values (Figure 2-6). The extent of dioxin-contaminated soil appears to be limited to a 0.5-foot-thick layer corresponding to the floor of the former fire-fighting training area (Figure 2-7). The estimated volume of dioxin-contaminated soil at Site 17 is approximately 550 cubic yards. Below the dioxin-contaminated soil, a layer of soil contaminated primarily with petroleum hydrocarbons extends to approximately 5 feet below grade.

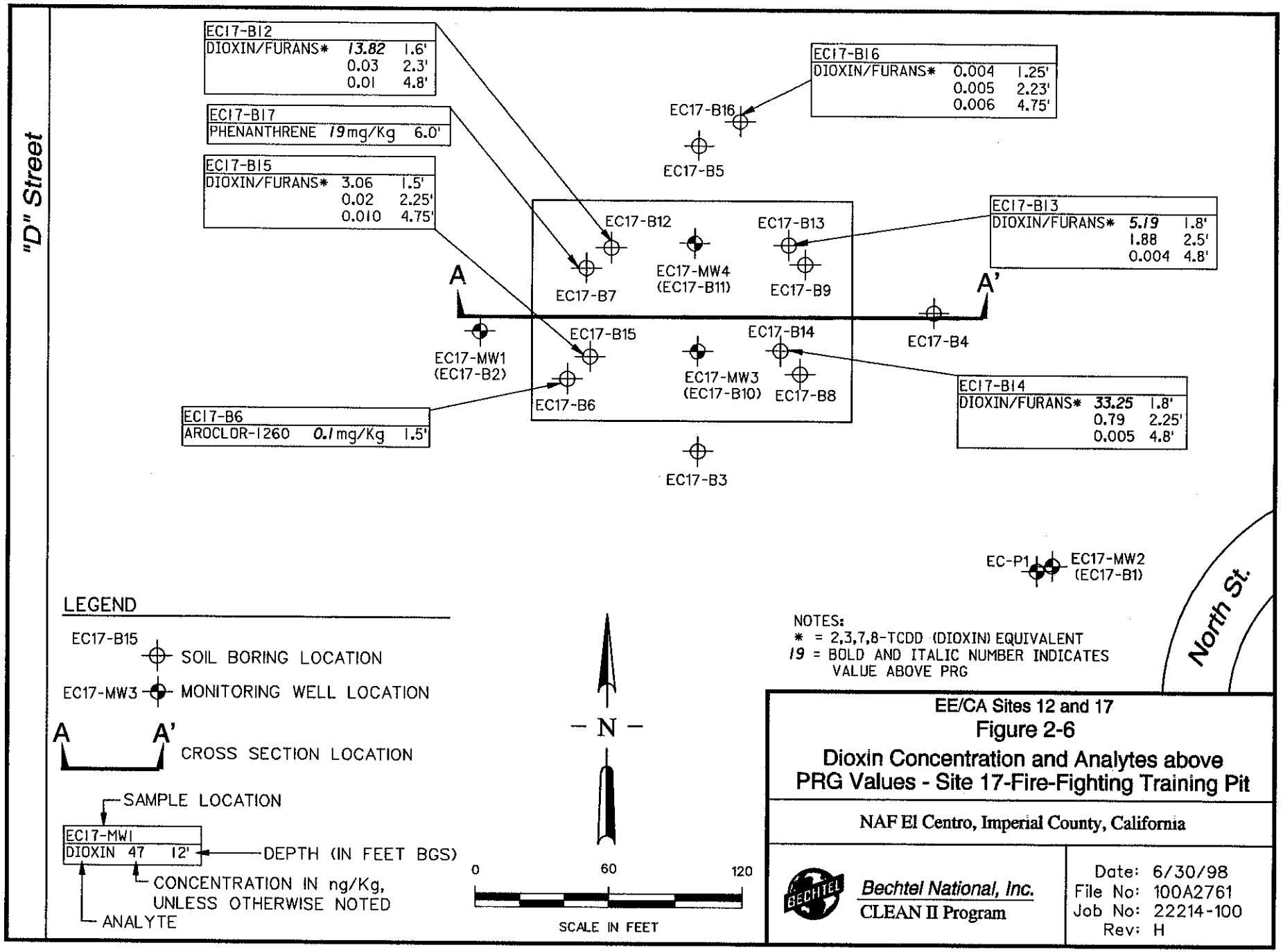
Soil and groundwater samples collected at Site 17 indicated that contaminants have not degraded the groundwater quality. Eight rounds of samples have been collected and analyzed over the past 6 years. Isolated occurrences of TPH-diesel have been reported in the groundwater samples but have been attributed to field and laboratory contamination because they have been reported at similar concentrations in other groundwater samples as well as field and laboratory quality assurance samples (BNI 1998b). Groundwater was not sampled for dioxins; however, soil analytical results indicate dioxins above residential soil PRG values have not migrated vertically below the ground surface of the former fire-fighting training area.

2.4 ANALYTICAL DATA

Soil samples at Site 12 contained petroleum hydrocarbons quantified in the diesel and gasoline ranges, VOCs, dioxins, PAHs, and priority pollutant metals above laboratory detection limits. Highest reported concentrations of metals and dioxins were in the surface sample, from the bottom of the burn pit. Analysis of hexavalent chromium was not performed during previous investigations, but it has the potential to be present at Site 12 because the waste stream consisted of a variety of materials. Speciation of chromium will be conducted prior to disposal. Contaminants reported above residential soil PRG values are shown in Figure 2-4, and all analytical data is presented in Appendix A. A more detailed discussion of the analytical results is presented in the Data Gaps Study Report (BNI 1998a).

Soil samples at Site 17 contained petroleum hydrocarbons quantified in the diesel and gasoline ranges, VOCs, SVOCs, chlorinated pesticides, PCBs, and priority pollutant metals above regulatory detection limits. Contaminants reported above residential soil PRG values are shown in Figure 2-6, and all analytical data is presented in Appendix A. A more detailed discussion of the analytical results is presented in the Data Gaps Study Report (BNI 1998a).

Analysis of hexavalent chromium was not performed during previous investigations; however, it is not believed that hexavalent chromium is present at Site 17. The waste stream consisted of petroleum fuels. Metals were not part of the reported waste stream for the site. With the exception of one reported concentration of lead, all metals results were below background threshold values.



EE/CA Sites 12 and 17

Figure 2-6

Dioxin Concentration and Analytes above PRG Values - Site 17-Fire-Fighting Training Pit

NAF El Centro, Imperial County, California

Bechtel National, Inc.
CLEAN II Program

Date: 6/30/98
File No: 100A2761
Job No: 22214-100
Rev: H

2.4.1 Data Quality

Analytical quality assurance protocols were performed in accordance with Quality Assurance Project Plans and Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program (NEESA 1988).

Laboratories used to perform the analyses for Sites 12 and 17 were certified by the state of California Environmental Laboratory Accreditation Program and were subject to approval by the Naval Facilities Engineering Service Center.

2.4.1.1 ANALYTICAL METHODS AND DETECTION LIMITS

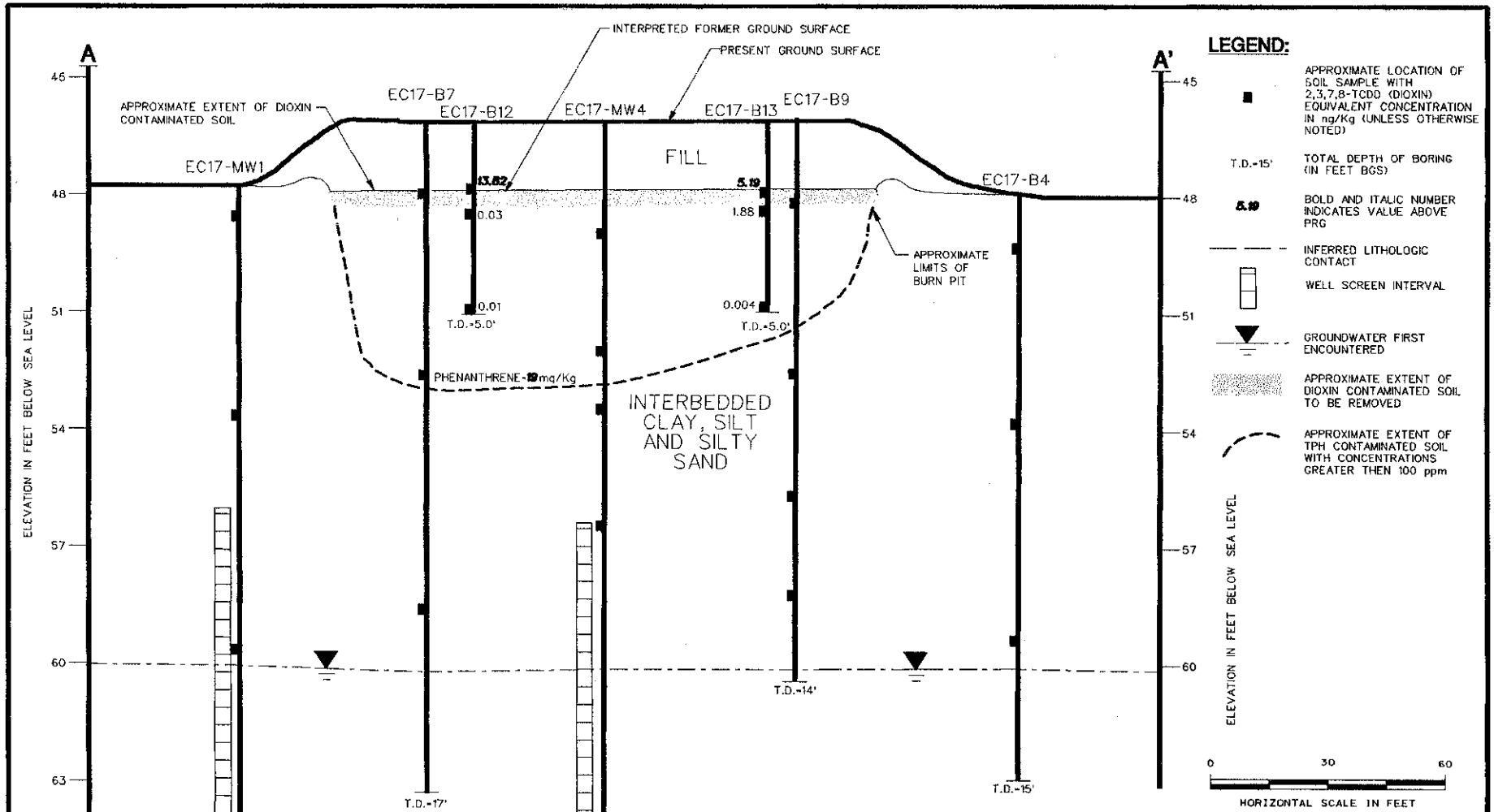
U.S. EPA analytical methods were used in the analysis of samples collected from Sites 12 and 17, with the exception of TPH and organolead methods, which are published by Cal-EPA. Analyses during the hydrogeological assessment were conducted using U.S. EPA Methods 8015-M and 418.1. Method 8015-M, referred to as "Total Fuel Hydrocarbons" in Table A-3, was used to measure hydrocarbons in the gasoline and diesel ranges. The Method 418.1 procedure, referred to as total recoverable petroleum hydrocarbons (TRPH), measured the heavy hydrocarbons. Analyses during the data gaps study were conducted using two U.S. EPA Method 8015-M procedures, one for gasoline and one for diesel. The diesel method was similar to the total fuel hydrocarbons (TFH) method used in the hydrogeological assessment.

Detection limits are another important element of comparability. Detection limits vary depending on the method used, the instrument, sample matrix, and laboratory. Because similar methods were used for analysis of samples from the two sites, detection limits were comparable. Attempts were made to achieve detection limits below residential soil PRGs. If the technology was insufficient to achieve the decision threshold, the detection limits of the best reasonably available technologies were used as the decision threshold.

2.4.1.2 DATA VALIDATION

Independent validation of laboratory deliverables was performed to assess compliance with methods, review quality indices, verify frequency of quality control analyses, and assess usability of data with respect to data needs. Approximately 15 to 20 percent of analyses conducted under the hydrogeological assessment were subjected to third-party validation. The remaining analyses were evaluated for data quality indicators by project personnel. All analyses conducted under the data gaps study underwent third-party validation. Validation findings were described in detail in the Hydrogeological Assessment Report (Ogden 1992) and the Data Gaps Study Report (BNI 1998a). Applicable findings are summarized below.

- Precision was generally acceptable as measured by relative percent difference between laboratory duplicates or matrix spike duplicates. Organic results in field duplicates collected during the hydrogeological assessment at Site 17 indicated heterogeneity of contaminants in soil.



EE/CA Sites 12 and 17

Figure 2-7

Cross Section A-A'

Site 17 - Fire-Fighting Training Pit

NAF El Centro, Imperial Valley, California

Bechtel National, Inc.

CLEAN II Program

Date: 10/29/98
File No. 100X2697
Job No. 22214-100
Rev. No. J

- Accuracy was generally acceptable as measured by laboratory control standards, matrix spikes, and surrogate recoveries. However, matrix spike recoveries for organolead, antimony, and zinc were below acceptance criteria in one sample collected during the hydrogeological assessment at Site 17. Results in two samples were qualified with a "J" flag as estimated. The cyanide detection limit in one sample from Site 17 was also qualified as estimated due to a low matrix spike recovery. Likewise, antimony results in 15 samples collected during the data gaps study at Site 12 were qualified as estimated due to low spike recoveries. Benzene results in four samples from Site 12 were qualified as estimated due to low laboratory control standard recoveries.
- Instrument performance checks and calibrations were generally within acceptance criteria. However, results for 2-butanone in six samples collected during the hydrogeological assessment at Site 17 were qualified with an "R" flag as unusable because of calibration problems. Other less severe outliers were observed in the VOC, SVOC, pesticide/PCB, TPH-gasoline, and dioxin/furan analyses that led to results being qualified with a "J" flag as estimated.
- Field and laboratory blanks were generally free of contamination. However, five sample results for methylene chloride and six sample results for di-n-butylphthalate were qualified with a "U" flag as not detected due to contamination observed in laboratory blanks. Low levels of TPH and metals were reported in field blanks and equipment rinsates collected during the hydrogeological assessment at Site 17.
- Analytical holding times were met for all analyses.

2.5 STREAMLINED RISK EVALUATION

Of the eight NCP (40 *Code of Federal Regulations* [CFR] Section 300.415[b][2]) criteria for determining the appropriateness of a removal action, the following was identified as being applicable for this removal action

- Actual or potential exposure to nearby human populations, animals, or the food chain may result from hazardous substances or pollutants or contaminants present at the site.

Acceptable exposure levels are defined in the NCP (40 CFR 300.430[e][2][A]) according to the following criteria.

- For systemic toxicants, acceptable exposure levels shall represent concentration levels to which the human population, including sensitive subgroups, may be exposed without adverse effect during a lifetime or part of a lifetime, incorporating an adequate margin of safety.
- For known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper-bound lifetime cancer risk to an individual of between 10^{-6} and 10^{-4} using information on the relationship between dose and response.

A streamlined risk evaluation was conducted as part of the data gaps study (BNI 1998a). Details of the risk screening are presented in that report. The results are summarized in Sections 2.5.1 and 2.5.2.

2.5.1 Site 12, Risk Screening Results

The total carcinogen risks at Site 12 is summarized in Table 2-1. The incremental risk (i.e., the risk associated with the presence of the carcinogen above the background concentration) is also provided in this table.

The dominant risk drivers are dioxin reported as 2,3,7,8-tetrachlorodibenzo(p)dioxin (TCDD) toxicity equivalent, arsenic, beryllium, and chromium (if chromium is present in its hexavalent form). However, arsenic and beryllium exceed residential soil PRG values throughout the base and are believed to represent naturally occurring conditions; thus, they do not represent site-specific contamination (BNI 1998a). The estimated cancer risk associated with dioxins at Site 12 is 10^{-5}. This is within the range of acceptable exposure levels defined in the NCP. However, the risk screening calculations may tend to underestimate the total risk from dioxins due to inhalation of fugitive dust and ingestion via plant uptake as described above.

Analysis for hexavalent chromium was not conducted during the previous sampling. Therefore, the risk for the site is reported for chromium as total chromium as well as if the reported concentrations were hexavalent chromium. The total calculated noncarcinogenic hazard index for Site 12 is less than one for both total chromium and hexavalent chromium (Table 2-2).

2.5.2 Site 17, Risk Screening Results

The total carcinogen risk at Site 17 is summarized in Table 2-3. The incremental risk (i.e., the risk associated with the presence of each carcinogen above the background concentration) is also provided in the table.

The dominant risk drivers are dioxin, Aroclor 1260, and phenanthrene; however, the risk contribution of Aroclor 1260 and phenanthrene risks were from isolated occurrences. Aroclor 1260 is limited to one sample at a concentration of 0.11 milligrams per kilogram (mg/kg). The estimated cancer risk associated with dioxins at Site 17 is 10^{-5}. This is within the range of acceptable exposure levels defined in the NCP. However, the risk screening calculations may tend to underestimate the total risk from dioxins due to inhalation of fugitive dust and ingestion via plant uptake as described above.

The total calculated noncarcinogenic hazard index for Site 17 is less than one (Table 2-4). Phenanthrene was reported at Site 17 at a concentration exceeding the soil saturation PRG value for the surrogate compound, anthracene. Phenanthrene was limited to one sample at 6 feet bgs and appears to be associated with petroleum hydrocarbons reported in sample EC-17B7 (Table A-3).

Table 2-1
Estimated Total Cancer Risk for Chemicals of Potential Concern at Site 12

Analyte	Residential PRG[a] (mg/kg)[b]	Maximum Concentration (mg/kg)	Total Risk	Background Threshold Concentration[c]	Net Concentration[d] (mg/kg)	Incremental Risk
Antimony	—[e]	0.83	—	0.68	0.15	—
Arsenic[f]	0.38	8	2.11E-05	6.3	1.7	4.47E-06
Beryllium	0.14	1.13	8.07E-05	1.1	0.03	2.14E-06
Cadmium	9[g]	2.63	2.92E-07	2.2	0.23	—
Chromium, hexavalent[h]	0.2	73.2	**3.66E-04**	0	73.2	**3.66E-04**
Chromium, total[i]	210	73.2	3.49E-07	19	54.2	2.68E-07
Copper	—	111	—	22	89	—
Lead	—	81	—	17	64	—
Nickel	150[g]	30.6	2.04E-07	20	10.6	7.07E-08
Silver	—	0.2	—	0.6	(0.4)[j]	—
Thallium	—	0.27	—	0.3	(0.03)	—
Zinc	—	1,200	—	70	1,130	—
2,3,7,8-TCDD[k] (dioxin) equivalent[l]	0.0000038	0.000041	**1.07E-05**	—	0.000041	**1.07E-05**
Total Assuming Cr as Total Chromium[i]			**4.17E-05**			**1.61E-05**
Total Assuming Cr as Cr^{+6}[i]			**4.1E-04**			**3.8E-04**

Notes:
- [a] PRG – United States Environmental Protection Agency (U.S. EPA) Region IX preliminary remediation goal for soil (U.S. EPA 1996)
- [b] mg/kg – milligrams per kilogram
- [c] BNI 1995 and 1997b
- [d] net concentration above background threshold concentration
- [e] — – not applicable
- [f] bold indicates dominant risk drivers
- [g] California Environmental Protection Agency (Cal-EPA)-modified PRG (DTSC 1994b)
- [h] assumes total chromium is hexavalent chromium (Cr^{+6}), Cal-EPA-modified PRG (i.e., 0.2 mg/kg) used in risk calculation
- [i] assumes trivalent (Cr^{+3}) and hexavalent (Cr^{+6}) chromium in the same proportions as the U.S. EPA Region IX PRG for total chromium
- [j] numbers in parentheses are negative values
- [k] TCDD – tetrachlorodibenzo(p)dioxin
- [l] toxicity equivalent concentration = (maximum concentration) × (toxicity equivalence factor)

Table 2-2
Estimated Total Hazard Index for Chemicals of Potential Concern at Site 12

Analyte	Residential PRG[a] (mg/kg)[b]	Maximum Concentration (mg/kg)	Background Threshold Concentration[c] (mg/kg)	Hazard Index
Antimony	31	0.83	0.68	0.03
Arsenic	22	8	6.3	0.36
Beryllium	380	1.13	1.1	0.003
Cadmium	38	2.63	2.2	0.07
Chromium, hexavalent[d]	380	73.2	0	0.19
Chromium, total[e]	100,000	73.2	19	0.001
Copper	2,800	111	22	0.04
Lead[f]	130[g]	81	17	0.62
Nickel	1,500	30.6	20	0.02
Silver	380	0.2	0.60	0.0005
Thallium	5.4[h]	0.27	0.3	0.05
Zinc	23,000	1,200	70	0.052
2,3,7,8-TCDD[i] (dioxin) equivalent[j]	—[k]	0.000041	—	—
Total Assuming Cr as Total Chromium[e]				**0.63**
Total Assuming Cr as Cr^{+6}[d]				**0.82**

Notes:
- [a] PRG – United States Environmental Protection Agency (U.S. EPA) Region IX residential preliminary remediation goal for soil (U.S. EPA 1996)
- [b] mg/kg – milligrams per kilogram
- [c] BNI 1995 and 1997b
- [d] assumes total chromium is hexavalent chromium
- [e] assumes trivalent (Cr^{+3}) and hexavalent (Cr^{+6}) chromium in the same proportions as the U.S. EPA Region IX PRG for total chromium
- [f] lead not included in hazard index because PRG for lead is not based on toxic effects, but on an indicator (blood level) of possible effects
- [g] California Environmental Protection Agency-modified PRG (DTSC 1994b)
- [h] PRG value for thallic oxide used as surrogate value for thallium
- [i] TCDD – tetrachlorodibenzo(p)dioxin
- [j] toxicity equivalent concentration = (maximum concentration) × (toxicity equivalence factor)
- [k] — – not applicable

Table 2-3
Estimated Total Cancer Risk for Chemicals of Potential Concern at Site 17

Analyte	Residential PRG[a] (mg/kg)[b]	Maximum Concentration (mg/kg)	Total Risk	Background Threshold Concentration[c] (mg/kg)	Net Concentration[d] (mg/kg)	Incremental Risk
Arsenic	0.38	5.9	1.55E-05	6.3	(0.4)[e]	0.00E+00
Beryllium	0.14	1.1	7.86E-06	1.1	0	0.00E+00
Cadmium	9[f]	2	2.22E-07	2.2	(0.2)	0.00E+00
Chromium	210	14.5	6.90E-08	19	(4.5)	0.00E+00
Copper	—[g]	21.1	—	22	(0.9)	—
Lead	—	60.7	—	17	43.7	—
Nickel	150[g]	17.5	1.17E-07	20	(2.5)	0.00E+00
Silver	—	0.62	—	0.6	0.02	—
Zinc	—	61.2	—	70	(8.8)	—
Acetone	—	7.1	—	—	7.1	—
2-butanone (MEK)	—	0.29	—	—	0.29	—
Benzene	0.63	0.13	2.06E-07	—	0.13	2.06E-07
Toluene	—	2.9	—	—	2.9	—
Dibenzofuran	—	3.9	—	—	3.9	—
Ethylbenzene	—	2.5	—	—	2.5	—
Fluorene	—	9.7	—	—	9.7	—
Xylenes	—	16	—	—	16	—
4-methylphenol	—	0.54	—	—	0.54	—
di-n-butyl phthalate	—	2.6	—	—	2.6	—
Naphthalene	—	14	—	—	14	—
2-methylnaphthalene	—	34	—	—	34	—
Phenanthrene	—	19	—	—	19	—
Tetrachloroethene	5.4	0.97	1.80E-07	—	0.97	1.80E-07
2,4′-DDT[h]	1.3	0.05	3.62E-08	—	0.05	3.62E-08
4,4′-DDD[i]	1.9	0.04	2.21E-08	—	0.04	2.21E-08
4,4′-DDE[j]	1.3	0.04	3.23E-08	—	0.04	3.23E-08
Aroclor 1260[k]	0.07[l]	0.11	**1.67E-06**	—	0.11	**1.67E-06**
2,3,7,8-TCDD[m] (dioxin) equivalent[n]	0.0000038	0.00003	**9.82E-06**	—	0.00003	**9.82E-06**
Total Cancer Risk			**3.58E-05**			**1.20E-05**

(table continues)

Table 2-3 (continued)

Notes:
[a] PRG – United States Environmental Protection Agency (U.S. EPA) Region IX residential preliminary remediation goal for soil (U.S. EPA 1996)
[b] mg/kg – milligrams per kilogram
[c] BNI 1995 and 1997b
[d] net concentration above background threshold concentration
[e] numbers in parentheses are negative values
[f] California Environmental Protection Agency-modified PRG (DTSC 1994b)
[g] — – not applicable
[h] DDT – dichlorodiphenyltrichloroethane
[i] DDD – dichlorodiphenyldichloroethane
[j] DDE – dichlorodiphenyldichloroethene
[k] bold indicates dominant risk drivers
[l] PRG cancer value for polychlorinated biphenyls used as surrogate value for Aroclor 1260
[m] TCDD – tetrachlorodibenzo(p)dioxin
[n] toxicity equivalent concentration = (maximum concentration) × (toxicity equivalence factor)

2.5.3 Health Effects Associated with Chemicals of Concern and Threat to Nearby Human Populations and Environments

Based on the streamlined risk screening (described in Section 2.5), the COPCs for Site 12 are dioxin and chromium, if it is present in the hexavalent chromium form. The COPCs for Site 17 are dioxins, furans, Aroclor 1260, and phenanthrene. Possible health effects is discussed in the following paragraphs.

Polychlorinated dibenzodioxins (dioxins), also referred to as TCDD, are often found in association with polychlorinated dibenzofurans (furans), also referred to as tetrachlorodibenzofuran (TCDF). They are not produced commercially but are environmental contaminants associated with the production and incineration of chlorinated materials (e.g., polyvinyl chloride [PVC] piping, PCB mixtures). Dioxins and furans have similar toxicological profiles and are experimental carcinogens, teratogens, and reproductive toxicants in animal models. TCDD is extremely toxic to animals.

Chloracne, a severe acne-like condition, is the most common health effect observed in humans as a result of dioxin and furan exposure. In addition to chloracne, human exposure has been associated with other toxic effects, which include liver function impairment, peripheral nerve damage, hyperpigmentation, and other skin disorders. Epidemiological studies have failed to consistently demonstrate organ-specific illnesses attributable to dioxins and furans. Evidence for human carcinogenicity is limited and inconclusive. Based on limited evidence in humans and sufficient evidence in animals, TCDD has been classified as a probable human carcinogen by U.S. EPA. TCDF has not been classified as a carcinogenic.

Table 2-4
Estimated Total Hazard Index for Chemicals of Potential Concern at Site 17

Analyte	Residential PRG[a] (mg/kg)[b]	Maximum Concentration (mg/kg)	Background Threshold Concentration (mg/kg)	Hazard Index
Arsenic	22	5.9	6.3	0.27
Beryllium	380	1.1	1.1	0.0029
Cadmium	38	2	2.2	0.05
Chromium	100,000	14.5	19	0.0001
Copper	2,800	21.1	22	0.01
Lead[c]	130[d]	60.7	17	0.47
Nickel	1,500	17.5	20	0.012
Silver	380	0.62	0.6	0.0016
Zinc	23,000	61.2	70	0.0027
Acetone	2,100	7.1	—[e]	0.0034
2-butanone (MEK)	7,100	0.29	—	0.00004
Benzene	7.1	0.13	—	0.02
Toluene	790	2.9	—	0.0037
Dibenzofuran	140[f]	3.9	—	0.03[f]
Ethylbenzene	230[f]	2.5	—	0.01[f]
Fluorene	90[f]	9.7	—	0.11[f]
Xylenes (total)	320[f]	16	—	0.05[f]
4-methylphenol	330	0.54	—	0.0016
Di-n-butyl phthalate	6,500	2.6	—	0.0004
Naphthalene	240[f]	14	—	0.06[f]
2-methylnaphthalene	240[f,g]	34	—	0.14[f]
Phenanthrene[h]	5.7[f,i]	19	—	**3.33[f]**
Tetrachloroethene	62	0.97	—	0.02
2,4′-DDT[j]	33	0.05	—	0.0014
4,4′-DDD[k]	—	0.04	—	—
4,4′-DDE[l]	—	0.04	—	—
Aroclor 1260	1.4[m]	0.11	—	0.08
2,3,7,8-TCDD (dioxin) equivalent[n]	—	0.00004	—	—
Total Hazard Index				**0.50**

(table continues)

Table 2-4 (continued)

Notes:
- [a] PRG – United States Environmental Protection Agency Region IX residential preliminary remediation goal for soil (U S EPA 1996)
- [b] mg/kg – milligrams per kilogram
- [c] lead not included in hazard index, because PRG for lead is not based on toxic effects, but on an indicator (blood level) of possible effects
- [d] California Environmental Protection Agency-modified PRG (DTSC 1994b)
- [e] — – not applicable
- [f] soil saturation; not included in hazard index
- [g] PRG noncancer value for naphthalene used as surrogate value for 2-methylnaphthalene
- [h] bold indicates dominant risk drivers
- [i] PRG noncancer value for anthracene used as a surrogate value for phenanthrene
- [j] DDT – dichlorodiphenyltrichloroethane
- [k] DDD – dichlorodiphenyldichloroethane
- [l] DDE – dichlorodiphenyldichloroethene
- [m] PRG noncancer value for Aroclor 1254 used as surrogate value for Aroclor 1260
- [n] TCDD – tetrachlorodibenzo(p)dioxin
- [o] toxicity equivalent concentration = (maximum concentration) x (toxicity equivalence factor)

The most toxic form of chromium is hexavalent chromium, however, this form is generally unstable and the trivalent form is the most common. Hexavalent chromium is considered a carcinogen. Chromium has been reported to cause contact dermatitis, liver and kidney damage, lung congestion, and lung cancer in humans.

PCBs are a group of synthetic organic chemicals that were used extensively in the United States as coolants and lubricants in electrical transformers and other electrical equipment. Due to evidence that PCBs bioaccumulate in the environment and cause adverse effects, the manufacture of PCBs in the United States was discontinued in October 1977.

PCBs are liver carcinogens in animals. In addition, chronic feeding studies with PCBs in animals resulted in reproductive injury and toxic effects in the liver, stomach, and thyroid gland. Human exposure to PCBs causes chloracne similar to that produced by exposure to dioxins and furans. Other toxic effects reported in humans exposed to PCBs, include liver toxicity and skin rashes. Evidence for human carcinogenicity is limited and inconclusive. Based on limited evidence in humans and sufficient evidence in animals, PCBs have been classified as probable human carcinogens by the U.S. EPA.

Phenanthrene is one compound of a group of chemicals known as PAHs, which are formed as a result of incomplete combustion of coal, oil, gas, garbage, or other organic substances. PAHs can occur naturally or are man-made. Phenanthrene is considered a noncarcinogenic PAH. It is a human skin photosensitizer. Additional data on human exposures and animal studies is inadequate and limited.

Nearby populations, primarily base personnel and agricultural workers in the surrounding cultivated fields, would have the greatest potential for exposure to COPCs from Sites 12 and 17. However, Site 17 has been covered with a soil cap; human exposure to the COPCs is not likely unless the cap integrity diminishes. Site 12 has the greatest potential for human exposure, because the former burn pit is open and has not been capped.

Possible dermal exposure scenarios include 1) a trespasser entering the pit and coming into dermal contact with the contaminated soil or 2) wind sufficiently disturbing the contaminated soil to generate fugitive dust, which could come in contact with nearby populations. Similarly, the ingestion pathway is a remote possibility and likely an incomplete exposure pathway. In addition to the two possible exposure scenarios indicated above for dermal contact, another remotely possible ingestion scenario could be deposition of contaminated dust on food crops. Nearby populations potentially may be exposed to airborne COPCs via inhalation of fugitive dust generated during dust storms and/or more likely during remediation activities (i.e., soil excavation) at the sites.

2.5.4 Documented Exposure Pathways

Exposure pathways typically associated with soil exposure are ingestion, inhalation, and dermal contact. As stated above, soil ingestion, dermal contact, and inhalation are not immediate threats at Sites 12 and 17 due to the soil cover material applied on the areas of contamination. However, once the sites are disturbed during soil excavation activities, the exposure pathways become a greater concern (primarily for workers, not the general population). The possibility of contaminant exposure currently exists at Site 12 due to the openness of the burn pit. However, no known cases of adverse health effects due to exposure from dioxin at Site 12 have been documented.

2.5.5 Sensitive Populations

No sensitive ecological or human populations live in or commonly frequent Sites 12 and 17 or the immediate vicinity. As described in further detail in the ESA (BNI 1997a), Sites 12 and 17 consist of cleared, graded land.

Site 12 is located in a restricted area near the runway, and may occasionally be visited by some base personnel and agricultural workers. The general NAF El Centro population does not have access to this area.

Site 17 is located in the vicinity of several base facilities and is possibly traversed by the occasional bicyclist, jogger, and/or walker. However, due to the 2-foot soil cover over the area of contamination, these occurrences would not result in potential contaminant exposure.

Given the current use and condition of Sites 12 and 17, currently there does not appear to be any sensitive ecological or sensitive human populations that potentially would be exposed to the COPCs.

2.6 PREREMOVAL FIELD ACTIVITIES

Before excavation, the soil at Sites 2 and 17 will be characterized to assess disposal options. Soil will be classified using the decision process shown in Figure 2-8 as one of three types: Resource Conservation and Recovery Act (RCRA) or California hazardous

waste, inert waste or designated or nonhazardous waste (including soil containing petroleum hydrocarbons).

2.6.1 Soil Sampling

Soil samples will be collected at each site from the proposed locations shown in Figures 2-9 and 2-10. Approximately three samples will be collected from each location at depths corresponding to the maximum reported dioxin concentrations, as well as from above and below this interval. The result of the soil sampling will be used to assess the disposal options (see Section 2.6, above) and more fully characterize the zone of soil to be excavated.

2.6.2 Groundwater Characterization

Groundwater was not assessed during the previous sampling event. Therefore, groundwater will be assessed as part of the preremoval field activities. Groundwater samples will be collected using a HydroPunch® (or equivalent method) from three locations downgradient at Site 12 (Figure 2-9). Groundwater samples will be collected from the first identified water-bearing unit and analyzed for the following parameters:

- VOCs by U.S. EPA Method 8260A,
- SVOCs by CLP Method 625-M, and
- polychlorinated dibenzodioxin by U.S. EPA Method 8290.

Based on the results of the groundwater characterization, one of three decisions will be made jointly between the Navy and lead regulatory agency:

- no further action for groundwater;
- installation of groundwater monitoring wells and further groundwater sampling; or
- remediation of groundwater.

The action will be selected based on the concentration of contaminants reported in groundwater samples. If further action for groundwater is required, then it will be addressed as a phase of work separate from the removal action for soil.

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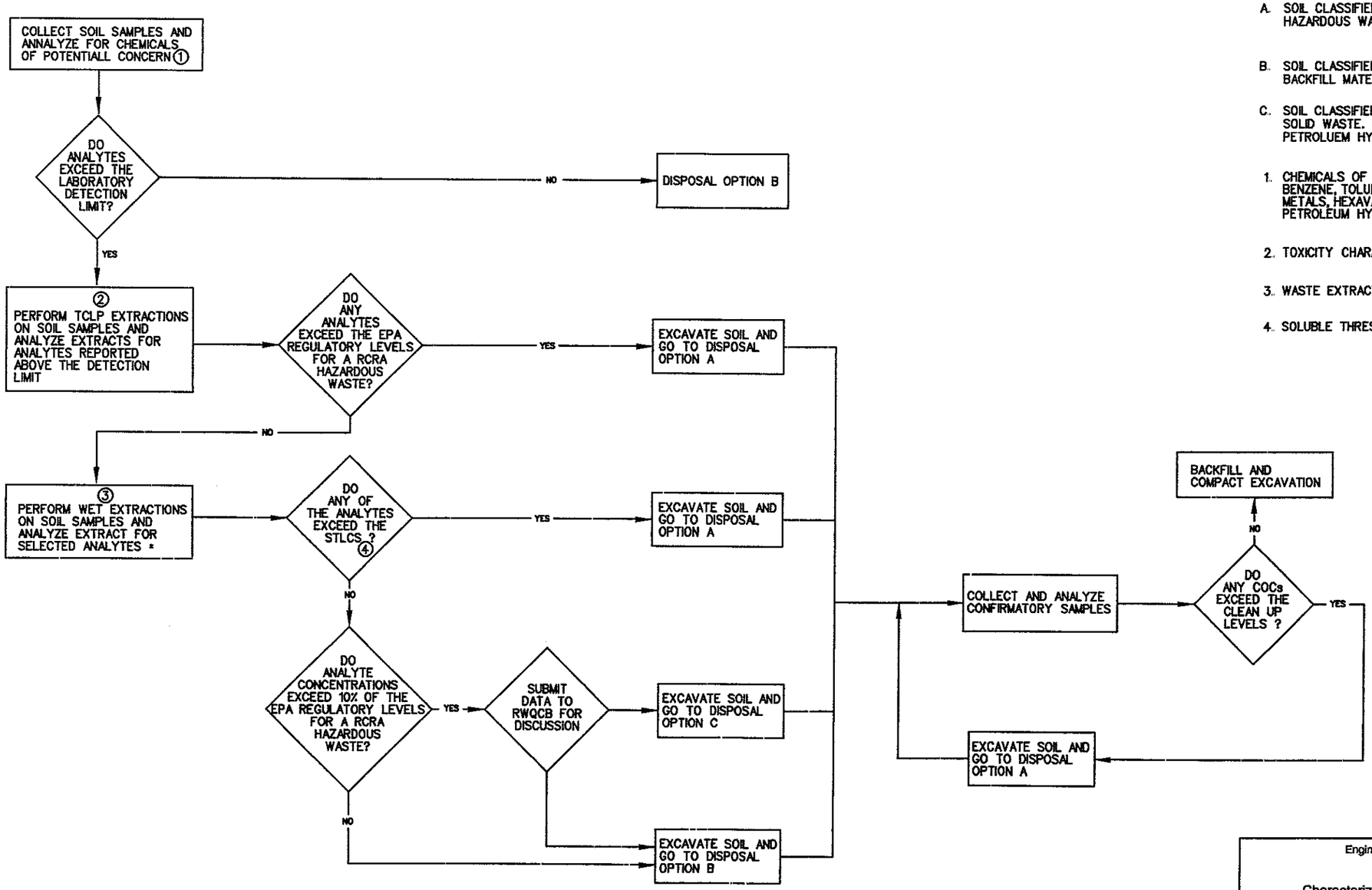


DISPOSAL OPTIONS

A. SOIL CLASSIFIED AS A RCRA OR CALIFORNIA HAZARDOUS WASTE.

B. SOIL CLASSIFIED AS INERT. CAN BE USED AS BACKFILL MATERIAL

C. SOIL CLASSIFIED AS DESIGNATED OR NON-HAZARDOUS SOLID WASTE. INCLUDES SOIL CONTOURING PETROLUEM HYDROCARBONS

1. CHEMICALS OF POTENTIAL CONCERN: DIOXINS; BENZENE, TOLUENE, ETHYLBENZENE, XYLENE, METALS, HEXAVALENT CHROMIUM, TOTAL PETROLEUM HYDROCARBONS

2. TOXICITY CHARACTERS LEACHING PROCEDURE

3. WASTE EXTRACTION TEST

4. SOLUBLE THRESHOLD LIMIT CONCENTRATIONS

Engineering Evaluation/Cost Analysis

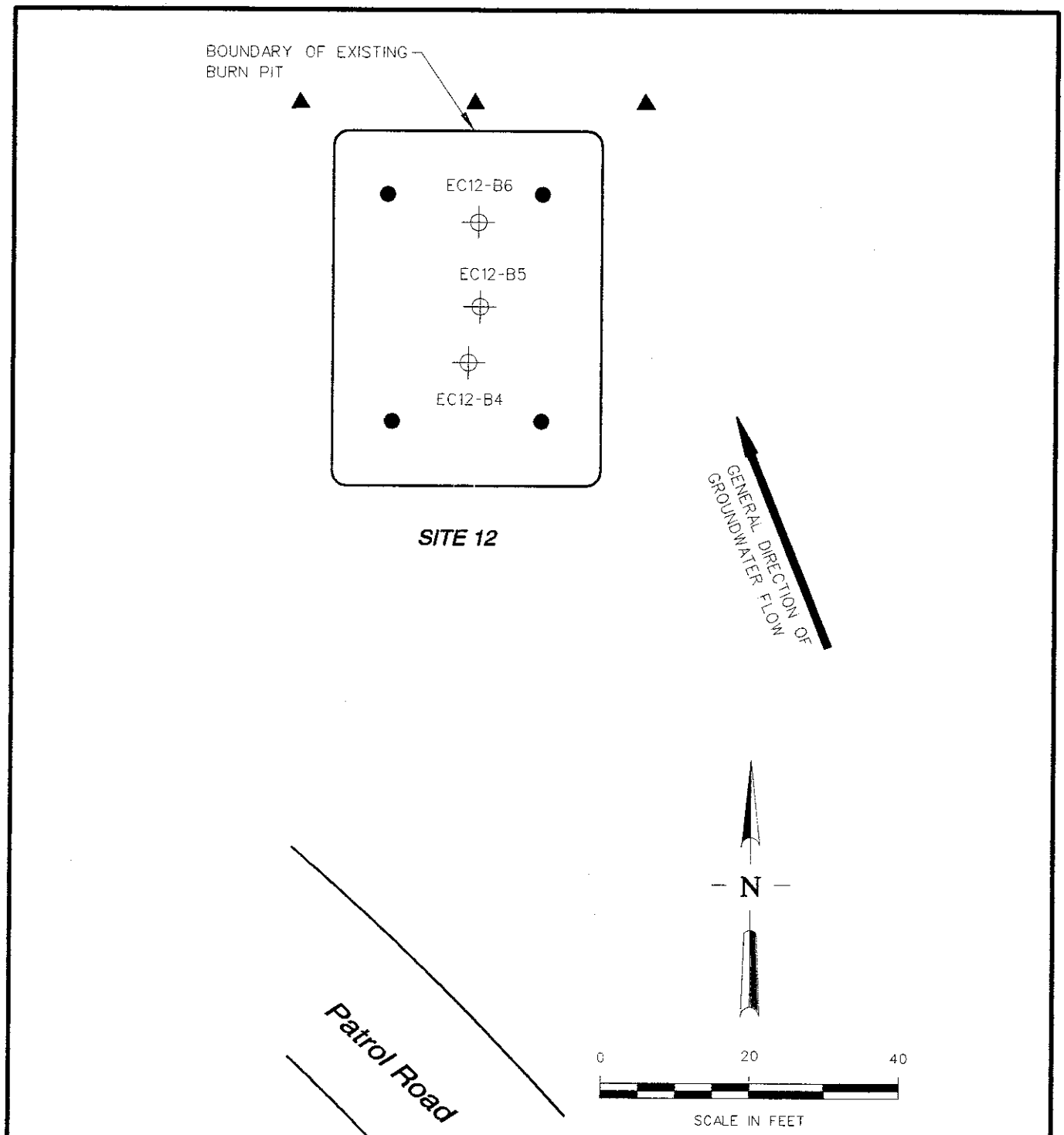
Figure 2-8

Characterization, Excavation, and Disposal Decision Flow Diagram

NAF El Cento, Imperial County, California

Bechtel National, Inc.
CLEAN II Program

Date: 10/29/98
File No: 100C3704
Job No: 22214-100
Rev: A



LEGEND

EC12-B4 — PREVIOUS SOIL BORING LOCATION

● PROPOSED CHARACTERIZATION SAMPLE LOCATION

▲ PROPOSED HYDROPUNCH LOCATION

EE/CA Sites 12 and 17

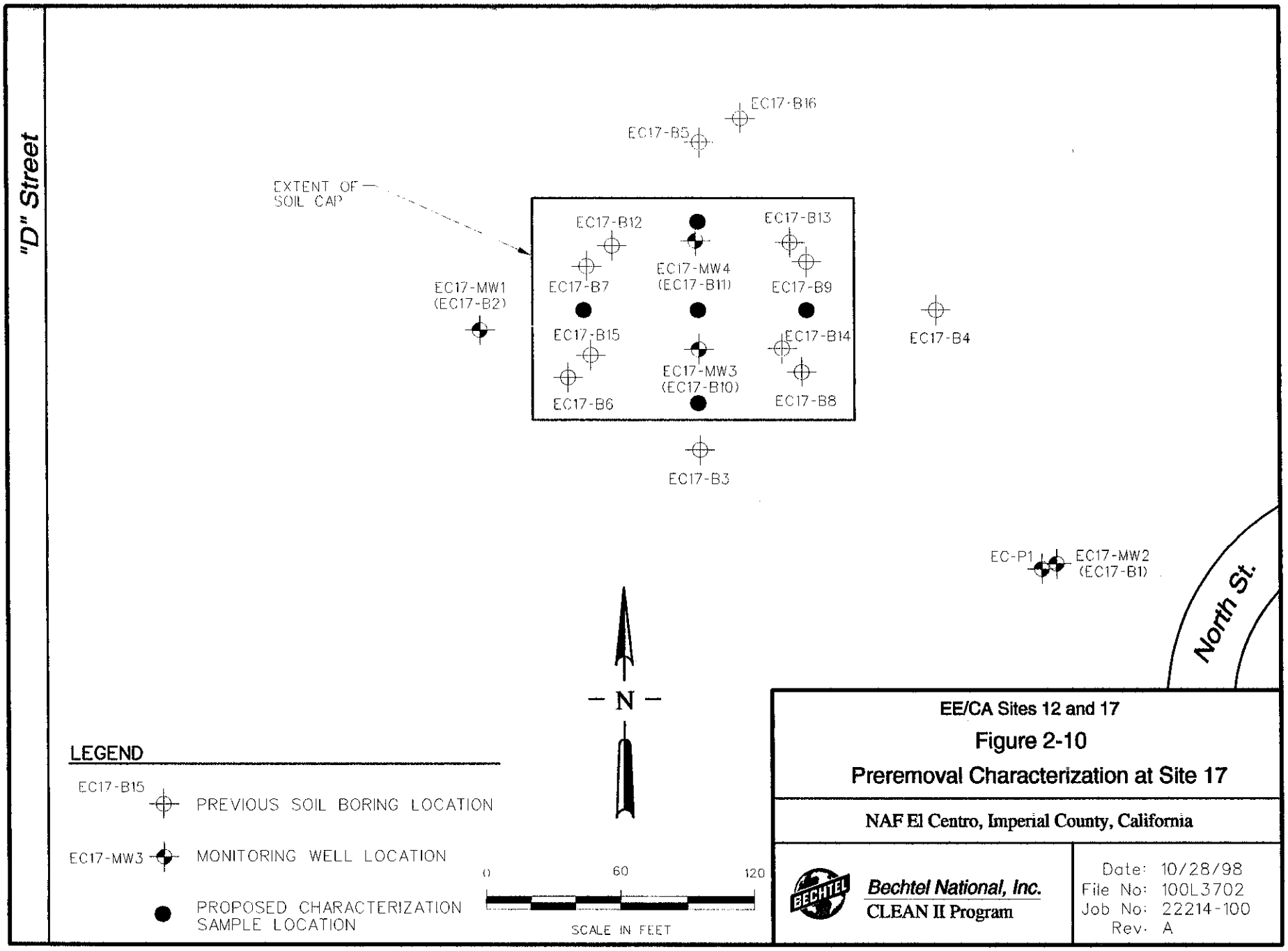
Figure 2-9

Pre-removal Characterization at Site 12

NAF El Centro, Imperial County, California

Bechtel National, Inc.
CLEAN II Program

Date: 10/29/98
File No: 100L3700
Job No: 22214-100
Rev: A



EE/CA Sites 12 and 17

Figure 2-10

Preremoval Characterization at Site 17

NAF El Centro, Imperial County, California

Bechtel National, Inc.
CLEAN II Program

Date: 10/28/98
File No: 100L3702
Job No: 22214-100
Rev: A

Section 3
IDENTIFICATION OF REMOVAL ACTION OBJECTIVES

This section identifies the removal action scope and objectives for Sites 12 and 17. The removal action objectives are based on CERCLA, the NCP, the streamlined risk screening (Section 2.5), the sensitive ecosystems (Section 2.1.6), and applicable or relevant and appropriate requirements (ARARs). These objectives are used in Section 4 to develop removal action alternatives.

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 (EO) 12580. This order provides the DON with authorization to conduct and finance removal actions. This removal action is non-time-critical because a 6-month planning period was available from the time a removal action was determined to be necessary until the initiation of removal actions. The requirements for this EE/CA and its mandated public comment period provide opportunity for public input to the cleanup process.

Additionally, the Ca-HSC specifies required documentation, which depends upon the costs of the removal action. The Ca-HSC requires development of either an RAP for removal actions that cost $1 million or more; or an RAWP for removal actions that cost less than $1 million. Furthermore, the Ca-HSC authorizes DTSC to waive the RAP requirements, in favor of an RAWP or an RAP-equivalent document, for removal actions when an imminent and/or substantial endangerment determination exists. DTSC may also waive the RAP requirements if a RAP-equivalent document that meets the requirements of Ca-HSC § 25356.1(h) (3) is prepared.

The DON, with state regulatory oversight, is the lead agency for the removal action. As such, DON has final approval authority over the recommended alternative and all public participation activities with state concurrence. SWDIV is the regional manager of the DON CERCLA program, and is therefore providing technical expertise to NAF El Centro to conduct activities specific to the preparation of the 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 CFR Part 300, Defense Environmental Restoration Program at 10 *United States Code* §2701, et seq., and EO 12580. This EE/CA is being pursued under 40 CFR Part 300.415 (b)(2)(iv).

3.2 DETERMINATION OF REMOVAL SCOPE

The scope of this removal action is to reduce the potential for human and ecological exposure to dioxin-contaminated soils at Sites 12 and 17 to acceptable levels, reduce the potential threat to groundwater, and attain clean closure for the site.

The removal action alternatives considered in this EE/CA are intended to result in an NFA status for dioxin-contaminated soil at the site. The removal action alternatives are discussed in detail in Section 4.

3.3 DETERMINATION OF REMOVAL SCHEDULE

The removal action schedule for Sites 12 and 17 may be affected by the availability of services and weather. However, all removal action services should be readily available and in cases of extreme summertime temperatures, additional time or nighttime work may be required. Rain is not expected to be a major consideration.

This EE/CA identifies and recommends alternatives. The EE/CA will be available for public review and comment for 30 days. The DON will review the comments and direct the incorporation of public comments in the final EE/CA.

The removal action and site restoration activities are expected to be completed 12 months after award of the removal contract.

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 CFR 300.415[i]).

The evaluation of ARARs for this EE/CA can be found in Attachment E. The following sections provide an overview of the ARARs process and a summary of the potential ARARs that potentially affect the development of removal action objectives.

3.4.1 Applicable or Relevant and Appropriate Requirements Overview

Identification of ARARs is a site-specific determination that involves a two-part analysis: first, a determination must be made of whether a given requirement is applicable; then if it is not applicable, a determination must be made of whether it is relevant and appropriate. A requirement is deemed applicable if the specific terms of the law or regulation directly address the chemical of concern, remedial 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, the 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* 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 Sites 12 and 17. As the lead state agency, Cal-EPA has the responsibility for identifying state ARARs. In a letter dated 08 September 1997, the DON requested that Cal-EPA identify potential ARARs for the NAF El Centro Sites 12 and 17. On 06 October 1997, Cal-EPA DTSC submitted a letter to the DON listing potential state ARARs for Sites 12 and 17.

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 removal action objectives are discussed in the following section. Other chemical-specific, location-specific, and action-specific ARARs are presented in Section 4 for each of the alternatives considered. A detailed discussion of all of the ARARs considered for this EE/CA can be found in Attachment E.

3.4.2 Applicable or Relevant and Appropriate Requirements Affecting Removal Action Objectives

In general, the federal and state hazardous waste management regulations promulgated in the *California Code of Regulations* (CCR) Title 22 will be the controlling ARARs for the removal action. These regulations specify the characterization of the hazardous nature of the excavated material and specify how it must be managed and disposed after excavation, if it is hazardous. If the excavated soil is not hazardous, the controlling ARARs for soil management will be the State Water Resources Control Board waste discharge to land requirements (CCR Title 23, Chapter 15). Additionally, various rules and regulations of the Imperial County Air Pollution Control District (ICAPCD) promulgated pursuant to the Clean Air Act will be potential ARARs for soil excavation activities.

3.5 REMOVAL ACTION OBJECTIVES

This section is intended to satisfy portions of RAWP requirements, as defined in Ca-HSC §25356.1.

Based on the CERCLA, NCP, risk assessment, ESA, and identified ARARs, the removal action objectives at Sites 12 and 17 are to:

- reduce the potential for adverse effects to human and ecological receptors due to exposure to dioxin and petroleum hydrocarbon contaminated soil;
- reduce the potential threat to groundwater; and
- achieve clean closure under CERCLA for each site.

These objectives will be achieved by removing dioxin-contaminated soil and other constituents that exceeded target action levels (Table 3-1) and disposing contaminated soil at an appropriate facility. Clean fill material will be used to backfill the remaining excavations to existing grade.

The target action levels listed in Table 3-1 are not intended to be cleanup levels. They are used to identify contaminants with the potential to adversely affect human or ecological receptors. Contaminants with concentrations below the target action level are below ambient concentrations; therefore, potential adverse health effect are low or are consistent with background. Analytes exceeding the target action levels may be evaluated individually. Isolated occurrences of contaminants above the target action level may be left in place if the contaminant poses low risk to human health or the environment. The lead regulatory agency will be notified for concurrence for any contaminant above the target action level prior to backfilling the site.

Table 3-1
Proposed Target Action Levels

Parameters	Residential PRG[a] (mg/kg)[b]	Background Threshold Value (mg/kg)	Highest Detected Concentration (mg/kg)	Target Action Levels (mg/kg)
2,3,7,8-TCDD[c] (dioxin) equivalent[d]	0 0000038	—[e]	0.000041	0 0000038
Chromium, hexavalent	0 2[f]	—	—	0 2[f]
Chromium, total	210	19	73	19
Copper	2,800	22	111	22
Lead	130[g]	17	81	17
Nickel	150[g]	20	30.6	20
Zinc	23,000	70	1,200	70
Total petroleum hydrocarbons	—	—	20,000	100
SVOCs[h] and VOCs[i]	—	—	—	Detection limit
Other metals not listed above	—	—	—	Background threshold value

Notes:
- [a] PRG – United States Environmental Protection Agency Region IX residential preliminary remediation goal for soil (U.S. EPA 1996)
- [b] mg/kg – milligrams per kilogram
- [c] TCDD – tetrachlorodibenzo(p)dioxin
- [d] toxicity equivalent concentration = (maximum concentration) × (toxicity equivalence factor)
- [e] — – not applicable
- [f] the soil cleanup level will be the California Environmental Protection Agency (Cal-EPA)-modified PRG; if a laboratory detection limit equal to or less than the Cal-EPA-modified PRG is not available, the lowest available detection limit will be used as the cleanup level
- [g] Cal-EPA-modified PRG (DTSC 1994b)
- [h] SVOC – semivolatile organic compound
- [i] VOC – volatile organic compound

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Section 4
IDENTIFICATION AND ANALYSIS OF REMOVAL ACTION ALTERNATIVES

Based on the removal action objectives presented in Section 3, eight removal action alternatives have been developed and evaluated for the removal action at Sites 12 and 17. These alternatives are described in the following sections and are evaluated based on effectiveness, implementability, and cost. For comparison, the no action alternative is also evaluated as required under the NCP.

- Alternative 1, excavation, off-site Class I landfill disposal;
- Alternative 2, excavation, off-site high-temperature incineration;
- Alternative 3, excavation, on-site treatment using solidification/stabilization, and on-site disposal;
- Alternative 4, excavation, on-site treatment using soil washing, and on-site disposal;
- Alternative 5, excavation, on-site treatment using soil washing, and off-site disposal;
- Alternative 6, *in situ* stabilization/solidification;
- Alternative 7, on-site containment (capping); and
- Alternative 8, no action.

To evaluate effectiveness, consideration was given to the overall protection of human-health and the environment, compliance with ARARs and other guidance, and both the long- and short-term effectiveness of the alternative. Evaluation of the implementability of each alternative included consideration of the technical feasibility, commercial availability, administrative feasibility, and public acceptance.

Based on these evaluations, Alternatives 3 through 7 were eliminated from further consideration. Alternatives 1, 2, and 8 were retained for detailed evaluation. The rationale for elimination of Alternatives 3 through 7 is described in the following paragraphs.

Alternative 3 involves excavation of the contaminated soil, on-site treatment using solidification/stabilization, and disposal on-site at an appropriate disposal facility. Contaminated soil treated using solidification/stabilization would not be considered inert waste because the treatment process does not reduce the toxicity or volume of contaminants of concern in the soil. Alternative 3 was also eliminated from further consideration because the base does not have an appropriate waste-disposal facility. Soil requiring treatment prior to disposal can be treated more cost effectively off-site at a disposal facility.

Alternatives 4 and 5 involve excavation of the contaminated soil, on-site treatment using soil washing, and disposal either on-site or off-site at an appropriate waste-disposal facility. During the soil-washing process, contaminated soil is mixed with a wash solution and subjected to intense attrition scrubbing to disintegrate soil aggregates and scour contaminants from the surface of the coarse fraction (i.e., sand and gravel). The washed coarse fraction is then mechanically separated from the wash solution containing suspended fines (i.e., silt and clay) and

dewatered. The coarse fraction is generally uncontaminated and can be recycled. The suspended fines, still containing contaminants, are precipitated, dewatered, and disposed at an appropriate waste-disposal facility. Further treatment of the fine fraction is typically not feasible due to the tendency of contaminants to form strong chemical or physical bonds with the silt and clay particles. For this reason, soil washing is generally only effective for soils containing a minor fraction of fine-grained material. The soils at Sites 12 and 17 have been characterized (Ogden 1993; BNI 1998a) as primarily fine-grained (i.e., silt, silty clay, and clayey silt). Thus, it was concluded that soil washing would not be an effective treatment option for either site. Alternatives 4 and 5 were eliminated from further consideration based on this conclusion.

Alternatives 6 and 7 were eliminated from further consideration, because the DON prefers an unrestricted land use disposition and because the removal action objective is for NFA. These alternatives would reduce the contaminant of concern mobility but would not reduce the contaminant of concern toxicity or volume. Under Alternatives 6 and 7, institutional controls would likely be necessary to restrict future uses and potential exposure to the remaining contaminants of concern, or additional action would likely be required if unrestricted land use was desired.

Alternatives 1 and 2 are considered feasible and meet the removal action objectives with respect to effectiveness, implementability, and cost. The following sections include technical descriptions and further discussion of Alternatives 1 and 2, as well as Alternative 8 (no action).

4.1 ALTERNATIVE 1 – EXCAVATION, OFF-SITE CLASS I LANDFILL DISPOSAL

This section is intended to satisfy RAWP requirements, as defined in Ca-HSC §25356.1(d)(3), (5), (6).

4.1.1 Description

Alternative 1 will implement an excavation and disposal remedy. Because of the apparent limited extent of contaminated soil and the long-term objective of no further action for Sites 12 and 17, Alternative 1 is considered an effective means for addressing soil contamination. Alternative 1 proposes excavation of dioxin-contaminated soils with 2,3,7,8-TCDD dioxin equivalent concentrations that exceed the incremental cancer risk of 1×10^{-6}. Contaminated soil will be transported to an appropriate facility for disposal as Cal-EPA non-RCRA hazardous waste.

4.1.1.1 EXCAVATION

The estimated extent of contaminated soil to be excavated is based on the results of the previous sampling activities conducted at the sites and will be further characterized before excavation as described in Section 2.6. The excavation plan assumes that the dioxin-contaminated material is in a 6-inch-thick layer at the bottom of each pit. It assumes that soil with contaminant concentrations greater than the target action levels (Table 3-1) will be removed. These action levels are not specific cleanup concentrations.

It is assumed that isolated occurrences of contaminants may remain on-site if they do not pose a potential threat to human health or the environment. Decisions regarding which analytes and concentrations may remain on-site will depend upon the potential toxicity and reported depth. These decisions will be made jointly between the Navy and the lead regulatory agency. The estimated extent of dioxin and petroleum-contaminated soil to be removed is shown in Figures 4-1 through 4-4.

Excavation activities will be conducted as follows.

1. All material removed from the excavations will be placed on-site in stockpiles or covered containers according to classification. Nonhazardous soil will be placed on 10-mil plastic sheeting.
2. Noncontaminated cap material defined as inert waste (Section 2.6), at Site 17 will be excavated and segregated in stockpiles designated for noncontaminated soil.
   - Fill material from Site 17 will be excavated to 0.5 feet above the contaminated interval.
   - Noncontaminated soil removed for slope stability will be staged with the stockpiled material designated as noncontaminated, whenever possible.
3. Contaminated material corresponding to the bottom of each burn pit will be excavated to 0.5 feet below the vertical extent of contamination and segregated in stockpiles designated for off-site disposal.
4. Additional excavation will occur in any areas of discolored soil.

Noncontaminated soils will be sampled before using them to backfill the excavations. During the excavation, water will be sprayed on the stockpiled soil and around the excavated area, as needed, to control dust.

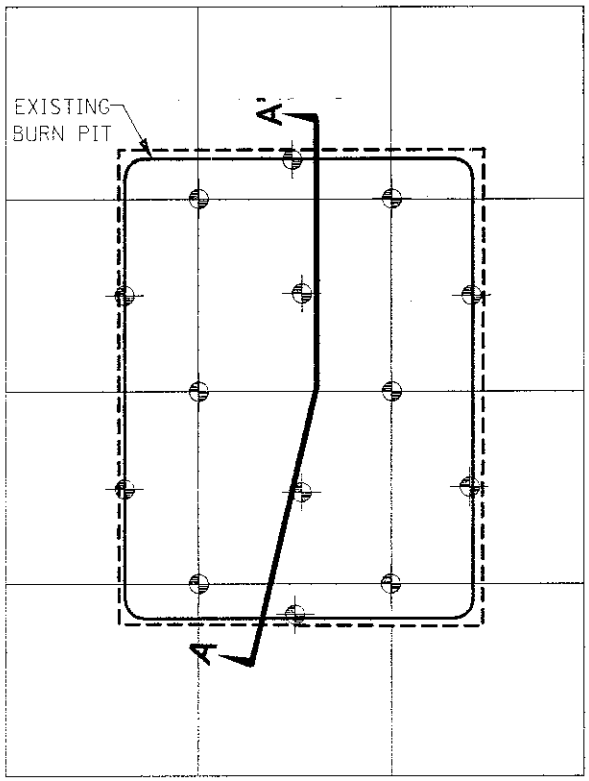
4.1.1.2 DISPOSAL

After the soil is excavated and stockpiled, profile samples will be collected from each contaminated soil stockpile to evaluate disposal classification. Based on the results of the characterization sampling, the soil will be disposed as follows.

- Inert soil will be used as backfill for the excavations.
- Designated or nonhazardous soil (including soil with petroleum hydrocarbons) will be transported off-site to a Class II landfill or other appropriate facility.
- Cal-EPA or RCRA hazardous soil will be transported to a licensed Class I facility.

4.1.1.3 CONFIRMATION SAMPLING

Confirmation sampling will be performed to check for remaining contaminants of concern following excavation. The confirmation sampling strategy was designed to collect a statistically valid number of samples to assure that a hot spot, approximately 10



LEGEND

A A' CROSS SECTION LOCATION

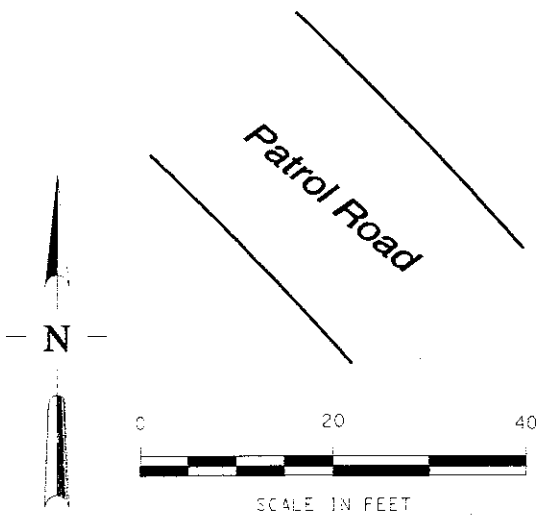
20-FOOT SAMPLING GRID

PROPOSED CONFIRMATION SAMPLING LOCATION

EC12-B4

SOIL BORING LOCATION

ESTIMATED EXTENT OF SOIL TO BE REMOVED



EE/CA Sites 12 and 17

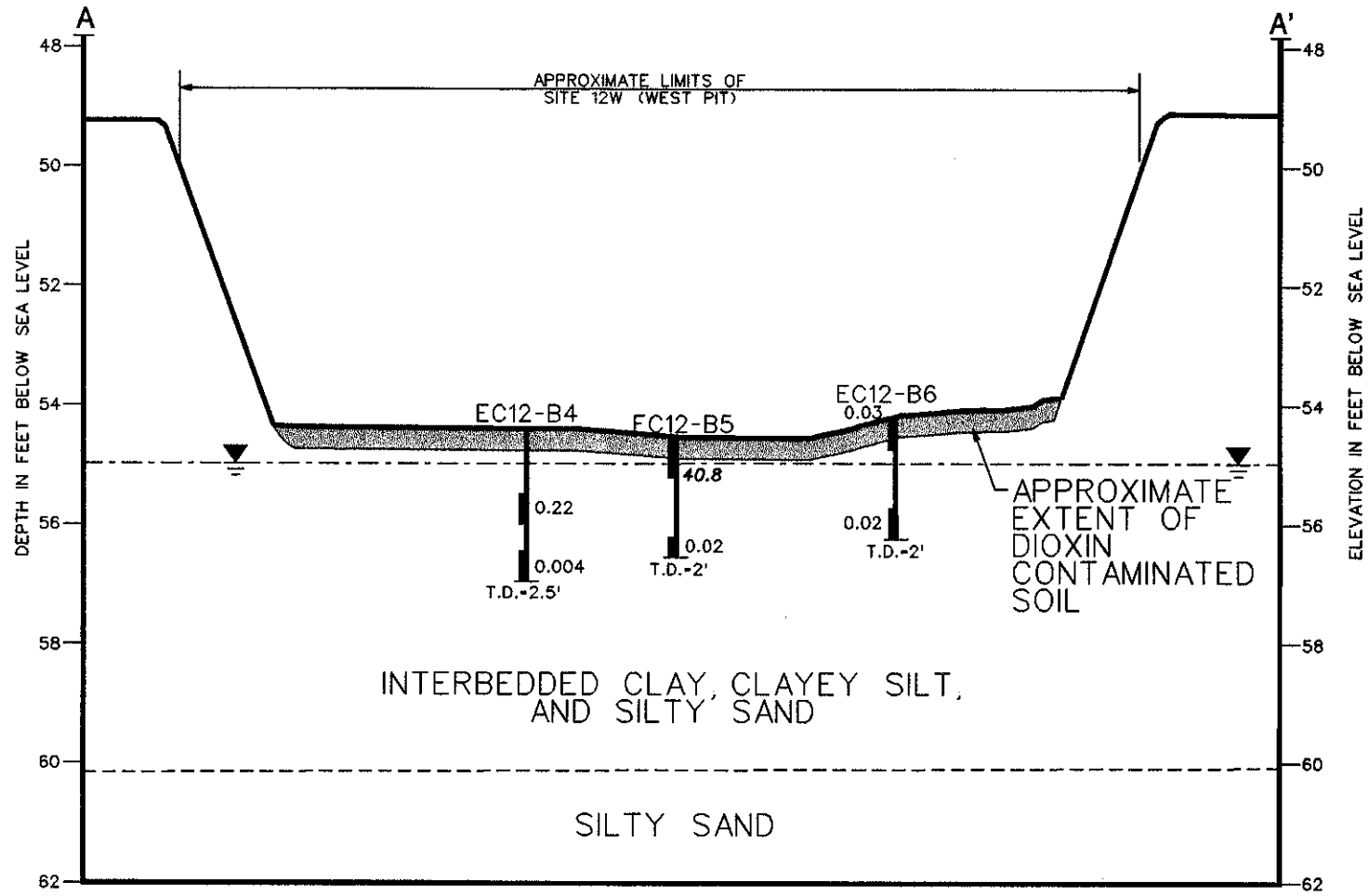
Figure 4-1

Proposed Confirmation Sampling Locations
Site 12 - Open Burn Pit

NAF El Centro, Imperial County, California

Bechtel National, Inc.
CLEAN II Program

Date: 10/28/98
File No: 100L2689
Job No: 22214-100
Rev: J



LEGEND:

■	APPROXIMATE LOCATION OF SOIL SAMPLE WITH 2,3,7,8-TCDD (DIOXIN) EQUIVALENT CONCENTRATION IN ng/Kg
T.D.=2.5'	TOTAL DEPTH OF BORING (IN FEET BGS)
40.8	BOLD AND ITALIC NUMBER INDICATES VALUE ABOVE PRG
- - - - - - -	INFERRED LITHOLOGIC CONTACT
▼	GROUNDWATER FIRST ENCOUNTERED
▒	APPROXIMATE EXTENT OF DIOXIN CONTAMINATED SOIL TO BE REMOVED

0 9 18

HORIZONTAL SCALE IN FEET

EE/CA Sites 12 and 17

Figure 4-2

Cross Section A-A'

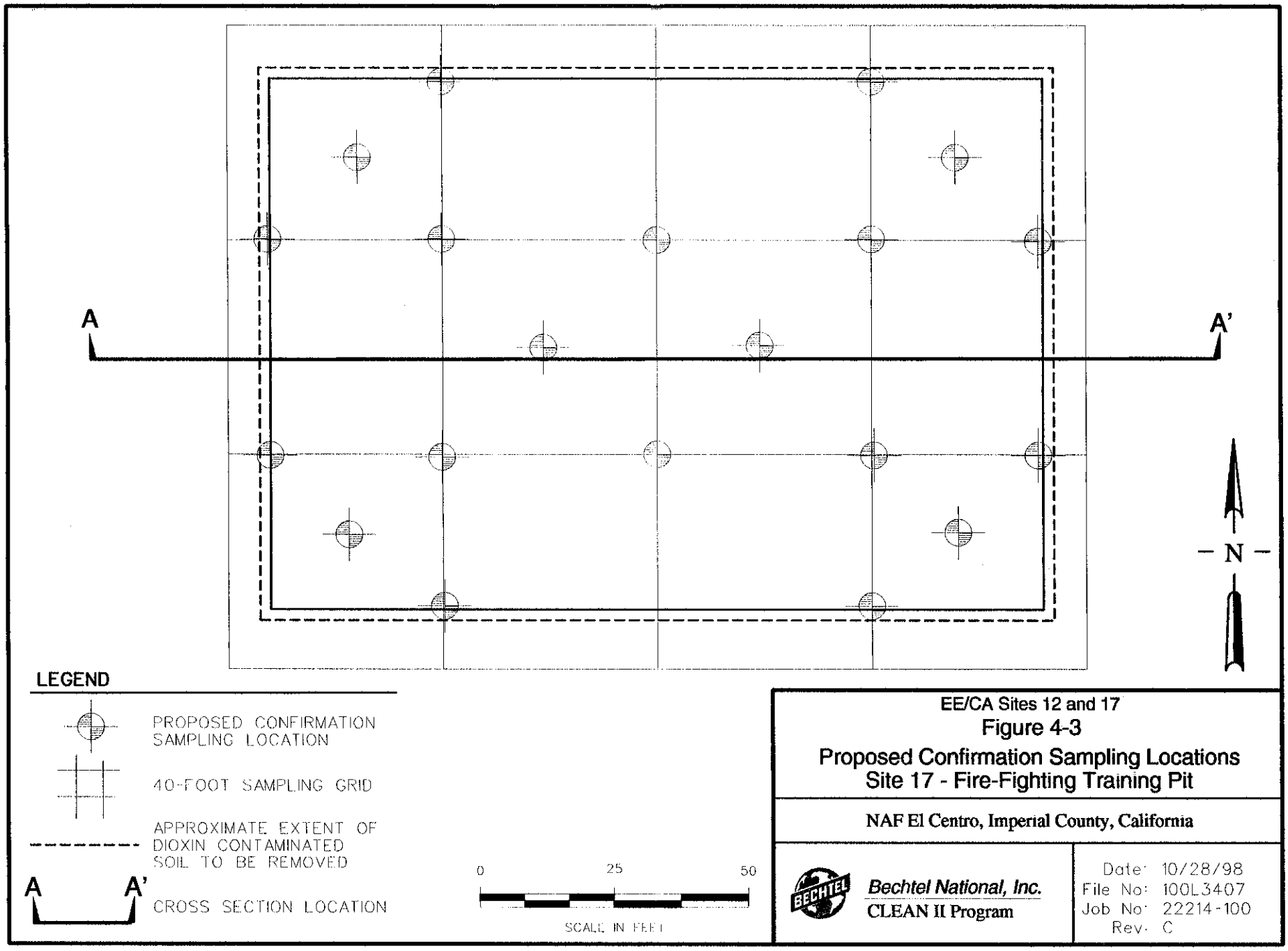
Site 12 - Open Bum Pit

NAF El Centro, Imperial Valley, California

Bechtel National, Inc.

CLEAN II Program

Date: 7/1/98
File No. 100X3404
Job No. 22214-100
Rev. No. B



EE/CA Sites 12 and 17

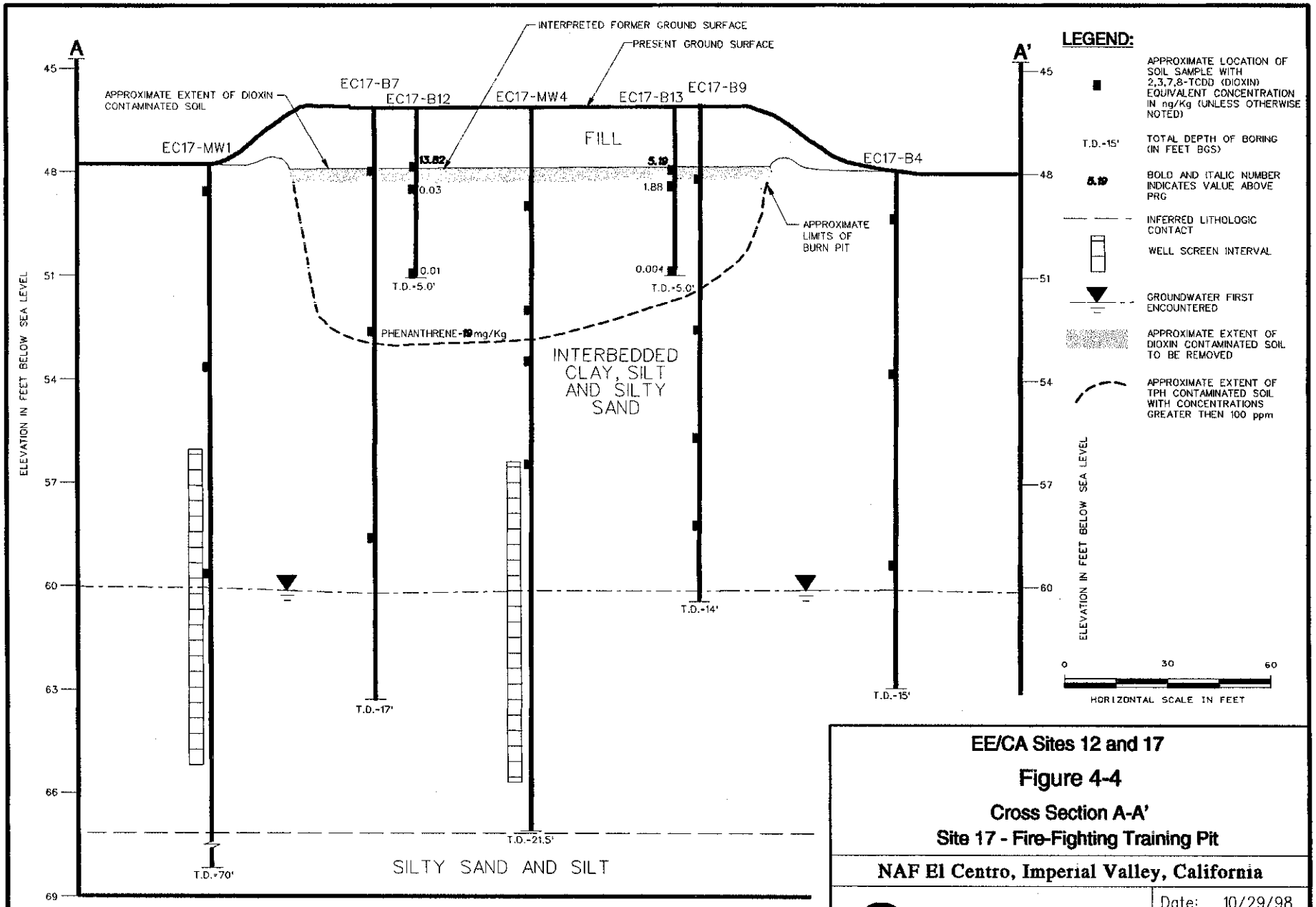
Figure 4-3

Proposed Confirmation Sampling Locations
Site 17 - Fire-Fighting Training Pit

NAF El Centro, Imperial County, California

Bechtel National, Inc.
CLEAN II Program

Date: 10/28/98
File No: 100L3407
Job No: 22214-100
Rev: C



EE/CA Sites 12 and 17

Figure 4-4

Cross Section A-A'

Site 17 - Fire-Fighting Training Pit

NAF El Centro, Imperial Valley, California

Bechtel National, Inc.

CLEAN II Program

Date: 10/29/98
File No. 100X3405
Job No. 22214-100
Rev. No. B

feet in diameter, was not missed during the excavation activities, as well as achieve clean closure for the sites. Both sites were burn areas where fuel and water mixtures were used as the fuel for combustion. It is therefore assumed that the liquid would generally form a homogeneous layer on the bottom of each pit. The minimum quantity of fuel and water mixtures used for the burning activities was reported to be 50 gallons at Site 12 (NEESA 1987) It is assumed that this minimum reported volume of the liquid would have a maximum 1-inch depth in the bottom of the pit, which leads to a 10-foot-diameter area for the ponded fuel. This is a very conservative assumption because analytical sampling and field observations suggest that the hot spot size is actually the size of the entire pit and that contaminants of concern are present in a homogeneous layer corresponding to the bottom of the former pits.

The method recommended in U.S. EPA (1990) was used to evaluate the probability that the sampling strategy will identify a hot spot and uses the following equation:

$$PH = (\pi R^2)/D^2$$

where:

PH is the probability that a grid point will fall on a hot spot
R is the assumed radius of the hot spot
D is the grid spacing

Using the above information and a target probability of 95 percent, a grid spacing of 18 feet was calculated. Therefore, for Site 12 a grid rounded off to a spacing of 20 feet should be sufficient to assess if the excavation activities missed a hot spot with an approximately 10-foot radius and attain clean closure for the site.

For Site 17, the grid spacing was doubled to 40 feet. This is because Site 17 is roughly ten times larger than Site 12. It was reported that Site 17 was flooded with water-bearing fuel prior to igniting the fire. Therefore, the minimum hot spots at Site 17 would also be a minimum of 100 times larger than Site 12. A 40-foot grid spacing will conservatively identify if a hot spot was missed during excavation.

The following procedure will be used to collect confirmation samples.

- A 20-or 40-foot grid spacing will be staked out over each excavation area.
- Soil samples will be collected from each grid node (and other locations shown in Figures 4-1 and 4-3) and submitted to an off-site laboratory for analysis Sample locations may be modified in the field based on the grid spacing relative to the excavated size so samples are collected from the side and bottom of the excavation.
- All confirmation samples will be analyzed for polychlorinated dibenzodioxin and polychlorinated dibenzofuran (U.S. EPA Method 8290), semivolatile organics (U.S. EPA Contract Laboratory Program Method), volatile organics (U.S. EPA Method 8260), PCBs (U.S. EPA Method 8080), and hexavalent chromium (U.S. EPA Method 7196)

- The results of the confirmation sample analyses will be compared to the target action levels listed in Table 3-1. If target analytes exceed the target action levels, additional excavation will be performed in that area, and additional samples (one sample per 500 square feet) will be collected. Sampling and excavation will continue until either analytical results are below the target action levels or only occur as sporadic isolated occurrences, posing a low threat to human health and the environment, and the lead regulatory concurs that they may remain in place.

4.1.1.4 BACKFILLING

When the results of the confirmation sample analyses indicate that the soil containing contaminants of concern at concentrations exceeding the soil cleanup levels has been removed from the site, clean fill material will be imported to the site, and the excavation will be backfilled and compacted to American Society for Testing and Materials standards.

The source of the backfill material will not be known until the removal action construction contract is awarded. However, backfill sources that have been used during previous removal actions are listed below as potential sources for this removal action:

- wheeler pit, mixture of sand, silt, and clay; and
- crusher fines, sand and fine gravel from local rock-crushing construction activities to make gravel.

4.1.2 Effectiveness

The effectiveness of Alternative 1 has been assessed in terms of its overall protection of public health and the environment; compliance with the ARARs; its long-term effectiveness; its ability to reduce toxicity, mobility, and volume; and its short-term effectiveness. Alternative 1 complies with the ARARs. Excavation of the contaminated soil effectively reduces the toxicity, mobility, and volume of the contaminants of concern at the site, thus improving overall protection of public health and the environment.

4.1.2.1 COMPLIANCE WITH ARARs

The primary ARARs for this alternative include the federal and state hazardous waste management regulations, as well as the State Water Resources Control Board requirements for disposal of designated wastes on land. Applicability of these requirements extends to the hazardous characteristics of the excavated wastes and the disposal of the wastes, as well as waste pile requirements for contaminated soil accumulated during excavation. Soil exhibiting a hazardous characteristic for toxicity will be disposed of at a permitted Class I facility.

Provisions of the ICAPCD rules promulgated under the federal Clean Air Act pertaining to particulate emissions during earth-moving activities are also considered ARARs for

Alternative 1. It is anticipated that ICAPCD will require dust-control measures to be implemented during the execution of the fieldwork. This alternative includes provisions for dust control.

4.1.2.2 LONG-TERM EFFECTIVENESS

Because the contaminated soil will be excavated and removed from the site, this alternative is effective with respect to long-term removal of exposure pathways at the site.

4.1.2.3 REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

Physical removal of contaminated soil by excavation will effectively reduce the toxicity, mobility, and volume of the contaminants of concern at the site. Excavation and disposal of the contaminated soil will reduce the potential for future human and ecological exposure to and will reduce the potential for migration of the contaminants of concern.

4.1.2.4 SHORT-TERM EFFECTIVENESS

According to U.S. EPA guidance (U.S. EPA 1993) during implementation of the alternative, the short-term effectiveness must be addressed before the removal objectives have been met. Protection of the community, protection of workers, and environmental impacts during the period between the implementation and achievement of removal objectives—these are the primary considerations of this criterion.

During the excavation activities, measures will be taken to reduce fugitive dust emissions and the associated impacts on workers and the surrounding community. Workers will not be required to directly handle contaminated soil, and water trucks will be available for dust control. All workers within the work zone will don appropriate personal protective equipment (PPE).

The potential for exposure to the contaminated soil exists during the transport of the soil to the off-base landfill from possible truck spillage or a traffic accident. Spillage from trucks can be limited by covering the trucks with tarps and limiting the load height.

4.1.3 Implementability

The implementability of Alternative 1 has been assessed in terms of its technical and administrative feasibility; the availability of services and materials; and the anticipated state and community acceptance. Alternative 1 is technically and administratively feasible. The permits and approvals necessary to implement Alternative 1 are obtainable. The services and materials required for Alternative 1 are readily available. State and community acceptance will be evaluated following the public comment period. Following is a discussion of the implementability of Alternative 1.

4.1.3.1 TECHNICAL FEASIBILITY

Conventional earth-moving equipment can be used to excavate and load the contaminated soil, transport it to an off-base landfill facility, and backfill both excavations with stockpiled material from Site 17. Both sites are open, accessible, and relatively flat. Therefore, no apparent site characteristics preclude the performance of the work.

Due to the low precipitation in the Imperial Valley, the work can be performed year-round. However, due to the extreme summer temperatures, it may be preferable to avoid work in the summer.

4.1.3.2 ADMINISTRATIVE FEASIBILITY

The ICAPCD may require permits for dust control during the excavation activities. These activities will be coordinated with ICAPCD, and the appropriate permits will be obtained by the construction contractor. Provisions for dust control have been incorporated into this alternative.

Because this alternative may involve the handling of hazardous waste, it will be necessary to comply with federal and state hazardous waste management regulations.

4.1.3.3 AVAILABILITY OF SERVICES AND MATERIALS

Local construction contractors with experience working at hazardous waste sites can be used to perform the excavation, other earth-moving activities, and dust control. The materials and laboratory services necessary to implement this alternative are readily available from a variety of vendors in California and the southwest.

Several Class I landfills in California will accept RCRA hazardous waste, Cal-EPA non-RCRA hazardous waste, and nonhazardous waste. Transportation of the contaminated soil to these facilities will be provided by an appropriately licensed independent trucking company.

4.1.3.4 STATE AND COMMUNITY ACCEPTANCE

This EE/CA will be reviewed by Cal-EPA DTSC, the California Regional Water Quality Control Board (RWQCB) Colorado River Basin Region, and the public. Comments from these agencies and the public will be incorporated into this document.

4.1.4 Cost

The cost estimate for Alternative 1 was developed based on the data provided in the Data Gaps Study Report (BNI 1998a), Site Inspection/Hydrogeological Assessment Report (Ogden 1993), and other available information provided by the DON at the time this EE/CA was performed.

In developing the Alternative 1 cost estimate for Sites 12 and 17 (Table 4-1), it is assumed that the removal action activities for Sites 12 and 17 will occur at the same time. Other assumptions and calculations are listed below.

- Site 12:
  - All estimated volumes have been increased by a set multiplier of two to assure adequate cost estimates.
  - For Site 12, the estimated in-place volume of dioxin-contaminated soil is approximately 50 cubic yards; therefore, it is assumed that the volume to be transported off-site for disposal is approximately 100 cubic yards (125 tons).
  - Soil will be disposed of as Cal-EPA non-RCRA hazardous waste in a California Class I landfill facility.
  - One confirmation sampling and analysis event (consisting of 12 soil samples) will be performed following the excavation activities (Section 4.1.1.4).
  - The total volume of clean backfill material needed is approximately 350 cubic yards (440 tons). This includes 250 cubic yards (325 tons) of material needed to fill the existing pit at Site 12.
  - The backfill material will consist of clean, imported fill material.
- Site 17:
  - All estimated volumes have been increased by a set multiplier of two to assure adequate cost estimates.
  - For Site 17, the estimated in-place volume of dioxin contaminated soil is approximately 500 cubic yards; therefore, it is assumed that the volume to be transported off-site for disposal is approximately 1,000 cubic yards (1,250 tons).
  - Soil will be disposed of as Cal-EPA non-RCRA hazardous waste at a California Class I landfill facility.
  - One confirmation sampling and analysis event (consisting of 20 soil samples) will be performed following the excavation activities.
  - Approximately 800 cubic yards (1,000 tons) of cap material will be stockpiled on-site for possible use as backfill material.
  - Three composite samples will be collected from the stockpiled cap material.
  - The total volume of clean, imported backfill material needed is approximately 200 cubic yards (250 tons). All other backfill will be supplied from former stockpiled cap material.

Table 4-1
Alternative 1 Cost Estimate for Sites 12 and 17

Cost Category	Alternative 1
Direct Costs	
Confirmation and stockpile sampling at Sites 12 and 17	$96,500
Excavation of dioxin	$22,300
Transport and disposal at off-site landfill	$240,200
Professional labor (project oversight)	$50,100
Remedial design	$16,800
Total Direct Costs	$325,900
Indirect Costs	$261,600
Escalation[a]	$90,200
Contingency[b]	$135,500
TOTAL	$913,200

Notes:
[a] escalation modifies the costs in the RACER database from January 1992 to the assumed project start date of January 2000
[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

Table 4-1 presents a summary of the estimated costs for Alternative 1, including excavation and disposal of contaminated soil for both sites. This EE/CA was prepared to satisfy the RAWP because it is anticipated that the overall project will cost less than $1 million.

The cost estimate was performed using the Remedial Action Cost Engineering Requirements (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. RACER cost estimates are made site-specific through the modification of geographic and project-specific factors.

4.2 ALTERNATIVE 2 – EXCAVATION, OFF-SITE HIGH-TEMPERATURE INCINERATION

This section is intended to satisfy RAWP requirements, as defined in Ca-HSC §25356.1(d) (3),(5),(6).

4.2.1 Description

Alternative 2 is excavation and high-temperature incineration of dioxin-contaminated soil. Because of the apparent limited extent of contaminated soil and the long-term objective of NFA for Sites 12 and 17, Alternative 2 is also considered an effective means for addressing the contaminated soil. However, incineration is a relatively expensive process.

4.2.1.1 EXCAVATION

The estimated extent of contaminated soil to be excavated is based on the results of the previous sampling activities conducted at the sites and will be further characterized before excavation as described in Section 2.6. The excavation plan assumes that the dioxin contaminated material is in a 6-inch-thick layer at the bottom of each pit. It assumes that all soil with contaminant concentrations greater than the target action levels (Table 3-1) will be removed. These action levels are not specific cleanup concentrations. It is assumed that isolated occurrences of contaminants may remain on-site if they do not pose a potential threat to human health or the environment. Decisions regarding which analytes and concentrations may remain on-site will depend upon the potential toxicity and reported depth. These decisions will be made jointly between the Navy and the lead regulatory agency. The estimated extent of dioxin-contaminated soil to be removed is shown in Figures 4-1 through 4-4.

Excavation activities will be conducted as follows.

1. All material removed from the excavations will be placed on-site in stockpiles or covered containers according to classification. Nonhazardous soil will be placed on 10-mil plastic sheeting and stockpiled in accordance with disposal classifications.
2. Noncontaminated cap material defined as inert waste (Section 2.6) at Site 17 will be excavated and segregated in stockpiles designated for noncontaminated soil.
   - Fill material from Site 17 will be excavated to 0.5 feet above the contaminated interval.
   - Noncontaminated soil removed for slope stability will be staged with the stockpiled material designated as noncontaminated, whenever possible.
3. Contaminated material will be excavated to 0.5 feet below the vertical extent of contamination and segregated in stockpiles designated for off-site disposal.
4. Additional excavation will occur in any areas of discolored soil.

Noncontaminated soils will be sampled before using them to backfill the excavations. During the excavation, water will be sprayed on the stockpiled soil and around the excavated area, as needed, to control dust.

4.2.1.2 DISPOSAL

After the soil is excavated and stockpiled, profile samples will be collected from each contaminated soil stockpile to evaluate disposal classification. Under this alternative, the soil will be transported to a licensed incineration facility, and the dioxins will be destroyed by high-temperature incineration. Based on the results of the characterization sampling, the soil will be disposed as follows.

- Inert soil will be used as backfill for the excavations.
- Designated or nonhazardous soil (including soil with petroleum hydrocarbons) will be transported off-site to a Class II landfill or other appropriate facility.
- Cal-EPA or RCRA hazardous soil will be transported to a licensed Class I facility.

4.2.1.3 CONFIRMATION SAMPLING

Confirmation sampling will be performed to check for remaining contaminants of concern following excavation. The confirmation sampling strategy was designed to collect a statistically valid number of samples to assure that a hot spot, approximately 10 feet in diameter, was not missed during the excavation activities, as well as achieve clean closure for the sites. Both sites were burn areas where fuel and water mixtures were used as the fuel for combustion. It is therefore assumed that the liquid would generally form a homogeneous layer on the bottom of each pit. The minimum quantity of fuel and water mixtures used for the burning activities was reported to be 50 gallons at Site 12 (NEESA 1987). It is assumed that this minimum reported volume of the liquid would have a maximum 1-inch depth in the bottom of the pit, which leads to a 10-foot-diameter area for the ponded fuel. This is a very conservative assumption because analytical sampling and field observations suggest that the hot spot size is actually the size of the entire pit and that contaminants of concern are present in a homogeneous layer corresponding to the bottom of the former pits.

The method recommended in U.S. EPA (1990) was used to evaluate the probability that the sampling strategy will identify a hot spot and uses the following equation:

$$PH = (\pi R^2)/D^2$$

where

PH is the probability that a grid point will fall on a hot spot
R is the assumed radius of the hot spot
D is the grid spacing

Using the above information and a target probability of 95 percent, a grid spacing of 18 feet was calculated. Therefore, for Site 12 a grid rounded off to a spacing of 20 feet should be sufficient to assess if the excavation activities missed a hot spot with an approximately 10-foot radius and attain clean closure for the site.

For Site 17 the grid spacing was doubled to 40 feet. This is because Site 17 is roughly ten times larger than Site 12. It was reported that Site 17 was flooded with water-bearing fuel prior to igniting the fire. Therefore, the minimum hot spots at Site 17 would also be a minimum of 100 times larger than Site 12. A 40-foot grid spacing will conservatively identify if a hot spot was missed during excavation.

The following procedure will be used to collect confirmation samples.

- A 20- or 40-foot grid spacing will be staked out over each excavation area.
- Soil samples will be collected from each grid node (and other locations shown in Figures 4-1 and 4-3) and submitted to an off-site laboratory for analysis. Sample locations may be modified in the field based on the grid spacing relative to the excavated size so samples are collected from the side and bottom of the excavation.
- All confirmation samples will be analyzed for polychlorinated dibenzodioxin and polychlorinated dibenzofuran (U.S. EPA Method 8290), SVOCs (U.S. EPA Contract Laboratory Program Method), VOCs (U.S. EPA Method 8260), PCBs (U.S. EPA Method 8080), and hexavalent chromium (U.S. EPA Method 7196).
- The results of the confirmation sample analyses will be compared to the target action levels listed in Table 3-1. If target analytes exceed the target action levels, additional excavation will be performed in that area, and additional samples (one sample per 500 square feet) will be collected. Sampling and excavation will continue until either analytical results are below the target action levels or only occur as sporadic isolated occurrences, posing a low threat to human health and the environment, and the lead regulatory concurs that they may remain in place.

4.2.1.4 BACKFILLING

When the results of the confirmation sample analyses indicate that the soil containing contaminants of concern at concentrations exceeding the soil cleanup levels has been removed from the site, clean fill material will be imported to the site, and the excavation will be backfilled and compacted to American Standard for Testing and Materials standards.

The source of the backfill material will not be known until the removal action construction contract is awarded. However, backfill sources that have been used during previous removal actions are listed below as potential sources for this removal action:

- wheeler pit, mixture of sand, silt, and clay; and
- crusher fines, sand and fine gravel from local rock-crushing construction activities to make gravel.

4.2.2 Effectiveness

The effectiveness of Alternative 2 has been assessed in terms of its overall protection of public health and the environment; compliance with the ARARs; its long-term effectiveness; its ability to reduce toxicity, mobility, and volume; and its short-term effectiveness. Alternative 2 complies with the ARARs. Excavation of the contaminated soil effectively reduces the toxicity, mobility, and volume of the contaminants of concern at the site, thus improving overall protection of public health and the environment.

4.2.2.1 COMPLIANCE WITH ARARs

The primary ARARs for this alternative include the federal and state hazardous waste management regulations, as well as the State Water Resources Control Board requirements for disposal of designated wastes on land. Applicability of these requirements extends to the hazardous characteristics of the excavated wastes and the disposal of the wastes, as well as waste pile requirements for contaminated soil accumulated during excavation. Soil exhibiting a hazardous characteristic for toxicity will be treated at a permitted Class I facility.

Provisions of the ICAPCD rules promulgated under the federal Clean Air Act pertaining to particulate emissions during earth-moving activities are also considered ARARs for Alternative 2. It is anticipated that ICAPCD will require dust-control measures to be implemented during the execution of the fieldwork. This alternative includes provisions for dust control.

4.2.2.2 LONG-TERM EFFECTIVENESS

Dioxin-contaminated soil will be excavated and transported to an off-site regulated incineration facility. This alternative is effective with respect to long-term removal of exposure pathways at each site and the destruction of the dioxins at a regulated facility.

4.2.2.3 REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

Reduction of toxicity and volume of dioxin contaminated soil from both sites will be effectively accomplished by excavation and off-site incineration. Mobility of dioxins is not a major factor because of low constituent solubility rates and adhesion to soil particles. Alternative 2 will reduce the potential for migration and future human and ecological exposure by removal and destruction of the contaminants.

4.2.2.4 SHORT-TERM EFFECTIVENESS

According to U.S. EPA guidance (U.S. EPA 1993), during implementation of the alternative, the short-term effectiveness must be addressed before the removal objectives have been met. Protection of the community, protection of workers, and environmental impacts during the period between the implementation and achievement of removal objectives—these are the primary considerations of this criterion.

During the excavation activities, measures will be taken to reduce fugitive dust emissions and the associated impacts on workers and the surrounding community. Workers will not be required to directly handle contaminated soil, and water trucks will be available for dust control. All workers within the work zone will don appropriate PPE.

The potential for exposure to the contaminated soil exists during the transport of the soil to the off-site incinerator from possible truck spillage or a traffic accident. Spillage from trucks can be limited by covering the trucks with tarps and limiting the load height.

4.2.3 Implementability

The implementability of Alternative 2 has been assessed in terms of its technical and administrative feasibility; the availability of services and materials; and the anticipated state and community acceptance. Alternative 2 is technically and administratively feasible. The permits and approvals necessary to implement Alternative 2 are obtainable. The services and materials required for Alternative 2 are readily available. State and community acceptance will be evaluated following the public comment period. Following is a discussion of the implementability of Alternative 2.

4.2.3.1 TECHNICAL FEASIBILITY

Conventional earth-moving equipment can be used to excavate and load the contaminated soil, transport the dioxin-contaminated soil to an off-site incineration facility, and backfill the excavations with clean stockpiled material from Site 17. Both sites are open, accessible, and relatively flat. Therefore, there are no apparent site characteristics that will preclude the performance of the work.

High-temperature incineration of dioxins is a proven technology and can be easily accomplished.

Due to the low precipitation in the Imperial Valley, the work can be performed year-round. However, due to the extreme summer temperatures, it may be preferable to avoid work in the summer.

4.2.3.2 ADMINISTRATIVE FEASIBILITY

The ICAPCD may require permits for dust control during the excavation activities. These activities will be coordinated with ICAPCD, and the appropriate permits will be obtained. Provisions for dust control have been incorporated into this alternative.

Because this alternative may involve the handling of hazardous waste, it will be necessary to comply with federal and state hazardous waste management regulations.

4.2.3.3 AVAILABILITY OF SERVICES AND MATERIALS

Local construction contractors with experience working at hazardous waste sites can be used to perform the excavation, other earth-moving activities, and dust control. The materials and laboratory services necessary to implement this alternative are readily

available from a variety of vendors in California and the southwest. However, the nearest high-temperature incinerator that accepts dioxin-contaminated soil is located in Canada. Transportation of the contaminated soil to these facilities will be provided by an appropriately licensed independent trucking company.

4.2.3.4 STATE AND COMMUNITY ACCEPTANCE

This EE/CA will be reviewed by Cal-EPA DTSC, RWQCB Colorado River Basin Region, and the public. Comments from these agencies and the public will be incorporated into this document.

4.2.4 Cost

The cost estimate for Alternative 2 was developed based on the data provided in the Data Gaps Study Report (BNI 1998a), Site Inspection/Hydrogeological Assessment Report (Ogden 1993), and other available information provided by the DON at the time this EE/CA was performed.

In developing the Alternative 2 cost estimate for Sites 12 and 17 (Table 4-2), it is assumed that removal action activities for both sites will occur at the same time. Other assumptions and calculations are listed below.

- Site 12:
  - All estimated volumes have been increased by a set multiplier of two to assure adequate cost estimates
  - The estimated Site 12 volume of dioxin-contaminated soil to be transported off-site to a high-temperature incinerator facility is approximately 100 cubic yards (125 tons).
  - One confirmation sampling and analysis event (consisting of 12 soil samples) will be performed following the excavation activities (Section 4.1.1.4)
  - The total volume of clean backfill material needed is approximately 350 cubic yards (440 tons). This includes 250 cubic yards (325 tons) of material needed to fill the existing pit at Site 12.
  - The backfill material will consist of clean, imported fill material.
- Site 17:
  - All estimated volumes have been increased by a set multiplier of two to assure adequate cost estimates.
  - The estimated Site 17 volume of dioxin-contaminated soil to be transported off-site to a high-temperature incinerator facility is approximately 1,000 cubic yards (1,250 tons).
  - One confirmation sampling and analysis event (consisting of 11 soil samples) will be performed following the excavation activities.

Table 4-2
Alternative 2 Cost Estimate for Sites 12 and 17

Cost Category	Alternative 2
Direct Costs	
Confirmation and stockpile sampling at Sites 12 and 17	$96,500
Excavation of dioxin	$22,300
Transport and off-site incineration	$2,363,100
Professional labor (project oversight)	$50,100
Remedial design	$16,800
Total Direct Costs	$2,548,800
Indirect Costs	$845,100
Escalation[a]	$531,800
Contingency[b]	$785,100
TOTAL	$4,710,800

Notes:
[a] escalation modifies the costs in the RACER database from January 1992 to the assumed project start date of January 2000
[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

- Approximately 1,000 cubic yards (1,250 tons) of cap material will be stockpiled on-site for possible use as backfill material
- Three composite samples will be collected from the stockpiled cap material.
- The total volume of clean, imported backfill material needed is approximately 200 cubic yards (250 tons). All other backfill will be supplied from the stockpiled cap material.

Table 4-2 presents a summary of the estimated costs for Alternative 2, including Site 12 soil characterization, excavation, and off-site incineration of dioxin-contaminated soil.

The cost estimate was performed 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. RACER cost estimates are made site-specific through the modification of geographic and project-specific factors.

4.3 ALTERNATIVE 8 – NO ACTION

This section is intended to satisfy portions of RAWP requirements, as defined in Ca-HSC §25356.1 (d)(3),(5),(6).

This alternative consists of leaving the dioxin-contaminated soil in place.

4.3.1 Effectiveness

This alternative would not reduce the risk from exposure to the contaminated soil at the site and would not meet the removal action objectives. The toxicity, mobility, and volume of the contaminants of concern would not be reduced.

4.3.2 Implementability

Implementability for this alternative is technically feasible because it requires no action. However, no action is not an acceptable alternative to Cal-EPA DTSC and RWQCB.

4.3.3 Cost

No costs are associated with this alternative.

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Section 5
COMPARATIVE ANALYSIS OF REMOVAL ACTION ALTERNATIVES

This section is intended to satisfy portions of RAWP requirements, as defined in Ca-HSC §25356.1(d)(3),(5),(6).

In this section, the alternatives analyzed in Section 4 are compared to evaluate the relative performance of each alternative in relation to each of the criteria. The basis for rejection of an alternative is also specified. The criteria used in this comparison were previously discussed in Section 4: effectiveness, implementability, and cost.

5.1 EFFECTIVENESS OF ALTERNATIVES

Alternatives 1 and 2 have a high level of long-term effectiveness with respect to the removal of the contaminated soil from the site and reduction of potential for exposure to the contaminants of concern. Alternative 8 has a comparatively low level of long-term effectiveness because it does not meet the removal action objectives; the contaminated soil will be left in place; and the toxicity, mobility, and volume of the contaminants of concern would not be reduced.

5.2 IMPLEMENTABILITY OF ALTERNATIVES

Alternative 1 and 2 are technically feasible, and the required services are generally readily available. Alternative 8 has a high level of implementability because it will require no site activity or coordination. However, no action is not an acceptable alternative to the DON, Cal-EPA DTSC, RWQCB, or the public.

5.3 COST OF ALTERNATIVES

A summary of the total estimated cost to implement each alternative is provided in Table 5-1.

Table 5-1
Total Costs of Removal Action Alternatives for Sites 12 and 17

Alternatives	Cost
Alternative 1 – Excavation, off-site Class I landfill disposal	$913,200
Alternative 2 – Excavation, off-site high-temperature incineration	$4,710,800
Alternative 8 – No action	$0

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Section 6
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 alternative removal actions to address contaminated soil at Sites 12 and 17. Three alternatives were identified, evaluated, and ranked:

- Alternative 1 – excavation, off-site Class I landfill disposal;
- Alternative 2 – excavation, off-site high-temperature incineration; and
- Alternative 8 – no action.

Based on comparative analysis of the removal action alternatives completed in Section 5, Alternative 1 removal action is recommended because it the following six criteria.

1. It is effective in its overall protection of human health and the environment.
2. It is complies with ARARs and other guidance.
3. It is technically and administratively feasible.
4. It is commercially available.
5. It is acceptable to the public
6. It is cost-competitive.

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Section 7
REFERENCES

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APPENDIX A

LABORATORY ANALYTICAL RESULTS

Table A-1
Analytes Reported Above Detection Limits in Soil
Site 12

			STATION ID/DEPTH (feet bgs)[a]/SAMPLE ID					
ANALYTE NAME	UNITS	Max Result	EC12B4 at 1 feet 100S149	EC12B4 at 2 feet 100S150	EC12B5 at 0.1 feet 100S151	EC12B5 at 1.5 feet 100S152	EC12B6 at 0.5 feet 100S153	EC12B6 at 1.5 feet 100S154
Volatile Organic Compounds								
ETHYLBENZENE	mg/kg[b]	0.03 J[c]						
M,P-XYLENES	mg/kg	0.22 J						
O-XYLENE	mg/kg	0.06 J						
Dioxins								
DIOXIN	ng/kg[d]	1,400	56	3.6	1,400	6.9	10	13
DIOXIN	ng/kg	580	12		580	0.93	2.4	0.8
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	ng/kg	28			28			
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	ng/kg	60			60			
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	ng/kg	41	0.47		41			
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	ng/kg	28			28			
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	ng/kg	6.7			6.7			
HEPTACHLORODIBENZO-P-DIOXINS	ng/kg	1,200	27		1,200	1.7	5.1	2.2
HEXACHLORODIBENZO-P-DIOXINS	ng/kg	2,000	5.9		2,000	1.2	1.8	
PENTACHLORODIBENZO-P-DIOXINS	ng/kg	1,200			1,200			
TETRACHLORODIBENZO-P-DIOXINS	ng/kg	1,300			1,300			
2,3,7,8-TCDD (dioxin) Equivalent	ng/kg	**40.8**	0.22	0.004	**40.8**	0.02	0.03	0.02
Hydrocarbons								
TPH-DIESEL	mg/kg	824						
TPH-GASOLINE	mg/kg	238 J	25 J					
Polynuclear Aromatic Hydrocarbons								
NAPHTHALENE	µg/kg[e]	66 J						
Priority Pollutant Metals								
ANTIMONY	mg/kg	0.83 J	0.07 J	0.08 J	0.83 J		0.02 J	0.02 J
ARSENIC	mg/kg	**14**	**5**	**8**	**6**	**5**	**6**	**6**
BERYLLIUM	mg/kg	**1.38**	**0.61**	**1.13**	**0.72**	**0.52**	**0.93**	**0.82**
CADMIUM	mg/kg	2.63	0.23	0.34	2.63	0.23	0.58	0.24
CHROMIUM	mg/kg	73.2	11	16.7	73.2	10.1	22	17.4
COPPER	mg/kg	111	13.7	23.3	111	10.1	18.3	17
LEAD	mg/kg	81	9.04	14.2	81	8.49	12.6	11
NICKEL	mg/kg	30.6	16.8	23.3	30.6	13.6	22.1	20
SILVER	mg/kg	0.2	0.1	0.16	0.19	0.04	0.08	0.08
THALLIUM	mg/kg	0.34	0.17	0.27	0.22	0.14	0.26	0.25
ZINC	mg/kg	1,200	44.8	69.5	1,200	39.6	89.7	52.2

Empty field indicates analyte not detected; see Appendix D for complete listing of analytical results and quantitation limits
Bold values exceed the U S EPA Region IX residential preliminary remediation goal (PRG)

Notes:
[a] bgs – below ground surface
[b] mg/kg – milligrams per kilogram
[c] J – value estimated
[d] ng/kg – nanograms per kilogram
[e] µg/kg – micrograms per kilogram

Table A-2
Analytes Reported Above Detection Limits
Site 17
(in nanograms per kilogram)

ANALYTE NAME	Max Result	EC17B12 at 1.6 feet 100S171	EC17B12 at 2.3 feet 100S172	EC17B12 at 4.8 feet 100S173	EC17B13 at 1.8 feet 100S162	EC17B13 at 2.3 feet 100S163	EC17B13 at 4.8 feet 100S164	EC17B14 at 1.8 feet 100S165	EC17B14 at 2.25 feet 100S166	EC17B14 at 4.8 feet 100S167	EC17B15 at 1.5 feet 100S168	EC17B15 at 2.25 feet 100S169	EC17B15 at 4.75 feet 100S170	EC17B16 at 1.25 feet 100S159	EC17B16 at 2.25 feet 100S160	EC17B16 at 4.75 feet 100S161
		STATION ID/DEPTH (feet bgs[a])/SAMPLE ID														
Dioxins and Furans																
1,2,3,4,6,7,8,9-OCTACHLORODIBENZO-P-DIOXIN	2,800	**2,800**	13	5.8	**920**	310	3.5	**1,200**	170 J[b]	4.6	360	7.9	6.1	4.2	4.8	6.1
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN	510	**510**	1.2	0.37	**150**	110		**270**	35		57	1.3	0.37			
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	7.4 J	**5.6**			**2**	1.4		**7.4 J**			0.76					
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	14	**13**			**3.9 J**	1.9		**14**			2.1					
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	11	**10**			**2.1 J**	0.75		**11**			1.5					
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	4.5	**2.2**			**0.73**			**4.5**			0.42					
HEPTACHLORODIBENZO-P-DIOXINS	950	**950**	1.8	0.83	**290**	180		**500**	68		120	2.5	0.9			
HEXACHLORODIBENZO-P-DIOXINS	110	**110**			**35**	19		**94**	6.1		16					
PENTACHLORODIBENZO-P-DIOXINS	21	**17**			**5.6**	6		**21**			3.3					
TETRACHLORODIBENZO-P-DIOXINS	1	**1**									0.8					
1,2,3,4,6,7,8,9-OCTACHLORODIBENZOFURAN	12	**6.6**			**5**	0.74		**12**			6.1					
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	16	**12**			**3.8**	1.8		**16**			5.1					
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	3.2	**1.1**						**3.2**								
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	25 J	**5.6**			**2.3**	0.26		**25 J**			0.77					
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	3.5	**1.6**			**0.78**			**3.5**			0.87					
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	1.6	**0.58**						**1.6**			0.32					
1,2,3,7,8-PENTACHLORODIBENZOFURAN	17	**0.86**			**0.89**			**17**			0.48					
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	20	**3**			**1.3**	0.41		**20**			1.6					
2,3,4,7,8-PENTACHLORODIBENZOFURAN	36	**1.7**			**2.1**			**36**	0.48		2					
2,3,7,8-TETRACHLORODIBENZOFURAN	16	**1.2**			**1.5**	0.21		**16**	0.25		1.9					
HEPTACHLORODIBENZOFURANS	43	**32**			**8.7**	3.4		**43**			12					
HEXACHLORODIBENZOFURANS	210	**41**			**18**	5		**210**	3.7		17					
PENTACHLORODIBENZOFURANS	540	**27**			**24**	1.5		**540**	5.2		31					
TETRACHLORODIBENZOFURANS	120	**6**			**8.6**	0.46		**120**	1		19					
2,3,7,8-TCDD (dioxin) Equivalent	**33.25[c]**	**13.82**	0.03	0.01	**5.19**	1.88	0.004	**33.25**	0.79	0.005	3.06	0.02	0.010	0.004	0.005	0.006

Empty field indicates analyte not detected

Notes:
[a] bgs – below ground surface
[b] J – value estimated
[c] denotes maximum result from an individual sample

Table A-3
Analytes Reported Above Detection Limits
Site 17[a]
(in milligrams per kilogram)

ANALYTE NAME	Max Result	STATION ID/DEPTH (feet bgs[b])/SAMPLE ID													
		EC17B2 at 1.0 feet 10504402	EC17B2 at 6.0 feet 10504403	EC17B2 at 12.0 feet 10504404	EC17B3 at 1.0 feet 10504405	EC17B3 at 5.5 feet 10504406	EC17B3 at 10.0 feet 10504407	EC17B4 at 1.5 feet 10505603	EC17B4 at 6.0 feet 10505604	EC17B4 at 11.5 feet 10505605	EC17B5 at 1.5 feet 10505606	EC17B5 at 6.0 feet 10505607	EC17B5 at 9.0 feet 10505608	EC17B6 at 1.5 feet 10505613	EC17B6 at 4.0 feet 10505609
Hydrocarbons															
TOTAL FUEL HYDROCARBONS	20,000	5.1 U[c]	6.3 U	6.2 U	5.4 U	5.4 U	6.8 U	5.6 U	6.1 U	6.3 U	5.2 U	6.5 U	6.4 U	12,000	5.4 U
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS	53,000	1 U	1 U	47	--	--	--	--	--	--	--	--	--	770	--
Volatile Organic Compounds															
ACETONE	7.1	0.24	0.1 U	0.36 J[d]	--	--	--	--	--	--	--	--	--	0.69	--
2-BUTANONE (MEK)	0.29	0.1 U	0.1 U	0.1 R[e]	--	--	--	--	--	--	--	--	--	0.29	--
4-METHYL-2-PENTANONE (MIBK)	1.3J	0.5 U	0.6 U	0.5 U	--	--	--	--	--	--	--	--	--	0.6 U	--
BENZENE	0.13	0.005 U	0.006 U	0.005 U	0.025 U	0.031 U	0.031 U	0.028 U	0.03 U	0.032 U	0.026 U	0.033 U	0.033 U	0.006 U	0.027 U
TOLUENE	2.9	0.01 U	0.01 U	0.01 U	0.025 U	0.031 U	0.031 U	0.028 U	0.03 U	0.032 U	0.026 U	0.033 U	0.033 U	0.52	0.075
TETRACHLOROETHENE	0.97	0.005 U	0.006 U	0.005 U										0.006 U	
ETHYLBENZENE	2.5	0.005 U	0.006 U	0.005 U	0.025 U	0.031 U	0.031 U	0.028 U	0.03 U	0.032 U	0.026 U	0.033 U	0.033 U	0.006 U	0.027 U
XYLENES (TOTAL)	16	0.005 U	0.006 U	0.005 U	0.05 U	0.062 U	0.062 U	0.056 U	0.06 U	0.064 U	0.052 U	0.066 U	0.066 U	0.006	0.054 U
Semivolatile Organic Compounds															
4-METHYLPHENOL	0.54	0.17 U	0.17 U	0.17 U	--	--	--	--	--	--	--	--	--	3.4 U	--
NAPHTHALENE	14	0.17 U	0.17 U	0.17 U	--	--	--	--	--	--	--	--	--	3.4 U	--
2-METHYLNAPHTHALENE	34	0.17 U	0.17 U	0.17 U	--	--	--	--	--	--	--	--	--	3.4 U	--
DIBENZOFURAN	3.9	0.17 U	0.17 U	0.17 U	--	--	--	--	--	--	--	--	--	3.4 U	--
FLUORENE	9.7	0.17 U	0.17 U	0.17 U	--	--	--	--	--	--	--	--	--	3.4 U	--
PHENANTHRENE	19	0.17 U	0.17 U	0.17 U	--	--	--	--	--	--	--	--	--	3.4 U	--
DI-N-BUTYL PHTHALATE	2.6	2.6	0.17 U	0.17 U	--	--	--	--	--	--	--	--	--	3.4 U	--
PCBs, Chlorinated Pesticides															
2,4'-DDT[f]	0.047	0.01 U	0.01 U	0.01 U	--	--	--	--	--	--	--	--	--	0.01 U	--
4,4'-DDD[g]	0.042	0.01 U	0.01 U	0.01 U	--	--	--	--	--	--	--	--	--	0.01 U	--
4,4'-DDE[h]	0.042	0.01 U	0.01 U	0.01 U	--	--	--	--	--	--	--	--	--	0.01 U	--
AROCLOR 1260	**0.11**	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--	**0.11**	--
Metals															
ARSENIC	**5.9**	**3.1**	**5.9**	**3.5**	--	--	--	--	--	--	--	--	--	**3.9**	--
BERYLLIUM	**1.1**	**0.88**	**1.1**	**0.91**	--	--	--	--	--	--	--	--	--	**0.98**	--
CADMIUM	2	1.1	1.3	0.98	--	--	--	--	--	--	--	--	--	2	--
CHROMIUM	14.5	12.1	14.5	12.6	--	--	--	--	--	--	--	--	--	13.4	--
COPPER	21.1	16.1	20.2	16.8	--	--	--	--	--	--	--	--	--	21.1	--
LEAD	60.7	9.8	12.1	12	--	--	--	--	--	--	--	--	--	15.6	--
NICKEL	17.5	14.1	17.5	15.4	--	--	--	--	--	--	--	--	--	16	--
SILVER	0.62	0.35	0.47	0.31 U	--	--	--	--	--	--	--	--	--	0.42	--
ZINC	61.2	44.4	54.6	52	--	--	--	--	--	--	--	--	--	52.7	--
General Chemistry															
MOISTURE	20.2	2.9	20	19.7										18.1	
pH	9.2	8	8.4	9.2										8.5	
Other Analytes															
PHENOLS, TOTAL	3.5	0.4 U	0.3 U	0.5 U	--	--	--	--	--	--	--	--	--	0.2 U	--

Table A-3
Analytes Reported Above Detection Limits
Site 17[a]
(in milligrams per kilogram)

ANALYTE NAME	STATION ID/DEPTH (feet bgs[b])/SAMPLE ID														
	EC17B6 at 10.0 feet 10505610	EC17B7 at 1.5 feet 10505611	EC17B7 at 6.0 feet 10505614	EC17B7 at 12.0 feet 10505612	EC17B8 at 1.5 feet 10508805	EC17B8 at 3.0 feet 10508802	EC17B8 at 6.0 feet 10508806	EC17B9 at 1.5 feet 10508803	EC17B9 at 6.0 feet 10508808	EC17B9 at 9.5 feet 10508810	EC17B10 at 1.5 feet 10508804	EC17B10 at 7.0 feet 10508811	EC17B10 at 10.0 feet 10508812	EC17B11 at 3.0 feet 10511305	EC17B11 at 6.0 feet 10511306
Hydrocarbons															
TOTAL FUEL HYDROCARBONS	6.2 U	12,000	7,700	6.5 U	13,000	4,700	5.3 U	13,000	5.2 U	5.5 U	18,000	5.5 U	6.5 U	20,000	12,000
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS	--	--	53,000	--	--	1,900	--	22,000	--	--	2,000	--	--	--	--
Volatile Organic Compounds															
ACETONE	--	--	5 U	--	--	2 U	--	2 U	--	--	7.1	--	--	--	--
2-BUTANONE (MEK)	--	--	5 UR	--	--	0.1 U	--	0.1 U	--	--	5 UR	--	--	--	--
4-METHYL-2-PENTANONE (MIBK)	--	--	3 UJ	--	--	1 U	--	1 U	--	--	1 U	--	--	--	--
BENZENE	0.031 U	0.034	0.31 U	0.033 U	0.06 U	0.1 U	0.027 U	0.1 U	0.026 U	--	0.3 U	0.027 U	0.033 U	0.13	0.082
TOLUENE	0.011	0.4	1	0.15	0.6	0.2 U	0.027 U	0.2 U	0.026 U	--	0.5 U	0.033	0.033 U	2.9	1.5
TETRACHLOROETHENE			0.31 U			0.1 U		0.97	--	--	0.3 U	--	--	--	--
ETHYLBENZENE	0.031 U	0.54	2.2	0.033 U	2.5	0.14	0.027 U	0.1 U	0.026 U	--	0.3 U	0.027 U	0.033 U	1.6	0.96
XYLENES (TOTAL)	0.067 U	2.5	13	0.066 U	16	1.2	0.054 U	0.4	0.052 U	--	1.1	0.054 U	0.066 U	11	6.6
Semivolatile Organic Compounds															
4-METHYLPHENOL	--	--	3.4 U	--	--	0.2	--	17 U	--	--	8.5 U	--	--	--	--
NAPHTHALENE	--	--	14	--	--	0.17 U	--	17 U	--	--	8.5 U	--	--	--	--
2-METHYLNAPHTHALENE	--	--	34	--	--	0.17 U	--	17 U	--	--	8.5 U	--	--	--	--
DIBENZOFURAN	--	--	3.9	--	--	0.17 U	--	17 U	--	--	8.5 U	--	--	--	--
FLUORENE	--	--	9.7	--	--	0.17 U	--	17 U	--	--	8.5 U	--	--	--	--
PHENANTHRENE	--	--	19	--	--	0.17 U	--	17 U	--	--	8.5 U	--	--	--	--
DI-N-BUTYL PHTHALATE	--	--	3.4 U	--	--	0.17 U	--	17 U	--	--	8.5 U	--	--	--	--
PCBs, Chlorinated Pesticides															
2,4'-DDT[f]	--	--	0.01 U	--	--	0.01 U	--	0.01 U	--	--	0.047	--	--	--	--
4,4'-DDD[g]	--	--	0.01 U	--	--	0.01 U	--	0.01 U	--	--	0.042	--	--	--	--
4,4'-DDE[h]	--	--	0.01 U	--	--	0.01 U	--	0.015 U	--	--	0.042	--	--	--	--
AROCLOR 1260	--	--	0.05 U	--	--	0.05 U	--	0.05 U	--	--	0.05 U	--	--	--	--
Metals															
ARSENIC	--	--	**3.9**	--	--	0.55 U	--	0.56 U	--	--	0.58 U	--	--	--	--
BERYLLIUM	--	--	**0.72**	--	--	**0.38**	--	**0.76**	--	--	**0.82**	--	--	--	--
CADMIUM	--	--	1.5	--	--	0.96	--	1.7	--	--	1.7	--	--	--	--
CHROMIUM	--	--	9.6	--	--	7	--	11.3	--	--	10.6	--	--	--	--
COPPER	--	--	14.6	--	--	7.5	--	19	--	--	20.5	--	--	--	--
LEAD	--	--	9	--	--	5.5	--	39.7	--	--	48.2	--	--	--	--
NICKEL	--	--	12.6	--	--	7.9	--	13.1	--	--	12.1	--	--	--	--
SILVER	--	--	0.6	--	--	0.32	--	0.62	--	--	0.42	--	--	--	--
ZINC	--	--	35.9 J	--	--	21.3	--	49.9	--	--	61.2	--	--	--	--
General Chemistry															
MOISTURE			18.8			14.3		16.5			17.8				
pH			8.3			8.2		7.9			8.2				
Other Analytes															
PHENOLS, TOTAL	--	--	0.2 U	--	--	0.2 U	--	2.5	--	--	3.5	--	--	--	--

Table A-3
Analytes Reported Above Detection Limits
Site 17[a]
(in milligrams per kilogram)

ANALYTE NAME	STATION ID/DEPTH (feet bgs[b])/SAMPLE ID				
	EC17B11 at 7.5 feet 10511303	EC17B11 at 10.0 feet 10511307	EC17B1A at 3.0 feet 10505615	EC17B1A at 8.5 feet 10505616	EC17B1A at 11.5 feet 10505617
Hydrocarbons					
TOTAL FUEL HYDROCARBONS	82 N	29	550	1,300	5.8 U
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS	55	--	6,800	1,000	7
Volatile Organic Compounds					
ACETONE	0.91 UJ	--	0.1 UTR[i]	0.1 U	0.1 U
2-BUTANONE (MEK)	0.27 R	--	0.1 UR	0.1 U	0.1 U
4-METHYL-2-PENTANONE (MIBK)	1.3 J	--	0.05 U	0.05 U	0.06 U
BENZENE	0.006 U	0.032 U	0.005 U	0.005 U	0.006 U
TOLUENE	0.03	0.032 U	0.12 U	0.04	0.01 U
TETRACHLOROETHENE	0.006 U	--	0.005 U	0.005 U	0.006 U
ETHYLBENZENE	0.04	0.032 U	0.005 U	0.005 U	0.006 U
XYLENES (TOTAL)	0.31	0.064 U	0.005 U	0.005 U	0.006 U
Semivolatile Organic Compounds					
4-METHYLPHENOL	0.54	--	1.7 U	0.85 U	0.17 U
NAPHTHALENE	0.17 U	--	1.7 U	0.85 U	0.17 U
2-METHYLNAPHTHALENE	0.17 U	--	1.7 U	0.85 U	0.17 U
DIBENZOFURAN	0.17 U	--	1.7 U	0.85 U	0.17 U
FLUORENE	0.17 U	--	1.7 U	0.85 U	0.17 U
PHENANTHRENE	0.17 U	--	1.7 U	0.85 U	0.17 U
DI-N-BUTYL PHTHALATE	0.17 U	--	1.7 U	0.85 U	0.17 U
PCBs, Chlorinated Pesticides					
2,4'-DDT[f]	0.01 U	--	0.01 U	0.01 U	0.01 U
4,4'-DDD[g]	0.01 U	--	0.01 U	0.01 U	0.01 U
4,4'-DDE[h]	0.01 U	--	0.01 U	0.01 U	0.01 U
AROCLOR 1260	0.05 U	--	0.05 U	0.05 U	0.05 U
Metals					
ARSENIC	0.6 U	--	**2.7**	0.56 U	0.56 U
BERYLLIUM	**0.56**	--	**0.52**	**0.67**	**0.48**
CADMIUM	1.1	--	0.91	1.3	1
CHROMIUM	8.1	--	6.4	8.9	7.5
COPPER	10.5	--	8.9	13.6	11.6
LEAD	7.9	--	25.3	60.7	7.7
NICKEL	9.3	--	8	11	10.3
SILVER	0.52	--	0.4	0.54	0.4
ZINC	26.8	--	22 J	31.8	28.6
General Chemistry					
MOISTURE		--			
pH	20.2	--	6.7	12.8	14.3
Other Analytes	7.4	--	8.3	8.8	8.6
PHENOLS, TOTAL	0.5	--	0.2 U	0.2 U	0.2 U

Empty fields indicate analyte not analyzed
Bold values exceed U.S. EPA Region IX residential preliminary remediation goal (PRG)
Notes:

[a] Ogden 1992b
[b] bgs – below ground surface
[c] U – undetected at reported concentration
[d] J – estimated value
[e] R – result unusable
[f] DDT – dichlorodiphenyltrichloroethane
[g] DDD – dichlorodiphenyldichloroethane
[h] DDE – dichlorodiphenyldichloroethene
[i] TR – trace amount detected

ATTACHMENT B

ADMINISTRATIVE RECORD INDEX

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N60042 000152 LTR 000000000000000 0005	12/08/94 00125 01.1	SOUTHWEST DIVISION S. TOWER CRWQCB PALM DESERT R. DIMENSTEIN	FUEL FARM CLEANUP PLAN IN ACCORDANCE WITH CLEANUP & ABATEMENT ORDER NO. 90-045 OF NOVEMBER 1, 1990 NAF EL CENTRO	ADMIN RECORD	C/A ORDER	FUEL FARM 14,15	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000298 MISC 00000000000000 0002	02/10/95 01/01/01 00000 10.6	NAF EL CENTRO DISTRIBUTION	FACT SHEET NO. 2 ON THE NAF EL CENTRO REMOVAL ACTION PROGRAM (WRITTEN IN ENGLISH ONLY)	ADMIN RECORD INFO REPOSITORY	REMOVAL	B-157 B-165 B-361 B-362 B-484 B-565	SOUTHWEST DIVISION BRAWLEY LIBRARY NAF EL CENTRO EL CENTRO LIBRARY
N60042 000299 MISC 00000000000000 0002	02/10/95 01/01/01 00000 10.6	NAF EL CENTRO DISTRIBUTION	FACT SHEET NO. 3 ON THE NAF EL CENTRO REMOVAL ACTION PROGRAM (WRITTEN IN ENGLISH AND SPANISH)	ADMIN RECORD INFO REPOSITORY	MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9,10 11,14,15, 16,17	SOUTHWEST DIVISION BRAWLEY LIBRARY EL CENTRO LIBRARY NAF EL CENTRO
N60042 000300 MISC 00000000000000 0004	02/10/95 01/01/01 00000 10.6	NAF EL CENTRO DISTRIBUTION	BROCHURE ON THE NAF EL CENTRO INSTALLATION RESTORATION PROGRAM (WRITTEN IN ENGLISH ONLY)	ADMIN RECORD INFO REPOSITORY	MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5 6,7,8,9,10 11,12,13 14,15,16 17	SOUTHWEST DIVISION BRAWLEY LIBRARY NAF EL CENTRO EL CENTRO LIBRARY
N60042 000484 MISC 000000000000000 0036	10/09/98 01/01/01 00000 01.1	NAF EL CENTRO	NAF EL CENTRO INSTALLATION RESTORATION PROGRAM; FACILITY AND SITE DESCRIPTIONS WITH MAPS	ADMIN RECORD INFO REPOSITORY	IRP LANDFILL MAP SLUDGE BUR AREA	1 2 2A 3 4 5 6 7 8 9 10 11 12 13 14 15 17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000483 RPT NEESA1700900000 0450	10/08/98 06/01/87 00000 01.3	NEESA PORT HUENEME SOUTHWEST DIVISION	DRAFT PRELIMINARY ASSESSMENT/SITE INSPECTION	ADMIN RECORD INFO REPOSITORY	PA SI CLEANUP WATER	1 2 3 4 5 6 7	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY

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N60042 000483 continued							
						8 9 10 11 14 15 16	
N60042 000047 RPT NEESA 13-106 0300	12/06/94 09/01/87 00000 01.3	NEESA PORT HUENEME SOUTHWEST DIVISION	NAF EL CENTRO PRELIMINARY ASSESSMENT SITE INSPECTION	ADMIN RECORD	PA SI MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9,10 11,12,13, 14,15,16	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000485 MISC 000000000000000 0001	10/09/98 02/10/88 00000 10.3	SOUTHWEST DIVISION	PUBLIC NOTICE FOR BIDS ON ENVIRONMENTAL ENGINEERING SERVICES FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY	ADMIN RECORD INFO REPOSITORY	RI FS		SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000486 LTR 000000000000000 0001	10/09/98 03/09/88 00000 01.6	SOUTHWEST DIVISION S. SUNDERLAND EPA SAN FRANCISCO N. MORGAN	SUBMITTAL OF PRELIMINARY ASSESSMENT/SITE INSPECTION AND HAZARDOUS RANKING SYSTEM DOCUMENTATION RECORDS FOR REVIEW AND COMMENT (W/O ENCLOSURES)	ADMIN RECORD INFO REPOSITORY	PA SI		SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000487 RPT N6871188D505300 0050	10/09/98 02/23/90 DO001 01.3	ERC ENVIRONMENTAL SOUTHWEST DIVISION	FINAL PRELIMINARY ASSESSMENT SITE 17, FIRE FIGHTING TRAINING AREA	ADMIN RECORD INFO REPOSITORY	PA FUEL GW	17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000011 RPT N6871188D5053 0250	12/05/94 02/27/90 00000 01.1	ERC CO. SOUTHWEST DIVISION	NAF EL CENTRO FINAL DRAFT SOLID WASTE QUAILTY ASSESSMENT TEST (SWAT) PROPOSAL SITE 1, MAGAZINE ROAD LANDFILL INSTALLATION RESTORATION STUDIES	ADMIN RECORD	SWAT MAG RD LANDFILL	1	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000014 RPT N871188D5053 0125	12/06/94 02/27/90 00000 01.1	ERCE SOUTHWEST DIVISION	NAF EL CENTRO HYDROGEOLOGICAL ASSESSMENT REPORT (HAR) FINAL DRAFT SITE 10 SEWAGE STABILIZTION PONDS INSTALLATION RESTORATION STUDIES (FINAL)	ADMIN RECORD	HAR	10	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000015 RPT N871188D5053 0125	12/06/94 02/27/90 00000 01.1	ERCE SOUTHWEST DIVISION	NAF EL CENTRO SOLID WASTE WATER QUALITY ASSESSMENT TEST (SWAT) PROPOSAL SITE 3 SLUDGE DISPOSAL AREA INSTALLATION RESTORATION STUDIES (FINAL)	ADMIN RECORD	SWAT DISPOSAL SLUDGE WATER SLUDGE BUR AREA	3	SOUTHWEST DIVISION NAF EL CENTRO

NAF EL CENTRO DRAFT ADMINISTRATIVE RECORD FILE INDEX UPDATE-SORT BY DOC. DATE

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N60042 000037 RPT N6871188D5053 0175	12/06/94 02/27/90 00000 01.1	ERC ENVIRONMENTAL SOUTHWEST DIVISION	NAF EL CENTRO FINAL DRAFT SOLID WASTE WATER QUALITY ASSESSMENT TEST (SWAT) PROPOSAL SITE 2, PATROL ROAD LANDFILL INSTALLATION RESTORATION STUDIES	ADMIN RECORD	SWAT LF IRP WATER DISPOSAL MW GW	2	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000051 PLAN N871188D5053 0250	12/07/94 02/27/90 00000 01.2	ERC ENVIRONMENTAL SOUTHWEST DIVISION	NAF EL CENTRO FINAL DRAFT SITE INSPECTION (SI) WORK PLAN INSTALLATION RESTORATION STUDIES	ADMIN RECORD INFO REPOSITORY	SI MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD DISPOSAL MW MONITORING WELLS	1,2,3,4,5, 6,7,8,9, 10,11,14 15,16,17	SOUTHWEST DIVISION BRAWLEY LIBRARY NAF EL CENTRO EL CENTRO LIBRARY
N60042 000262 PLAN N871188D5053 0325	12/28/94 02/27/90 DO 01 01.2	ERC ENVIRONMENTAL SOUTHWEST DIVISION	FINAL HEALTH AND SAFETY PLAN ENGINEERING SERVICES FOR SI FOR NAF EL CENTRO	ADMIN RECORD	H&SP MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9,10 11,14,15, 16,17	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000010 PLAN N6871188D5053 0150	12/05/94 03/12/90 00000 01.4	ERC CO. SOUTHWEST DIVISION	NAF EL CENTRO FINAL QUALITY CONTROL PLAN ENGINEERING SERVICES FOR THE SITE INVESTIGATION	ADMIN RECORD	QC SI MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9,10 11,14,15 16,17	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000488 MM 000000000000000 0003	10/09/98 05/21/90 00000 01.1	NAF EL CENTRO VARIOUS AGENCIES	DRAFT SI, HAR WORK PLANS, SWAT PROPOSALS AND NEW FIRE-FIGHTING TRAINING FACILITY MEETING AGENDA	ADMIN RECORD INFO REPOSITORY	SI SWAT WORK PLAN HAR		SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000489 MISC 000000000000000 0002	10/09/98 05/21/90 00000 01.1	NAF EL CENTRO	DRAFT SI, HAR WORK PLANS, SWAT PROPOSALS AND NEW FIRE-FIGHTING TRAINING FACILITY MEETING SIGN-IN SHEET	ADMIN RECORD INFO REPOSITORY			SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000490 LTR 000000000000000 0004	10/09/98 05/22/90 00000 01.6	NAF EL CENTRO B. KELM VARIOUS AGENCIES	SUBMITTAL OF DRAFT FINALS OF SI WORK PLAN, SWAT PROPOSALS FOR SITES 1, 2 & 3, HAR FOR SITES 10 & 17, PA FOR SITE 17, H&S PLAN & QAPP FOR REVIEW (W/O ENCLS)	ADMIN RECORD INFO REPOSITORY	SI SWAT HAR PA H&SP QAPP	1 2 3 10 17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY

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N60042 000337 MEMO 000000000000000 0003	09/12/95 07/01/90 00000 01.6	SOUTHWEST DIVISION FILE	POINT PAPER ON EL CENTRO'S IRP FOR THE EVALUATION AND CLEAN UP OF SITES	ADMIN RECORD	IRP MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 7,8,9,10, 11,14,15, 16,17	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000154 LTR 000000000000000 0005	12/08/94 11/01/90 00125 07.0	CRWQCB PALM DESERT P. GRUENBERG NAF EL CENTRO C. GUDMUNSON	CLEANUP AND ABATEMENT ORDER NO. 90-045 REGARDING FUEL FARM AT NAF EL CENTRO CONCERNING CONTAMINATION OF SOIL AND GROUNDWATER BY DIESEL FUEL	ADMIN RECORD	C/A ORDER GW FUEL	FUEL FARM	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000175 LTR 000000000000000 0001	12/09/94 11/07/90 00024 06.0	CRWQCB PALM DESERT P. GRUENBERG EPA SAN FRANCISCO C.J. DOUGLAS	FEDERAL FACILITY PRELIMINARY ASSESSMENT REVIEW FOR NAF EL CENTRO COMMENTS (EPA ID #CA6170090017)	ADMIN RECORD	FFA COMMENTS	10	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000163 LTR 000000000000000 0001	12/09/94 12/20/90 00125 06.0	CRWQCB PALM DESERT P. GRUENBERG NAF EL CENTRO C. GUDMUNSON	EXTENSION REQUEST FOR CLEANUP & ABATEMENT ORDER NO. 90-045 (FUEL FARM) TANKS 605,606,607,608 AND FUEL TANK NEAR BLDG NO.533 NAF EL CENTRO	ADMIN RECORD	C/A ORDER	FUEL FARM B-533	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000054 RPT N871188D5053 0085	12/07/94 01/01/91 00000 03.3	ERC ENVIRONMENTAL SOUTHWEST DIVISION	NAF EL CENTRO FINAL HYDROGEOLOGICAL ASSESSMENT REPORT (HAR) WORKPLAN SITE 17 FIRE FIGHTING TRAINING AREA INSTALLATION RESTORATION STUDIES	ADMIN RECORD	HAR WATER GW	17	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000491 PLAN N6871188D505300 0275	10/09/98 01/16/91 DO001 01.2	ERC ENVIRONMENTAL SOUTHWEST DIVISION	SITE INSPECTION WORK PLAN	ADMIN RECORD INFO REPOSITORY	SI WORK PLAN PA	1 2 3 4 5 6 7 8 9 10 11 14 15 16 17	SOUTHWEST DIVISION NAF EL CENTRO BRAWELY LIBRARY EL CENTRO LIBRARY
N60042 000157 LTR 000000000000000 0001	12/08/94 01/28/91 00125 01.6	CRWQCB PALM DESERT P. GRUENBERG NAF EL CENTRO C. GUDMUNSON	EXTENSION REQUESTED IN LTR OF DEC. 14, 1990 FOR WORK TO BE PERFORMED UNDER CLEANUP AND ABATEMENT ORDER NO. 90-045	ADMIN RECORD	C/A ORDER		SOUTHWEST DIVISION NAF EL CENTRO

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N60042 RPT N871188D5053 0275	000258 12/28/94 03/07/91 DO 02 01.4	ERCE J.C. HERWIG SOUTHWEST DIVISION	FINAL REPORT SITE INVESTIGATION MILCON P-205 TANK FARM SOIL TESTING NAF EL CENTRO	ADMIN RECORD	SI	TANK FARM	SOUTHWEST DIVISION NAF EL CENTRO
N60042 RPT N6871188D5053 0150	000033 12/06/94 03/27/91 00000 01.1	ERC ENVIRONMENTAL SOUTHWEST DIVISION	NAF EL CENTRO FINAL DRAFT SOLID WASTE WASTE QUALITY ASSESSMENT TEXT (SWAT) PROPOSAL SITE 3, SLUDGE DISPOSAL AREA INSTALLATION RESTORATION STUDIES	ADMIN RECORD INFO REPOSITORY	SWAT DISPOSAL SLUDGE SLUDGE BUR AREA MW MONITORING WELLS WATER	3	SOUTHWEST DIVISION BRAWLEY LIBRARY EL CENTRO LIBRARY NAF EL CENTRO
N60042 RPT N6871188D5053 0250	000036 12/06/94 03/27/91 00000 01.1	ERC ENVIRONMENTAL SOUTHWEST DIVISION	NAF EL CENTRO FINAL SOLID WASTE WATER QUALITY ASSESSMENT TEST (SWAT) PROPOSAL SITE 1, MAGAZINE ROAD LANDFILL INSTALLATION RESTORATION STUDIES	ADMIN RECORD	SWAT MAG RD LANDFILL LF WATER DISPOSAL GW	1	SOUTHWEST DIVISION NAF EL CENTRO
N60042 LTR 000000000000000 0004	000166 12/09/94 05/02/91 00125 01.1	JACOBS ENGINEERING G. DOYLE SOUTHWEST DIVISION R. PARDY	SITE ASSESSMENT AT NAF EL CENTRO EXPLORATORY BORINGS AND MONITORING WELLS OBTAIN ADDITIONAL GROUND WATER LEVEL AND PRODUCT THICKNESS DATA	ADMIN RECORD	MONITORING WELLS GW		SOUTHWEST DIVISION NAF EL CENTRO
N60042 PLAN N6871189D9296 0080	000009 12/05/94 05/08/91 00125 03.1	JACOBS ENGINEERING G.N. DOYLE SOUTHWEST DIVISION	NAF EL CENTRO SITE ASSESSMENT STUDY SAMPLING AND ANALYSIS PLAN FINAL	ADMIN RECORD	SAP		SOUTHWEST DIVISION NAF EL CENTRO
N60042 PLAN N6872289D9296 0075	000303 03/02/95 05/08/91 00125 02.2	JACOBS ENGINEERING W. CRONE SOUTHWEST DIVISION	SITE ASSESSMENT STUDY SAMPLING AND ANALYSIS PLAN NAF EL CENTRO	ADMIN RECORD	SA SAP		SOUTHWEST DIVISION NAF EL CENTRO
N60042 LTR 000000000000000 0001	000153 12/08/94 07/11/91 00125 01.4	NAF EL CENTRO D.L. HESS SOUTHWEST DIVISION CODE 18	CRWQCB CLEANUP AND ABATEMENT ORDER 90-045 FUEL FARM SITE INVESTIGATION	ADMIN RECORD	C/A ORDER SI	FUEL FARM	SOUTHWEST DIVISION NAF EL CENTRO
N60042 RPT N6871189D9296 0150	000003 12/05/94 07/26/91 00125 00.0	JACOBS ENGINEERING G.N. DOYLE SOUTHWEST DIVISION	SITE ASSESSMENT STUDY SITE ASSESSMENT REPORT	ADMIN RECORD	MONITORING WELLS GW		SOUTHWEST DIVISION NAF EL CENTRO
N60042 LTR 000000000000000 0005	000179 12/09/94 08/09/91 00125 01.6	NAF EL CENTRO D.L. HESS SOUTHWEST DIVISION CODE 18	CALIFORNIA REGIONAL WAATER QUALITY CONTROL BOARD (CRWQCB) CLEANUP AND ABATEMENT ORDER 90-045 FUEL FARM ENCL: SITE ASSESSMENT STUDY\REPORT NAF EL CENTRO	ADMIN RECORD	C/A ORDER	FUEL FARM	SOUTHWEST DIVISION NAF EL CENTRO

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N60042 000012 RPT 000000000000000 0450	12/05/94 10/30/91 00000 01.2	ERC CO. SOUTHWEST DIVISION	NAF EL CENTRO FINAL SITE INSPECTION (SI) FOR SITES 14, 15, AND 16 INSTALLATION RESTORATION STUDIES	ADMIN RECORD	SI	14,15,16	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000013 RPT 000000000000000 0250	12/06/94 10/30/91 00000 03.2	ERCE SOUTHWEST DIVISION	NAF EL CENTRO HYDROGEOLOGICAL ASSESSMENT REPORT (HAR) FINAL SITE 17 FIRE FIGHTING TRAINING AREA INSTALLATION RESTORATION STUDIES VOLUME II: ANALYTICAL LAB REPORTS	ADMIN RECORD	HAR	17	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000050 RPT 000000000000000 0350	12/07/94 10/30/91 00000 03.2	ERC ENVIRONMENTAL K. WAHL SOUTHWEST DIVISION	NAF EL CENTRO HYDROGEOLOGICAL ASSESSMENT REPORT (HAR) SITE 10, SEWAGE STABILIZATION PONDS INSTALLATION RESTORATION STUDIES VOLUME II ANALYTICAL LAB REPORTS	ADMIN RECORD	HAR DATA	10	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000071 RPT 000000000000000 0250	12/07/94 10/30/91 00000 01.2	ERC ENVIRONMENTAL SOUTHWEST DIVISION	NAF EL CENTRO PRELIMINARY DRAFT SITE INSPECTION (SI) REPORT FOR SITES 14, 15, AND 16 INSTALLATION RESTORATION STUDIES VOLUME II APPENDICES	ADMIN RECORD	SI TPH METALS MW	14,15,16	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000397 LTR 000000000000000 0008	08/13/96 01/03/92 00000 01.6	SOUTHWEST DIVISION J. PAWLISCH NAF EL CENTRO	NOTIFICATION THAT THE FOLLOWING REGULATORY & NAVY REPS MET TO DISCUSS WHAT CRITERIA SHOULD BE USED TO PRIORITIZE DERA PROJECTS. (ENCL. MTG.AGDA DTD 1/9/92	ADMIN RECORD	DERA FUEL MTG MINS RI	FUELING FA	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000253 RPT 000000000000000 0450	12/28/94 01/24/92 00000 01.2	OGDEN ENVIRONMENTAL T.J. FITZPATRICK SOUTHWEST DIVISION	FINAL SITE INSPECTION (SI) REPORT FOR SITES 14,15 & 16 VOLUME III ANALYTICAL LAB REPORTS NAF EL CENTRO	ADMIN RECORD	SI	14,15,16	SOUTHWEST DIVISION NAF EL CNETRO
N60042 000304 RPT 000000000000000 0250	03/27/95 01/24/92 00000 01.1	OGDEN SOUTHWEST DIVISION	FINAL HYDORGEOLOGICAL ASSESSMENT REPORT (HAR) SITE 10 SEWAGE STABILIZATION PONDS VOLUME I TECHNICAL REPORT AND APPENDICES	ADMIN RECORD	HAR	10	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000318 RPT 000000000000000 1000	07/27/95 01/24/92 00000 01.2	OGDEN J. HENRY SOUTHWEST DIVISION	FINAL SITE INSPECTION (SI) REPORT FOR SITES 14, 15 & 16 VOLUME I: TECHNICAL REPORT, VOLUME II: APPENDICES VOLUME III: ANALYTICAL LABORATORY REPORTS	ADMIN RECORD INFO REPOSITORY	SI	14,15,16	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000492 RPT 000000000000000 1100	10/09/98 01/24/92 00000 01.1	OGDEN ENVIRONMENTAL SOUTHWEST DIVISION	FINAL HYDROGEOLOGICAL ASSESSMENT REPORT, SITE 17, FIRE FIGHTING TRAINING AREA, VOLS. 1 & 2	ADMIN RECORD INFO REPOSITORY	HAR SOIL GW WATER LAB	17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY

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N60042 000319 RPT N71188D5053 1000	07/27/95 04/01/92 DO 01 01.2	OGDEN SOUTHWEST DIVISION	DRAFT SOLID WASTE WATER QUALITY ASSESSMENT TEST (SWAT) SITE INVESTIGATION (SI) SITES 1,2,3	ADMIN RECORD INFO REPOSITORY	SWAT SI MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000271 RPT 000000000000000 0030	12/28/94 05/29/92 00000 02.2	CES, INC. R.C. ORLANDO SOUTHWEST DIVISION	STATUS REPORT ON SOIL MITIGATION BY BIOREMEDIATION, FUEL FARM STOCKPILE, NAF EL CENTRO	ADMIN RECORD	BIOREMEDIATION	FUEL FARM	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000052 RPT 000000000000000 0100	12/07/94 07/24/92 00000 02.2	OGDEN ENVIRONMENTAL J.C. HERWIG SOUTHWEST DIVISION M. RADECKI	NAF EL CENTRO LETTER REPORT QUARTERLY GROUND WATER SAMPLING RESULTS AT SITES 10,14,15,16 & 17	ADMIN RECORD	GW DATA BTX&E SWAT MW MONITORING WELLS VOC TPH TFH	10,14,15 16,17	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000371 RPT 000000000000000 0450	05/23/96 08/07/92 00000 02.1	OGDEN ENVIRONMENTAL T.J. FITZPATRICK SOUTHWEST DIVISION	FINAL QUARTERLY SAMPLING ANALYTICAL LABORATORY REPORTS SITE INVESTIGATION (SI) AND HYDROGEOLOGICAL ASSESSMENT REPORT SITES 10, 14, 15, & 17 VOLUME I	ADMIN RECORD	DATA SI HAR	10,14,15, 17	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000023 PLAN 000000000000000 0065	12/06/94 08/15/92 00000 03.3	GEOSERVICES SOUTHWEST DIVISION	NAF EL CENTRO FINAL HEALTH AND SAFETY PLAN (H&SP) PRECISION TANK TESTING	ADMIN RECORD	H&SP TANK HAZMAT MONITORING		SOUTHWEST DIVISION NAF EL CENTRO
N60042 000267 PLAN N6871189D9296 0050	12/28/94 09/29/92 00218 01.1	JACOBS ENGINEERING G.P. JENNETT SOUTHWEST DIVISION	HEALTH AND SAFETY PLAN FOR NAF EL CENTRO	ADMIN RECORD	H&SP		SOUTHWEST DIVISION NAF EL CENTRO
N60042 000369 RPT 000000000000000 1500	05/23/96 10/01/92 00000 02.1	OGDEN ENIRONMENTAL K. WHAL SOUTHWEST DIVISION	FINAL QUARTERLY SMAPLING ANALYTICAL LABROATORY REPORTS SITE INVESTIGATION AND SOLID WATE ASSESSMENT TEST (SWAT) SITES 1,2,3,4,5,6,7, & 11 VOLUMES I & II	ADMIN RECORD	SI SWAT MAG RD LANDFILL SLUDGE BUR AREA	1,2,3,4,5, 6,7,11	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000034 RPT 000000000000000 0175	12/06/94 10/06/92 00000 02.2	OGDEN ENVIRONMENTAL J.C. HERWIG SOUTHWEST DIVISION M. RADECKI	LETTER REPORT OF QUARTERLY GROUND WATER SAMPLING RESULTS FOR SITES 1,2,3,4,5,6,7,,8,9 AND 11	ADMIN RECORD	GW DISPOSAL SLUDGE MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5 6,7,8,9,11	SOUTHWEST DIVISION NAF EL CENTRO

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N60042 000034 continued							
					MW BTX&E GC/MS LF PCB		
N60042 000070 RPT N6871191D0250 0150	12/07/94 02/04/93 00000 01.4	DAMES & MOORE J.C. WILSON SOUTHWEST DIVISION	NAF EL CENTRO FINAL REPORT SITE INVESTIGATION (SI) BUILDING 157 PAINT RINSE AREA	ADMIN RECORD	SI PESTICIDES PCB METALS VOC	B-157	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000493 RPT 000000000000000 0040	10/09/98 02/18/93 00000 01.1	URS CONSULTANTS K. CARLSON EPA REGION IX C. DOUGLAS	FEDERAL FACILITY SITE INVESTIGATION DOCUMENTATION REVIEW	ADMIN RECORD INFO REPOSITORY	SI LANDFILL SOIL	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000041 RPT N6871189D9296 0350	12/06/94 03/12/93 00202 01.1	JACOBS ENGINEERING C. JOHNSON SOUTHWEST DIVISION	NAF EL CENTRO FINAL REPORT TREATABILITY STUDY OF FUEL FARM FREE PRODUCT PLUME	ADMIN RECORD	FUEL MONITORING WELLS MW GW	FUEL FARM	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000039 RPT N71188D5053 0450	12/06/94 05/01/93 00000 01.4	OGDEN ENVIRONMENTAL SOUTHWEST DIVISION CODE 0223	FINAL SITE INVESTIGATION (SI) REPORT SITE 4,5,6,7,8,9, AND 11 ENGINEERING SERVICES FOR RI/FS	ADMIN RECORD INFO REPOSITORY	SI RI SCRAPYARD FUEL GW DATA QA QC	4,5,6,7,8 9, 11	SOUTHWEST DIVISION BRAWLEY LIBRARY EL CENTRO LIBRARY NAF EL CENTRO

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N60042 000040 RPT N71188D5053 0450	12/06/94 05/01/93 00000 01.4	OGDEN ENVIRONMENTAL SOUTHWEST DIVISION CODE 0223	NAF EL CENTRO FINAL SOLID WASTE WATER QUALITY ASSESSMENT TEST (SWAT) SITE INVESTIGATION REPORT (SI) SITE 1, 2, AND 3 VOLUME I	ADMIN RECORD	SWAT SI MAG RD LANDFILL SLUDGE BUR AREA WATER LF DISPOSAL SLUDGE	1,2,3	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000302 PLAN N6871191D0252 0100	02/10/95 05/01/93 DO 14 10.2	BROWN AND CALDWELL SOUTHWEST DIVISION	REVISED COMMUNITY RELATIONS PLAN FOR NAF EL CENTRO	ADMIN RECORD	CRP MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9,10 11,14,15, 16,17	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000370 RPT N71188D5053 0450	05/23/96 05/01/93 00000 01.4	OGDEN ENVIRONMENTAL SOUTHWEST DIVISION CODE 0223	FINAL SOLID WASTE WATER QUALITY ASSESSMENT TEST (SWAT) SITE INVESTIGATION REPORT (SI) FINA DATA VALAIDATION REPORT APPENDIX VOLUME II	ADMIN RECORD	SWAT SI MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9,11	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000029 PLAN N6871189D9296 0050	12/06/94 08/31/93 00268 03.3	JACOBS ENGINEERING D. TURNER SOUTHWEST DIVISION	NAF EL CENTRO FINAL WORK PLAN DELINEATION OF FUEL FARM FREE PRODUCT PLUME	ADMIN RECORD	FUEL GW QA QC	FUEL FARM	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000284 PLAN N6871189D9296 0030	01/30/95 08/31/93 00268 03.3	JACOBS ENGINEERING D. TURNER SOUTHWEST DIVISION	WORK PLAN OF DELINEATION FUEL FARM FREE PRODUCT PLUME NAF EL CENTRO (COMMENTS WRITTEN ON DOCUMENT)	ADMIN RECORD		FUEL FARM	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000279 RPT N6871192D4670 0040	01/27/95 09/24/93 00005 01.1	BECHTEL NATIONAL D. UMSTOT SOUTHWEST DIVISION	DRAFT SOLID WASTE WATER QUALITY ASSESSEMNT TEST (SWAT) PROPOSAL SITE 2A, WEST PARTROL ROAD LANDFILL NAF EL CENTRO (NO LONGER BEING DONE) (SENT TO RWQCB)	ADMIN RECORD	SWAT	2A	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000354 PLAN N6871192D4670 0050	02/01/96 10/05/93 00005 03.3	BECHTEL NATIONAL INC G.R. HASKINS SOUTHWEST DIVISION	DRAFT INVESTIGATION DERIVED WASTE MANAGEMENT PLAN SITE 2A, WEST PATROL ROAD LAND FILL SWAT/SI	ADMIN RECORD	IDWMP	2A	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000355 PLAN N6871192D4670 0025	02/01/96 10/05/93 00005 01.2	BECHTEL NATIONAL INC D.B. MCCULLAR SOUTHWEST DIVISION	DRAFT SITE INSPECTION WORK PLAN ADDENDUM FOR SITE 2A WEST PATROL ROAD LANDFILL	ADMIN RECORD	SI	2A	SOUTHWEST DIVISION NAF EL CENTRO

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N60042 000356 PLAN N6871192D4670 0250	02/01/96 10/05/93 00005 03.3	BECHTEL NATIONAL INC SOUTHWEST DIVISION	DRAFT SITE SPECIFIC HEALTH AND SAFETY PLAN SITE 2A WEST PATROL ROAD LANDFILL	ADMIN RECORD	H&SP	2A	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000016 PLAN N6871193D1457 0250	12/06/94 11/30/93 00000 03.3	GEOSERVICES L. MICHAELIAN SOUTHWEST DIVISION	NAF EL CENTRO FINAL HEALTH AND SAFETY PLAN	ADMIN RECORD INFO REPOSITORY	H&SP		SOUTHWEST DIVISION BRAWLEY LIBRARY EL CENTRO LIBRARY NAF EL CENTRO
N60042 000285 RPT N6871189D9296 0250	01/30/95 12/15/93 00268 01.1	JACOBS ENGINEERING D. TURNER SOUTHWEST DIVISION	DRAFT SITE ASSESSMENT REMEDIAL ALTERNATIVES FUEL FARM TECHNICAL REPORT FOR NAF EL CENTRO	ADMIN RECORD	SA	FUEL FARM	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000196 LTR N6871192D4673 0008	12/13/94 01/19/94 00000 10.2	BROWN & CALDWELL B. SCHMUCKER SOUTHWEST DIVISION D. DUNBAR	COMMUNITY RELATIONS MAILING LIST FOR NAF EL CENTRO (MADE DISCLOSABLE)	ADMIN RECORD CONFIDENTIAL DOC INFO REPOSITORY	CRP MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9,10 11,14,15, 16,17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000296 LTR N6871192D4673 0006	02/10/95 01/19/94 DO 22 10.2	BROWN & CALDWELL B. SCHMUCKER SOUTHWEST DIVISION D. DUNBAR	REVISED UPDATED MAILING LIST FOR THE COMMUNITY RELATIONS PROGRAM (PRIVIATE CITIZENS NAMES AND ADDRESSES HAVE BEEN BLANK OUT TO MAKE DISCLOSEABLE)	ADMIN RECORD CONFIDENTIAL DOC INFO REPOSITORY	MAILING LST MAG RD LANDFILL SLUDGE BUR AREA	1,2,3,4,5, 6,7,8,9,10 11,14,15, 16,17	SOUTHWEST DIVISION BRAWLEY LIBRARY NAF EL CENTRO EL CENTRO LIBRAY
N60042 000019 RPT N6871192D4670 0095	12/06/94 02/04/94 00005 01.1	BECHTEL NATIONAL,INC J.S. HOYLE SOUTHWEST DIVISION	NAF EL CENTRO FINAL SOLID WASTE WATER QUALITY ASSESSMENT TEST (SWAT) PROPOSAL SITE 2A WEST PATROL ROAD LANDFILL (NO LONGER BEING DONE)	ADMIN RECORD	SWAT LF WATER GW DISPOSAL WELLS MONITORING MW	2A	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000021 PLAN N6871192D4670 0075	12/06/94 02/04/94 00005 03.3	BECHTEL NATIONAL,INC A.L. FRANKS SOUTHWEST DIVISION	NAF EL CENTRO FINAL INVESTIGATION DERIVED WASTE MANAGEMENT PLAN SITE 2A, WEST PATROL ROAD LANDFILL SWAT/SI (NO LONGER BEING DONE)	ADMIN RECORD	WMP LF HAZ WASTE	2A	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000251 PLAN N6871192D4670 0017	12/28/94 02/04/94 00005 03.3	BECHTEL NATIONAL INC D. UMSTOT SOUTHWEST DIVISION	SITE INSPECTION (SI) WORK PLAN ADDENDUM SITE 2A WEST PATROL ROAD LANDFILL NAF EL CENTRO FINAL (NO LONGER BEING DONE)	ADMIN RECORD	SI	2A	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000283 RPT N6871192D4670 0044	01/30/95 02/04/94 00005 01.1	BECHTEL NATIONAL INC J.S. HOYLE SOUTHWEST DIVISION	SOLID WASTE WATER QUALITY ASSESSMENT TEST (SWAT) PROPOSAL SITE 2A, WEST PATROL ROAD LANDFILL NAF EL CENTRO (NO LONGER BEING DONE)	ADMIN RECORD	SWAT	2A	SOUTHWEST DIVISION NAF EL CENTRO

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N60042 000020 PLAN N6871192D4670 0175	12/06/94 02/07/94 00005 03.3	BECHTEL NATIONAL,INC C.I. SHERMAN SOUTHWEST DIVISION	NAF EL CENTRO FINAL SITE SPECIFIC HEALTH AND SAFETY PLAN SITE 2A, WEST PATROL ROAD LANDFILL SWAT/SI (NO LONGER BEING DONE)	ADMIN RECORD	H&SP LF SWAT SI PCB PESTICIDES HAZ WASTE	2A	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000215 LTR 000000000000000 0003	12/13/94 03/21/94 00000 01.6	CRWQCB PALM DESERT S. CHAKLADAR SOUTHWEST DIVISION D. DUNBAR	COMMENTS ON DRAFTS OF SI FOR SITES 4, 5, 6, 11 AT NAF EL CENTRO	ADMIN RECORD	SI COMMENTS	4,5,6,11	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000216 LTR 000000000000000 0001	12/13/94 03/21/94 00000 01.6	CRWQCB PALM DESERT S. CHAKLADAR SOUTHWEST DIVISION D. DUNBAR	COMMENTS ON DRAFTS OF SI FOR SITES 7,8 & 9 AT NAF EL CENTRO	ADMIN RECORD	COMMENTS SI SCRAPYARD	7,8,9	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000219 LTR 000000000000000 0002	12/13/94 03/28/94 00000 01.6	CRWQCB PALM DESERT R. LUKENS SOUTHWEST DIVISION D. DUNBAR	NAF EL CENTRO FUEL FARM REMEDIATION REGIONAL BOARD CLEANUP & ABATEMENT ORDER NO. 90-045	ADMIN RECORD	C/A ORDER GW BTX&E WATER TPH	FUEL FARM	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000297 MISC 00000000000000 0004	02/10/95 04/01/94 00000 10.6	NAF EL CENTRO DISTRIBUTION	FACT SHEET NO. 1 ON THE NAF EL CENTRO INSTALLATION RESTORATION PROGRAM (WRITTEN IN ENGLISH AND SPANISH)	ADMIN RECORD INFO REPOSITORY	MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2A,2,3,4 5,6,7,8,9 10,11,12, 13,14,15 16,17	SOUTHWEST DIVISION BRAWLEY LIBRARY NAF EL CENTRO EL CENTRO LIBRARY
N60042 000030 RPT N6871189D9296 0450	12/06/94 04/22/94 00268 01.1	JACOBS ENGINEERING D. TURNER SOUTHWEST DIVISION	NAF EL CENTRO FINAL SITE ASSESSMENT REMEDIAL ALTERNATIVES FUEL FARM TECHNICAL REPORT REVISION 0	ADMIN RECORD	FUEL MW MONITORING WELLS GW DATA PA LUFT	FUEL FARM	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000229 LTR 000000000000000 0002	12/13/94 05/10/94 00000 01.6	CRWQCB PALM DESERT S. CHAKLADAR SOUTHWEST DIVISION D. DUNBAR	COMMENTS ON THE FINAL REPORT FOR PIPING AND UST PRECISION TESTING AT NAF EL CENTRO	ADMIN RECORD	COMMENTS UST	FUEL FARM	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000236 LTR 000000000000000 0001	12/13/94 05/24/94 00000 01.6	CRWQCB PALM DESERT S. CHAKLADAR NAF EL CENTRO D. HESS	COMMENTS ON THE FINAL SITE ASSESSMENT REMEDIAL ALTERNATIVES FOR THE FUEL FARM AT NAF EL CENTRO	ADMIN RECORD	COMMENTS	FUEL FARM	SOUTHWEST DIVISION NAF EL CENTRO

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N60042 000239 LTR 000000000000000 0002	12/13/94 06/02/94 00000 01.6	DTSC LONG BEACH M.C. GASLAN NAF EL CENTRO J.L. CROW	SITE 2 LANDFILL NAF EL CENTRO REMOVAL OF AND TREATMENT OF CONTAMINATED SOIL FOR USE	ADMIN RECORD	REMOVAL LF	2,15	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000072 LTR 000000000000000 0002	12/08/94 06/15/94 00000 01.4	CRWCB PALM DESERT S. GHAKLADAR NAF EL CENTRO D. HESS	NAF EL CENTRO COMMENTS ON PROPOSED INTERIM COVER TO BE PROVIDED ON SWAT SITE #2 AS PART OF CONTINUED REMEDIATION REVIEW OF THE FINAL SI SWAT OF APRIL 1992	ADMIN RECORD	COMMENTS SI SWAT ARAR LF	2	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000092 LTR 000000000000000 0002	12/08/94 07/14/94 00000 01.1	CRWQCB PALM DESERT S. CHAKLADAR NAF EL CENTRO E. GONZALEZ	NAF EL CENTRO COMMENTS ON DRAFT SOLID WASTE WATER QUALITY ASSESSMENT TEST (SWAT) PROPOSAL SITE 2A, WEST PATROL ROAD LANDFILL	ADMIN RECORD	COMMENTS SWAT LF	2A	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000094 LTR 000000000000000 0001	12/08/94 07/15/94 00000 01.4	CRWQCB PALM DESERT S. CHAKLADAR NAF EL CENTRO E. GONZALEZ	NAF EL CENTRO COMMENTS ON INVESTIGATION DERIVED WASTE MANAGEMENT PLAN SITE 2A WEST PATROL ROAD LANDFILL SWAT/SI	ADMIN RECORD	SWAT WMP LF SI	2A	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000112 LTR 000000000000000 0026	12/08/94 08/25/94 00000 01.1	ERM WEST INC. F. ALLISON SOUTHWEST DIVISION D. DUNBAR	PROJECT UPDATE RESULTS OF THIRD SAMPLING OF SLUDGE DRYING BEDS AT NAF EL CENTRO SEWAGE TREATMENT PLANT	ADMIN RECORD	SLUDGE DATA		SOUTHWEST DIVISION NAF EL CENTRO
N60042 000494 MISC 000000000000000 0003	10/09/98 09/07/94 00000 01.1	NAF EL CENTRO DISTRIBUTION	AGENDA AND SIGN-IN SHEETS FOR SEPTEMBER 7, 1994 RPM MEETING	ADMIN RECORD INFO REPOSITORY	IRP RA	15 2A	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000124 LTR 000000000000000 0001	12/08/94 09/13/94 00000 01.3	SOUTHWEST DIVISION D. DUNBAR DTSC LONG BEACH T. BEKELE	REPORT PROVIDED FOR REFERENCE FINAL PRELIMINARY ASSESSMENT SITE INSPECTION OF THE NAF EL CENTRO NEESA 13-106 9/87	ADMIN RECORD	PA SI		SOUTHWEST DIVISION NAF EL CENTRO
N60042 000125 LTR 000000000000000 0001	12/08/94 09/14/94 00000 03.3	CRWQCB PALM DESERT S. CHAKLADAR NAF EL CENTRO E. GONZALEZ	DRAFT PROJECT WORK PLAN BUILDING DECONTAMINATION, NAF EL CENTRO (CRWQCB WILL NOT BE REVIEWING THIS PLAN)	ADMIN RECORD	COMMENTS		SOUTHWEST DIVISION NAF EL CENTRO
N60042 000413 PLAN N6871192C4593 0050	03/03/97 11/01/94 00000 03.3	KENNEDY/JENKS SOUTHWEST DIVISION	DRAFT GEOCHEMICAL SAMPLING WORKPLAN FOR FY95 MCON PROJECTS P-213 AND P-214	ADMIN RECORD INFO REPOSITORY	WORK PLAN SOIL GW INVESTIGATION	15 10	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY

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N60042 000495 MISC 000000000000000 0005	10/09/98 12/01/94 00000 10.6	NAF EL CENTRO DISTRIBUTION	FACT SHEET NO. 1 (IN ENGLISH AND SPANISH)	ADMIN RECORD INFO REPOSITORY	GW SOLVENTS UST CLEANUP	1 2 2A 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000466 LTR 000000000000000 0002	10/13/97 12/07/94 00000 01.6	SOUTHWEST DIVISION D. DUNBAR CRWQCB PALM DESERT DTSC LONG BEACH	REQUEST FOR COMMENTS NO LATER THAN DECEMBER 16, 1994 ON THE DRAFT CONTRACT QCP ADDENDUM FOR SITES 2 & 15 AND DRAFT SITE H&S PLAN FOR REMOVAL SITES 2 & 15	ADMIN RECORD INFO REPOSITORY	REQUEST COMMENTS QAPP H&SP REMOVAL	2 15	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000374 LTR 000000000000000 0001	07/31/96 12/21/94 00000 03.6	SOUTHWEST DIVISION D. DUNBAR EPA PALM DESERT L. CHAVEZ	ENCLOSURES AS REQUESTED FORWARDED. REF.DOC# 000034, 000052,& 000047.	ADMIN RECORD	SI GW MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5 6,7,8,9,10 11,12,13, 14,15,16, 17	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000312 LTR 000000000000000 0002	05/18/95 02/09/95 00000 01.1	SOUTHWEST DIVISION D. DAWSON NAF EL CENTRO	REGINAL WATER QUALITY CONTROL BOARD AND DEPARTMENT OF TOXIC SUBSTANCES CONTROL SITE VISIT	ADMIN RECORD	MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9,10 11,14,15, 16,17	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000332 LTR 000000000000000 0002	09/12/95 02/15/95 00000 01.6	NAF EL CENTRO P.T. MADISON EPA SAN FRANCISCO	OPA 90 FACILITY RESPONSE PLAN AND EMERGENCY RESPONSE ACTION PLAN FOR NAF EL CENTRO	ADMIN RECORD			SOUTHWEST DIVISION NAF EL CENTRO
N60042 000316 MISC 000000000000000 0001	06/23/95 03/01/95 00000 10.3	THE SANDPAPER	NOTICE OF PUBLIC MEETING TO DISCUSS THE ENVIRONMENTAL IR PROGRAM AND FORMATION OF A RAB	ADMIN RECORD INFO REPOSITORY	PUBNOT RAB MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9,10 11,14,15, 16,17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY

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N60042 000414 RPT N6871192C4593 0050	03/03/97 03/01/95 00000 03.4	KENNEDY/JENKS SOUTHWEST DIVISION	SOIL AND GROUNDWATER SAMPLING AND ANALYSIS REPORT P-13 AND P-14	ADMIN RECORD INFO REPOSITORY	SOIL GW	15 10	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000310 LTR 000000000000000 0028	05/18/95 03/24/95 00000 01.6	DTSC LONG BEACH M.C. GASLAN SOUTHWEST DIVISION D. DAWSON	COMMENT ON FINAL SITE INVESTIGATION REPORT FOR SITES 1,2,3,4,5,6,7,8,9 & 11	ADMIN RECORD	COMMENTS SI MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9,11	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000375 LTR 000000000000000 0003	03/31/95 03/31/95 00000 01.6	SOUTHWEST DIVISION D. DAWSON NAF EL CENTRO TEAM	NAF EL CENTRO TEAM MEETING DRAFT AGENDA	ADMIN RECORD	ARAR MAG RD LANDFILL EE/CA(*) SLUDGE BUR AREA SCRAPYARD	1,2,3,4,8	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000376 MM 000000000000000 0001	07/31/96 04/05/95 00000 01.6	NAF EL CENTRO NAF EL CENTRO TEAM	AGENDA FOR PROGRESS MEETING EE/CA AM AND NFRAP SITES 1 ,3,4,5,8,12 AND 13 NAF EL CENTRO (NEED MTG MINS)	ADMIN RECORD	ACTMEMO EE/CA(*) MTG MINS MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,3,4,5,8, 12,13	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000309 LTR 000000000000000 0002	05/18/95 04/06/95 00000 01.6	DTSC LONG BEACH M.C. GASLAN SOUTHWEST DIVISION D. DAWSON	COMMENTS ON THE FINAL SITE INSPECTION REPORT FOR SITES 14, 15 & 16 (SEE COMMENTS ON SITES 1,2,3,4,5,6,7 8, 9, & 11 LTR OF MARCH 24, 1995	ADMIN RECORD	COMMENTS SI	14,15,16	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000377 MM 000000000000000 0001	07/31/96 04/13/95 00000 01.6	NAF EL CENTRO NAF EL CENTRO TEAM	SIGN IN SHEET FOR MEETING OF 13 APRIL 1995 NAF EL CENTRO (REF DOC #000375)	ADMIN RECORD	MTG MINS MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,8 5,6,7,9,11	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000341 MM 000000000000000 0003	10/19/95 04/17/95 00000 01.6	SOUTHWEST DIVISION D. DAWSON ATTENDEES	NAF EL CENTRO TEAM MEETING MINUTES	ADMIN RECORD	MTG MINS SI SWAT MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9,11	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000308 LTR 000000000000000 0002	05/18/95 04/18/95 00000 04.5	SOUTHWEST DIVISION D. DAWSON DTSC LONG BEACH T. BEKELE	REQUEST FOR INDENTIFICATION OF POTENTIAL STATE CHEMICAL SPECIFIC ACTION SPECIFIC AND LOCATION SPECIFIC ARARs FOR AN INTERIM REMOVAL ACTION	ADMIN RECORD	ARAR MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,8	SOUTHWEST DIVISION NAF EL CENTRO

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N60042 000306 LTR 000000000000000 0002	05/18/95 04/24/95 00000 01.6	CRWQCB PLAM DESERT L. CHAVEZ NAF EL CENTRO E. GONZALEZ	COMMENTS ON IR SITES 1,2, AND 3 NAF EL CENTRO FINAL SITE INVESTIGATION REPORT	ADMIN RECORD	COMMENTS SI MAG RD LANDFILL SLUDGE BUR AREA	1,2,3,	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000468 PLAN N6871193D1459 0450	10/13/97 05/01/95 DO#03 03.3	OHM REMEDIATION S. WEST NAF EL CENTRO	DRAFT SITE WORK PLAN ADDENDUM FOR SITE 16 BUILDING DECONTAMINATION	ADMIN RECORD INFO REPOSITORY	WORK PLAN ADPM	16	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000325 LTR 000000000000000 0032	07/31/95 05/09/95 00090 02.7	SOUTHWEST DIVISION D. DAWSON DTSC LONG BEACH T. BEKELE	EE/CA AND ACTION MEMORANDA AT NAF EL CENTRO ESTIMATION OF BACKGROUND METALS CONCENTRATIONS	ADMIN RECORD	METALS MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9,11	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000326 LTR 000000000000000 0003	07/31/95 05/09/95 00000 01.6	SOUTHWEST DIVISION M. GONZALES DTSC LONG BEACH T. BEKELE	WRITTEN RESPONSE TO LETTER OF APRIL 16, 1995 ON THE FINAL SITE INSPECTION REPORT FOR SITES 14,15, & 16 COMMENTS WILL ADDRESS SITE 16	ADMIN RECORD	COMMENTS	16	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000324 LTR 000000000000000 0003	07/31/95 05/23/95 00000 01.6	CRWQCB PALM DESERT L. CHAVEZ SOUTHWEST DIVISION D. DAWSON	COMMENTS ON THE DRAFT FINAL SITE 15 FUEL FARM REMOVAL ACTION GENERAL SITE WORK PLAN AND DRAFT FINAL SITE 15 FULE FARM SAMPLING AND ANALYSIS PLAN	ADMIN RECORD	COMMENTS RA SAP	15	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000345 MM 000000000000000 0003	10/19/95 05/31/95 00000 01.6	SOUTHWEST DIVISION D. DAWSON ATTENDEES	SITE 15 (FUEL FARM) STRATEGY MEETING MINUTES	ADMIN RECORD	MTG MINS	15	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000327 LTR 000000000000000 0002	07/31/95 06/08/95 00000 01.6	DTSC LONG BEACH M.C. GASLAN SOUTHWEST DIVISION D. DAWSON	REVIEW COMMENTS ON THE COMMUNITY RELATIONS PLAN FOR NAF EL CENTRO CONCURRED	ADMIN RECORD	COMMENTS MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9,10 11,14,15, 16,17	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000342 MM 000000000000000 0003	10/19/95 06/14/95 00000 01.6	SOUTHWEST DIVISION D. DAWSON ATTENDEES	NAF EL CENTRO TEAM MEETING MINUTES	ADMIN RECORD	PRG MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,3,4,8	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000393 LTR 000000000000000 0004	07/31/96 06/14/95 0000 01.6	SOUTHWEST DIVISION D.DAWSON DTSC LONG BEACH T. BEKELE	REGARDING CERCLA STATUS OF SITE 14, 15, AT NAF EL CENTRO. NAVY REQUESTS THAT IR SITE 14 AND SITE 15 BE REMOVED FROM NAF EL CENTRO & PLACED UST.	ADMIN RECORD	CERCLA UST METALS	14,15	SOUTHWEST DIVISION NAF EL CENTRO

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N60042 000396 LTR 000000000000000 0004	08/13/96 06/14/95 00000 01.6	SOUTHWEST DIVISION D. DAWSON DTSC LONG BEACH T. BEKELE	CERCLA STATUS OF SITE 14 & SITE 15 AT NAF, EL CENTRO. REQUEST THAT THE SITES BE REMOVED FROM IRP AND PLACED INTO THE UST PROGRAM.(ENCLS. NOT INCLUDED)	ADMIN RECORD	CERCLA IRA UST BACKGROUND	14 15	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000317 LTR 000000000000000 0079	07/24/95 06/21/95 00000 04.1	DTSC LONG BEACH M.C. GASLAN SOUTHWEST DIVISION D. DAWSON	RESPONSE TO ARAR's REQUEST FOR SITES 1,2,3,4, & 8	ADMIN RECORD	ARAR MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000322 LTR 000000000000000 0002	07/31/95 06/28/95 00099 02.7	DTSC LONG BEACH M.C. GASLAN SOUTHWEST DIVISION D. DAWSON	COMMENTS ON THE EE/CA AND ACTION MEMORANDA AT NAF EL CENTRO ESTIMATION OF BACKGROUND METALS CONCENTRATIONS	ADMIN RECORD	COMMENTS MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5 6,7,8,9,11	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000321 LTR 000000000000000 0002	07/31/95 07/12/95 00099 02.7	DTSC LONG BEACH M.C. GASLAN SOUTHWEST DIVISION D. DAWSON	COMMENTS ON THE EE/CA AND ACTION MEMORANDA AT NAF EL CENTRO OCCURENCE OF VOLATILE ORGANIC COMPOUNDS AT SITES 1 AND 4	ADMIN RECORD	VOC EE\CA ACTMEMO MAG RD LANDFILL	1,4	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000320 LTR 000000000000000 0035	07/31/95 07/17/95 00000 01.1	SOUTHWEST DIVISION J.R. PAWLISCH DTSC LONG BEACH T. BEKELE	REQUEST FOR CONCURRENCE TO REMOVE THE IR SITE #14 AND #15 FROM THE NAF EL CENTRO IRP AND PLACE IN THE UST PROGRAM	ADMIN RECORD	UST IRP	14,15	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000340 LTR 000000000000000 0001	09/12/95 07/17/95 00000 01.6	NAF EL CENTRO P.T. MADISON SOUTHWEST DIVISION CODE 1822.MD	CORRECT LOCATION OR IR SITE 3 IS SHOWN IN REFERENCE(B)	ADMIN RECORD	SLUDGE BUR AREA	3	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000343 MM 000000000000000 0003	10/19/95 07/31/95 00000 01.6	SOUTHWEST DIVISION D. DAWSON ATTENDEES	NAF EL CENTRO TEAM MEETING MINUTES	ADMIN RECORD	VOC EE\CA MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,4,9,2,3, 8,12,13,15 16,14	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000378 MM 000000000000000 0003	07/31/96 07/31/95 00000 01.6	NAF EL CENTRO NAF EL CENTRO TEAM	31 JULY 1995 NAF EL CENTRO TEAM MEETING MINUTES	ADMIN RECORD	MTG MINS EE\CA UST RAB MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,4,3,8,9, 12,13,15,2	SOUTHWEST DIVISION NAF EL CENTRO

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N60042 000336 LTR 000000000000000 0002	09/12/95 08/17/95 00000 01.6	DTSC LONG BEACH M.C. GASLAN SOUTHWEST DIVISION D. DAWSON	CONCURRENCE TO MOVE SITES 14 & 15 FROM THE IRP TO THE UST PROGRAM	ADMIN RECORD	IRP UST	14,15,16	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000339 LTR 000000000000000 0011	09/12/95 08/31/95 00000 01.6	SOUTHWEST DIVISION D. DAWSON DTSC LONG BEACH T. BEKELE	GOVERNMENT RESPONSE TO DTSC GEOLOGIST AND TOXICOLOGIST COMMENTS ON FINAL SITE INVESTIGATION REPORTS FOR SITE 1-9 & 11 OF MARCH 24, 1995	ADMIN RECORD	COMMENTS MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5 6,7,8,9,11	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000379 MM 000000000000000 0002	07/31/96 09/06/95 00000 01.6	NAF EL CENTRO NAF EL CENTRO TEAM	6 SEPTERMER 1995 NAF EL CENTRO TEAM MEETING AGENDA	ADMIN RECORD	PCB REMOVAL CLOSURE GW MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5 6,7,8,9,11 12,13	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000344 MM 000000000000000 0003	10/19/95 09/18/95 00000 01.6	SOUTHWEST DIVISION D. DAWSON ATTENDEES	NAF EL CENTRO TEAM MEETING MINUTES	ADMIN RECORD	MTG MINS MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000380 MM 000000000000000 0004	07/31/96 09/18/95 01.6	SOUTHWEST DIVISION NAF EL CENTRO TEAM	15 SEPTEMBER 1995 NAF EL CENTRO TEAM MEETING MINUTES	ADMIN RECORD	PCB MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD GW ORDNANCE	1,2,3,4,5, 6,7,8,9,10 11,12,13, 14,15	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000381 MM 000000000000000 0005	07/31/96 09/18/95 00000 01.6	SOUTHWEST DIVISION NAF EL CENTRO TEAM	30 NOVEMBER 1995 NAF EL CENTRO TEAM MEETING MINUTES	ADMIN RECORD	UST MAG RD LANDFILL GW SI EE\CA CLOSURE	10,11,12,1	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000348 RPT N6871192D4670 0200	11/28/95 11/01/95 00090 02.4	BECHTEL NATIONAL INC M. GALAGODA SOUTHWEST DIVISION D. DAWSON	DRAFT ENGINEERING EVALUATION COST ANALYSIS (EE/CA) SITE 3 SLUDGE BURIAL AREA	ADMIN RECORD	EE\CA SLUDGE BUR AREA	3	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000349 LTR N6871192D4670 0200	11/28/95 11/01/95 00090 02.4	BECHTEL NATIONAL INC M. GALAGODA SOUTHWEST DIVISION D. DAWSON	DRAFT ENGINEERING EVALUATION COST ANALYSIS SITE 8 SCRAP YARD	ADMIN RECORD	EE\CA SCRAPYARD	8	SOUTHWEST DIVISION NAF EL CENTRO

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N60042 000350 LTR 000000000000000 0003	12/06/95 11/15/95 00000 01.6	DTSC LONG BEACH M.C. GASLAN SOUTHWEST DIVISION D. DAWSON	COMMENTS ON THE PRELIMINARY ASSESSMENT DOCUMENT FOR SITE 12 AND 13 (SEE DOC. NO N60042.000047)	ADMIN RECORD	PA	12,13	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000351 PLAN N68711924673 0042	12/06/95 11/20/95 DO 22 10.2	BROWN & CALDWELL B. SCHMUCKER SOUTHWEST DIVISION D. DAWSON	FINAL COMMUNITY RELATIONS PLAN (MADE DISCLOSABLE)	ADMIN RECORD CONFIDENTIAL DOC INFO REPOSITORY	CRP MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	4,5,6,7,8, 9,11,1,2,3 10,14,15, 16,17	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000352 LTR 000000000000000 0002	01/10/96 11/20/95 00000 01.6	DTSC LONG BEACH M.C. GASLAN SOUTHWEST DIVISION D. DAWSON	RESPONSE TO COMMENTS ON THE FINAL SITE INVESTIGATION FOR SITES 1-9 AND 11	ADMIN RECORD	COMMENTS MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9,11	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000382 MM 000000000000000 0001	07/31/96 11/21/95 00000 01.6	SOUTHWEST DIVISION NAF EL CENTRO TEAM	30 NOVEMBER 1995 NAF EL CENTRO TEAM MEETING MINUTES	ADMIN RECORD	CLOSURE EE\CA ACTMEMO SCRAPYARD WELLS WORK PLAN	12,13,8,10	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000347 PLAN N6871193D1459 0075	11/28/95 11/25/95 DO 09 03.3	OHM REMEDIATION B. LEFEVER SOUTHWEST DIVISION D. DAWSON	FLUID INJECTION WITH VACUUM EXTRACTION PILOT STUDY WORK PLAN SITE 15 - FUEL FARM REMEIDATION	ADMIN RECORD	FUEL	15	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000353 RPT N6871193D1459 0450	01/31/96 12/01/95 DO 09 03.3	OHM REMEDIATION J. PEPIN SOUTHWEST DIVISION	DRAFT ENGINEERING EVALUATION FOR CONSTRUCTION SITE 2	ADMIN RECORD		2	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000386 LTR 000000000000000 0001	07/31/96 01/04/96 00000 01.6	SOUTHWEST DIVISION D. DAWSON CAL EPA PALM DESERT L. CHAVEZ	TRANSMITTAL OF "DRAFT FUEL FARM PILOT TEST REPORT" NAF EL CENTRO, DATED 12/95.	ADMIN RECORD	FUEL		SOUTHWEST DIVISION NAF EL CENTRO
N60042 000418 LTR 000000000000000 0003	03/03/97 01/10/96 00000 02.7	DTSC LONG BEACH J. SCANDURA NAF EL CENTRO P. MADISON	CONCERNS WITH THE NON-TIME CRITICAL REMOVAL ACTIONS PROPOSED FOR IRP SITES, 1,3, & 8; LACK OF ADEQUATE PUBLIC NOTICE TO ADJACENT COMMUNITY REQ. BY LAW	ADMIN RECORD INFO REPOSITORY	NTCRA REMOVAL IRP PUBNOT	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000419 MM 000000000000000 0003	03/03/97 01/14/96 00090 02.7	BECHTEL NATIONAL INC W.CLEMENTS SOUTHWEST DIVISION R. SELBY	JANUARY 14, 1997, CONFERENCE CALL MEETING MINUTES REGARDING THE REMOVAL ACTION DOCUMENTS FOR NAF EL CENTRO	ADMIN RECORD INFO REPOSITORY	MTG MINS REMOVAL	3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRAY BRAWLEY LIBRARY

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UIC No. DOC.NO. DOCUMENT.TYPE... CONTR/GUID..NO.. APPROX.#.OF.PAGES	PRC.DATE DOC.DATE CTO.NO.. EPA.CAT#	FROM..... FROM.SIGNATURE..... TO..... TO.SIGNATURE.....	.....SUBJECT.....	CLASSIFICATION	KEY WORDS ▸	...Site...	....Location.....
N60042 000360 PLAN N6871192D4670 0250	03/08/96 01/17/96 00100 03.3	BECHTEL NATIONAL INC M. GALAGODA SOUTHWEST DIVISION	DRAFT DATA GAP STUDY WORK PLAN SITES 4,10,12,13,17	ADMIN RECORD	DATA	4,10,12,13 17	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000384 LTR 000000000000000 0002	07/31/96 01/23/96 00000 01.6	SOUTHWEST DIVISION D. DAWSON DTSC LONG BEACH I. HIRBAWI	TRANSMITTAL OF DRAFT DOCUMENT "DATA GAPS STUDY WORK PL N FOR NAF EL CENTRO"	ADMIN RECORD	WORK PLAN		SOUTHWEST DIVISION NAF EL CENTRO
N60042 000383 MM 000000000000000 0001	07/31/96 01/24/96 00000 01.6	SOUTHWEST DIVISION NAF EL CENTRO TEAM	6 FEBRUARY 1996 NAF EL CENTRO TEAM MEETING AGENDA	ADMIN RECORD	UST MAG RD LANDFILL SLUDGE BUR AREA EE\CA FUEL AAL	1,3,8	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000359 MEMO N6871192D4670 0100	03/05/96 02/01/96 00090 02.5	SOUTHWEST DIVISION NAF EL CENTRO	DRAFT ACTION MEMORANDUM FOR NON TIME CRITICAL REMOVAL ACTION AT NAF EL CENTRO SITE 1 MAGAZINE ROAD LANDFILL	ADMIN RECORD	ACTMEMO MAG RD LANDFILL	1	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000385 MM 000000000000000 0003	07/31/96 02/09/96 00000 01.6	SOUTHWEST DIVISION NAF EL CENTRO TEAM	6 FEBRUARY MEETING MINUTES FOR NAF EL CENTRO TEAM	ADMIN RECORD	MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD GW EE\CA SI CLOSURE	1,3,8,7,9	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000365 LTR 000000000000000 0004	05/23/96 02/14/96 00000 01.6	DTSC LONG BEACH M.C. GASLAN SOUTHWEST DIVISION D. DAWSON	COMMENTS ON THE PRELIMINARY DRAFT TECHNICAL MEMORANDUM BASEWIDE HYDROLOGY REPORT OF OCTOBER 25, 1995	ADMIN RECORD	COMMENTS TECH MEMO		SOUTHWEST DIVISION NAF EL CENTRO
N60042 000357 MEMO N6871192D4670 0090	03/04/96 02/21/96 00090 02.5	SOUTHWEST DIVISION NAF EL CENTRO	DRAFT ACTION MEMORANDUM FOR NON TIME CRITICAL REMOVAL ACTION AT NAF EL CENTRO SITE 8	ADMIN RECORD	ACTMEMO SCRAPYARD	8	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000358 MEMO N6871192D4670 0090	03/04/96 02/21/96 00090 02.5	SOUTHWEST DIVISION NAF EL CENTRO	DRAFT ACTION MEMORANDUM FOR NON TIME CRITICAL REMOVAL ACTION AT NAF EL CENTRO SITE 3	ADMIN RECORD	ACTMEMO SLUDGE BUR AREA	3	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000362 RPT N6871192D4670 0350	04/01/96 03/01/96 00090 01.1	BECHTEL NATIONAL INC M. GALAGODA SOUTHWEST DIVISION	FINAL TECHNICAL MEMORANDUM BASEWIDE HYDROGEOLOGY (SIGNED 3/14/96)	ADMIN RECORD	TECH MEMO MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9,10 11,12,13, 14,15,16, 17	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO BRAWLEY LIBRARY

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N60042 000361 PLAN N6871192D4670 0450	03/11/96 03/06/96 00100 01.6	BECHTEL NATIONAL INC M. GALAGODA SOUTHWEST DIVISION	DRAFT GROUNDWATER MONITORING WORK PLAN	ADMIN RECORD INFO REPOSITORY	GW MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,8,10,11, 17	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000387 LTR 000000000000000 0001	07/31/96 03/13/96 0000 01.6	SOUTHWEST DIVISION M. GONZALES DTSC LONG BEACH I. HIRBAWI	SUBMITTAL OF THE "DRAFT GROUNDWATER MONITORING WORKPLAN FOR NAF, EL CENTRO FOR REVIEW. PROVIDE COMMENTS BY 3/29/96.	ADMIN RECORD	WORK PLAN GW		SOUTHWEST DIVISION NAF EL CENTRO
N60042 000368 LTR 000000000000000 0012	05/23/96 03/14/96 00000 01.6	CRWQCB COLORADO N. KRULL VARIOUS AGENCIES	NOTICE PROPOSED NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT AND WASTE DISCHARGE REQUIREMENTS RICE DRAIN AND FUEL FARM	ADMIN RECORD	PUBNOT	16	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000388 LTR 000000000000000 0001	07/31/96 03/14/96 0000 01.6	SOUTHWEST DIVISION M. GONZALES DTSC LONG BEACH I. HIRBAWI	REQUEST FOR COMMENTS ON THE SITE 1, 3, AND 8 DRAFT ACTION MEMOS	ADMIN RECORD	ACTMEMO MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,3,8	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000363 LTR 000000000000000 0002	05/23/96 03/18/96 00000 01.6	DTSC LONG BEACH M.C. GASLAN SOUTHWEST DIVISION D. DAWSON	CONCURRENCE WITH PROPOSED SUPPLEMENTAL INVESTIGATIONS TO THE FINAL SITE INVESTIGATION REPORT SITES 1-9 & 11 AND RWQCB's VERBAL CONCURRENCE DRAFT DATA GAP WORKPLAN	ADMIN RECORD	COMMENTS MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000367 LTR 000000000000000 0005	05/23/96 03/27/96 00000 01.6	DTSC LONG BEACH M.C. GASLAN SOUTHWEST DIVISION M. GONZALES	COMMENTS ON THE DRAFT DATA GAP STUDY WORK PLAN CAL/EPA AND DTSC COMMENTS	ADMIN RECORD	COMMENTS MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,7,8,9,11	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000366 LTR 000000000000000 0002	05/23/96 04/01/96 00000 01.6	NAF EL CENTRO P.T. MADISON IMPERIAL ITTIGATION J. KELLY	GRANT AUTHORIZATED TO THE IMPERIAL IRRIGATION DISTRICT A RIGHT-OF-WAY FOR OPERATING AND MAINTAINING AN OVERHEAD POWER LINE ADJACENT TO THE FUEL FARM	ADMIN RECORD	AAL	16	SOUTWHEST DIVISION NAF EL CENTRO
N60042 000389 LTR 000000000000000 0006	07/31/96 04/16/96 0000 01.6	DTSC LONG BEACH I. HIRBAWI SOUTHWEST DIVISION M. GONZALES	COMMENTS ON THE DRAFT GROUNDWATER MONITORING PLAN OF MARCH 6, 1996 (CAL/EPA, DTSC, RWQCB COMMENTS)	ADMIN RECORD	COMMENTS		SOUTHWEST DIVISION NAF EL CENTRO
N60042 000390 LTR 000000000000000 0012	07/31/96 04/16/96 0000 01.6	DTSC LONG BEACH M. GASLAN SOUTHWEST DIVISION M. GONZALES	COMMENTS ON THE DRAFT EE/CA FOR SITES 1,3, AND 8 (CAL/EPA, DTSC, RWQCB COMMENTS)	ADMIN RECORD	EE\CA COMMENTS MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,3,8	SOUTHWEST DIVISION NAF EL CENTRO

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N60042 000372 PLAN N6871192D4670 0350	05/30/96 05/01/96 00100 03.3	BECHTEL NATIONAL INC M. GALAGODA SOUTHWEST DIVISION	FINAL GROUNDWATER MONITORING WORK PLAN (SIGNED MAY 15, 1996)	ADMIN RECORD	GW MONITORING MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,2,3,4,5, 6,8,10,11, 17	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO BRAWLEY LIBRARY
N60042 000364 RPT N6871192D4670 0300	05/23/96 05/07/96 00100 01.1	BECHTEL NATIONAL INC D. UMSTOT SOUTHWEST DIVISION	TECHNICAL SPECIFICATION SECTIONS FOR NAF EL CENTRO IR SITES 11	ADMIN RECORD	FUEL	11	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000373 MM N6871192D4670 0003	05/30/96 05/15/96 00090 01.6	BECHTEL NATIONAL INC REGULATORY AGENCIES	MAY 5, 1996 CONFERENCE CALL MINUTES REGARDING CLARIFICATION REQUIREMENTS NECESSARY TO USE SOIL MATERIAL FROM SITES 3 & 8 TO COVER SITE 1	ADMIN RECORD	MTG MINS MAG RD LANDFILL SLUDGE BUR AREA SCRAPYARD	1,3,8	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000391 LTR 000000000000000 0005	07/31/96 05/28/96 0000 01.6	DTSC LONG BEACH M. GASLAN SOUTHWEST DIVISION M. GONZALES	COMMENTS ON THE DRAFT ACTION MEMORANDUM FOR NON-TIME CRITICAL REMOVAL ACTIONS AT SITE 1,3 AND 8	ADMIN RECORD	ACTMEMO MAG RD LANDFILL COMMENTS SLUDGE BUR AREA SCRAPYARD	1,3,8	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000392 LTR 000000000000000 0001	07/31/96 05/31/96 0000 01.6	NAF EL CENTRO P.T. MADISON APCD EL CENTRO B. FISHER	REGARDING LETTER DTD APRIL 12, 1996, NAF EL CENTRO, ENCLOSED REVISION TO THE HEALTH RISK ASSESSMENT. ENCL: REV. TO HRA, HRA APPENDIX E, & DISKETTES.	ADMIN RECORD	RA HRA		SOUTHWEST DIVISION NAF EL CENTRO
N60042 000394 LTR 000000000000000 0004	07/31/96 07/03/96 0000 01.6	DTSC LONG BEACH I. HIRBAWI SOUTHWEST DIVISION M. GONZALES	COMMENTS ON THE THE FINAL GROUNDWATER MONITORING PLAN OF MAY 1996 (CAL/EPA, DTSC, RWQCB COMMENTS)	ADMIN RECORD	GW COMMENTS SCRAPYARD	8	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000395 LTR N6871192D4670 0023	08/12/96 07/31/96 0090 02.7	BECHTEL, SAN DIEGO D. UMSTOT SOUTHWEST DIVISION R. SELBY	RESPONSES TO REGULATORY COMMENTS ON DRAFT REMOVAL ACTION DOCUMENTS FOR SITES, 1,3, AND 8. (ENCLOSURES)	ADMIN RECORD	RESPONSE REMOVAL	1,3,8	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000398 MEMO N6871192D4670 2000	08/19/96 08/01/96 00090 02.5	BECHTEL SAN DIEGO D. UMSTOT SOUTHWEST DIVISION R. SELBY	DRAFT ACTION MEMORANDUM FOR PUBLIC REVIEW NTCRA SITE 1 (W/REVISED PAGES)	ADMIN RECORD INFO REPOSITORY	ACTMEMO REMOVAL	1	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000401 MEMO N6871192D4670 0700	09/26/96 08/01/96 00090 02.5	BNI SAN DIEGO D. UMSTOT SOUTHWEST DIVISION R. SELBY	DRAFT FOR PUBLIC REVIEW ACTION MEMORANDUM FOR NTCRA, SITE 3 (W/REVISED PAGES)	ADMIN RECORD INFO REPOSITORY	ACTMEMO NTCRA	3	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY

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N60042 000399 LTR 000000000000000 0006	09/16/96 08/27/96 00000 10.0	DTSC LONG BEACH J. RICH NAF EL CENTRO F. RIVERA	PUBLIC PARTICIPATION REQUIREMENTS FOR THE UPCOMING REMOVAL ACTIONS AT SITES 1,3, AND 8	ADMIN RECORD INFO REPOSITORY	REMOVAL MAG RD LANDFILL SLUDGE SCRAPYARD	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000400 MEMO N6871192D4670 0700	09/26/96 09/04/96 00090 02.5	BNI SAN DIEGO D. UMSTOT SOUTHWEST DIVISION R. SELBY	DRAFT FOR PUBLIC REVIEW ACTION MEMORANDUM FOR NTCRA SITE 8 (W/REVISED PAGES)	ADMIN RECORD INFO REPOSITORY	ACTMEMO NTCRA	8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000402 RPT N6871192D4670 1050	09/26/96 09/10/96 00100 03.4	BNI SAN DIEGO G. CAGLE SOUTHWEST DIVISION	DRAFT GROUNDWATER MONITORING REPORT SECOND QUARTER 1996	ADMIN RECORD INFO REPOSITORY	GW MAG RD LANDFILL SCRAPYARD	1 2 3 4 5 6 8 10 11 17	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000403 RPT N6871192D4670 1050	09/26/96 09/12/96 00100 03.4	BNI SAN DIEGO G. CAGLE VARIOUS AGENCIES	DRAFT SECOND QUARTER 1996 GROUNDWATER MONITORING RESULTS	ADMIN RECORD INFO REPOSITORY	GW MONITORING	1 2 3 4 5 6 8 10 11 17	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000409 LTR 000000000000000 0034	11/13/96 09/23/96 00000 10.1	DTSC LONG BEACH I. HIRBAWI SOUTHWEST DIVISION M. GONZALES	COMMENTS REGARDING DRAFT FOR PUBLIC REVIEW ACTION MEMORANDUM FOR NTCRA AT SITE 1, 3, AND 8 W/ENCLS	ADMIN RECORD INFO REPOSITORY	COMMENTS ACTMEMO NTCRA	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000410 LTR 000000000000000 0002	11/13/96 09/24/96 00000 01.6	DTSC LONG BEACH S. LOWE SOUTHWEST DIVISION M. GONZALES	DESIGNATION OF REMEDIAL PROJECT MANAGER	ADMIN RECORD INFO REPOSITORY			SOUTHWEST DIVISION NAF EL CENTRO
N60042 000404 XMTL N6781192D4670 0024	10/16/96 10/14/96 00090 07.7	BNI SAN DIEGO A. FRANKS FOR SOUTHWEST DIVISION R. SELBY	RESPONSES TO REGULATORY COMMENTS ON DRAFT EE/CA AND ACTION MEMORANDUM DOCUMENTS FOR SITES, 1,3, AND 8 W/ENCLS	ADMIN RECORD INFO REPOSITORY	RESPONSE EE/CA(*) ACTMEMO	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY

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N60042 000405 XMTL N6871192D4670 0000	10/16/96 10/16/96 00090 02.4	BNI SAN DIEGO A. FRANKS FOR SOUTHWEST DIVISION R. SELBY	TRANSMITTAL OF REVISIONS TO DRAFT FOR PUBLIC REVIEW EE/CA AND ACTION MEMORANDUM DOCUMENTS FOR SITES 1,3, AND 8 W/ENCLS	ADMIN RECORD INFO REPOSITORY	EE/CA(*) ACTMEMO	1 3 8	SOUTHWEST DIVISION EL CENTRO NAF EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000406 XMTL N6871192D4670 0003	10/31/96 10/30/96 00090 10.5	BNI SAN DIEGO W. CLEMENTS SOUTHWEST DIVISION R. SELBY	OCTOBER 18, 1996, CONFERENCE CALL MINUTES REGARDING PUBLIC REVIEW OF REMOVAL ACTION DOCUMENTS FOR NAF	ADMIN RECORD INFO REPOSITORY	MTG MINS REMOVAL	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000407 XMTL N6871192D4670 0004	10/31/96 10/31/96 00090 10.5	BNI SAN DIEGO W. CLEMENTS SOUTHWEST DIVISION R. SELBY	OCTOBER 17, 1996 CONFERENCE CALL MINUTES REGARDING NAVY RESPONSE TO REGULATORY COMMENTS ON NAF REMOVAL ACTION DOCUMENTS FOR SITES, 1,3, & 8	ADMIN RECORD INFO REPOSITORY	MTG MINS RESPONSE COMMENTS REMOVAL	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000408 RPT N6871192D4670 0700	11/12/96 11/06/96 00100 03.4	BNI SAN DIEGO W.CLEMENTS SOUTHWEST DIVISION R. SELBY	THIRD QUARTER 1996 GROUNDWATER MONITORING RESULTS	ADMIN RECORD INFO REPOSITORY	GW MONITORING	1 2 3 4 5 6 8 10 11 17	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000411 XMTL N6871192D4670 0022	01/22/97 11/27/96 00124 01.6	BECHTEL NATIONAL INC W.T. CLEMENTS SOUTHWEST DIVISION R. SELBY	CTO-0124 T03: CRSS ACTIVITIES AT NAF EL CENTRO, WASTE CHARACTERIZATION SAMPLING WORK PLAN FOR SITE 3 AND SITE 8 (DRAFT) REV. 0	ADMIN RECORD INFO REPOSITORY	WORK PLAN SAP	3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000421 XMTL N6871192D4670 0004	03/27/97 12/04/96 00090 02.7	BECHTEL NATIONAL INC W.CLEMENTS SOUTHWEST DIVISION R. SELBY	NOVEMBER 19, 1996, MEETING MINUTES FROM CONFERENCE CALL WITH DTSC	ADMIN RECORD INFO REPOSITORY	MTG MINS REMOVAL EE\CA	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000422 XMTL N6871192D4670 0002	03/27/97 12/04/96 00090 02.7	BECHTEL NATIONAL INC W.CLEMENTS SOUTHWEST DIVISION R. SELBY	CONTACT REPORT REGARDING REMOVAL ACTIONS AT SITES 1,3, AND 8 DATED NOVEMBER 22, 1996 - TELECON WITH MUNAS (DTSC SACRAMENTO)	ADMIN RECORD INFO REPOSITORY	REMOVAL	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000423 XMTL N6871192D4670 0002	03/27/97 12/04/96 00090 02.7	BECHTEL NATIONAL INC W.CLEMENTS SOUTHWEST DIVISION R. SELBY	CONTACT REPORT REGARDING REMOVAL ACTIONS AT SITES 1,3, AND 8 DATED DECEMBER 3, 1996 - TELECON WITH I. HIRBAWI (DTSC LONG BEACH)	ADMIN RECORD INFO REPOSITORY	REMOVAL	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY

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N60042 000424 XMTL N6871192D4670 0004	03/27/97 12/11/96 00100 02.7	BECHTEL NATIONAL INC W.CLEMENTS SOUTHWEST DIVISION R. SELBY	REVISION OF DELIVERABLE SCHEDULES	ADMIN RECORD INFO REPOSITORY			SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000412 LTR 00000000000000 0009	01/22/97 12/17/96 00100 01.6	DTSC LONG BEACH Y. SANCHEZ SOUTHWEST DIVISION M. GONZALES	COMMENTS ON THE GROUNDWATER MONITORING REPORT SECOND QUARTER 1996 DTD SEPTEMBER 1996 & THIRD QUARTER DTD NOVEMBER 1996 W/ENCLS	ADMIN RECORD INFO REPOSITORY	COMMENTS GW MONITORING		SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000417 LTR 000000000000000 0049	03/03/97 01/09/97 00000 01.6	DTSC LONG BEACH M. GASLAN STATE CLEARING HOUSE M. CHIRIATI, JR	PUBLIC REVIEW OF THE PROPOSED CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)DRAFT MITIGATED NEGATIVE DECLARATION FOR 3 PROPOSED NTCRA AT SITES 1,3, AND 8 W/ENCLS	ADMIN RECORD INFO REPOSITORY	CEQA NTCRA	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000427 RPT N6871192D4670 0200	04/03/97 01/10/97 00100 03.4	BECHTEL NATIONAL INC W. CLEMENTS SOUTHWEST DIVISION R. SELBY	DRAFT DATA GAPS STUDY REPORT	ADMIN RECORD INFO REPOSITORY	DATA BACKGROUND SOIL SEDIMENTS	1 3 4 10 12 13 17 AOPC 1 AOPC 2	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000416 LTR 000000000000000 0002	03/03/97 01/13/97 00000 01.6	DTSC LONG BEACH Y. SANCHEZ SOUTHWEST DIVISION M. GONZALES	APPROVAL OF WASTE CHARACTERIZATION SAMPLING WORK PLAN FOR SITE 3, AND SITE 8, DATED NOVEMBER 27, 1996	ADMIN RECORD INFO REPOSITORY	SA WORK PLAN	3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000467 MISC 000000000000000 0021	10/13/97 02/01/97 00000 01.1	DTSC SACRAMENTO J. CHRISTOPHER NAF EL CENTRO	FINAL POLICY: SELECTING INORGANIC CONSTITUENTS AS CHEMICALS OF POTENTIAL CONCERN AT RISK ASSESSMENT AT HAZARDOUS WASTE SITES AND PERMITTED FACILITIES	ADMIN RECORD INFO REPOSITORY	INORG RISK ASSESSMENT HAZ WASTE PERMIT		SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000415 MEMO N6871193D1459 0055	03/03/97 02/07/97 DO#03 02.1	OHM REMEDIATION J. PEPIN SOUTHWEST DIVISION	FINAL TECHNICAL MEMORANDUM, IRP SITE 16 PRECONSTRUCTION SAMPLING ACTIVITIES AND RESULTS	ADMIN RECORD INFO REPOSITORY	TECH MEMO RESULTS IRP	16	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000435 RPT N6871192D4670 0012	04/29/97 02/11/97 00100 11.0	BECHTEL NATIONAL INC W. CLEMENTS VARIOUS AGENCIES	REPORT OF RADIOLOGICAL SURVEY FINDINGS SITES 1, 2, AND 8 AT NAF EL CENTRO	ADMIN RECORD INFO REPOSITORY	RESULTS SA	1 2 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY

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N60042 000428 RPT N6871192D4670 0200	04/08/97 02/12/97 00100 03.4	BECHTEL NATIONAL INC W. CLEMENTS SOUTHWEST DIVISION R. SELBY	FOURTH QUARTER 1996 GROUNDWATER MONITORING RESULTS DRAFT FINAL	ADMIN RECORD INFO REPOSITORY	GW MONITORING RESULTS DATA EVALUATION	1 2 3 4 5 6 8 10 11 17	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000429 RPT N6871192D4670 0200	04/08/97 02/12/97 00090 02.5	BECHTEL NATIONAL INC J. KLUSENER SOUTHWEST DIVISION R. SELBY	FINAL ACTION MEMO/REMEDIAL ACTION WORK PLAN FOR NON-TIME CRITICAL REMOVAL ACTION SITE 1, MAGAZINE ROAD LANDFILL	ADMIN RECORD INFO REPOSITORY	ACTMEMO RA WORK PLAN NTCRA	1	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000430 RPT N6871192D4670 0200	04/08/97 02/12/97 00090 02.5	BECHTEL NATIONAL INC J. KLUSENER SOUTHWEST DIVISION R. SELBY	FINAL ACTION MEMO/REMEDIAL ACTION WORK PLAN FOR NON-TIME CRITICAL REMOVAL ACTION SITE 3, SLUDGE BURIAL AREA	ADMIN RECORD INFO REPOSITORY	ACTMEMO RA WORK PLAN NTCRA	3	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000431 RPT N6871192D4670 0200	04/08/97 02/12/97 00090 02.5	BECHTEL NATIONAL INC J. KLUSENER SOUTHWEST DIVISION R. SELBY	FINAL ACTION MEMO/REMEDIAL ACTION WORK PLAN FOR NON-TIME CRITICAL REMOVAL ACTION SITE 8, SCRAPYARD	ADMIN RECORD INFO REPOSITORY	ACTMEMO RA WORK PLAN NTCRA	8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000425 LTR 000000000000000 0004	03/27/97 02/27/97 00000 02.7	DTSC LONG BEACH J. SCANDURA SOUTHWEST DIVISION M. GONZALES	DTSC APPROVAL OF ACTION MEMORANDUM/REMOVAL ACTION WORK PLANS FOR SITE 1, SITE 8, AND ACTION MEMO/RAW FOR SITE 3 - AND ACKNOWLEDGEMENT OF CEQA PUBLIC NOTICE	ADMIN RECORD INFO REPOSITORY	ACTMEMO WORK PLAN LANDFILL PUBNOT CEQA	1 8 3	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000436 LTR 000000000000000 0002	04/29/97 02/27/97 00090 10.1	DTSC LONG BEACH J. SCANDURA SOUTHWEST DIVISION M. GONZALES	COMMENTS ON ACTION MEMO/REMOVAL ACTION WORKPLANS FOR SITE 1 & 8, AND ACTION MEMO/REMEDIAL ACTION PLAN FOR SITE 3 (REFERENCE DOC.#000425)	ADMIN RECORD INFO REPOSITORY	COMMENTS ACTMEMO WORK PLAN REMOVAL	1 8 3	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000469 LTR 000000000000000 0002	11/11/97 02/27/97 00000 01.6	EPA LONG BEACH J. SCANDURA SOUTHWEST DIVISION M. GONZALES	FINAL APPROVAL OF THE SITE 3 ACTION MEMORANDUM/ REMEDIAL ACTION PLAN AND THE ACTION MEMORANDUM/ REMOVAL ACTION WORKPLANS FOR SITES 1 AND 8	ADMIN RECORD INFO REPOSITORY	ACTMEMO RA WORK PLAN	1 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY

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N60042 000420 LTR N6871192D4670 0005	02/07/97 03/03/97 00100 01.6	BECHTEL NATIONAL INC W.CLEMENTS SOUTHWEST DIVISION R. SELBY	RESPONSE TO REGULATORY COMMENTS ON THE SECOND AND THIRD QUARTER 1996 GROUNDWATER MONITORING RESULTS	ADMIN RECORD INFO REPOSITORY	RESPONSE COMMENTS GW MONITORING RESULTS	7 1 2	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000426 LTR 000000000000000 0002	04/03/97 03/07/97 00000 02.7	NAF EL CENTRO P. MADISON DTSC J. SCANDURA	DON RESPONSE TO DTSC CONCERNS RE: NON-TIME CRITICAL REMOVAL ACTIONS FOR IR SITES 1, 3 AND 8; PUBLIC NOTIFICATION REQUIREMENTS AND SAMPLINGS	ADMIN RECORD INFO REPOSITORY	NTCRA IR PUBNOT	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000456 MEMO 000000000000000 0003	10/13/97 03/21/97 00000 01.6	DTSC SACRAMENTO M. MCCRINK SITE MITIGATION DIV. Y. SANCHEZ	COMMENTS ON THE FINAL TECHNICAL MEMORANDUM, IRP SITE 16 PRECONSTRUCTION SAMPLING ACTIVITIES AND RESULTS DATED FEBRUARY 7, 1997 (961368A)	ADMIN RECORD INFO REPOSITORY	COMMENTS TECH MEMO IRP RESULTS	16	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000434 LTR 000000000000000 0005	04/29/97 04/03/97 00100 10.1	DTSC LONG BEACH Y. SANCHEZ SOUTHWEST DIVISION M. GONZALES	COMMENTS ON GROUNDWATER MONITORING REPORT, FOURTH QUARTER 1996, DATED FEBRUARY 1997 W/ENCLOSURE OF SEVERAL REGULAORS' COMMENTS	ADMIN RECORD INFO REPOSITORY	COMMENTS GW MONITORING	1 2 3	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000432 DWG N6871192D4670 0045	04/10/97 04/04/97 00124 01.1	BECHTEL NATIONAL INC W. CLEMENTS VARIOUS AGENCIES	SITE 1 MONOLITHIC COVER CONSTRUCTION SPECIFICATIONS AND DESIGN DRAWINGS FOR NAF W/ENCLS (SIX DRAWINGS INCLULDED)	ADMIN RECORD INFO REPOSITORY	MAP	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000439 RPT N6871192D4670 0060	05/07/97 04/07/97 00124 01.4	BECHTEL NATIONAL INC W. CLEMENTS VARIOUS REGULATORS	DRAFT TECHNICAL MEMORANDUM, WASTE CHARACTERIZATION RESULTS AT SITES 1, 3, & 8	ADMIN RECORD INFO REPOSITORY	TECH MEMO CHAR RESULTS	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000433 MM N6871192D4670 0003	04/29/97 04/16/97 00100 10.4	BECHTEL NATIONAL INC VARIOUS AGENCIES	APRIL 16, 1997 CONFERENCE CALL MEETING MINUTES TO DISCUSS RISK SCREENING PROCEDURES OF GROUNDWATER RESULTS	ADMIN RECORD INFO REPOSITORY	MTG MINS RISK GW RESULTS	2 7	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000437 MM N6871192D4670 0003	05/05/97 04/23/97 00100 10.4	BECHTEL NATIONAL INC SOUTHWEST DIVISION R. SELBY	APRIL 23 1997 MEETING MINUTES FOR CTO-150 KICK OFF MEETING AND CTO-100 GROUNDWATER REPORT	ADMIN RECORD INFO REPOSITORY	MTG MINS GW	2 7	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY

NAF EL CENTRO DRAFT ADMINISTRATIVE RECORD FILE INDEX UPDATE-SORT BY DOC. DATE

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N60042 000438 MM N6871192D4670 0003	05/05/97 04/24/97 00100 10.4	BECHTEL NATIONAL INC SOUTHWEST DIVISION R. SELBY	APRIL 24 1997 MEETING MINUTES DISCUSSING BACKGROUND METALS CALCULATION FOR CTO-100 GROUNDWATER REPORT	ADMIN RECORD INFO REPOSITORY	GW MTG MINS METALS	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000461 LTR 000000000000000 0004	10/13/97 04/28/97 00000 01.6	SOUTHWEST DIVISION M. GONZALES DTSC LONG BEACH Y. SANCHEZ	RESPONSE TO COMMENTS ON THE FOURTH QUARTER GROUNDWATER MONITORING RESULTS FOR NAF DATED FEBRUARY 1997	ADMIN RECORD INFO REPOSITORY	RESPONSE COMMENTS GW MONITORING	1 2 3 10	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000462 LTR 000000000000000 0002	10/13/97 04/30/97 00000 01.6	SOUTHWEST DIVISION M. GONZALES DTSC LONG BEACH Y. SANCHEZ	REQUEST FOR NO FURTHER ACTION ON IR SITE 9, TRANSFORMER STORAGE AREA	ADMIN RECORD INFO REPOSITORY	REQUEST NFA IR	9	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000440 LTR 000000000000000 0001	05/15/97 05/02/97 00100 01.6	RWQCB PALM DESERT J. STORMO DTSC LONG BEACH Y. SANCHEZ	LETTER INDICATING COMPLETING REVIEW OF DRAFT DATA GAPS STUDY, DATED JANUARY 1997. REPORT APPEARS ADEQUATE	ADMIN RECORD INFO REPOSITORY	DATA COMMENTS		SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000464 LTR 000000000000000 0004	10/13/97 05/05/97 00000 01.6	SOUTHWEST DIVISION R. PARDY DTSC LONG BEACH Y. SANCHEZ	SCHEDULE FOR SITES 2/7, ECOLOGICAL ASSESSMENT AND GROUNDWATER MONITORING	ADMIN RECORD INFO REPOSITORY	ASSESSMENT GW MONITORING	2 7	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000463 LTR 000000000000000 0004	10/13/97 05/21/97 00000 01.6	DTSC LONG BEACH Y. SANCHEZ SOUTHWEST DIVISION M. GONZALES	COMMENTS ON THE QUARTERLY PROGRESS REPORT FOR FLUID INJECTION WITH VACUUM EXTRACTION AT SITE 7 DATED FEBRUARY 18, 1997	ADMIN RECORD INFO REPOSITORY	COMMENTS	7	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000455 LTR 000000000000000 0001	10/13/97 05/23/97 00000 01.6	CRWQCB PALM DESERT J. STORMO SOUTHWEST DIVISION M. GONZALES	REQUEST FOR WRITTEN CORRESPONDENCE BY SEPTMEBER 15, 1997 THAT DETAILS ACTIONS BY THE MILITARY TO PREVENT GROUND OR SURFACE WATERS FROM INUNDATING SITE 1	ADMIN RECORD INFO REPOSITORY	REQUEST GW WATER	1	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000465 LTR 000000000000000 0002	10/13/97 05/23/97 00000 01.6	DTSC LONG BEACH J. SCANDURA SOUTHWEST DIVISION M. GONZALES	DTSC, CRWQCB, AND PALM DESERT REGION 7 COMPLETION OF REVIEWING THE FINAL TECHNICAL MEMORANDUM IRP SITE 16 PRECONSTRUCTION SAMPLING ACTIVITIES & RESULTS- 2/7/97	ADMIN RECORD INFO REPOSITORY	TECH MEMO SA RESULTS	16	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000457 LTR 000000000000000 0002	10/13/97 06/10/97 00000 01.6	CRWQCB PALM DESERT J. STORMO SOUTHWEST DIVISION M. GONZALES	COMMENTS ON THE DRAFT TECHNICAL MEMORANDUM WASTE CHARACTERIZAITON RESULTS AT SITES 1,3, AND 8 DATED APRIL 1997	ADMIN RECORD INFO REPOSITORY	COMMENTS TECH MEMO RESULTS	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY

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N60042 000458 LTR 000000000000000 0022	10/13/97 06/23/97 00000 01.6	SOUTHWEST DIVISION K. KNIGHT US FISH & WILDLIFE BRADLEY/WHITE	REQUESTING COMMENTS TO FACILITATE THE ENVIRONMENTAL IMPACT STATEMENT WITHIN 15 DAYS; WITH ENCLOSURE OF THE PROPOSED ACTION AND ALTERNATIVES	ADMIN RECORD INFO REPOSITORY	REQUEST COMMENTS EIS		SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000446 PLAN N6871193D1459 0500	10/10/97 07/07/97 DO160 03.3	OHM REMEDIATION K. FABIAN SOUTHWEST DIVISION D. JESPERSEN	DRAFT REMOVAL ACTION WORK PLAN SITES 1, 3 AND 8 REMOVAL ACTION	ADMIN RECORD INFO REPOSITORY	WORK PLAN REMOVAL LANDFILL	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000441 RPT N6871192D4670 3000	09/25/97 07/17/97 00100 01.2	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	DRAFT ANNUAL GROUNDWATER MONITORING REPORT DATED JULY 1997 VOLUMES 1 THROUGH 3	ADMIN RECORD INFO REPOSITORY	GW MONITORING		SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000459 LTR 000000000000000 0005	10/13/97 07/18/97 00000 01.6	DTSC LONG BEACH Y. SANCHEZ SOUTHWEST DIVISION M. GONZALES	COMMENTS ON THE DRAFT TECHNICAL MEMORANDUM WASTE CHARACTERIZATION RESULTS AT SITE 1,3 AND 8 DATED APRIL 1997	ADMIN RECORD INFO REPOSITORY	COMMENTS TECH MEMO CHAR RESULTS	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000460 LTR 000000000000000 0012	10/13/97 07/30/97 00000 01.6	DTSC LONG BEACH Y. SANCHEZ SOUTHWEST DIVISION M. GONZALES	RESPONSE TO DTSC COMMENTS ON THE DRAFT DATA GAPS STUDY REPORT DATED JANUARY 1997	ADMIN RECORD INFO REPOSITORY	RESPONSE COMMENTS DATA	4 12 1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000447 RPT N6871193D1459 0200	10/10/97 07/31/97 DO#09 01.1	OHM REMEDIATION J. PEPIN SOUTHWEST DIVISION D. JESPERSEN	CLOSURE REPORT, REMEDIATION OF HYDROCARBON CONTAMINATED SOIL AND GROUNDWATER AT FUELING FARM BY FLUID INJECTION WITH VACUUM EXTRACTION	ADMIN RECORD INFO REPOSITORY	CLOSURE SOIL GW	14 15	SOUTHWEST DIVISION NAF EL CENTRO
N60042 000453 LTR 000000000000000 0006	10/13/97 08/01/97 00000 01.6	DTSC LONG BEACH J. SCANDURA NAF EL CENTRO P. MADISON	CONFIRMATION OF LETTER DTD MAY 23, 1997 REGARDING THE DTSC REVIEW OF THE FINAL TECHNICAL MEMORANDUM, IRP SITE 16, DATED FEBRUARY 7, 1997	ADMIN RECORD INFO REPOSITORY	TECH MEMO IRP BACKGROUND	16	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000448 PLAN N6871192D4670 0050	10/10/97 08/04/97 00150 03.3	BECHTEL NATIONAL INC C. CARLISLE SOUTHWEST DIVISION R. SELBY	DRAFT WORK PLAN ADDENDUM/FIELD SAMPLING PLAN RISK-BASED CORRECTIVE ACTION AT SITE 7	ADMIN RECORD INFO REPOSITORY	WORK PLAN SAP RISK	7 2 4 5 6 7 8 9 11	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY

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N60042 000454 LTR 000000000000000 0005	10/13/97 08/04/97 00000 01.6	DTSC LONG BEACH Y. SANCHEZ SOUTHWEST DIVISION M. GONZALES	COMMENTS ON THE REPORT OF RADIOLOGICL SURVEY FINDINGS, SITES 1,2, AND 8 DTED FEBRUARY 11, 1997	ADMIN RECORD INFO REPOSITORY	COMMENTS	1 2 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000452 MEMO N6871192D4670 0005	10/13/97 08/05/97 00124 10.4	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	RESPONSES TO REGULATORY COMMENTS ON THE TECHNICAL MEMORANDUM WASTE CHARACTERIZATION RESULTS AT SITES 1,3 AND 8	ADMIN RECORD INFO REPOSITORY	RESPONSE COMMENTS TECH MEMO RESULTS	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000496 LTR 000000000000000 0002	10/09/98 08/20/97 00000 01.6	CRWQCB PALM DESERT P. GRUENBERG NAF EL CENTRO P. MADISON	CRWQCB ACCEPTANCE OF CLOSURE REPORT "REMEDIATION OF HYDROCARBON-CONTAMINATED SOIL AND GROUNDWATER AT FUEL FARM BY FLUID INJECTION WITH VACUUM EXTRACTION"	ADMIN RECORD INFO REPOSITORY	CLOSURE SOIL GW MONITORING WELLS FUEL FARM	14 15	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000497 PLAN N6871193D145900 0100	10/09/98. 08/22/97 DO106 03.5	OHM REMEDIATION G. JAMES SOUTHWEST DIVISION D. JESPERSEN	FINAL HEALTH AND SAFETY PLAN	ADMIN RECORD INFO REPOSITORY	H&SP		SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000471 MISC N6871192D4670 0007	11/12/97 09/03/97 00124 10.1	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	RESPONSE TO DTSC COMMENTS ON THE SITE 1 MONOLITHIC COVER CONSTRUCTION SPECIFICATIONS AND DESIGN DRAWINGS FOR NAF EL CENTRO	ADMIN RECORD INFO REPOSITORY	RESPONSE COMMENTS	1	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000498 LTR 000000000000000 0003	10/12/98 09/03/97 00000 01.6	SOUTHWEST DIVISION M. GONZALES CRWQCB PALM DESERT J. STORMO	RESPONSE TO CRWQCBS' CONCERNS REGARDING SUBMERGENCE OF MAGAZINE ROAD LANDFILL, IR SITE 1	ADMIN RECORD INFO REPOSITORY	LANDFILL MONITORING WELLS GW	1	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000442 MISC N6871192D4670 0018	09/25/97 09/08/97 00100 10.1	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	RESPONSE TO REGULATORY COMMENTS ON THE DRAFT DATA GAPS STUDY NAF EL CENTRO	ADMIN RECORD INFO REPOSITORY	RESPONSE COMMENTS	1 3 8 4 10 12E 12W AOPC 1 12 13 17	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY

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N60042 000499 LTR 000000000000000 0003	10/12/98 09/08/97 00000 01.6	SOUTHWEST DIVISION M. GONZALES VARIOUS AGENCIES	REQUEST FOR DTSC IDENTIFICATION OF STATE ARARs FOR A REMOVAL ACTION AT SITES 12 AND 17	ADMIN RECORD INFO REPOSITORY	ARAR METALS RA	12 17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000500 LTR 000000000000000 0003	10/12/98 09/08/97 00000 01.6	SOUTHWEST DIVISION M. GONZALES VARIOUS AGENCIES	REQUEST FOR DTSC IDENTIFICATION OF STATE ARARs FOR A REMOVAL ACTION AT SITE 2	ADMIN RECORD INFO REPOSITORY	ARAR SOIL METALS RA	2	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000443 RPT N6871192D4670 0094	09/25/97 09/11/97 00100 01.1	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	REVISIONS TO THE DRAFT DATA GAPS STUDY REPORT	ADMIN RECORD INFO REPOSITORY	DATA		SOUTHWEST DIVISION NAF EL CENTRO EL CENTOR LIBRARY BRAWLEY LIBRARY
N60042 000451 MM N6871192D4670 0003	10/13/97 09/11/97 00100 10.4	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	SEPTEMBER 11, 1997, ENVIRONMENTAL ACTIVITIES AT NAF EL CENTRO MEETING MINUTES	ADMIN RECORD INFO REPOSITORY	MTG MINS	2 12 17	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000501 LTR 000000000000000 0006	10/12/98 09/15/97 00000 10.1	DTSC LONG BEACH Y. SANCHEZ SOUTHWEST DIVISION M. GONZALES	COMMENTS ON THE SITE 1 MONOLITHIC COVER CONSTRUCTION SPECIFICATIONS AND DESIGN DRAWINGS	ADMIN RECORD INFO REPOSITORY	COMMENTS LANDFILL	1	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000502 LTR 000000000000000 0001	10/12/98 09/16/97 00000 01.6	CRWQCB PALM DESERT J. STORMO SOUTHWEST DIVISION M. GONZALES	CRWQCB ACCEPTANCE OF DRAFT WORK PLAN ADDENDUM/FIELD SAMPLING PLAN, RISK-BASED CORRECTIVE ACTION AT SITE 7	ADMIN RECORD INFO REPOSITORY	WORK PLAN RBCA	7	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000445 PLAN N6871192D4670 0075	09/26/97 09/22/97 00150 03.3	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	FINAL WORK PLAN ADDENDUM, RISK-BASED CORRECTIVE ACTION AT SITE 7	ADMIN RECORD INFO REPOSITORY	WORK PLAN RISK	7	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000444 MEMO N6871192D4670 0045	09/25/97 09/23/97 00124 11.0	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	FINAL TECHNICAL MEMORANDUM, WASTE CHARACTERIZATION RESULTS AT SITES 1,3, AND 8, DATED SEPTEMBER 1997	ADMIN RECORD INFO REPOSITORY	TECH MEMO RESULTS	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000449 RPT N6871192D4670 0066	10/10/97 10/01/97 00150 01.3	BECHTEL NATIONAL INC G. CAGLE SOUTHWEST DIVISION R. SELBY	DRAFT ECOLOGICAL SCOPING ASSESSMENT	ADMIN RECORD INFO REPOSITORY	ASSESSMENT RISK	1 2 3 4	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY

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N60042 000449 continued							
						5 6 7 8 9 10 11 12 13 14 15 16 17	
N60042 000503 PLAN N6871193D145900 0330	10/12/98 10/01/97 DO106 03.3	OHM REMEDIATION S. BORNHOFT SOUTHWEST DIVISION D. JESPERSEN	FINAL WORK PLAN, SITES 1, 3 AND 8 REMOVAL ACTION	ADMIN RECORD INFO REPOSITORY	WORK PLAN RA LANDFILL SLUDGE SCRAPYARD SOIL GW MONITORING WELLS	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000504 LTR 000000000000000 0002	10/12/98 10/06/97 00000 01.6	SOUTHWEST DIVISION M. BONZALES VARIOUS AGENCIES	LETTER TRANSMITTING THE FINAL WORK PLAN FOR SITES 1, 3 AND 8 REMOVAL ACTION (W/O ENCLOSURE)(REF DOC #000503)	ADMIN RECORD INFO REPOSITORY	WORK PLAN RA	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000505 LTR 000000000000000 0002	10/12/98 10/06/97 00000 01.6	DTSC LONG BEACH Y. SANCHEZ SOUTHWEST DIVISION M. GONZALES	LETTER TRANSMITTING DTSCs STATE ARARS FOR REMOVAL ACTIONS AT SITES 2, 12 AND 17 (W/O ENCLOSURE)	ADMIN RECORD INFO REPOSITORY	ARAR RA LANDFILL	2 12 17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000450 PLAN N6871193D1459 0005	10/13/97 10/07/97 DO106 10.1	OHM REMEDIATION INC G. JAMES SOUTHWEST DIVISION D. JESPERSEN	RESPONSE TO COMMENTS TO THE DRAFT WORK PLAN SITE 1,3 AND 8	ADMIN RECORD INFO REPOSITORY	RESPONSE COMMENTS WORK PLAN	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000470 MISC N6871192D4670 0036	11/11/97 10/16/97 00100 10.1	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	RESPONSE TO DTSC COMMENTS ON BACKGROUND METALS CONCENTRATIONS	ADMIN RECORD INFO REPOSITORY	RESPONSE COMMENTS BACKGROUND METALS	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY

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N60042 000474 MM N6871192D4670 0002	11/26/97 10/30/97 00150 10.4	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	OCTOBER 30, 1997, MEETING MINUTES FOR DISCUSSION OF FIELD RESULTS FOR SITE 7 AND PROPOSED BORING LOCATIONS	ADMIN RECORD INFO REPOSITORY	MTG MINS RESULTS	7	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000473 MM N6871192D4670 0002	11/12/97 11/03/97 00150 10.4	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	NOVEMBER 3, 1997, MEETING MINUTES FOR CTO-150 DISCUSSION OF SITE 7 FIELD	ADMIN RECORD INFO REPOSITORY	MTG MINS	7	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000472 PLAN N6871192D4670 0010	11/12/97 11/04/97 00150 03.3	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	WORK PLAN FOR GROUNDWATER MONITORING AT THE FUEL FARM (SITES 14 AND 15)	ADMIN RECORD INFO REPOSITORY	WORK PLAN GW MONITORING FUEL FARM	14 15	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO BRAWELY LIBRARY
N60042 000477 MISC N6871192D4670 0009	03/18/98 11/12/97 00100 10.1	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	RESPONSE TO COMMENTS ON THE DATA GAPS STUDY REPORT REVISIONS DATED JANUARY 1998	ADMIN RECORD INFO REPOSITORY	RESPONSE COMMENTS DATA LANDFILL AOPC SOIL	1 3 4 8 AOPC 1 9 10 12 13 17	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000506 LTR 000000000000000 0002	10/12/98 11/12/97 00000 01.6	SOUTHWEST DIVISION M. GONZALES DTSC LONG BEACH Y. SANCHEZ	NAVY REQUEST FOR TRANSFER OF SITES 4, 5, 6, 7 AND 11 FROM CERCLA TO LUFT PROGRAM.	ADMIN RECORD INFO REPOSITORY	CERCLA LUFT FUEL FARM METALS SOIL	4 5 6 7 11	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000507 LTR 000000000000000 0002	10/12/98 11/12/97 00000 01.6	SOUTHWEST DIVISION M. GONZALES CRWQCB PALM DESERT J. STORMO	NAVY RESPSONSE TO CRWQCB CONCERNS REGARDING POTENTIAL USE OF PERCHLORIC ACID OR OTHER CHEMICALS THAT MAY CAUSE PERCHLORATE CONTAMINATION	ADMIN RECORD INFO REPOSITORY	ORDNANCE		SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000475 MM N6871192D4670 0000	12/17/97 11/13/97 00100 10.4	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	NOVEMBER 13, 1997, MEETING MINUTES FOR EL CENTRO TEAM	ADMIN RECORD INFO REPOSITORY	MTG MINS	2 12 17 1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY

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N60042 000476 DWG N6871192D4670 0035	12/17/97 12/03/97 00124 01.1	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	SITE 1 MONOLITHIC COVER CONSTRUCTION SPECIFICATION AND DESIGN DRAWINGS FOR NAVAL AIR FACILITY, EL CENTRO DATED DECEMBER 1997	ADMIN RECORD INFO REPOSITORY	MAP LANDFILL	1	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000508 LTR 000000000000000 0002	10/12/98 12/15/97 00000 10.1	CRWQCB PALM DESERT J. STORMO DTSC LONG BEACH I. HIRBAWI	COMMENTS ON "SITE 1 MONOLITHIC COVER CONSTRUCTION SPECIFICATIONS AND DESIGN DRAWINGS", FINAL VERSION	ADMIN RECORD INFO REPOSITORY	COMMENTS LANDFILL	1	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000509 LTR 000000000000000 0002	10/13/98 01/12/98 00000 01.6	DTSC LONG BEACH S. LOWE NAF EL CENTRO F. RIVERA	ASSIGNMENT OF R. HUBBELL AS DTSC's RPM FOR EL CENTRO	ADMIN RECORD INFO REPOSITORY			SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000479 MISC N6871192D4670 0059	03/18/98 01/29/98 00100 01.1	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	SITE 2 SURFACE WATER SAMPLING RESULTS DATED JANUARY 1998	ADMIN RECORD INFO REPOSITORY	WATER SA RESULTS	2	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000480 MM N6871193D1459 0002	03/18/98 01/29/98 DO120 10.4	OHM REMEDIATION S. BORNHOFT SOUTHWEST DIVISION D. JESPERSEN	JANUARY 29, 1998, PRECONSTRUCTION MEETING MINUTES INSTALLATION RESTORATION PROGRAM SITES 1,3, AND 8	ADMIN RECORD INFO REPOSITORY	MTG MINS PUB. PARTICIPATI IRP	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000478 MISC N6871192D4670 0022	03/18/98 03/06/98 00150 01.1	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	NOVEMBER 1997 GROUNDWATER MONITORING RESULTS FOR THE FUEL FARM (SITES 14 AND 15) DATED MARCH 6, 1998	ADMIN RECORD INFO REPOSITORY	GW MONITORING RESULTS FUEL	14 15	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBRARY
N60042 000481 RPT N6871192D4670 0450	03/18/98 03/10/98 00100 01.1	BECHTEL NATIONAL INC C. CARLISLE SOUTHWEST DIVISION R. SELBY	FINAL DATA GAPS STUDY REPORT DATED MARCH 1998	ADMIN RECORD INFO REPOSITORY	DATA EVALUATION LANDFILL SOIL PA SI	AOPC 1 AOPC 2 1 3 4 9 10 12 13 17	SOUTHWEST DIVISION NAF EL CENTRO EL CENTRO LIBRARY BRAWLEY LIBARY
N60042 000510 MM N6871192D467000 0004	10/13/98 03/17/98 00100 01.1	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	MEETING MINUTES FOR FEBRUARY 26, 1998 EL CENTRO TEAM	ADMIN RECORD INFO REPOSITORY	MTG MINS GW MONITORING WELLS	10 4 5 6	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY

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N60042 000510 continued							
					SOIL	7 11 2 3 1 8 9 12 13 17	
N60042 000511 PLAN N6871193D145900 0009	10/13/98 03/18/98 DO106 03.3	OHM REMEDIATION E. BOND VARIOUS AGENCIES	FINAL WORK PLAN, SITES 1, 3 AND 8, REMOVAL ACTION, REVISION 1	ADMIN RECORD INFO REPOSITORY	WORK PLAN RA SOIL METALS	1 3 8	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000512 MM N6871192D467000 0006	10/13/98 03/24/98 00150 01.1	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	MEETING MINUTES - PRELIMINARY RESULTS, CTO-0150	ADMIN RECORD INFO REPOSITORY	MTG MINS RBCA GW LUFT	7	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000513 LTR 000000000000000 0002	10/13/98 04/09/98 00000 01.6	DTSC CYPRESS R. HUBBELL NAF EL CENTRO F. RIVERA	DTSC CONCURRENCE WITH DON RECOMMENDATION TO TRANSFER SITES 4, 5, 6, 7 AND 11 FROM CERCLA TO LUFT PROGRAM	ADMIN RECORD INFO REPOSITORY	CERCLA LUFT	4 5 6 7 11	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000514 PLAN N6871192D467000 0125	10/13/98 04/20/98 00100 10.2	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	DRAFT COMMUNITY RELATIONS PLAN	ADMIN RECORD INFO REPOSITORY	CRP IRP	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY

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N60042 000515 MISC N6871192D467000 0014	10/13/98 04/28/98 00100 10.1	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	RESPONSE TO COMMENTS ON DRAFT ANNUAL GROUNDWATER MONITORING REPORT	ADMIN RECORD INFO REPOSITORY	RESPONSE COMMENTS PCB GW	13 2 3 1 8 7 11	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000516 RPT N6871192D467000 0450	10/13/98 04/29/98 00100 01.1	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	FINAL ANNUAL GROUNDWATER MONITORING REPORT - VOLUMES 1 AND 4	ADMIN RECORD INFO REPOSITORY	GW MONITORING LANDFILL WELLS DATA	1 2 3 4 5 6 8 10 11 17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000517 LTR 000000000000000 0004	10/13/98 06/02/98 00000 01.6	DTSC CYPRESS R. HUBBELL NAF EL CENTRO F. RIVERA	DTSC REVIEW OF FINAL DATA GAPS STUDY REPORT WITH FINDINGS RE: SITES 4, 9, 10, 12, 13 & 17, AND AOPCs 1 & 2	ADMIN RECORD INFO REPOSITORY	AOPC LANDFILL MONITORING WELLS SLUDGE SOIL LUFT	4 9 10 12 13 17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000518 LTR 000000000000000 0002	10/13/98 06/12/98 00000 01.6	CRWQCB PALM DESERT R. PERDUE SOUTHWEST DIVISION M. RILEY	CRWQCB ACCEPTANCE OF "NO FURTHER ACTION" CLOSURE RECOMMENDATION FOR SITE 5	ADMIN RECORD INFO REPOSITORY	NFA GW SOIL	5	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000519 LTR 000000000000000 0001	10/13/98 06/12/98 00000 01.6	CRWQCB PALM DESERT R. PERDUE SOUTHWEST DIVISION M. RILEY	CRWQCB ACCEPTANCE OF "NO FURTHER ACTION" CLOSURE RECOMMENDATION FOR SITE 4	ADMIN RECORD INFO REPOSITORY	NFA GW SOIL	4	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000520 LTR 000000000000000 0001	10/13/98 06/12/98 00000 01.6	CRWQCB PALM DESERT R. PERDUE SOUTHWEST DIVISION M. RILEY	CRWQCB ACCEPTANCE OF "NO FURTHER ACTION" CLOSURE RECOMMENDATION FOR SITE 11	ADMIN RECORD INFO REPOSITORY	NFA GW SOIL	11	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000521 LTR 000000000000000 0002	10/13/98 06/12/98 00000 01.6	CRWQCB PALM DESERT R. PERDUE SOUTHWEST DIVISION M. RILEY	CRWQCB ACCEPTANCE OF "NO FURTHER ACTION" CLOSURE RECOMMENDATION FOR SITE 6	ADMIN RECORD INFO REPOSITORY	NFA GW SOIL	6	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY

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N60042 000522 LTR 000000000000000 0001	10/13/98 06/15/98 00000 01.6	CRWQCB PALM DESERT J. STORMO SOUTHWEST DIVISION M. RILEY	CRWQCB ACCEPTANCE OF "NO FURTHER ACTION" CLOSURE RECOMMENDATIONS FOR AOPCs 1 & 2 AND SITES 4, 9, 10, 12, 13 AND 17 FROM FINAL DATA GAPS STUDY REPORT	ADMIN RECORD INFO REPOSITORY	NFA AOPC	AOPC 1 AOPC 2 4 9 10 12 13 17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000523 MISC 000000000000000 0011	10/13/98 06/26/98 00000 10.1	DTSC CYPRESS R. HUBBELL NAF EL CENTRO F. RIVERA	DTSC COMMENTS ON DRAFT COMMUNITY RELATIONS PLAN	ADMIN RECORD INFO REPOSITORY	COMMENTS CRP		SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000524 LTR 000000000000000 0001	10/13/98 06/30/98 00000 01.6	CRWQCB PALM DESERT J. STORMO NAF EL CENTRO F. RIVERA	BENEFICIAL USE DESIGNATION FOR GROUND AND SURFACE WATER IN THE COLORADO RIVER BASIN REGION (WHICH INCLUDES NAFEC)	ADMIN RECORD INFO REPOSITORY	WATER GW		SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000525 PLAN N6871192D467000 0270	10/13/98 07/01/98 00100 03.3	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	DRAFT ACTION MEMORANDUM/REMOVAL ACTION WORK PLAN FOR NON-TIME-CRITICAL REMOVAL ACTION AT SITES 12 AND 17	ADMIN RECORD INFO REPOSITORY	RA WORK PLAN NTCRA DIOXIN SOIL GW	12 17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000526 PLAN N6871192D467000 0075	10/13/98 07/08/98 00150 02.5	BECHTEL NATIONAL INC J. BAILEY VARIOUS AGENCIES	RISK-BASED CORRECTIVE ACTION FOR IR SITE 7, MAY 1998 GROUNDWATER MONITORING RESULTS FOR SITES 5, 7, 14 & 15	ADMIN RECORD INFO REPOSITORY	RBCA GW MONITORING WELLS DATA	7 5 14 15	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000527 MISC N6871192D467000 0004	10/13/98 07/15/98 00100 01.1	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	REVISED COVER PAGES AND SPINES FOR FINAL ANNUAL GROUNDWATER MONITORING REPORT DATED APRIL 1998	ADMIN RECORD INFO REPOSITORY	GW MONITORING		SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000528 PLAN N6871192D467000 0135	10/13/98 07/28/98 00100 10.2	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	FINAL COMMUNITY RELATIONS PLAN	ADMIN RECORD INFO REPOSITORY	CRP CLEANUP IRP	1 2 3 4 5 6 7 8 9	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY

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N60042 000528 continued							
						10 11 12 13 14 15 16 17	
N60042 000529 MISC N6871192D467000 0016	10/13/98 08/04/98 00100 10.1	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	RESPONSE TO CAL-EPA DTSC COMMENTS ON THE DRAFT COMMUNITY RELATIONS PLAN DATED JULY 1998	ADMIN RECORD INFO REPOSITORY	CRP COMMENTS RESPONSE	2 3 4 7 8 12 17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000530 MISC 000000000000000 0080	10/13/98 08/13/98 00000 10.1	DTSC CYPRESS S. LOWE NAF EL CENTRO F. RIVERA	DTSC REVIEW OF DRAFT ECOLOGICAL SCOPING ASSESSMENT FOR SITES 2, 4, 5, 6, 9, 10, 11, 12, 13, AND 17 WITH COMMENTS AND REQUEST FOR RESPONSE	ADMIN RECORD INFO REPOSITORY	COMMENTS RESPONSE	2 4 5 6 9 10 11 12 13 17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000531 RPT N6871192D467000 0285	10/13/98 08/17/98 00100 02.4	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	ENGINEERING EVALUATION/COST ANALYSIS, SITE 2, PATROL ROAD LANDFILL	ADMIN RECORD INFO REPOSITORY	EE\CA PATROL RD.LANDFI	2	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000532 MEMO N6871192D467000 0425	10/13/98 09/03/98 00150 01.1	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	DRAFT TECHNICAL MEMORANDUM FOR THE PETROLEUM PLUME INVESTIGATION AT SITE 7	ADMIN RECORD INFO REPOSITORY	TECH MEMO FUEL FARM GW MONITORING SOIL	7 1 2	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY
N60042 000533 MISC 000000000000000 0008	10/13/98 09/17/98 00000 10.1	DTSC CYPRESS I. HIRBAWI NAF EL CENTRO F. RIVERA	DTSC REVIEW OF DRAFT ENGINEERING EVALUATION/COST ANALYSIS-ACTION MEMORANDUM FOR SITES 12 AND 17 WITH COMMENTS	ADMIN RECORD INFO REPOSITORY	EE\CA ACTMEMO COMMENTS	12 17	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY

NAF EL CENTRO DRAFT ADMINISTRATIVE RECORD FILE INDEX UPDATE-SORT BY DOC. DATE

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N60042 000534 MISC N6871192D467000 0003	10/19/98 10/14/98 00100 10.1	BECHTEL NATIONAL INC C. CARLISLE VARIOUS AGENCIES	RESPONSE TO COMMENTS ON FINAL ANNUAL GROUNDWATER MONITORING REPORT DATED APRIL 1998	ADMIN RECORD INFO REPOSITORY	RESPONSE COMMENTS LANDFILL VOC GW METALS	2	SOUTHWEST DIVISION NAF EL CENTRO BRAWLEY LIBRARY EL CENTRO LIBRARY

TOTAL RECORDS PRINTED: 281

REPORT SPECIFICATION FOR: RPT006

TITLE: NAF EL CENTRO DRAFT ADMINISTRATIVE RECORD FILE INDEX UPDATE-SORT

FILE: Central Activity File Documents

SELECTION CRITERIA:
[01] Doc.No FROM "000001" & UIC.No. IS "N60042 "
& Subject IS NOT "DOCUMENT NUMBER NOT USED "

SORT CRITERIA:
01 Doc. Date

PAGE BREAK LEVEL:
00 NO PAGEBREAK

TYPE REPORT FORM
PAPER MASTER ACTIVITY FILE (with Key/Add Info)

ATTACHMENT C

RESPONSE TO SIGNIFICANT COMMENTS TO THE ENGINEERING EVALUATION/COST ANALYSIS AND ACTION MEMORANDUM

RESPONSE T OMMENTS
DRAFT ACTION MEMORANDUM FOR NON-TIME CRITICAL
REMOVAL ACTION, SITES 12 AND 17
NAVAL AIR FACILITY EL CENTRO,
IMPERIAL COUNTY, CALIFORNIA
Dated July 1998

Originator: **Isaac Hirbawi, Remedial Project Manager** **Department of Toxic Substance Control**	**Date: September 17, 1998**
GENERAL COMMENTS	*RESPONSES TO COMMENTS*
1. The proposed removal action consists of excavation and off-base disposal of hazardous soil at a Class I landfill disposal facility. The EE/CA does not include waste characterization prior to excavation; therefore please modify the document to include the following information: Prior to excavation, soil will be characterized as RCRA or non-RCRA hazardous waste, or TPH contaminated soil only. Soil will be verified to be hazardous or nonhazardous based on the results of the Toxicity Characteristic Leaching Procedure (TCLP) and the Waste Extraction Test (WET) analysis and Title 22, CCR, Section 66261. A waste is a RCRA hazardous waste by the characteristic of toxicity if the toxic contaminant as measured by TCLP exceeds the maximum concentration listed in the regulations. If the results show that the soil is not TCLP hazardous, the WET will be used to determine whether it is a non-RCRA hazardous waste. The contaminated area (as defined in the characterization stage) will be excavated and placed on-site in stockpiles or covered containers according to classification. Soil presumed by NAFEC to be non-hazardous, will be stockpiled separately on 10-mil-thick high-density polyethylene sheeting and covered. The excavation activities will continue until the field analyses of soil samples indicate the remaining soil does not contain COCs exceeding the residential PRGs cleanup levels.	The text will be revised as suggested.
2. Hexavalent Chromium analysis was not performed during previous investigations, but it has the potential to be present at Site 12 because the waste stream consisted of a variety of materials. What steps will be taken if Cr^{+6} is detected at Site 12?	If hexavalent chromium is reported above the laboratory detection limit in the characterization sampling, it will be added to the list of chemicals of concern. The residential soil PRG will be used as the target cleanup level. The text will be revised to include this information.

3. Please add the dimensions of each site to the figures referenced in both the EE/CA and AM. Also show the groundwater (gw) levels for each site. In the Final Data Gap Study report, March 98, there seems to be more borings drilled and sampled at each site than the number shown in the EE/CA and AM. Please explain why the additional data is not included.	The figures will be revised as suggested. The borings for the eastern portion of Site 12, referred to as Site 12E in the Data Gaps Study, were not included on the figures because this portion of the site was transferred to the RWQCB. Since Site 12E is not part of the CERCLA removal action, it was decided to not include this information because it may be confusing to the reader as to which burn pit was the subject of the removal action.
4. The EE/CA states that remediation of petroleum hydrocarbon contaminated soil will be conducted under the LUFT program. There is approximately a 2-3 feet layer of TPH contaminated soil beneath the dioxin contaminated soil at Site 17. Soil with dioxins will be stockpiled and hauled to the disposal facility, yet there is no explanation of what will be done with the TPH contaminated soil. Please revise the document accordingly.	Removal of the TPH-contaminated soil will be added to the scope of the removal action.
5. This document is a combination of an EE/CA and an AM. Since some of the information presented is repeated, revisions should be made to both sections of the document.	Both documents will be revised accordingly..
SPECIFIC COMMENTS 1. Section 2.3.1, Site 12 – Page 2-11 The lateral and vertical extent of contamination was not completely defined during the data gap study. The contamination is believed to be confined to a 6-inch-thick layer at the bottom of the former burn pit and should not extend laterally outside of the pit area. What steps will be taken if the contamination was to exceed the 4.5 feet estimated site depth?	*RESPONSES TO COMMENTS* The scope of the removal action is to remove all soil with contaminants above the proposed clean up levels. Therefore, if contamination exceeds 4.5 feet, additional soil will be removed. If the pre-removal soil sampling identifies contamination that is not expected, then the removal action documents will be revised accordingly. The extent of contamination was estimated using the data available at the time.
2. Section 4.1.1.4, Backfilling – Page 4-9 Please indicate the source of the imported soil that will be used for backfill. Also, the EE/CA states that some of the excavated soil may be used as part of the backfill if classified as inert by the RWQCB. Is the RWQCB in concurrence with this action and what is their criteria for inert classification? Please include this information in the EE/CA.	The source of the backfill material will not be known until the removal action contract is awarded. However, the document will be revised to include a list of potential backfill sources in the vicinity of NAF El Centro. A decision flow diagram, similar to the one used for the removal actions at Site 3 and 8, will be included in the document to identify waste classifications. Only material classified as inert will be re-used as backfill.

3.	Section 4.1.1.2, Disposal – Page 4-3 "After the soil is excavated and stockpiled, profile samples will be collected from each contaminated soil stockpile to evaluate disposal classification. Previous soil analytical results indicate, the soil will be disposed of as Cal-EPA non-RCRA hazardous waste at a licensed Class I disposal Facility". This paragraph should be modified to include disposal of waste classified as RCRA hazardous waste also. (ref. General comment #1 above)	A statement will be added to include disposal options if RCRA hazardous soil is identified.
4.	Section 2.5.3, Health Effects Associated with the COCs – Page 2-26 The text states that nearby populations, primarily base personnel and agricultural workers in the surrounding cultivated fields, would have the greatest potential for exposure to COPCs from Sites 12 and 17. For Site 12, it is not clear if this site is covered with a permanent soil cap or not. This paragraph mentions a soil cap and later in the paragraph it is mentioned that Site 12 is an open burn pit and has not been capped. Please clarify.	Site 12 is currently not covered. Site 17 is currently covered. The text will be revised to more clearly convey this information.
5.	Section 2.1.4.2, Groundwater – Page 2-7 The groundwater at Site 12 appears to be close to or in contact with the contaminants (see Figure 4-2). Groundwater was encountered at approximately 6 feet bgs. There are no groundwater monitoring wells in the vicinity of this site nor was there any groundwater sampling. Although groundwater at NAFEC does not meet the criteria for beneficial use, there should be concurrence from the RWQCB on groundwater impacts at Site 12.	Assessment of potential groundwater contamination will be included in the pre-removal characterization sampling. Discrete groundwater samples will be collected using a Hydropunch™ sampler (or equivalent method) to collect down gradient groundwater samples. If groundwater contamination is reported, then groundwater contamination will be assessed as a separate task. The text will be revised to convey this information.
6.	Section 4.1, Alternative – Page 4-2 Please add a paragraph in this section to explain the waste characterization procedure. Provide information on the sampling plan, number of samples for each grid, and the depths of each sample location.	The text will be revised as suggested.

7. Section 4.1.2.1, Compliance with ARARs Please modify this section to include Waste Pile requirements for accumulation of contaminated soil during excavation Title 22 CCR 66262.34. The requirements of 22 CCR 66264.251 are also ARARs for waste pile design, construction, and monitoring. The provisions of 22 CCR 66264.258 (a) and (b), which pertain to the closure of waste piles, should also be identified as ARARs.	The text will be revised as suggested.
8. Attachment E, ARARs Section 1.4.3 CEQA DTSC has the responsibility to comply with CEQA when exercising its discretionary decision authority to approve removal actions. As such, CEQA compliance is a State action that should be identified. Please make the corrections to this paragraph to include CEQA as an ARAR, and delete reference to "CEQA" from the last sentence of the section which states that "NEPA and CEQA are not ARARs for Sites 12 and 17".	As the lead agency for the proposed actions at Sites 12 and 17, the Department of the Navy has determined that the California Environmental Quality Act is not an ARAR.
9. Section 3.2, Determination of Removal Scope – Page 3-1 If the ultimate goal of this removal action is to achieve a no further action decision, the target cleanup levels must be protective of human health, ecological and water receptors. Otherwise, we consider the removal action an interim action and must be specified so in this document.	The goal of the removal action is, to the extent practical, to remove contaminated soil containing contaminants above background levels, and obtain clean closure for the site. The document will be revised to include the background metals concentrations specified in the October 23 DON response to the in the August 13, 1998 DTSC comments on the ecological scoping assessment. The detection limit will be used as the target cleanup goal for those compounds that have not been assigned a cleanup level. The text will be revised to include this information.
Originator: Barbara Renzi, Toxicologist **Department of Toxic Substance Control**	**Date: September 17, 1998**
GENERAL COMMENTS	*RESPONSES TO COMMENTS*
1. Since an ecological assessment will not be used for establishing quantitative cleanup goals, we recommend that remediation goals for inorganics incorporate naturally occurring background.	Comment noted, see response to Comment 9 by I. Hirbawi.
2. Please see our June 4, 1998 memorandum for target concentrations of cadmium, silver, antimony, mercury, selenium, and thallium, both for establishing cleanup goals and for analytical goals (lower detection limits).	Comment noted, see response to Comment 9 by I. Hirbawi.

3. Cleanup goals are not presented for PAHs, organochlorine pesticides, or PCBs. As with dioxins and furans (as well as inorganics such as thallium, mercury, silver, cadmium, selenium, copper, etc.) these chemical are bioaccumulative and cleanup goals should be established which are protective of ecological receptors. In absence of any further information, detection limits may serve as an interim goal. Analytical goals may need to be lower than human health risk PRGs.	Comment noted, see response to Comment 9 by I. Hirbawi.
4. We also recommend that the EE/CA discuss the toxicity of the contaminants with respect to potential ecological receptors (e.g., dioxins/furans and PCBs and endocrine disruptors, etc.).	Discussion of the toxicity of contaminants with respect to ecological receptors is not necessary because the decision has already been made to clean up the site.
5. Cleanup goals appear to be based entirely on U.S. EPA Region IX PRGs. We have repeatedly stated that these may not be adequately protective for ecological receptors. Also the cleanup goals ignore background concentrations; in some cases, the inorganic chemical contamination is about two times background concentrations, yet the Human Health PRG cleanup goal is an order of magnitude higher. This does not seem appropriate.	Comment noted, see response to Comment 9 by I. Hirbawi.
Originator: **Joan Stormo, Associate Engineering Geologist** **Regional Water Quality Control Board**	**Date: September 11, 1998**
GENERAL COMMENTS The text states: "Potential impacts to groundwater are not a factor in the proposed removal alternatives, because the shallow depth f contamination and low mobility of the contaminants of concern make it unlikely that groundwater is affected." The base of the dioxin-contaminated soil at Site 12 is very close to groundwater (within one foot, Figure 5-2). Therefore, groundwater should be analyzed for constituents characteristic of the waste stream, including contaminants normally insoluble in water, that could have increased solubility due to solvent agents (for example, naphthalene is insoluble in water, but soluble in benzene).	*RESPONSES TO COMMENTS* Sampling of groundwater using a Hydropunch ™ (or equivalent method) will be added to the pre-removal characterization.

SPECIFIC COMMENTS	*RESPONSE TO COMMENTS*
Section 3.1 Threats to Public Health or Welfare The text states: "The primary dominant risk drivers for the incremental cancer risk for Site 12 include dioxins and furans (Table 3-1)." Table 3-1 does not include furans as a contaminant at site 12. This is consistent with the Final Data Gaps Study Report, which indicates Site 12 was not analyzed for furans (page 6-57). Please correct or clarify.	Since dioxins and furans are created under similar combustion conditions, it is assumed that furans are also present in the locations where dioxins were reported. The text will be revised to clarify this.
Figure 4-1, Proposed Confirmation sampling locations, Site 12 – Open Burn Pit Figure 4-3, Proposed Confirmation Sapling Locations, Site 17 – Fire-Fighting Training Pit. The number of confirmation samples proposed for Sites 12 and 17, and the method which they were derived appears acceptable. However, please distribute the sample locations more evenly so that they provide better coverage of the central area of the pit. The current configuration (particularly for Site 12) is too focused on the perimeter walls rather than the pit floor, the area most likely contaminated.	The Figures will be revised as suggested.
Please indicate what the military will address remediation of petroleum contaminated soil.	Removal of petroleum contaminated soil will be added to the scope of the current removal action.

ATTACHMENT D

NAF EL CENTRO INSTALLATION RESTORATION PROGRAM FACT SHEETS

NAVAL AIR FACILITY EL CENTRO
INSTALLATION RESTORATION PROGRAM

FACT SHEET NO. 1 **APRIL, 1994**

INTRODUCTION

The Naval Air Facility El Centro (NAFEC) is located about 9 miles west of the City of El Centro, California. Like most military installations, activities at NAFEC require the use of substances defined as hazardous substances. As a branch of the federal government, the U. S. Navy is subject to the federal laws and regulations, such as CERCLA and SARA, covering the generation and disposal of **hazardous substances** at its facilities. Past hazardous waste disposal practices, although acceptable at the time, have frequently resulted in unexpected and long-term problems through the release of **contaminants** into soil and **groundwater**.

This fact sheet is the first in a series providing information about the environmental cleanup activities at the NAFEC. This fact sheet discusses past and proposed activities and identifies sources of additional information.

BACKGROUND

NAFEC has been established in its present location since 1942, when it was commissioned as a Marine Corps Air Station. Although its name and activities have varied since then, it has been in continuous use since World War II. Presently, NAFEC is the Navy's support facility for fleet air squadrons performing tactical air training, and is also the winter home of the Navy's elite Blue Angels precision flying team. Other tasks and functions include operations and training, administration, general engineering support, personnel support, medical and dental support, maintenance of material, maintenance of property and utility operations, and supply operations.

Installation Restoration Program

The Department of Defense (DOD), of which the Navy is a part, developed the **Installation Restoration (IR) Program** to identify and investigate potentially hazardous disposal sites created by former hazardous material handling, storage, and disposal practices -- procedures once accepted and approved, but subsequently found to be improper and unsafe. The IR Program was modeled after the "Superfund" program established by CERCLA. As part of the IR Program, soil and groundwater investigations are underway at NAFEC.

The IR Program involves these five steps, which are defined in the glossary:

- **Preliminary Assessment (PA)**
- **Site Investigation (SI)**
- **Remedial Investigation (RI)**
- **Feasibility Study (FS)**; and
- **Remedial Action (RA)**

Past Site Activities

Years of activities at NAFEC involving hazardous substances and hazardous wastes have resulted in sites of potential contamination on the facility. In September 1987, a **Preliminary Assessment** (NEESA 13-106) was completed at NAFEC which identified areas of potential contamination (see figure, inside). Sixteen sites were originally identified. Two sites were later added to the IR Program, Sites 2A and 17, for a total of 18 sites.

As part of **Site Investigation**, studies have been conducted and others are underway to determine the nature and extent of possible contamination to soil, surface water, and groundwater at NAFEC. However, early results suggest that surface water quality does not appear to be affected by contamination by NAFEC IR sites.

(Words shown in bold type are defined in the glossary)

The kinds of substances or materials used and identified through studies at NAFEC include **petroleum hydrocarbons** (fuels, hydraulic fluids, motor oils), **solvents**, paints and thinners, photo chemicals, **heavy metals**, battery acids, **chlorinated pesticides**, asbestos, **polychlorinated biphenyls (PCBs)**, construction and demolition debris, household rubbish, and sewage sludge.

A number of SI studies, including groundwater and solid waste testing resulting in at least 20 reports, have been conducted for the IR Program sites at NAFEC. Additional investigative site work is on-going at the facility.

Other Activities

The IR Program focuses on past problems. Compliance with current laws and regulations in effect ensures that NAFEC handles its hazardous wastes properly and that no future problems will arise. Plans have been developed and implemented to establish proper waste identification, handling, and disposal procedures:

- Oil and Hazardous Substance Spill Contingency Plan
- Hazardous Waste Management Plan
- Oil Spill Prevention, Control and Counter-measures Plan
- Hazardous/Extremely Hazardous Materials Management Plan
- AB2588 "Hot Spots" Emission Inventory Plan

In addition, underground storage tanks containing fuel and other petroleum products, often a source of groundwater contamination, are being replaced at NAFEC with above-ground storage tanks. Having tanks above the ground allows better monitoring and prevention of potential leaks, which might otherwise go undetected for long periods of time.

Future Activities

The community will continue to be informed about and involved in cleanup activities at NAFEC. Future fact sheets, public meetings, and opportunities for public review and comment on proposed cleanup methods are a part of the IR Program's community relations activities.

A mailing list has been developed and will be continuously updated. Please add your name and address, and those of others interested in the NAFEC IR Program cleanup, by filling out the mail-in coupon on the back of this fact sheet.

COMMUNITY INFORMATION

A number of potentially interested parties were contacted and interviewed about this program. Interviewees also had the opportunity to ask questions. Their concerns and questions, as well as the cleanup program background, were incorporated into the **Community Relations Plan**. This is a formal document, meeting Environmental Protection Agency (EPA) and State of California community relations guidelines, which describes community involvement activities at a hazardous waste remediation site. The Community Relations Plan is a public document and is on file at the Information Repositories.

Information Repositories

In order to ensure that relevant cleanup-related reports and findings are available for public access, two information repositories have been established. These locations were selected for public convenience and accessibility, based upon comments received during the community interviews:

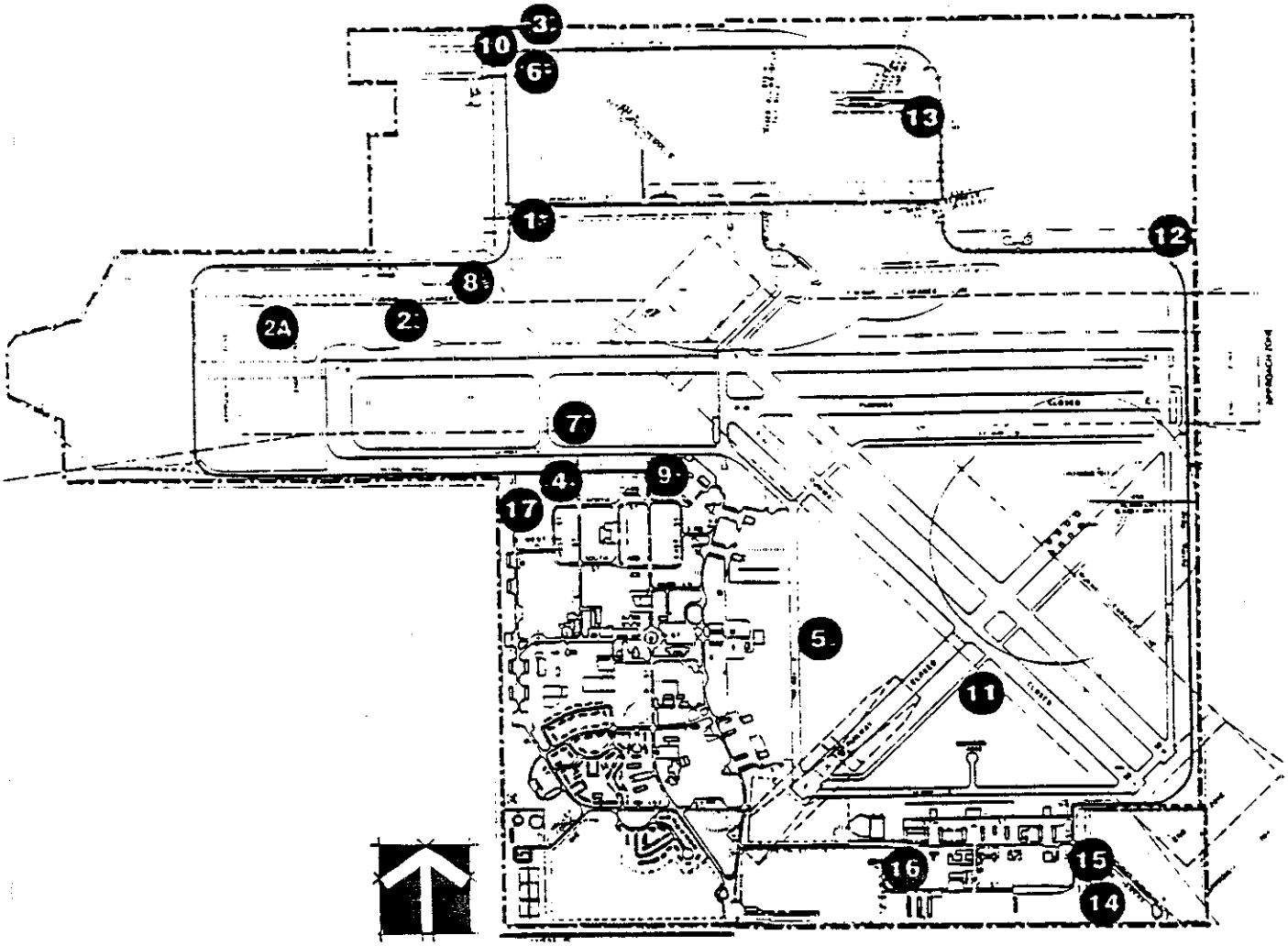
El Centro Public Library	M-Th	10 a.m.-8 p.m.
529 State Street	Fri	10 a.m.-5 p.m.
El Centro, CA 92243	Sat	10 a.m.-1 p.m.
Brawley Public Library	M-Th	12 p.m.-8 p.m.
400 Main Street	Sat	9 a.m.-5 p.m.

FOR MORE INFORMATION, PLEASE CONTACT:

Public Affairs Officer
Naval Air Facility El Centro
El Centro, CA 92243-5001
(619) 339-2519

Mr. John Crow
Naval Air Facility El Centro
El Centro, CA 92243-5001
(619) 339-2264

 (Words shown in bold type are defined in the glossary)



Site	Location	Potential Contaminants
1	Magazine Road Landfill	Asbestos, fuel, paint, solvents, photo chemicals, acid
2	Patrol Road Landfill	Asbestos, fuel, paint, solvents, photo chemicals, acid
2A	West Patrol Road Landfill	Asbestos, fuel, paint, solvents, photo chemicals, acid
3	Sludge Burial Area	Silver, cyanide
4	4th Street Fire Fighting Training Area	Burned leaded fuel, hydraulic fluid, confiscated drugs
5	Fire Fighting Training Area	Burned leaded fuel
6	Northwest Fire Fighting Training Area	Burned leaded fuel
7	Abandoned Fuel Farm	Leaded and diesel fuel
8	Scrapyard	Empty drums, tanks, paint cans, transformers with PCBs
9	Transformer Storage Area	Transformers containing PCBs
10	Sewage Stabilization Ponds	Sewage, leaded fuel, motor fluids, photo solutions
11	Runway Burn Area	Burned fuel
12	Open Burn Pit	Burned confiscated drugs, ceramic, tin cans, wood
13	Old Incinerator	Burned paper
14	Fuel Farm Tank Rinseate Disposal	Leaded and diesel fuel
15	Fuel Farm Filter Cleaning Area	Leaded and diesel fuel
16	Potassium Ferricyanide Spill Area	Potassium ferricyanide
17	Fire Fighting Training Area	Burned leaded and diesel fuel

Installation Restoration Program Site Locations
Naval Air Facility El Centro
El Centro, California

GLOSSARY OF TERMS

CERCLA - The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also known as "Superfund") which implements EPA emergency and long-term hazardous waste cleanup activities. This Federal legislation covers the identification, investigation and remediation of hazardous waste sites.

Chlorinated pesticides - A class of pesticides which contain chlorinated hydrocarbon compounds. DDT and chlordane are examples of chlorinated pesticides.

Cleanup - Actions taken to deal with a release or threatened release of hazardous substances that could affect public health and/or the environment.

Community Relations Plan (CRP) - Formal plan for EPA community relations activities at a Superfund site. The CRP is designed to ensure citizen opportunities for public involvement at a site, determine activities that will provide for such involvement, and allow citizens the opportunity to learn about the site.

Contaminant - Any physical, chemical, biological, or radiological substance or matter that has an adverse affect on air, water, or soil.

Department of Defense (DOD) - The department of the federal government which oversees national defense, including all branches of the military.

Feasibility Study (FS) - The description and analysis of the potential cleanup alternatives for a hazardous waste site and recommendation of a cost-effective alternative.

Groundwater - Water found beneath the earth's surface that fills pores between materials such as sand, gravel, or soil. In aquifers, groundwater occurs in sufficient quantities that it can be used for drinking water, irrigation, and other purposes.

Hazardous substance - Any material that poses a threat to public health and/or the environment.

Heavy metals - A class of metals categorized by their high molecular weight. A partial list of heavy metals includes: mercury, arsenic, lead, chromium, zinc, cadmium, copper, barium, silver, and nickel.

Installation Restoration Program - A program developed by the DOD and modeled after EPA's "Superfund" (see below) program, to identify and investigate potentially hazardous disposal sites created by former hazardous substance handling, storage, and disposal practices.

Petroleum hydrocarbons - The class of hydrocarbons (organic compounds) derived from petroleum. Typical petroleum hydrocarbons include: gasoline, kerosene, diesel, and oils.

Polychlorinated Biphenyls (PCBs) - A class of chemicals typically used to cool electrical devices such as transformers.

Preliminary Assessment (PA) - The process of collecting and reviewing available information about a known or suspected hazardous waste site or release. EPA or states use this information to determine if a site requires further study.

Remedial Action - The phase of actual implementation or construction that follows remedial investigation, feasibility study, and development of remedial design.

Remedial Investigation (RI) - An in-depth study designed to gather the data necessary to determine the nature and extent of contamination. The data are used to establish criteria for site cleanup and identify preliminary alternatives for remedial action.

SARA - The Superfund Amendments and Reauthorization Act (SARA) is a modification to CERCLA and was enacted on October 17, 1986.

Site Investigation (SI) - The step following Preliminary Assessment (PA). It is designed to collect more extensive information on a hazardous waste site.

Solvent - (Usually liquid) substance capable of dissolving or dispersing other substances.

Superfund - The common name for the federal Comprehensive Environmental Response, Compensation, and Liability Act (see CERCLA, above).

PLEASE KEEP ME INFORMED

YES, I would like to receive information on the progress of environmental cleanup activities at NAF El Centro

PLEASE RETURN COMPLETED COUPON TO:

Public Affairs Officer
Naval Air Facility El Centro
El Centro, CA 92243-5001

_____
Name

_____
Address

_____
City, State, Zip

_____
(Area Code) Telephone

Southwest Division, Naval Facilities
Environmental Division
1220 Pacific Highway, Building 130
San Diego, CA 92132

INSIDE
Update on Naval Air Facility, El Centro Installation Restoration Program

FACILIDAD DE MARINA Y AÉREA EL CENTRO
PROGRAMA DE RESTAURACIÓN DE INSTALACIONES

HOJA DE DATOS NO. 1 ABRIL 1994

INTRODUCCIÓN

La Facilidad Marina y Aérea El Centro (NAFEC) está situada aproximadamente nueve millas al oeste de la ciudad de El Centro, California. Al igual que la mayoría de las instalaciones militares, actividades en NAFEC requieren el uso de sustancias definidas como sustancias peligrosas. Como una división del gobierno federal, el Ministerio de Marina de los Estados Unidos está sujeto a las leyes y regulaciones federales, tal como **CERCLA** y **SARA**, abarcando la generación y disposición de **sustancias peligrosas** en las facilidades. Prácticas anteriores de disposición de residuos peligrosos, aunque aceptables en ese tiempo, frecuentemente han resultado en problemas inesperados y de larga duración de parte de la emisión de **contaminantes** dentro de la tierra y el **agua subterránea**.

Esta hoja de datos es la primera en una serie de información sobre actividades para la **limpieza** del medio ambiental en NAFEC. Esta hoja de datos habla sobre actividades pasadas y que se proponen y también identifica fuentes de información adicional.

ANTECEDENTE

NAFEC se estableció en su presente local en 1942, cuando se puso en servicio activo como una Estación Aérea de la Infantería Marina. Aunque el nombre y las actividades han variado desde entonces, el uso de NAFEC ha sido continuo desde la Segunda Guerra Mundial. Hoy en día, NAFEC es la facilidad Marina que da apoyo a escuadrones de flota aéreos, presenta instrucción de táctica aérea, y también es la base invernal de los "Blue Angels". Otras tareas y funciones de NAFEC incluyen operaciones e instrucción, administración, apoyo general para ingeniería, apoyo de personal, apoyo médico y dental, mantenimiento de material, mantenimiento de propiedad y operaciones de utilidades, y operaciones de provisiones.

Programa de Restauración de Instalaciones

El **Departamento de Defensa (DOD)**, de cual la Marina es parte, desarrollo el **Programa de Restauración de Instalaciones (IR)** para identificar e investigar sitios que son potencialmente peligrosos creados por el uso de materiales peligrosos, depósito, y costumbres de disposición--procedimientos una vez aceptados y después establecidos como impropios y peligrosos. El Programa IR fue modelado después de el programa "**Superfund**", que fue establecido por **CERCLA**. Como parte de el Programa IR, investigaciones de la tierra y el agua subterránea esta en vía de realizarse en NAFEC.

El **Programa IR** empleo los siguiente cinco pasos (con el acrónimo que se usan en inglés), que son definidos en el glosario:

- **Valoración Preliminar ("PA")**
- **Investigación de Sitio ("SI")**
- **Investigación Remediadora ("RI")**
- **Estudio de Viabilidad ("FS")**; y
- **Acción Remediadora ("RA")**

(Palabras en negro están definidas en la página tres)

Actividades Pasadas del Sitio

Años de actividad en NAFEC usando sustancias peligrosas y residuos peligrosos han resultado en sitios con potencial para contaminación en la facilidad. En septiembre de 1987, una **Valoración Preliminar** (NEESA 13-106) fue completada en NAFEC que identifico áreas de potencial para contaminación (vea la figura en la próxima página). Al principio dieciséis sitios fueron identificados. Después, dos sitios mas, Sitios 2A y 17, fueron añadidos a el Programa IR para un total de dieciocho sitios.

Como parte de la **Investigación de Sitio** se han conducido estudios y otros están en vía de realizarse para determinar la naturaleza y el alcance de contaminación posible de la tierra, agua superficial, y agua subterránea en NAFEC. De cualquier manera, los primeros resultados indican que la calidad del agua superficial aparentemente no está contaminada en los sitios IR en NAFEC.

Los tipos de sustancias o materiales usados e identificados como parte de los estudios en NAFEC incluyen **petróleos hidrocarburos** (combustibles, fluidos hidráulicos, aceite de motor), **solventes**, pinturas y disolventes, químicas de foto, **metales pesados**, ácido de baterías, **pesticidas clorinadas**, asbesto, **bifenilos policlorinados (PCBs)**, escombro de construcción y demolición, basura de casa, y aguas de albañal.

Un numero de estudios SI, incluyendo exámenes de agua subterránea y de residuos solidos resultando en no menos de 20 reportes, se han conducido para el Programa IR en NAFEC. Investigaciones adicionales en los sitios identificados continúan en la facilidad.

Otras Actividades

El Programa IR enfoca en los problemas del pasado. De acuerdo con las leyes actuales y regulaciones en efecto se asegura que NAFEC trate los residuos peligrosos correctamente y que no se presenten problemas en el futuro. Planes han sido desarrollados e implementados para establecer propia identificación de residuos, manejo y procedimiento de disposición:

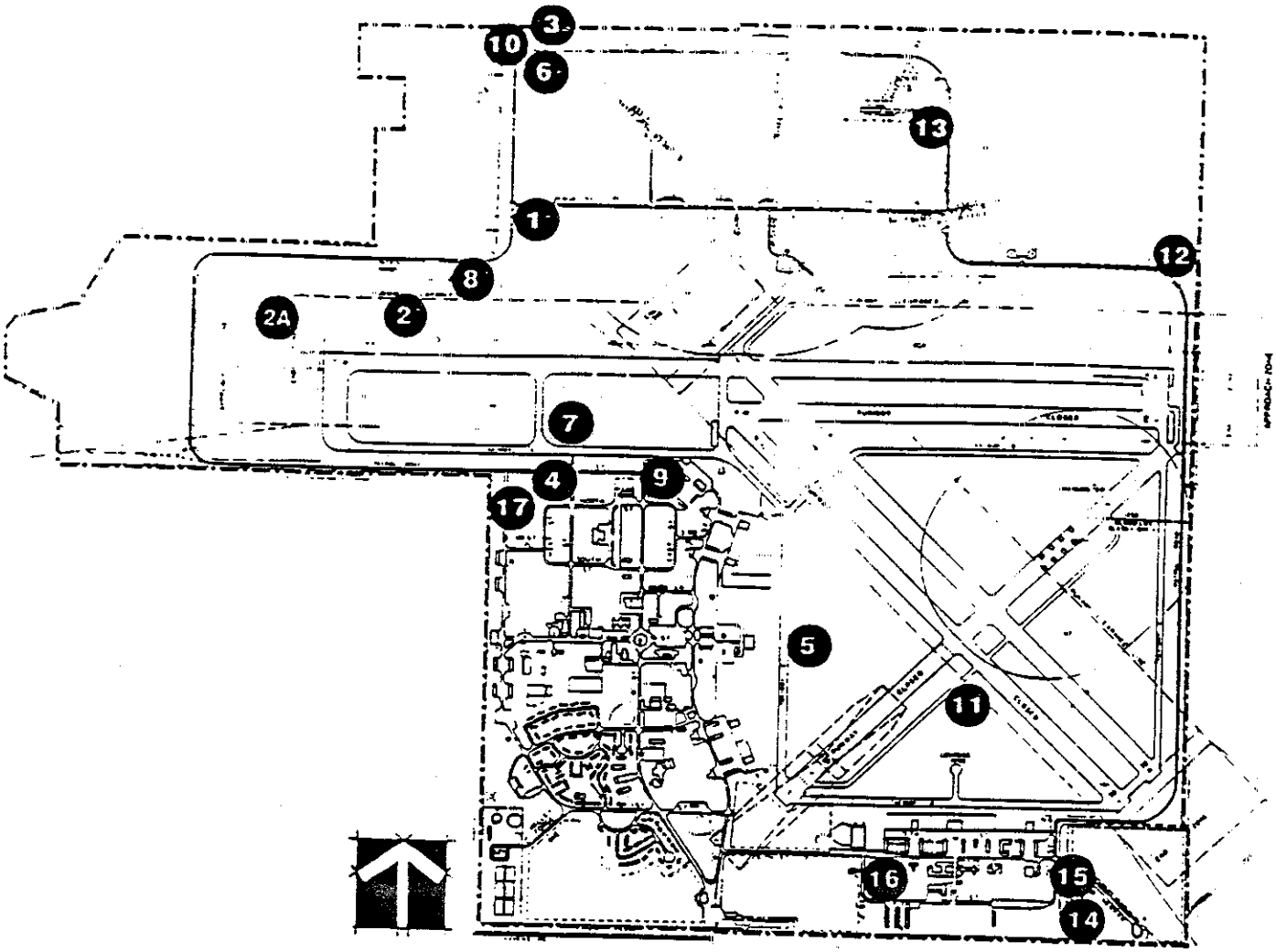
- Plan de Contingencia de Derrame de Aceite y Sustancias Peligrosas
- Plan de Administración de Residuos Peligrosos
- Plan de Prevención, Control y Contramedidas de Derrame de Aceite
- Plan de Administración de Materiales Peligrosos/Sumamente Peligrosos
- Plan AB2588 de Inventario de Emisión de "Lugares Calientes"

Adicionalmente, tanques de almacenaje subterráneos conteniendo combustible y otros productos de petróleo, muchas veces una fuente de contaminación de agua subterránea, se esta reemplazando en NAFEC con tanques de almacenaje por encima de la tierra. Teniendo tanques por encima de la tierra permite mejor supervisión y prevención de derrames potenciales, cuales de otra manera pueden pasar inadvertidos por períodos de mucho tiempo.

Actividades Futuras

La comunidad va a ser informada continuamente e incluida en actividades sobre la limpieza en NAFEC. Hojas de datos futuras, juntas públicas, y oportunidades para repaso y comentario público sobre métodos propuestos para la limpieza de NAFEC son parte de las actividades de relaciones públicas de el Programa IR.

(Palabras en negro están definidas en la página tres)



Sitio	Ubicación	Contaminantes Potenciales
1	Magazine Road Landfill	Asbesto, combustible, solventes, químicas de foto, acido
2	Patrol Road Landfill	Asbesto, combustible, solventes, químicas de foto, acido
2A	West Patrol Road Landfill	Asbesto, combustible, solventes, químicas de foto, acido
3	Sludge Burial Area	Plata, cianuro
4	4th Street Fire Fighting Training Area	Combustible (con plomo) quemado, fluido hidráulico, drogas
5	Fire Fighting Training Area	Combustible (con plomo) quemado
6	Northwest Fire Fighting Training Area	Combustible (con plomo) quemado
7	Abandoned Fuel Farm	Combustible con plomo y diesel
8	Scrapyard	Tanques, botes de pintura, transformadores con PCBs
9	Transformer Storage Area	Transformadores con PCBs
10	Sewage Stabilization Ponds	Aguas negras, combustible con plomo, aceite, química de foto
11	Runway Burn Area	Combustible quemado
12	Open Burn Pit	Drogas quemadas, cerámica, hojalatas, madera
13	Old Incinerator	Papel quemado
14	Fuel Farm Tank Rinseate Disposal	Combustible con plomo y diesel
15	Fuel Farm Filter Cleaning Area	Combustible con plomo y diesel
16	Potassium Ferricyanide Spill Area	Ferricianuro de potasio
17	Fire Fighting Training Area	Combustibles quemados con plomo y diesel

Ubicaciónes de Sitios de el Programa de Restauración de Instalaciónes
Facilidad Marina y Aérea El Centro
El Centro, California

Una lista de envió se ha desarrollado y será puesta al día continuamente. Para añadir su nombre y dirección, y el de otros que estén interesados en el Programa IR para la limpieza de NAFEC, por favor llene el cupón que está detrás de está hoja de datos.

INFORMACIÓN PARA LA COMUNIDAD

Un número de individuos que están interesados se han comunicado y entrevistados sobre este programa. Personas entrevistadas también tuvieron la oportunidad de hacer preguntas. Sus preocupaciones y preguntas, así como la información básica de el programa de limpieza, fueron incorporados en el **Plan de Relaciones Públicas (PRP)**. Este plan es un documento formal de acuerdo con las pautas del EPA y del Estado de California para las relaciones públicas, cuales describen actividades de participación de las comunidades en un sitio de limpieza. El PRP es un documento público y está archivado en los Depósitos de Información.

Depósitos de Información

Para asegurar que reportes pertinentes a la limpieza y hallazgos estén disponibles para acceso al público, dos depósitos de información se han establecido. Estos locales fueron escogidos para la conveniencia y accesibilidad de el público, basado en comentarios recibidos durante las entrevistas de la comunidad:

- **Biblioteca Pública de El Centro**
  539 State Street
  El Centro, California 92243

  Horas: Lunes-Jueves 10 a.m. a 8 p.m.
  Viernes 10 a.m. a 5 p.m.
  Sábado 10 a.m. a 1 p.m.

- **Biblioteca Pública de Brawley**
  400 Main Street
  Brawley, California 92227

  Horas: Lunes-Jueves 12 p.m. a 8 p.m.
  Sábado 9 a.m. a 5 p.m.

PARA MAS INFORMACIÓN, COMUNÍQUESE CON:

Public Affairs Officer
Facilidad Marina de Aire El Centro
El Centro, California 92243-5001
(619) 339-2519

Sr. John Crow
Facilidad Marina de Aire El Centro
El Centro, California 92243-5001
(619) 339-2264

GLOSARIO

Acción Remediadora - La fase de realización o construcción actual que sigue la investigación remediadora, estudio de viabilidad, y el desarrollo de diseño remediador.

Agua Subterránea - Agua encontrada debajo de la superficie de la tierra que llena los poros en materiales como arena, grava, o tierra. En acuíferos, agua subterránea ocurre en cantidades suficientes que se puede usar como agua potable, para riego, y otros usos.

Bifenilos Policlorinados ("PCBs") - Una clase de químicas típicamente usadas para enfriar aparatos eléctricos como transformadores.

"CERCLA" - El Acta Completa Ambiental de Respuesta, Compensación, y Responsabilidad de 1980 (también conocida por el nombre "Superfund") cual implementa actividades del EPA (Agencia para la Protección del Medio Ambiente) para emergencias y limpieza de largo plazo de residuos peligrosos. Esta legislación federal abarca la identificación, investigación y remediación de sitios con residuos peligrosos.

Contaminante - Cualquier sustancia o materia física, química, biológica, o radiológica cual tiene un efecto adverso en el aire, el agua, o la tierra.

Departamento de Defensa ("DOD") - El departamento de gobierno federal que supervigila la defensa nacional, incluso todas las divisiones militares.

Estudio de Viabilidad ("FS") - La descripción y análisis de las alternativas para la limpieza posible de un sitio de residuos peligrosos y recomendación de alternativas de beneficio.

Investigación de Sitio ("SI") - La fase después de la Valoración Preliminar. Esta fase colecta información extensiva sobre el sitio de residuos peligrosos.

Investigación Remediadora ("RI") - Un estudio profundo para acumular los datos necesarios para determinar la naturaleza y el alcance de contaminación. Los datos son usados para establecer el criterio para la limpieza de los sitios y para identificar alternativas preliminarias para acción remediadora.

Limpieza - Acciones tomadas para contener la liberacion o la amenaza de liberacion de sustancias peligrosas cuales pueden afectar la salud del público y/o el ambiente.

Metales Pesados - Una clase de metales clasificados por sus altos pesos molecular. Una lista parcial de metales pesados incluye: mercurio, arsénico, plomo, cromo, cinc, cadmio, cobre bario, plata y níquel.

Pesticidas Clorinadas - Una clase de pesticidas que contiene hidrocarburos tratados con cloro. "DDT" y "chlordane" son ejemplos de pesticidas clorinadas.

Petróleos Hidrocarburos - La clase de hidrocarburos (compuestos orgánicos) derivada de petróleo. Petróleos hidrocarburos tipicos incluyen: gasolina, keroseno, diesel y aceites.

Plan de Relaciónes Públicas (PRP) - Un plan formal para actividades sobre relaciónes de la comunidad para el EPA en un sitio de "Superfund". El PRP fue concebido para asegurar oportunidades de los ciudadanos para participación pública en un sitio, determinar actividades que van a suministrar para tal participación, y dar a los ciudadanos la oportunidad para averiguar con respecto al sitio.

Programa de Restauración de Instalaciónes (IR) - Un programa desarrollado de parte del "DOD" y servido de modelo después del Programa "Superfund" (vea abajo) de EPA, para identificar e investigar disposición de sitios potencialmente peligrosos creados por anterior manipulación de sustancias peligrosas, almacenaje, y prácticas de disposición.

"SARA" - El Acta de Enmiendas y Reautorización "Superfund" (SARA) es una modificación a "CERCLA" y fue promulgado el 17 de Octubre de 1986.

Solvente - (Normalmente líquido) sustancia capaz de disolver o dispersar otras sustancias.

"Superfund" - El nombre común para el Acta federal de Respuesta Exhaustiva Ambiental, Compensación, y Responsabilidad (vea "CERCLA", arriba).

Sustancias Peligrosas - Cualquier material que representa una amenaza a la salud del público y/o el medio ambiente.

Valoración Preliminar ("PA") - El proceso de colectar y dar repaso a información disponible sobre un conocido o un sitio sospechoso de residuo peligroso o emisión. EPA o estados usan esta información para determinar si un sitio necesita más estudio.

POR FAVOR MANTEGAME INFORMADO

Si, me gustaria recibir información del progreso de las actividades de limpieza ambiental en NAFEC.

Por favor llene el cupón y regreselo a:

Public Affairs Officer
Naval Air Facility El Centro
El Centro, California 92243-5001

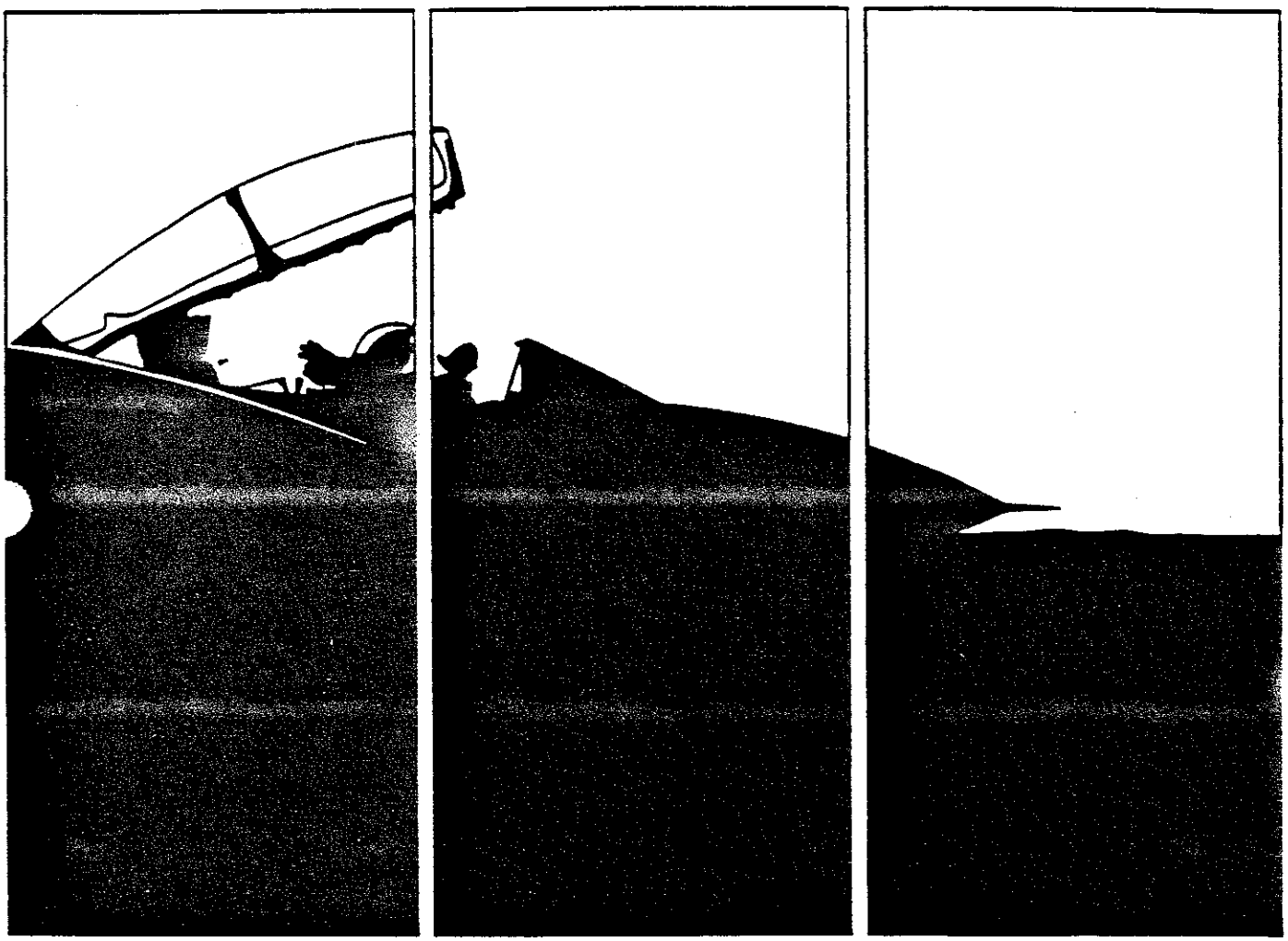
_____
Nombre

_____
Direccion

_____
Ciudad, Estado, Codigo Postal

_____
(Lada) Telefono

Southwest Division, Naval Facilities
Environmental Division
1220 Pacific Highway, Building 130
San Diego, CA 92132



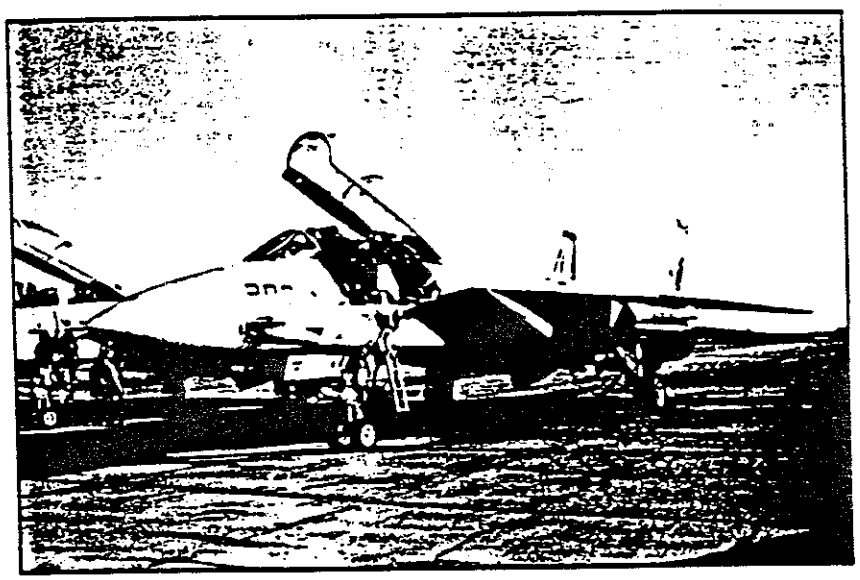
Naval Air Facility, El Centro

Installation Restoration Program

NAF EL CENTRO

NAF El Centro is the Navy's support facility for fleet air squadrons performing tactical air training such as field carrier landing practice, air-to-air and air-to-ground weapons training and fleet fighter air combat maneuvers. Fleet utilization has increased dramatically over the past few years, maximizing the area's excellent training facilities.

The base is the winter home of the Navy's elite Blue Angels precision flying team. NAF El Centro was first used by the Marine Corps during World War II and is now the second largest employer in the Imperial Valley.



PROGRAM OVERVIEW

The Installation Restoration (IR) Program, developed by the Department of Defense (DOD), was modeled after the "Superfund" program established by the Environmental Protection Agency (EPA). The EPA, California Regional Water Quality Control Board and other agencies are involved in reviewing the program as it develops.

The Navy is a leader in hazardous waste management and restoring hazardous waste sites. In the past, accepted and approved procedures, since found to be improper and unsafe, were employed in handling hazardous wastes. This resulted in the improper disposal of hazardous waste across the country.

The Navy has implemented this comprehensive program to identify and investigate potentially hazardous disposal sites created by former hazardous substance handling, storage and disposal practices. Several remedial action alternatives are reviewed, including "no action." Selection of the appropriate remedial action is based on an assessment of the potential health risks, desired level of cleanup, available technology, cost effectiveness and other factors

The IR Program consists of three phases: remedial investigation; feasibility study; and remedial action. A technical review committee, composed of representatives from the Navy, EPA, state and local agencies, environmental groups and the community, will review the program as it applies to specific installations and individual sites.

REMEDIAL INVESTIGATION

The remedial investigation involves a preliminary assessment and site investigation to identify potentially contaminated sites, characterize the nature of the contamination and recommend sites for further study. Once identified, further information is gathered on the extent of contamination and the potential threat to public health and safety and the environment.

A preliminary assessment and site investigation have identified 17 potential hazardous waste sites at NAF El Centro. These sites were evaluated using the EPA hazard ranking system which assesses a site's potential to affect human health, welfare and the environment. High scoring waste sites are placed on the National Priorities List (NPL). NAF El Centro scored well below the threshold and is not listed on the NPL.

The EPA is currently reevaluating previously scored hazardous waste sites under a revised hazard ranking system. It is expected that many sites not now listed on the NPL will be included with the revised scoring.

FEASIBILITY STUDY

Developed concurrently with the remedial investigation is the feasibility study, which proposes and evaluates various cleanup measures based on data gathered in the remedial investigation. The remedial investigation and feasibility study are then summarized in a report. The report, along with a plan for remedial action, is submitted to regulatory agencies for review. After receiving public and agency comments on these documents, a record of decision is developed which establishes cleanup measures to be implemented.

REMEDIAL ACTION

Cleanup planning begins after the record of decision is published. The plan is implemented in the remedial action phase in which contaminants are removed from the sites.

OPERATIONAL CHANGES

To ensure NAF El Centro remains clean of hazardous wastes, three local plans to establish proper procedures for the identification, handling and disposal of hazardous wastes have been developed and implemented. These are the Hazardous Substance Spill Contingency Plan, the Hazardous Materials/Waste Management Plan and the Oil Spill Prevention, Control and Countermeasures Plan.

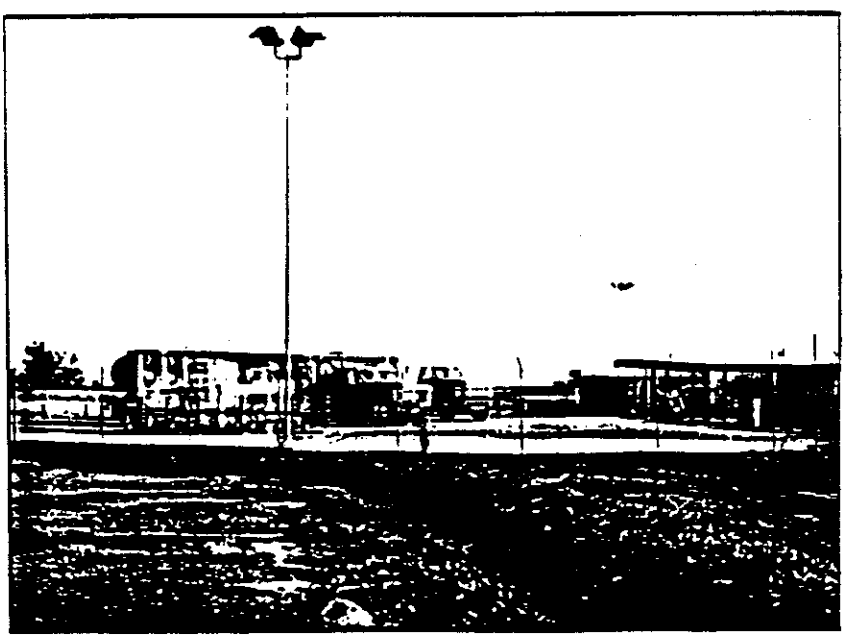
Additionally, the Navy has developed the Underground Storage Tank (UST) program. This continuing program is designed to prevent contamination from the storage of petroleum products underground. NAF El Centro recently completed testing all its underground storage tanks and has drained or adjusted all tanks requiring attention.

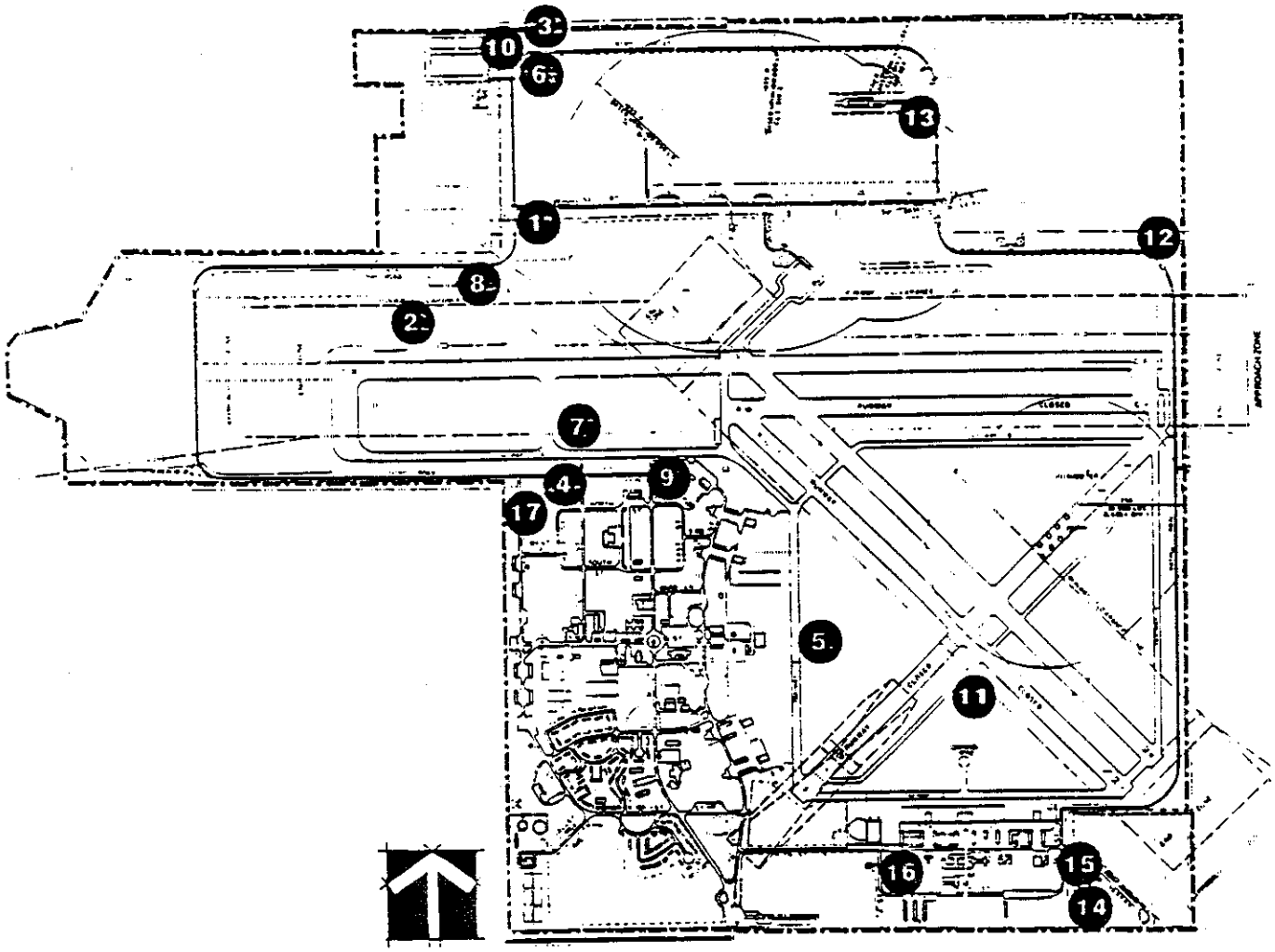
COMMUNITY RELATIONS

The Navy, recognizing the importance of community involvement in the IR process to identify and address community concerns, will coordinate with interested community members, provide information to libraries and make community presentations. Exhibits and information bulletins are available by calling:

for general information:
Public Affairs Office,
(619) 339-2519.

for technical information:
Public Works Department,
(619) 339-2201.





Installation Restoration

Site	Location	Potential Contaminants
1	Magazine Road Landfill	Asbestos, fuel, paint, solvents, photo chemicals, acid.
2	Patrol Road Landfill	Asbestos, fuel, paint, solvents, photo chemicals, acid.
3	Sludge Burial Area	Silver, cyanide.
4	4th Street Fire Fighting Training Area	Burned leaded fuel, hydraulic fluid, confiscated drugs.
5	Fire Fighting Training Area Hangar #3	Burned leaded fuel.
6	Northwest Fire Fighting Training Area	Burned leaded fuel.
7	Abandoned Fuel Farm	Leaded and diesel fuel.
8	Scrapyard	Empty drums, tanks, paint cans, transformers w/ PCB.
9	Transformer Storage Area	Transfromers containing PCB.
10	Sewage Stabilization Ponds	Sewage, leaded fuel, motor fluids, photo solutions.
11	Runway Burn Area	Burned fuel.
12	Open Burn Pit	Burned confiscated drugs, ceramic, tin cans, wood.
13	Old Incinerator	Burned paper.
14	Fuel Farm Tank Rinseate Disposal	Leaded and diesel fuel.
15	Fuel Farm Filter Cleaning Area	Leaded and diesel fuel.
16	Potassium Ferricyanide Spill Area	Potassium ferricyanide.
17	Fire Fighting Training Area	Burned leaded and diesel fuel.

NAVAL AIR FACILITY EL CENTRO
INSTALLATION RESTORATION PROGRAM

FACT SHEET NO. 1 **DECEMBER 1994**

INTRODUCTION

The Naval Air Facility El Centro (NAFEC) is located about 9 miles west of the City of El Centro, California. Like most military installations, activities at NAFEC require the use of substances defined as hazardous substances. As a branch of the federal government, the U. S. Navy is subject to the federal laws and regulations, such as **CERCLA** and **SARA**, covering the generation and disposal of **hazardous substances** at its facilities. **Past hazardous waste** disposal practices, although acceptable at the time, have frequently resulted in unexpected and long-term problems through the release of **contaminants** into soil and **groundwater**.

This fact sheet is the first in a series providing information about the environmental **cleanup** activities at the NAFEC. This fact sheet discusses past and proposed activities and identifies sources of additional information.

BACKGROUND

NAFEC has been established in its present location since 1942, when it was commissioned as a Marine Corps Air Station. Although its name and activities have varied since then, it has been in continuous use since World War II. Presently, NAFEC is the Navy's support facility for fleet air squadrons performing tactical air training, and is also the winter home of the Navy's elite Blue Angels precision flying team. Other tasks and functions include operations and training, administration, general engineering support, personnel support, medical and dental support, maintenance of material, maintenance of property and utility operations, and supply operations.

Installation Restoration Program

The **Department of Defense (DOD)**, of which the Navy is a part, developed the **Installation Restoration (IR) Program** to identify and investigate potentially hazardous disposal sites created by former hazardous material handling, storage, and disposal practices -- procedures once accepted and approved, but subsequently found to be improper and unsafe. The IR Program was modeled after the "**Superfund**" program established by **CERCLA**. As part of the IR Program, soil and groundwater investigations are underway at NAFEC.

The IR Program involves these five steps, which are defined in the glossary:

- **Preliminary Assessment (PA)**
- **Site Investigation (SI)**
- **Remedial Investigation (RI)**
- **Feasibility Study (FS)**; and
- **Remedial Action (RA)**

Past Site Activities

Years of activities at NAFEC involving hazardous substances and hazardous wastes have resulted in sites of potential contamination on the facility. In September 1987, a **Preliminary Assessment** (NEESA 13-106) was completed at NAFEC which identified areas of potential contamination (see figure, inside). Sixteen sites were originally identified. Two sites were later added to the IR Program, Sites 2A and 17, for a total of 18 sites.

As part of **Site Investigation**, studies have been conducted and others are underway to determine the nature and extent of possible contamination to soil, surface water, and groundwater at NAFEC. However, early results suggest that surface water quality does not appear to be affected by contamination by NAFEC IR sites.

(Words shown in bold type are defined in the glossary)

The kinds of substances or materials used and identified through studies at NAFEC include **petroleum hydrocarbons** (fuels, hydraulic fluids, motor oils), **solvents**, paints and thinners, photo chemicals, **heavy metals**, battery acids, **chlorinated pesticides**, asbestos, **polychlorinated biphenyls (PCBs)**, construction and demolition debris, household rubbish, and sewage sludge.

A number of SI studies, including groundwater and solid waste testing resulting in at least 20 reports, have been conducted for the IR Program sites at NAFEC. Additional investigative site work is on-going at the facility.

Other Activities

The IR Program focuses on past problems. Compliance with current laws and regulations in effect ensures that NAFEC handles its hazardous wastes properly and that no future problems will arise. Plans have been developed and implemented to establish proper waste identification, handling, and disposal procedures:

- Oil and Hazardous Substance Spill Contingency Plan
- Hazardous Waste Management Plan
- Oil Spill Prevention, Control and Counter-measures Plan
- Hazardous/Extremely Hazardous Materials Management Plan
- AB2588 "Hot Spots" Emission Inventory Plan

In addition, underground storage tanks containing fuel and other petroleum products, often a source of groundwater contamination, are being replaced at NAFEC with above-ground storage tanks. Having tanks above the ground allows better monitoring and prevention of potential leaks, which might otherwise go undetected for long periods of time.

Future Activities

The community will continue to be informed about and involved in cleanup activities at NAFEC. Future fact sheets, public meetings, and opportunities for public review and comment on proposed cleanup methods are a part of the IR Program's community relations activities.

A mailing list has been developed and will be continuously updated. Please add your name and address, and those of others interested in the NAFEC IR Program cleanup, by filling out the mail-in coupon on the back of this fact sheet.

COMMUNITY INFORMATION

A number of potentially interested parties were contacted and interviewed about this program. Interviewees also had the opportunity to ask questions. Their concerns and questions, as well as the cleanup program background, were incorporated into the **Community Relations Plan**. This is a formal document, meeting Environmental Protection Agency (EPA) and State of California community relations guidelines, which describes community involvement activities at a hazardous waste remediation site. The Community Relations Plan is a public document and is on file at the Information Repositories.

Information Repositories

In order to ensure that relevant cleanup-related reports and findings are available for public access, two information repositories have been established. These locations were selected for public convenience and accessibility, based upon comments received during the community interviews:

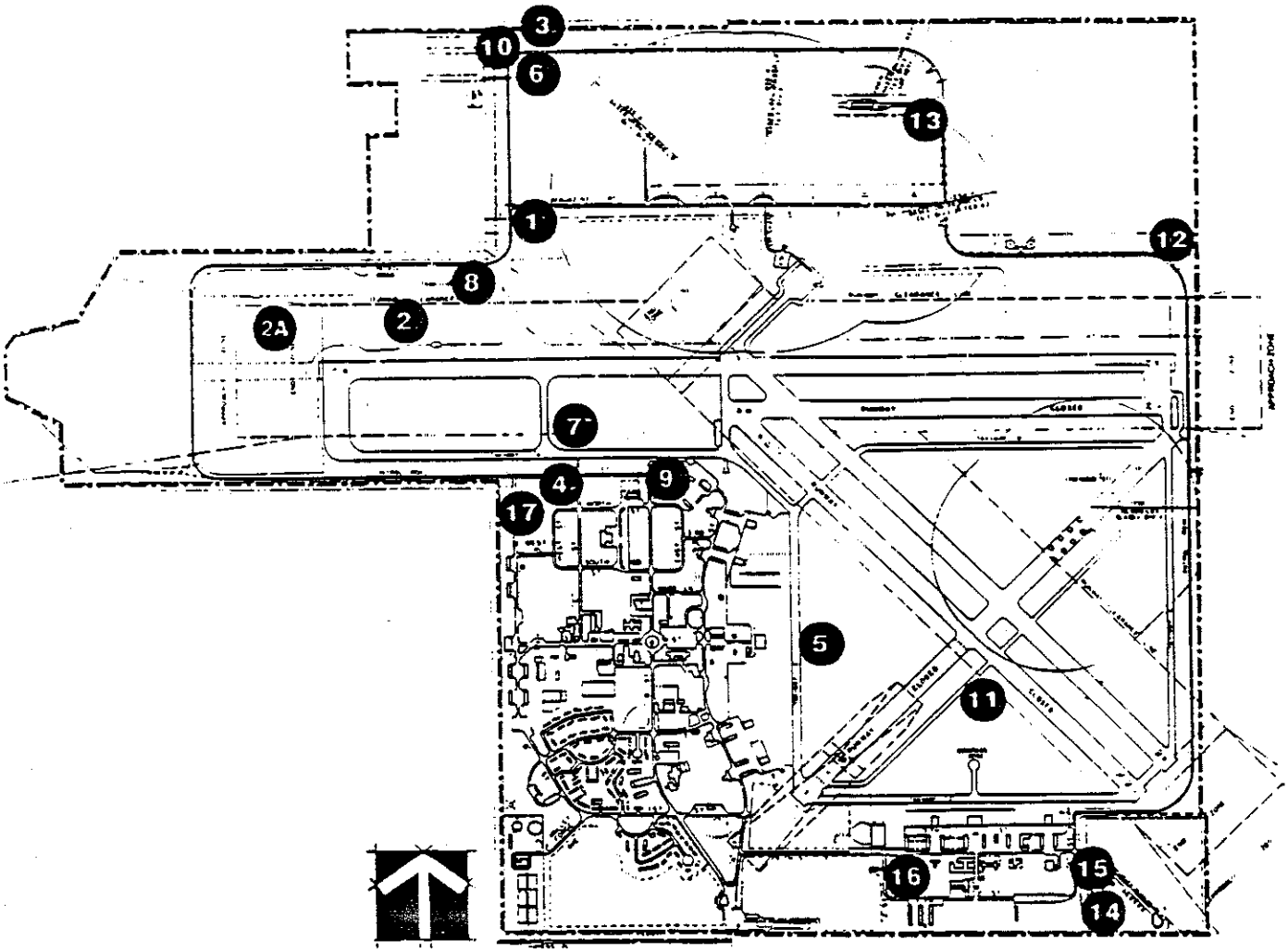
El Centro Public Library	M-Th	10 a.m.-8 p.m.
529 State Street	Fri	10 a.m.-5 p.m.
El Centro, CA 92243	Sat	10 a.m.-1 p.m.
Brawley Public Library	M-Th	12 p.m.-8 p.m.
400 Main Street	Sat	9 a.m.-5 p.m.

FOR MORE INFORMATION, PLEASE CONTACT:

Public Affairs Officer
Naval Air Facility El Centro
El Centro, CA 92243-5001
(619) 339-2519

Mr. John Crow
Naval Air Facility El Centro
El Centro, CA 92243-5001
(619) 339-2264

(Words shown in bold type are defined in the glossary)



Site	Location	Potential Contaminants
1	Magazine Road Landfill	Asbestos, fuel, paint, solvents, photo chemicals, acid
2	Patrol Road Landfill	Asbestos, fuel, paint, solvents, photo chemicals, acid
2A	West Patrol Road Landfill	Asbestos, fuel, paint, solvents, photo chemicals, acid
3	Sludge Burial Area	Silver, cyanide
4	4th Street Fire Fighting Training Area	Burned leaded fuel, hydraulic fluid, confiscated drugs
5	Fire Fighting Training Area	Burned leaded fuel
6	Northwest Fire Fighting Training Area	Burned leaded fuel
7	Abandoned Fuel Farm	Leaded and diesel fuel
8	Scrapyard	Empty drums, tanks, paint cans, transformers with PCBs
9	Transformer Storage Area	Transformers containing PCBs
10	Sewage Stabilization Ponds	Sewage, leaded fuel, motor fluids, photo solutions
11	Runway Burn Area	Burned fuel
12	Open Burn Pit	Burned confiscated drugs, ceramic, tin cans, wood
13	Old Incinerator	Burned paper
14	Fuel Farm Tank Rinseate Disposal	Leaded and diesel fuel
15	Fuel Farm Filter Cleaning Area	Leaded and diesel fuel
16	Potassium Ferricyanide Spill Area	Potassium ferricyanide
17	Fire Fighting Training Area	Burned leaded and diesel fuel

Installation Restoration Program Site Locations
Naval Air Facility El Centro
El Centro, California

ATTACHMENT E

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Southwest Division
Naval Facilities Engineering Command
Contracts Department
1220 Pacific Highway, Building 127, Room 112
San Diego, California 92132-5187

Contract No. N68711-92-D-4670

COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY

CLEAN II

ATTACHMENT E
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
SITES 12 AND 17,
NAF EL CENTRO, CALIFORNIA

CTO-01000/0551

November 1997

Prepared by:

BECHTEL NATIONAL, INC
401 West A Street, Suite 1000
San Diego, California 92101

Signature: _____ Date: 11/25/97

Gregory A. Eagle, R.G., CTO Leader

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ACRONYMS/ABBREVIATIONS

ARAR	applicable or relevant and appropriate requirement
CAA	Clean Air Act
Cal-EPA	California Environmental Protection Agency
CAMU	corrective action management unit
CCR	*California Code of Regulations*
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	*Code of Federal Regulations*
CWA	Clean Water Act
DON	Department of the Navy
DTSC	(Cal/EPA) Department of Toxic Substances Control
EE/CA	Engineering Evaluation/Cost Analysis
ESA	Ecological Scoping Assessment
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
ICAPCD	Imperial County Air Pollution Control District
IRP	Installation Restoration Program
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
NAF	Naval Air Facility
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Policy Act
PCB	polychlorinated biphenyl
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments Reauthorization Act
SIP	State Implementation Plan
SMCL	secondary maximum contaminant level
STLC	solubility threshold limit concentration
SWDIV	Southwest Division Naval Facilities Engineering Command
SWRCB	State Water Resources Control Board

ACRONYMS/ABBREVIATIONS (continued)

TBC	to be considered
TCLP	toxicity characteristic leaching procedure
TPH	total petroleum hydrocarbons
TSCA	Toxic Substances Control Act
USC	*United States Code*
U.S. EPA	United States Environmental Protection Agency
WET	waste extraction test

Section 1
INTRODUCTION

This document was prepared as an attachment to the Action Memorandum/Remedial Action Work Plan prepared for Sites 12 and 17 at Naval Air Facility (NAF) El Centro by the Southwest Division Naval Facilities Engineering Command (SWDIV) to evaluate applicable or relevant and appropriate requirements (ARARs).

1.1 PURPOSE

This document identifies and evaluates potential federal and state ARARs and sets forth the Department of the Navy (DON) determinations regarding those potential ARARs for removal alternatives addressed in the Engineering Evaluation/Cost Analysis (EE/CA) (Attachment A to the Action Memorandum).

This evaluation is the first step in identifying potential ARARs from the universe of regulations, requirements, and guidance that may be pertinent to this site as identified by the DON or state agencies. This evaluation includes an initial determination of whether the potential ARARs actually qualify as ARARs pertinent to the site and a comparison for stringency to identify the controlling ARARs. The identification of ARARs is an iterative process. The final determination of ARARs will be presented by the DON in the final Action Memorandum, after public review, as part of the selection of the response action

1.2 SUMMARY OF CERCLA AND NCP REQUIREMENTS

Section 121(d) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) states that remedial 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" (40 *Code of Federal Regulations* [CFR] Section 300.415[l]). 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. If the requirement is not legally applicable, 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, although not applicable, address problems or situations sufficiently similar to the circumstances of the proposed response action and are well-suited to the conditions of the site (U.S. EPA 1988). The criteria for determining relevance and appropriateness are listed in 40 CFR 300.400[g](2) and include the following:

- purpose of the requirement and the purpose of the CERCLA action;
- medium regulated or affected by the requirement and the medium contaminated or affected at the CERCLA site;
- 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;
- type of place regulated and the type of place affected by the release or CERCLA action;
- 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; and
- any consideration of use or potential use of affected resources in the requirement and the use or potential use of the affected resource at the CERCLA site.

Tables included in this appendix present each potential ARAR with a determination of its status (i.e., applicable or relevant and appropriate). 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 remedial action contemplated, as well as 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 attachment and will be discussed in the text only for specific cases.

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

- state law,
- 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 substantive provisions of requirements identified as ARARs in this analysis shall be considered ARARs. Section 121(e)(1) of CERCLA 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." Permits are considered procedural or administrative requirements. Provisions of generally relevant federal and state statutes and regulations that are determined to be procedural or nonenvironmental, including permit requirements, are not considered to be ARARs.

Nonpromulgated guidance or advisories issued by federal or state government are not legally binding and do not have the status of ARARs. However, such requirements may be useful and are to be considered. "To be considered" (TBC) 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, 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; however, some potential ARARs do not fall precisely into one category or another. ARARs are identified on a site basis for remedial actions where CERCLA authority is the basis for cleanup.

As the lead federal agency, the DON has primary responsibility for identification of federal ARARs at NAF El Centro. As described in Section 1.4, 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 for Navy Installation Restoration Program (IRP) sites at NAF El Centro. Potential federal and state ARARs identified for Sites 12 and 17 are discussed below.

Sites 12 and 17 are not included on the National Priorities List.

1.3 DESCRIPTION OF METHODOLOGY

The process of identification and evaluation of potential federal and state ARARs is described in the following sections.

1.3.1 General

In preparing this ARARs analysis, the DON undertook ARAR-evaluation measures consistent with CERCLA and the NCP. These measures included:

- identifying federal ARARs for the sites and for each removal action alternative addressed in the EE/CA, taking into account site-specific information for Sites 12 and 17;
- requesting that Cal-EPA DTSC identify potential state ARARs;

- reviewing potential state ARARs identified by the state to determine whether they satisfy CERCLA and NCP criteria that must be met to constitute state ARARs;
- evaluating and comparing federal ARARs and their state counterparts to determine which state ARARs are more stringent or are in addition to the federal ARARs; and
- determining which federal and state ARARs were the most stringent and/or "controlling" ARARs for [each] alternative

Soil at both sites is contaminated with dioxins and furans. Site 12 consists of two open burn pits used for burning illegal drugs, drug paraphernalia, and various household debris. JP-5 was used as the fuel to initiate combustion. Site 17 was a former fire-fighting training pit. The exercises involved pouring a layer of fuel on top of a water layer, igniting it, and then extinguishing the fire.

The removal action objectives for these sites are to reduce the potential for human and ecological exposure to contaminated soil.

1.3.2 Identification and Evaluation of State ARARs

In a letter dated 08 September 1997, the DON requested that Cal-EPA DTSC identify potential state ARARs for NAF El Centro IRP sites, including Sites 12 and 17. A reply was received on 06 October 1997. State ARARs listed in the Cal-EPA DTSC letter were considered for their applicability or relevance to the site conditions and objectives of the removal actions at Sites 12 and 17. Those that met the evaluation criteria are identified in this document as potential state ARARs.

1.4 GENERAL ISSUES

General issues identified during the evaluation of ARARs for Sites 12 and 17 are discussed in the following sections.

1.4.1 General Approach to Requirements of Federal Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) was enacted in 1976 as a federal statute to meet three goals:

- protection of human health and the environment;
- reduction of waste and the conservation of energy and natural resources; and
- 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 if:

- 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 1988).

State regulations that are a component of a federally authorized or delegated state program are generally considered federal requirements and potential federal ARARs for the purposes of ARARs analysis (55 *Federal Register* 8742). The state of California received approval for its base RCRA hazardous waste management program on 23 July 1992 (57 *Federal Register* 8742). The Environmental Health Standards for the Management of Hazardous Waste set forth in Division 4.5 of Title 22 of the *California Code of Regulations* (CCR) were approved by U.S. EPA as a component of the federally authorized California RCRA program.

Therefore, the regulations at Division 4.5, CCR Title 22, are a source of potential federal ARARs for CERCLA response actions. The exception is when a state regulation is "broader in scope" 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 state law requirements and potential state ARARs.

U.S. EPA's Federal Register notice of 23 July 1992 approved the State of California RCRA program. It specifically indicated that the state regulations addressed certain non-RCRA, state-regulated hazardous wastes that fell outside the scope of federal RCRA requirements. Division 4.5 requirements would be potential state ARARs for such non-RCRA state-regulated wastes.

A key threshold question for this ARARs analysis is whether the contaminants constitute hazardous waste as defined under RCRA and the state-authorized program, or whether they qualify as nonhazardous waste. Analytical results of soil samples taken during previous investigations indicate that the soil may contain concentrations of some metals at levels that would make it hazardous according to the definitions under CCR Title 22. A conclusive determination cannot be made at this time because the analysis was for total metals and not for the soluble concentration using either the toxicity characteristic leachate procedure (TCLP), as required for a RCRA hazardous waste determination, or the Cal-EPA Waste Extraction Test (WET), as required for a non-RCRA hazardous waste determination.

Based on the maximum concentrations detected at Sites 12 and 17, the soil may be RCRA-hazardous or non-RCRA, Cal-EPA-regulated hazardous waste for hexavalent chromium and lead. These determinations are made by comparing the maximum total chemical concentrations detected in soil samples collected at Site 8 during the SI to 20 times the regulatory level for RCRA and 10 times the soluble threshold limit concentration (STLC) for non-RCRA, Cal-EPA regulated hazardous waste. This

methodology gives a conservative estimate of which contaminants may be present at regulated levels.

For the purpose of identifying ARARs, it is concluded that the waste at Sites 12 and 17 has the potential to be hazardous. Thus, once this waste has been disturbed, generator, transporter, and land-disposal restrictions may be applicable to waste management. Other RCRA requirements may be applicable or relevant and appropriate.

Excavated soil at Sites 12 and 17 will be tested for the characteristics of RCRA and non-RCRA hazardous waste specified in 22 CCR 66261.24 (a)(1) and (a)(2). Results of these analyses will determine disposal options for excavated soil.

1.4.2 California Cancer Potency Factors

In a letter dated 28 June 1993, Dr. John Christopher of DTSC indicated that "... Cal-EPA interprets its published cancer potency factors to meet the criteria for designation as potential chemical-specific ARAR criteria ... [emphasis added]" (DTSC 1993). In a letter dated 24 September 1993, from James R. Pawlisch of the DON to John Scandura of DTSC, the DON posed a number of questions to DTSC concerning its position on the ARARs status of state cancer potency factors (SWDIV 1993).

The DON has conducted independent research and concluded that the state cancer potency factors do not constitute ARARs because they were not "promulgated" as required under 40 CFR Section 300.400(g)(4). This conclusion is based upon the following:

- The cancer potency factors have not been promulgated under the provisions of the State of California Administrative Procedures Act. The cancer potency factors have not been adopted as a regulation as required for a rule or policy as regulation as provided in Government Code Section 11342. The cancer potency factors themselves are not published in the CCR as regulations (Government Code Section 11344).
- The State of California Administrative Procedures Act provides that no state agency may enforce any "guideline, criterion, bulletin, manual, instruction, order, standard of general application, or other rule" unless it has been adopted as a regulation (Government Code Section 11342).
- Because the state cancer potency factors were not promulgated as regulations, they are not enforceable by the state.
- Section 300.400(g)(4) of the NCP requires that state standards must be "promulgated" to constitute state ARARs. To be "promulgated" they must be of "general applicability" and "legally enforceable." Because the state cancer potency factors were not promulgated and are not legally enforceable under state law, they are not ARARs.

Section 2
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 numerical values. Many potential ARARs associated with particular remedial alternatives (such as closure/discharge) can be characterized as action-specific ARARs but include numerical values or methodologies to establish them so they fit in both categories of ARARs. To simplify the comparison of numerical values, action-specific ARARs with numerical values are discussed in this section.

ARARs determination conclusions addressing numerical values are presented by media. A summary of ARARs conclusion by media, followed by a more detailed discussion of the ARARs for soil, are presented below. Summary tables of the potential numerical and most stringent, and therefore the controlling ARARs are presented in each ARARs conclusion section. A more detailed discussion of potential chemical-specific ARARs is presented in Tables 2-1 and 2-2.

2.1 SUMMARY OF ARARs CONCLUSIONS BY MEDIA

The removal action objectives for Sites 12 and 17 are to reduce the potential for human and ecological exposure to soil contamination associated with the former burn areas and to mitigate contaminated soils that have potential to contaminate groundwater at the site. Discharges to surface and groundwater are not anticipated during this removal action. Surface water is not present in the vicinity of the sites. Reported analytical results from soil and groundwater indicate that groundwater contamination resulting from soil release has not occurred. The removal of soil from below the water table is not anticipated to occur during the removal action.

2.1.1 Groundwater ARARs Conclusions

Discharge of contaminants to groundwater is not expected to occur during the removal action. No chemical-specific ARARs for groundwater are identified at this time.

2.1.2 Surface-Water ARARs Conclusions

Surface water is not part of the removal actions and discharges to surface water are not anticipated by any of the proposed removal action alternatives. No chemical-specific ARARs are identified for surface water at this time.

2.1.3 Soil ARARs Conclusions

Due to potentially hazardous concentrations of metals in the soil, RCRA and DTSC hazardous waste management regulations appear to be the controlling chemical-specific ARARs for soil.

Although the reported concentrations of dioxins exceed residential soil preliminary remediation goal (PRG) values, these concentrations are below regulatory levels, and concentrations exceeding regulatory levels are not expected to be encountered.

Table 2-1
Potential Federal Chemical-Specific ARARs[a,b,c] by Media

Requirement	Prerequisite	Citation	ARAR Determination	Comments
GROUNDWATER				
Resource Conservation and Recovery Act				
Groundwater protection standards: owners/operators of RCRA[d] treatment, storage, or disposal facilities must comply with conditions in this section that are designed to assure that hazardous constituents entering the groundwater from a regulated unit do not exceed the concentration limits for contaminants of concern set forth under Section 66264.94 in the uppermost aquifer underlying the waste management area beyond the point of compliance.	Uppermost aquifer underlying a waste management unit beyond the point of compliance; RCRA hazardous waste, treatment, storage, or disposal.	22 CCR[e] 66264.94, except 66264.94(a)(2), and 94(b)	Not an ARAR	Groundwater is not being addressed in this removal action.
Comprehensive Environmental Response, Compensation, and Liability Act				
Alternate concentration.	There are known and projected points of entry of groundwater to surface water; there is no statistically significant increase of hazardous constituents from groundwater in surface water at point of entry; and there are enforceable institutional controls to preclude human exposure at any point between the facility boundary and the point of entry to surface water.	CERCLA[f] Section 121(d)(2)(B)(ii)	Not an ARAR	The removal action at Sites 12 and 17 will address contaminated soil, not groundwater.

(table continues)

Table 2-1 (continued)

Requirement	Prerequisite	Citation	ARAR Determination	Comments
SURFACE WATER (continued)				
Clean Water Act, 33 USC 1251 et seq.				
Water quality standards	Discharges to waters of the United States.	33 USC 1313 and 57 Federal Register 60920-60921	Not an ARAR	No discharges to surface waters are anticipated as part of the Sites 12 or 17 removal actions.
SOIL				
Resource Conservation and Recovery Act				
Definition of RCRA hazardous waste.	Waste soil.	Title 22 CCR Sections 66261.21, 66261.22(a)(1) and (2) 66261.23, 66261.24(a)(1), and 66261.100	Applicable	Applicable for determining waste characteristics of excavated soil.
Toxic Substances Control Act				
Regulates use and manufacture of toxic substances and storage and disposal of PCBs[i].	Soils, debris, sludge, or dredged materials contaminated with PCBs at concentrations greater than 50 parts per million.	40 CFR 761.60, excluding 761.60(a)(B and D), 761.60(a)(3)(iii)(3), 761.60(e), 761.60(f), 761.65(a and b), 761.65(c), except 761.65(c)(9), 761.65(e)(6)(ii and iii), 761.65(e)(7 and 8), 761.79; 15 USC 2601, et seq.	Not an ARAR	PCBs were not detected at Site 12. PCB concentrations at Site 17 are below 50 ppm. TSCA[m] requirements are neither applicable nor relevant and appropriate.

(table continues)

Table 2-1 (continued)

Requirement	Prerequisite	Citation	ARAR Determination	Comments
SURFACE WATER				
Safe Drinking Water Act, 42 USC[g] 300				
National primary drinking water standards are health-based standards for public water systems, including MCLs[h] MCLGs[i].	Public water system.	40 CFR[j] 141.11 - 141.16, excluding 141.11(d)(3); 40 CFR 141.60-141.63	Not an ARAR	MCLGs that have nonzero values are relevant and appropriate for groundwater/surface water determined to be a current or potential source of drinking water. RWQCB has not designated groundwater in the vicinity of Sites 12 and 17 as a potential source of drinking water, and the proposed removal action objectives do not include groundwater remediation. The proposed removal action will not affect nearby surface water bodies (New River and Elder Canal).
National secondary drinking water regulations are standards for the aesthetic qualities of public water systems (SMCLs[k]).	Public water system.	40 CFR 143	Not an ARAR	SMCLs are nonenforceable federal contaminant levels intended as guidelines for the states. Because federal SMCLs are nonenforceable, they are not ARARs. The proposed removal action will not affect nearby surface water bodies (New River and Elder Canal) or groundwater in the vicinity of Sites 12 and 17.

(table continues)

Table 2-1 (continued)

Requirement	Prerequisite	Citation	ARAR Determination	Comments
Federal Insecticide, Fungicide, and Rodenticide Act				
Procedures recommended for all pesticide storage and disposal activities.	Recommendations for the disposal of organic pesticides, metal-organic pesticides, organic mercury, lead, cadmium, arsenic, and all inorganic pesticides.	40 CFR 165.8	Not an ARAR	Not applicable because FIFRA[n] contains nonbinding recommendations for storage and disposal of excess pesticides and pesticide containers at non-U.S. EPA[o] sites. At this time, these procedures are not potential ARARs for CERCLA cleanup actions, but should be considered when developing a protective remedy that involves disposal of pesticide waste or soils and debris highly contaminated with pesticides. Waste soil at Sites 12 and 17 are not highly contaminated with pesticides.
AIR				
Clean Air Act, 40 USC 7401 et seq.				
National Ambient Air Quality Standards: 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 CFR 50.4 - 50.12	Not an ARAR	Not directly enforceable and therefore not an ARAR.
Provisions of State Implementation Plan approved by U.S. EPA under Section 110 of CAA[p].	Major sources of air pollutants.	40 USC 7410; portions of 40 CFR 52.220 applicable to Imperial County Air Pollution Control District.	Not an ARAR	Point source emission of air pollutants regulated by SIP[q] is not relevant or appropriate to current conditions at Sites 12 and 17. Emissions that would be part of the removal action should be evaluated under the action-specific requirements.

(table continues)

Table 2-1 (continued)

Requirement	Prerequisite	Citation	ARAR Determination	Comments
RCRA Air Emissions Requirements				
Air emission standards for process vents or equipment leaks	Equipment that contains or contacts hazardous waste with organic concentrations of at least 10 percent by weight or process vents associated with specified operations that manage hazardous wastes with organic concentrations of at least 10 parts per million by weight.	22 CCR 66264.1030 through 1034, excluding 1030(c),1033(j), 1034(c)(2), 1034(d)(2); 22 CCR 66264.1050 through 1063, excluding 1050(c,d), 1057(g)(2), 1061(d), 1063(d)(3)	Not an ARAR	Soil at Sites 12 and 17 do not contain volatile organic compounds in excess of 10 percent by weight. Waste management operations affected by these regulations are not planned for the removal action at Sites 12 or 17.

Notes:

[a] ARAR – applicable or relevant and appropriate requirement

[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 statutes or policies in their entirety 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.

[c] Chemical-specific concentrations used for removal action alternative evaluation may not be ARARs indicated in this table, but the concentrations may be based upon other factors. Such factors may include the following:

- human-health risk-based concentrations (risk-based PRGs; 40 CFR 300.430[e][A][1] and [2])
- ecological risk-based concentrations (40 CFR 300.430[e][G])
- practical quantitation limits of contaminants (40 CFR 300.430[e][A][3])

Many potential action-specific ARARs contain chemical-specific limitations and are addressed in the action-specific ARAR tables.

[d] RCRA – Resource Conservation and Recovery Act

[e] CCR – *California Code of Regulations*

[f] CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act

[g] USC – *United States Code*

[h] MCL – maximum contaminant level

[i] MCLG – maximum contaminant level goal

[j] CFR – *Code of Federal Regulations*

[k] SMCL – secondary maximum contaminant level

[l] PCB – polychlorinated biphenyl

[m] TSCA – Toxic Substances Control Act

[n] FIFRA – Federal Insecticide, Fungicide, and Rodenticide Act

[o] U.S. EPA – United States Environmental Protection Agency

[p] CAA – Clean Air Act

[q] SIP – State Implementation Plan

Table 2-2
Potential State Chemical-Specific ARARs[a,b,c]

Requirement	Prerequisites	Citation	ARAR Determination	Comments
GROUNDWATER, SURFACE WATER AND SOIL				
California Environmental Protection Agency Department of Toxic Substances Control				
Definition of non-RCRA[d] hazardous waste.	Waste soil	22 CCR[e] 66261.22(a)(3) and (4), 66261.24(a)(2) to (a)(8), 66261.101, 66261.3(a)(2)(C), or 66261.3(a)(2)(F)	Applicable	Applicable for determining whether excavated soil is a non-RCRA hazardous waste.
State maximum contaminant level list.	Public water system	22 CCR 64435 and 64444.5	Not an ARAR	See comment under Federal Safe Drinking Water Act, Table 2-1.
State secondary maximum contaminant level list.	Public water system	22 CCR 64473	Not an ARAR	See comment under Federal Safe Drinking Water Act, Table 2-1.
State and Regional Water Quality Control Board				
Authorizes the state and regional Water Boards to establish in Water Quality Control Plans beneficial uses and numerical and narrative standards to protect both surface and groundwater quality; authorizes regional water boards to issue permits for discharges to land, surface water, or groundwater that could affect water quality, including National Pollutant Discharge Elimination System permits, and to take enforcement action to protect water quality.	Existence of surface water or groundwater	California Water Code, Division 7, Section 13241, 13243, 13263(a), and 13360 (Porter-Cologne Water Quality Control Act)	Not an ARAR	Removal action will not affect surface water quality or address groundwater.
		Other provisions of Porter-Cologne Water Quality Control Act	Not an ARAR	
Describes the water basins in Colorado River Basin region; establishes beneficial uses of ground and surface waters; 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.	Existence of surface water or groundwater	Comprehensive Water Quality Control Plan for the Colorado River (Water Code 13240)	Not an ARAR	Substantive provisions would be ARARs for removal actions affecting water quality. The removal action at Sites 12 and 17 will not affect surface water quality or address groundwater.

(table continues)

Table 2-2 (continued)

Requirement	Prerequisites	Citation	ARAR Determination	Comments
Incorporated into all regional Board Basin Plans; designates all ground and surface waters of the State as drinking water except where the total dissolved solids are greater than 3,000 parts per million, the well yield is less than 200 gallons per day from a single well, the water is a geothermal resource or in a water conveyance facility, or the water cannot reasonably be treated for domestic use using either best management practices or best economically achievable treatment practices.	Existence of surface water or groundwater	State Water Resources Control Board Resolution No. 88-63 (Sources of Drinking Water Policy)	Not an ARAR	Not applicable because the removal action at Sites 12 and 17 will not affect surface water quality or address groundwater.

Notes:

[a] ARAR – applicable or relevant and appropriate requirement

[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 statutes in their entirety 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.

[c] Chemical-specific concentrations used for the removal action alternative evaluation may not be ARARs indicated in this table, but the concentrations may be based upon other factors. Such factors may include the following:

- human health risk-based concentrations (risk-based PRGs) [40 CFR 300.430(e)(A)(1) and (2)]
- ecological risk-based concentrations [40 CFR 300.430(e)(G)]
- practical quantitation limits of contaminants [40 CFR 300.430(e)(A)(3)]

Many potential action-specific ARARs contain chemical-specific limitations and are addressed in the action-specific ARAR tables.

[d] RCRA – Resource Conservation and Recovery Act

[e] CCR – *California Code of Regulations*

The requirements that determine whether a waste is a RCRA hazardous waste are described in 22 CCR 66261 100. The applicable chemical-specific standards of RCRA include the maximum concentrations of contaminants for toxicity characteristics (22 CCR 66261 24a[1]). Other RCRA Subtitle C technical requirements do not apply and are not relevant and appropriate to this removal action because hazardous waste will not be generated, transported, treated, stored, or disposed at Site 1. Numerical values of potential soil ARARs and identification of the controlling ARAR are presented in Table 2-2.

2.1.4 Air ARARs Conclusions

The removal actions planned for Sites 12 and 17 will not result in emission of any regulated pollutants or volatile organic compounds. Thus, no federal or state chemical-specific ARARs have been identified for these removal actions.

2.2 SOIL ARARs

The removal action objectives for Sites 12 and 17 are to reduce the potential for human and ecological exposure to soil contamination and to mitigate contaminated soils that have potential to contaminate groundwater.

Due to the potentially hazardous concentrations of metals in the soil, the RCRA and DTSC hazardous waste management regulations appear to be the controlling chemical-specific ARARs for soil

2.2.1 Federal ARARs

Based on the maximum concentrations detected in soil samples, the soil may be a RCRA hazardous waste by toxicity characteristic for lead and hexavalent chromium. The requirements that determine whether a waste is a RCRA hazardous waste are described in 22 CCR 66261 100. The applicable chemical-specific standards of RCRA include the maximum concentrations of contaminants for the toxicity characteristic (22 CCR 66261 24a[1]). Other RCRA requirements that may apply or be relevant and appropriate are addressed in Section 4 according to the action that precipitates the requirement.

2.2.2 State ARARs

Based on the maximum concentrations detected, the soil may be non-RCRA, state-regulated hazardous waste for arsenic, cadmium, and lead. Thus, Title 22 is applicable, and its chemical-specific requirements for characterization of the excavated soil include the list of inorganic persistent and bioaccumulative toxic substances (22 CCR 66261 24[a][2][A]) and the list of organic persistent and bioaccumulative toxic substances (22 CCR 66261 24[a][2][B]).

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Section 3
LOCATION-SPECIFIC ARARS

Potential location-specific ARARs are identified and discussed in the following sections. The discussions are presented based upon various attributes of the site location, i.e., within a floodplain. Location-specific ARARs place restrictions on proposed removal activities at Sites 12 and 17, based upon various attributes of the site location and conditions. Potential federal and state location-specific ARARs are summarized in Tables 3-1 and 3-2.

3.1 FEDERAL LOCATION-SPECIFIC ARARS

Pertinent and substantive provisions of the following environmental laws and regulations were reviewed to determine whether they were potential federal ARARs for Site 12 or 17.

- 22 CCR 66264 18 (a), (b), and (c) (Hazardous Waste Control Act)
- CFR Part 6, 6 302 and Appendix A (excluding Sections 6(a)(2), 6(a)(4), and 6(a)(6) (Executive Order 11988 Protection of Floodplains and Executive Order 11990 Protection of Wetlands)
- CFR Part 65 (National Archaeological and Historical Preservation Act)
- CFR Part 800 (National Historic Preservation Act, Section 106)
- *United States Code* (USC) Section 1536(a) (Endangered Species Act of 1973)
- CFR 230.10, 231, 231.1, 231.2, 231 7, and 231 8 (Clean Water Act Section 404)
- CFR Part 27 (National Wildlife Refuge System)
- CFR Section 35.1 et seq (Wilderness Act)
- USC Section 662 (Fish and Wildlife Coordination Act)
- USC 1271 et seq. and Section 7(a) (Wild and Scenic Rivers Act)
- USC 461-467 (Historic Site, Buildings, and Antiquities Act)
- USC 403 (Rivers and Harbors Act of 1890)
- USC Section 703 (Migratory Bird Treaty Act of 1972)

Potential federal location-specific ARARs are summarized in Table 3-1. Requirements that are determined to be ARARs or TBCs are identified in the column denoted by the heading "ARAR Determination." Determinations of status for location-specific ARARs were generally based upon consultation of maps or lusts included in the regulation or prepared by the administering agency. References to the document or agency consulted are provided below the heading of "Comments" and in footnotes to the table. Specific issued concerning some of the requirements are discussed in the following sections.

Neither Site 12 nor Site 17 is an identified wetland or historic area. In addition, there are no nearby endangered fish or wild and scenic rivers.

An Ecological Scoping Assessment (ESA) previously conducted identified the potential for California species of special concern to use the site. These species include the

Table 3-1
Potential Federal Location-Specific ARARs[a,b]

Location	Requirement	Prerequisite	Citation	ARAR Determination	Comments
Hazardous Waste Control Act					
Within 61 meters (200 feet) of a fault displaced in Holocene time	New treatment, storage, or disposal of hazardous waste prohibited.	Treatment, storage, or disposal of hazardous waste	22 CCR[c] 66264.18(a)	Not an ARAR	Sites 12 and 17 are not known to be located within 61 meters of a fault.
Within 100-year floodplain	Facility must be designed, constructed, operated, and maintained to avoid washout of hazardous waste.	Treatment, storage, or disposal of hazardous waste	22 CCR 66264.18(b)	Not an ARAR	Sites 12 and 17 are not located within a 100-year floodplain.
Within salt dome formation, underground mine, or cave	Placement of noncontainerized or bulk liquid hazardous waste prohibited.	Hazardous waste placement	22 CCR 66264.18(c)	Not an ARAR	Sites 12 and 17 do not contain any known salt domes, mines or caves. Also, the removal action does not involve placement of noncontainerized or bulk liquid hazardous waste in salt domes, mines, and caves.
Executive Order 11988, Protection of Floodplains					
Within floodplain	Actions taken should avoid adverse effects, minimize potential harm, and 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 CFR[d] 6, Appendix A excluding Sections 6(a)(2), 6(a)(4), 6(a)(6); 40 CFR 6.302	Not an ARAR	Sites 12 and 17 are not located within a designated floodplain area.
National Archaeological and Historical Preservation Act					
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.	Alteration of terrain that threatens significant scientific, prehistoric, historic, or archaeological data	Substantive requirements of 36 CFR 60	Not an ARAR	An archeological survey previously performed in the vicinity of Sites 12 and 17 did not identify any archeological resources in the area of the proposed removal actions.

(table continues)

Table 3-1 (continued)

Location	Requirement	Prerequisite	Citation	ARAR Determination	Comments
National Historic Preservation Act 1992, as amended, Section 106					
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	Substantive requirements of 36 CFR 800	Not an ARAR	No buildings exist at Sites 12 and 17 and the removal action areas are not known to be eligible for the National Register of Historic Places.
Endangered Species Act of 1973					
Critical habitat upon which endangered species or threatened species depend	Action to conserve endangered species or threatened species, including consultation with the Department of the Interior.	Determination of effect upon endangered or threatened species or its habitat	16 USC[c] 1536(a)	Relevant and appropriate	Relevant and appropriate because the Ecological Scoping Assessment conducted for Sites 12 and 17 indicate species proposed for inclusion on the national endangered species list have the potential to use the site.
Executive Order 11990, Protection of Wetlands					
Wetland	Action to minimize the destruction, loss, or degradation of wetlands.	Wetland as defined by Executive Order 11990 Section 7	40 CFR 6, Appendix A, excluding Sections 6(a)(2). 6(a)(4), 6(a)(6); 40 CFR 6.302	Not an ARAR	There are no wetlands in the immediate vicinity of Sites 12 and 17, and there will be no discharges to surface water.
Clean Water Act, Section 404					
Wetland	Prohibits discharge of dredged or fill material into wetland without permit.	Wetland as defined by Executive Order 11990 Section 7	40 CFR 230.10; 40 CFR 231 (231.1, 231.2, 231.7, 231.8)	Not an ARAR	No discharge of dredged or fill material to a wetland is planned as part of the removal action at Sites 12 and 17.
Wilderness Act					
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	50 CFR 35.1 et seq.	Not an ARAR	Sites 12 and 17 are not located in a federally owned wilderness area.

(table continues)

Table 3-1 (continued)

Location	Requirement	Prerequisite	Citation	ARAR Determination	Comments
National Wildlife Refuge System					
Wildlife refuge	Only actions allowed under the provisions of 16 USC Section 668 dd(c) may be undertaken in areas that are part of the National Wildlife Refuge System.	Area designated as part of National Wildlife Refuge System	50 CFR 27	Not an ARAR	Sites 12 and 17 are not part of the National Wildlife Refuge System.
Fish and Wildlife Coordination Act, Section 662					
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 USC 662	Not an ARAR	This removal action does not modify a stream or other water body and does not affect fish or wildlife.
Wild and Scenic Rivers Act					
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 Section 1276(a)	16 USC 1271 et seq. and Section 7(a)	Not an ARAR	This removal action does not impact wild, scenic, or recreational rivers. There are no such rivers in the vicinity of Sites 12 and 17.
Coastal Zone Management Act					
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	Section 307(c) of 16 USC 1456(c); also see 15 CFR 930 and 923.45	Not an ARAR	Sites 12 and 17 are not located within a coastal zone.
Coastal Barrier Resources Act, Section 3504					
Within designated coastal barrier	Prohibits any new federal expenditure within the Coastal Barrier Resource System.	Activity within the Coastal Barrier Resource System	16 USC 3504	Not an ARAR	Sites 12 and 17 are not located within a coastal zone.
Historic Sites, Buildings, and Antiquities Act					
Historic sites	Avoid undesirable impacts on landmarks.	Areas designated as historic sites	16 USC 461-467	Not an ARAR	The areas to be disturbed during the removal action are not known to be eligible for designation as historic sites.

(table continues)

Table 3-1 (continued)

Location	Requirement	Prerequisite	Citation	ARAR Determination	Comments
Rivers and Harbors Act of 1890					
Navigable waters	Permits required for structures or work in or affecting navigable waters.	Activities affecting navigable waters	33 USC 403	Not an ARAR	Removal action at Sites 12 and 17 will not affect navigable waters.
Migratory Bird Treaty Act of 1972					
Migratory bird area	Protects almost all species of native birds in the U.S. from unregulated "take," which can include poisoning at hazardous waste sites.	Presence of migratory birds	16 USC Section 703	Not an ARAR	The Ecological Scoping Assessment did not indicate the presence of migratory birds at Sites 12 and 17.
Marine Mammal Protection Act					
Marine mammal area	Protects any marine mammal in the U.S. except as provided by international treaties from unregulated "take."	Presence of marine mammals	16 USC 1372(2)	Not an ARAR	Sites 12 and 17 are located inland and, therefore, will not affect marine mammals.
Magnuson Fishery Conservation and Management Act					
Fishery under management	Provides for conservation and management of specified fisheries within specified fishery conservation zones.	Presence of managed fisheries	16 USC 1801, et seq.	Not an ARAR	Sites 12 and 17 are located inland and, therefore, will not affect fisheries.

Notes:

[a] ARAR – applicable or relevant and appropriate requirement

[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 statues or policies in their entirety 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.

[c] CCR – *California Code of Regulations*

[d] CFR – *Code of Federal Regulations*

[e] USC – *United States Code*

Table 3-2
Potential State Location-Specific ARARs[a,b]

Location	Requirement	Prerequisites	Citation	ARAR Determination	Comments
Fish and Game Code					
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	Fish and Game Code Section 2080	Relevant and appropriate	Ecological Scoping Assessment identified potential for three California species of special concern to use the site. One of these species (the flat-tailed horned lizard) has been proposed as a threatened species for inclusion on the federal threatened and endangered species list.
Endangered species habitat	Department policy and legislative findings and definitions for significant natural areas.		Fish and Game Code Sections 2050-2068	Not an ARAR	Procedural; not a "cleanup standard, standard or control," or "other substantive requirement, criteria, or limitation."
Endangered species habitat	Assures that action taken will not jeopardize the survival and reproduction of any threatened or endangered species.		Fish and Game Code Sections 2090-2096	Not an ARAR	Not effective after 01 January 1994.

Notes:
[a] ARAR – applicable or relevant and appropriate requirement
[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 statutes or policies in their entirety as potential ARARs. Specific potential ARARs follow each general heading; only substantive requirements of the specific citations are considered potential ARARs.

burrowing owl and flat-tailed horned lizard. The flat-tailed horned lizard has also been proposed for inclusion on the federal threatened and endangered species list. Based on this assessment, the Endangered Species Act of 1973 is identified as a potential ARAR because the removal actions will involve excavation of potential habitats.

Because Sites 12 and 17 are proximate to the New River but outside the 100-year floodplain, Executive Order 11988, Protection of Floodplains, is also identified as relevant and appropriate. The requirements of 40 CFR 6, Appendix A, indicate that action taken should avoid adverse effects, minimize potential harm, and restore and preserve natural and beneficial values of floodplains. No other federal location-specific ARARs were identified.

3.2 STATE LOCATION-SPECIFIC ARARS

Potential state location-specific ARARs are summarized in Table 3-2. Because the ESA identified Sites 12 and 17 as areas of potential use for California species of special concern, and because the removal action will disturb the sites and potential habitats, provisions of the California Fish and Game Code pertaining to actions that may jeopardize the survival and reproduction of these species are identified as potential state location-specific ARARs. No other state location-specific ARARs were identified.

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Section 4
ACTION-SPECIFIC ARARS

Potential action-specific ARARs are addressed according to anticipated removal action activities at Sites 12 and 17. Alternatives eliminated in preliminary screening are not addressed in this section. The preferred alternative involves site characterization, excavation, and disposal of dioxin- and petroleum hydrocarbon-contaminated soil. Potential action-specific ARARs are listed in Tables 4-1 and 4-2.

4.1 REMOVAL ACTION

Contaminant concentrations in soil to be excavated from Sites 12 and 17 will be characterized using 22 *California Code of Regulations* (CCR) 66262.10(a) and 66262.11 and NCP requirements to determine whether those materials would be classified as either TSCA or non-RCRA hazardous waste for selection of the disposal landfill. Disposal at a Class I or Class II facility will be determined based on existing site data and on confirmation sampling conducted at the time of the removal.

The selected alternative action may involve the temporary stockpiling of excavated materials. In the event of rain, runoff from temporary stockpiling could occur. The substantive requirements of 22 CCR 66265.253 dealing with preventing contact between waste and rainwater are applicable for this temporary stockpiling of materials. It is expected that these requirements would be limited to temporary covers over the materials to prevent wind and rainwater erosion and proper decontamination/disposal of these temporary cover materials.

The selected alternative for this removal action will also involve the temporary on-site storage and transport of contaminated soil prior to disposal at a fully-permitted off-site land disposal facility. The substantive portions of the U.S. Department of Transportation regulations (49 CFR 171 and 172 as identified in Table 4-1 will be relevant and appropriate for transport of hazardous materials on-site. Off-site transport must comply with both substantive and administrative requirements.

Title 23 CCR, Division 3, Chapter 15 regulates the siting, design, construction, operation, closure and monitoring of waste discharges to land for treatment, storage, or disposal. Article 5 of Chapter 15 contains monitoring requirements for waste management units and established water quality protection standards for corrective action.

During execution of the removal action, fugitive dust emissions may occur and fuel burning equipment may be used. These activities may be subject to the potential ARARs discussed below.

Fugitive dust may be generated during excavation activities. The applicable provisions of the Imperial County Air Pollution Control District (ICAPCD) Regulation VIII are considered potential ARARs for these activities. ICAPCD Regulation VIII requires that reasonably available control measures be applied to prevent fugitive dust emissions

Table 4-1
Potential Federal Action-Specific ARARs[a,b]

Alternatives: 1 – Soil excavation, off-base disposal at a class I landfill, backfill the excavation; 2- Soil excavation, off-base high temperature incineration, backfill excavation.

Action	Requirement	Prerequisites	Citation	ARAR Determination A[c]	RA[d]	TBC[e]	Comments
Resource Conservation and Recovery Act 42 USC[f] 6901 et seq.							
On-site waste generation	Person who generates waste shall determine if that waste is a hazardous waste.	Generation of waste in California.	22 CCR[g] 66262.10(a), 66262.11	1,2			Applicable for any operation where waste is generated. Determination of hazardous waste status should be documented.
Hazardous waste accumulation	Generator may accumulate waste on-site for 90 days or less or must comply with requirements for operating a storage facility.	Accumulation of hazardous waste.	22 CCR Section 66262.34	1,2			Accumulation of hazardous wastes on-site for longer than 90 days would be subject to requirements for storage facilities.
Waste pile	Design and operating requirements for waste piles. Use a single liner and leachate collection system, unless exempted. Controls for run-on, runoff, and fugitive emissions required.	Noncontainerized accumulation of solid, nonflammable hazardous waste that is used for treatment or storage.	22 CCR 66264.251 (except (j) and (l)1).		1,2		Relevant and appropriate to removal action alternatives that require temporary storage of excavated soil prior to treatment and disposal.
Closure of waste piles	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; owner shall manage all such waste as hazardous waste.	Waste pile used to store hazardous waste.	22 CCR 66264.258(a) and (b) except references to procedural requirements		1,2		Relevant and appropriate for closure of areas used for temporary storage of excavated soil.
Closure with no postclosure care (e.g., clean closure)	General performance standard requires elimination of need for further maintenance and control; elimination of postclosure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products; removal or decontamination of all waste residues, contaminated containment system components, contaminated subsoils, and structures and equipment contaminated with waste and leachate; and management of all such waste as hazardous waste, as necessary.	Land-based unit containing hazardous waste. Hazardous waste placed at site after the effective date of the requirements, or placed into another unit. Cleanup to health-based standards that will not require long-term management. Not applicable to material treated, stored, or disposed only before the effective date of the requirements, or if treated *in situ*, or consolidated within area of contamination.	22 CCR 264.111 and 22 CCR 264.114 except for cross-references to procedural requirements such as preparation and submittal of closure plans and other notifications		1,2		Requirement relevant and appropriate for sites where clean closure or no further response action planned is a removal action objective. This is the case at Sites 12 and 17.

(table continues)

Table 4-1 (continued)

Alternatives: 1 – Soil excavation, off-base disposal at a class I landfill, backfill the excavation; 2- Soil excavation, off-base high temperature incineration, backfill excavation.							
				ARAR Determination			
Action	Requirement	Prerequisites	Citation	A[c]	RA[d]	TBC[e]	Comments
RCRA[h] corrective action	An area at a RCRA facility may be designated as a CAMU[i]. 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.	RCRA corrective action management unit.	40 CFR[j] 264.552				Sites 12 and 17 will not be used as a CAMU. Not an ARAR.
Treatment of hazardous excavated soil	Establishes requirements for the owners and operators of facilities that treat hazardous waste by chemical, physical, or biological methods in other than tanks, surface impoundments, and land treatment facilities.	Hazardous waste treatment.	22 CCR 66264.600 - 603		2		Relevant and appropriate for off-site incineration (Alternative 2).
Placement of waste in land-disposal unit	Attain land-disposal treatment standards before putting waste into landfill in order to comply with land-ban restrictions.	Placement of hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, or underground mine or cave.	22 CCR 66268.40; 22 CCR 66268.105		i		Relevant and appropriate for off-site disposal facility (Alternative 2).
Shipment of hazardous waste to off-site landfill	Generator notification and certification requirements.	Shipment of hazardous waste subject to land-disposal restrictions.	22 CCR 66268.7	1,2			Applicable if restricted hazardous waste from Sites 12 and 17 are sent to off-site landfill or treatment facility with or without treatment.
Use of equipment that contacts hazardous waste with organic concentrations greater than 10 percent by weight	Air emission standards for process equipment leaks.	Specified equipment that contains or contacts hazardous waste with organic concentrations of at least 10 percent by weight.	22 CCR 66264.1050 through 1063 (excluding 1050[c], 1050(d), 1057[g][2], 1061(d), 1063[d][3])				Waste at Sites 12 and 17 contains organic compounds at concentrations less than 10 percent by weight. Not an ARAR.

(table continues)

Table 4-1 (continued)

Action	Requirement	Prerequisites	Citation	ARAR Determination A[c]	RA[d]	TBC[e]	Comments
Alternatives: 1 – Soil excavation, off-base disposal at a class I landfill, backfill the excavation; 2- Soil excavation, off-base high temperature incineration, backfill excavation.							
Discharge to groundwater from regulated unit	Owners/operators of hazardous waste treatment, storage, or disposal facilities must comply with groundwater protection standards designed to assure that hazardous constituents entering the groundwater from a regulated unit do not exceed the concentration limits for chemicals of potential concern in the uppermost aquifer underlying the waste management area beyond the point of compliance.	Uppermost aquifer underlying a waste management unit beyond the point of compliance; hazardous waste, treatment, storage, or disposal.	22 CCR 66264.94(a),(b), (c), (d), (e), (f), and (g)				There will not be any discharges to groundwater from the removal action. This removal action will not be addressing existing groundwater conditions at Sites 12 and 17. Not an ARAR.
Toxic Substances Control Act 15 USC 2601 et seq							
On-site disposal of PCB[k] contaminated soil or debris	Nonliquid PCBs at concentrations of 50 ppm[l] or greater in the form of contaminated soil, rags, or other debris shall be disposed in a TSCA[m]-approved incinerator or in a TSCA-approved chemical waste landfill or by a TSCA-approved alternative disposal method.	Soil containing greater than 50 ppm PCBs.	40 CFR 761(a)(4), 761.60(e)				PCBs were not detected at Site 12. Reported PCB concentrations at Site 17 are below 50 ppm Not an ARAR.
Federal Insecticide, Fungicide, and Rodenticide Act							
Disposal of pesticides	Unacceptable disposal methods include: • those inconsistent with the label, • open dumping, • open burning, and • disposal into any body of water. Chemically deactivate pesticide and recover heavy metals. If chemical deactivation facilities are not available, encapsulate the pesticide and bury it. Store pesticide if neither deactivation nor burial are available.	Treatment recommended for organic mercury, lead, cadmium, arsenic, and all inorganic pesticides.	40 CFR 165.7 and 165.8				Not an enforceable requirement. Removal actions do not involve open dumping, open burning, or discharge to water of regulated pesticides. Not an ARAR.

(table continues)

Table 4-1 (continued)

Alternatives: 1 – Soil excavation, off-base disposal at a class I landfill, backfill the excavation; 2- Soil excavation, off-base high temperature incineration, backfill excavation.

Action	Requirement	Prerequisites	Citation	ARAR Determination A[c]	RA[d]	TBC[e]	Comments
Clean Air Act 40 USC 7401 et seq.							
Discharge to air	Provisions of State Implementation Plan approved by U.S. EPA[n] under Section 110 of CAA[o].	Major sources of air pollutants.	40 USC Section 7410; portions of 40 CFR Section 52.220 applicable to ICAPCD[p]				Specific pertinent rules are listed below. Not an ARAR.
Fugitive dust emissions	Persons engaging in the handling, transport, or disposition of bulk materials shall apply reasonably available control measures to prevent fugitive dust emissions.	Engaging in nonexempt handling, transport, or disposition of bulk materials.	ICAPCD Regulation VIII	1,2			Removal actions will involve nonexempt handling, transport, and disposition of bulk materials.
Fuel-burning equipment	A person shall not build, erect, install, use, or expand any nonmobile fuel burning equipment unless the emissions meet specific criteria for sulfur compounds, nitrogen oxides, and combustion contaminants derived from fuel.	Must build, erect, install, use, or expand nonmobile fuel-burning equipment.	ICAPCD Rule 400				Removal action for Sites 12 and 17 do not include the use of nonmobile fuel-burning equipment. Not an ARAR.
Opaque emissions	Release or discharge to the atmosphere from a single source of emission air contaminant for a period or periods of more than three minutes in any hour that registers darker than No. 1 on the Ringleman chart.	Discharge of opaque emissions.	ICAPCD Rule 401	1,2			May be applicable to emissions from fuel-burning equipment.
Particulate matter emissions	Discharge in one hour of particulate matter in total quantities in excess of the amount shown in referenced table.	Discharge of particulate emissions.	ICAPCD Rule 404	1,2			Excavation and handling of soil may result in discharge of particulate matter.
Combustion emission	Combustion contaminants limited to 0.2 grams per cubic foot of stack gas except during start-up.	Discharge of combustion emissions.	ICAPCD Rule 406				Removal actions for Sites 12 and 17 do not include the use of nonmobile fuel-burning equipment. Not an ARAR.

(table continues)

Table 4-1 (continued)

Alternatives: 1 – Soil excavation, off-base disposal at a class I landfill, backfill the excavation; 2- Soil excavation, off-base high temperature incineration, backfill excavation.

Action	Requirement	Prerequisites	Citation	ARAR Determination A[c]	RA[d]	TBC[e]	Comments
Hazardous materials marking, labeling, and placarding (continued)	Labeling of hazardous material packages shall be as specified in the list.		49 CFR 172.400	1,2			Soil at Sites 12 and 17 are potentially hazardous waste.
	Nonbulk combination packages containing liquid hazardous materials must be packed with closures upward, and marked with arrows pointing upward.		49 CFR 172.312	1,2			Soil at Sites 12 and 17 are potentially hazardous waste.
	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 CFR 172.504.		49 CFR 172.504	1,2			Soil at Sites 12 and 17 are potentially hazardous waste.
Criteria for Classification of Solid Waste Disposal Facilities and Practices, 40 CFR Part 257							
Solid waste disposal	A facility or practice shall not contaminate an underground drinking water source beyond the solid waste boundary or a court- or state-established alternative.	Solid waste disposal facility and practices except agricultural wastes, overburden resulting from mining operations, land application of domestic sewage, location and operations of septic tanks, solid or dissolved materials in irrigation return flows, industrial discharges that are point sources subject to permits under CWA', source special nuclear or by-product material as defined by the Atomic Energy Act, hazardous waste disposal facilities that are subject to regulation under RCRA subtitle C, disposal of solid waste by underground well injection, and municipal solid waste landfill units.	40 CFR 257.3-4 and Appendix I				Groundwater at Sites 12 and 17 are not addressed by these removal actions. Not an ARAR.

(table continues)

Table 4-1 (continued)

Alternatives: 1 – Soil excavation, off-base disposal at a class I landfill, backfill the excavation; 2- Soil excavation, off-base high temperature incineration, backfill excavation.							
				ARAR Determination			
Action	**Requirement**	**Prerequisites**	**Citation**	**A**[c]	**RA**[d]	**TBC**[e]	**Comments**
U.S. Department of Transportation, 49 USC 1802, et seq.							
Hazardous materials transportation	No person shall represent that a container or package is safe unless it meets the requirements of 49 USC 1802, et seq., or shall represent that a hazardous material is present in a package or motor vehicle if it is not.	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 CFR 171.2(f)	1,2			Substantive portions of these requirements would be ARARs for transport of hazardous materials on-site. Off-site transport must comply with both substantive and administrative requirements. Soil at Sites 12 and 17 are potentially hazardous waste.
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 CFR 172.300, et. seq.	1,2			Soil at Sites 12 and 17 are potentially hazardous waste.
	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 CFR 172.301	1,2			Soil at Sites 12 and 17 are potentially hazardous waste.
	Hazardous materials for transportation in bulk packages must be labeled with proper ID[g] number, specified in 49 CFR 172.101 table, with required size of print. Packages must remain marked until cleaned or refilled with material requiring other marking.		49 CFR 172.302	1,2			Soil at Sites 12 and 17 are potentially hazardous waste.
	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 CFR 172.303	1,2			Soil at Sites 12 and 17 are potentially hazardous waste.
	The markings must be durable, in English, in contrasting colors, unobscured, and away from other markings.		49 CFR 172.304	1,2			Soil at Sites 12 and 17 are potentially hazardous waste.

(table continues)

Table 4-1 (continued)

Notes:

[a] ARAR – applicable or relevant and appropriate requirement

[b] Statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs. Specific potential ARARs are addressed in the table below each general heading.

[c] A – applicable

[d] RA – relevant and appropriate

[e] TBC – to be considered

[f] USC – *United States Code*

[g] CCR – *California Code of Regulations*

[h] RCRA – Resource Conservation and Recovery Act

[i] CAMU – corrective action management unit

[j] CFR – *Code of Federal Regulations*

[k] PCB – polychlorinated biphenyl

[l] ppm – parts per million

[m] TSCA – Toxic Substances Control Act

[n] U.S. EPA – United States Environmental Protection Agency

[o] CAA – Clean Air Act

[p] ICAPCD — Imperial County Air Pollution Control District

[q] ID – identification

[r] CWA – Clean Water Act

Table 4-2
Potential State Action-Specific ARARs[a,b]

Alternatives: 1 – Soil excavation, off-base disposal at a class I landfill, backfill the excavation; 2- Soil excavation, off-base high temperature incineration, backfill excavation.

Action	Requirement	Prerequisites	Citation	ARAR Determination A[c]	RA[d]	TBC[e]	Comments
State Water Resources Control Board and Regional Water Quality Control Board							
Excavation of contaminated soil	Establishes policies and procedures for the oversight of investigations and cleanup and abatement activities resulting from discharges of waste that affect or threaten water quality. It requires cleanup of all waste discharged and restoration of affected water to background conditions. Requires actions for cleanup and abatement to conform to Resolution 68-16 and applicable provisions of Title 23 CCR[f], Division 3, Chapter 15 as feasible.	Prior discharge of waste	SWRCB[g] Resolution 92-49 (Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code §13304) (Water Code §13307)				Invalidated by California Office of Administrative Law in September 1993. Not an ARAR.
Excavation of contaminated soil	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 Title 22, CCR §12000 et seq.		Safe Drinking and Toxic Enforcement Act of 1986 (Proposition 65), California Health and Safety Code, Division 20				Not an ARAR.
Excavation of contaminated soil	Guidance on allowable TPH[h] levels in soil.	TPH in soil	SWRCB, Leaking Underground Fuel Tank (Field Manual) (SWRCB 1989)			1,2	TBC for TPH remaining in soil following the removal.
California Code of Regulations, Title 23, Chapter 15							
Disposal of excavated soil in a land-based unit	Regulates siting, design, construction, operation, closure, and monitoring of waste discharges to land for treatment, storage, or disposal, including landfills, surface impoundments, waste piles, and land treatment facilities. Wastes regulated include hazardous waste, designated waste, nonhazardous waste, and inert waste.	Waste management unit	Title 23 CCR, Division 3, Chapter 15 (Discharges of Waste to Land), Article 1, Section 2511(d), Article 2, Sections 2520-2524	1,2			Applicable because Sites 12 and 17 wastes are potential hazardous and/or designated waste.

(table continues)

Table 4-2 (continued)

Alternatives: 1 – Soil excavation, off-base disposal at a class I landfill, backfill the excavation; 2- Soil excavation, off-base high temperature incineration, backfill excavation.

Action	Requirement	Prerequisites	Citation	ARAR Determination			Comments
				A[c]	RA[d]	TBC[e]	
Waste pile	New waste piles shall comply with Article 4, Construction Standards.	Waste pile used to store hazardous or designated waste	Section 2540(d)		1,2		Relevant and appropriate for removal alternatives that require temporary storage of excavated soil prior to treatment and disposal.
Waste pile	Class I and Class II waste piles shall be covered as necessary to prevent percolation of precipitation through waste.	Waste pile used to store hazardous or designated waste	Section 2544(c)	1,2			Applicable because removal action at Sites 12 and 17 potentially involve temporary storage of hazardous or designated waste in a waste pile.
Waste pile	Closure requirements for surface impoundments, waste piles and land treatment facilities.		Sections 2582, 2583, and 2584				Not more stringent than Federal ARARs at 22 CCR 66264.258.
							Not an ARAR.

Notes:

[a] ARAR – applicable or relevant and appropriate requirement

[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 statutes or policies in their entirety 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.

[c] A – applicable

[d] RA – relevant and appropriate

[e] TBC – to be considered

[i] CCR – *California Code of Regulations*

[g] SWRCB – (California) State Water Resources Control Board

[h] TPH – total petroleum hydrocarbons

ICAPCD Rule 401 may be applicable to mobile fuel-burning equipment. The requirements of Rule 401 prohibit the emissions of air contaminants darker than No. 1 on the Ringleman chart for more than 3 minutes in any hour.

Many of the requirements in Title 23, Div. 3, Chapter 15, are identical to the hazardous waste management rules found in Title 22, Division 4.5, Chapter 14. Therefore, even if the Title 23 requirements are applicable or relevant and appropriate, they would not be considered to be state ARARs because they are not more stringent than the federal requirements.

4.2 NO ACTION

The no action alternative specifies leaving contaminated soil in place. This alternative does not satisfy effectiveness or implementability criteria. It is not protective of human health or the environment, does not reduce the risk from exposure to contaminated soil at the sites, and does not meet cleanup objectives. Action-specific ARARs for the no action alternative are not identified because this alternative will not be implemented.

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Section 5
SUMMARY

Controlling ARARs have been identified in the text and tables of this attachment for each media, location, or proposed action. A final comparison of numerical limits for potential or proposed discharge to surface water, groundwater, air, and land was performed, and the results are outlined in Tables 1 through 6. The most stringent numerical limitations, the controlling numerical values, associated with federal or state ARARs for each site-related chemical are identified in the tables by media. Each numerical limit identified in the tables pertains to specific activities that constitute discharge or placement into the identified medium.

In general, the controlling ARARs and TBCs for the removal actions proposed for Sites 12 and 17 are related to the RCRA requirements for waste characterization. These controlling ARARs are discussed in Section 3 of the EE/CA (Attachment A to the Action Memorandum).

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Section 6
REFERENCES

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

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1.4.3 California Environmental Quality Act

The California Environmental Quality Act (CEQA) is typically applicable to state actions and not actions of the federal government. In addition, 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 (SARA). Pursuant to the provisions of CERCLA, NCP, and other federal environmental impact evaluation requirements, selecting a remedial action with feasible mitigation measures and providing for public review are designed to ensure that the proposed action provides for the short-term and long-term protection of the environment and public health and, hence, perform the same function as and are substantially parallel to, the state's requirements under CEQA.

For the reasons given above, NEPA and CEQA are not ARARs for Sites 12 and 17.

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