

Marine Corps Air Station El Toro
Installation Restoration Program

M60050.001938
MCAS EL TORO
SSIC # 5090.3

Public Information Materials

3/26/97

Restoration Advisory Board Meeting
held at Irvine City Hall
Irvine, CA

Materials/Handouts Include:

- RAB meeting agenda.
 - RAB draft meeting minutes - 1/30/97 RAB meeting. (These minutes were approved at the 3/26/97 meeting without any amendments, they are considered Final.)
 - Cost comparison for landfills (provided by Dr. Bennett).
 - MCAS El Toro Base Realignment and Closure (BRAC) Cleanup Plan (BCP) Overview.
 - Executive Summary BCP, March 1997.
 - MCAS El Toro Groundwater Monitoring Update, 4th Quarter 1996.
 - Volatile Organic Compound (VOC) Source Area, Operable Unit 2A, Site 24.
 - U.S. EPA, "A Citizen's Guide to Soil Vapor Extraction and Air Sparging".
 - Executive Summary Draft Final Phase II Vadose Zone Feasibility Study Report Operable Unit 2A, Site 24, MCAS El Toro, March 11, 1997.
 - MCAS El Toro Schedule Update, Federal Facility Agreement.
- Agency Comments - U.S. Environmental Protection Agency
- U.S. EPA Technical Comments, Draft Final Phase II Feasibility Study Reports - Operable Unit 2C, Sites 3 & 5, MCAS El Toro, March 11, 1997.
 - Additional U.S. EPA Technical Comments, Draft Final Phase II Feasibility Study Reports - Operable Unit 2C, Sites 3 & 5, MCAS El Toro, March 24, 1997.
- Agency Comments - Cal-EPA, Department of Toxic Substances Control
- Draft Phase II Remedial Investigation/Feasibility Study Report for Site 25, Major Drainages, Operable Unit 2A, MCAS El Toro, March 12, 1997; California Regional Water Quality Control Board [comments dated February 5, 1997].
 - Draft Final Phase II Feasibility Study Report for the Perimeter Road Landfill, Site 5 Operable Unit 2C, MCAS El Toro; DTSC Comments [dated March 12, 1997]; Integrated Waste Management Board [comments dated March 10, 1997].
 - Draft Final Phase II Feasibility Study Reports for the Perimeter Road Landfill, Site 5 Operable Unit 2C, DTSC Comments [dated March 12, 1997] Integrated Waste Management Board [comments dated March 10, 1997].

**MCAS EL TORO
RESTORATION ADVISORY BOARD MEETING
March 26, 1997**

RAB MEMBER SIGN-IN SHEET

Name	Signature	Name	Signature
Allen, Bob		Mathews, Thomas	
Barney, Col. Joseph P. (ret)	<i>Joseph P. Barney</i>	McVicker, Robert R.	<i>Robert R. McVicker</i>
Bennett, Dr. Charles	<i>Chas. Bennett</i>	Meier, Fred J.	<i>Fred J. Meier</i>
Brady Jr., Paul		Merryman, Robert	<i>Robert Merryman</i>
Britton, George	<i>George Britton</i>	Mountford, Dan	<i>Dan Mountford</i>
Cohn, Enid	<i>Enid Cohn</i>	Murphy, Don	<i>Don Murphy</i>
Crompton, Chris	<i>Chris Crompton</i>	Olquin, A. Richard	
Gallagher, George M.		Ritchie, Col. E.J.	
Hayes, Finola		Rudolph, Marcia	<i>Marcia Rudolph</i>
Herndon, Roy		Shayegan, Maria	<i>Maria P. Shayegan</i>
Hurley, Greg - Co-Chair	<i>Greg Hurley</i>	Sievers, Larry	
Hersh, Peter	<i>Peter Hersh</i>	Sipp, Jr., Myron L.	
Joyce, Joseph - Co-chair		Vasquez, Barbara	
Kistner, Glenn	<i>Glenn Kistner</i>	Vitale, Larry	
Koepke, Jeffrey	<i>Jeffrey Koepke</i>	Werner, Jerry B.	<i>Jerry Werner</i>
Mahmoud, Tayseer	<i>Tayseer Mahmoud</i>	Woodings, Bob	
Matheis, Mary Aileen		Zweifel, Donald E.	<i>Don Zweifel</i>
HARTMAN, BOB			

**MCAS EL TORO
RESTORATION ADVISORY BOARD MEETING
March 26, 1997**

**NON-RAB MEMBER SIGN-IN SHEET
Other Attendees, Guests**

NAME	AFFILIATION	MAILING ADDRESS	PHONE FAX	INTERESTED IN RAB MEMBERSHIP?
Scott KEHE	NAVY	ROICC EL TORO	(714) 726-2506	no
GAIL Reavis	21281 Astoria	→ Mission Viejo 92692	461-0020	<u>Yes!</u>
Robert Stellan		1409 Samoa Laguna Beach 92657	484 9988	yes
JACK COTTER		30842 DRIFTWOOD SUITE LAGUNA 92677	499-1865	ye
Rex Callaway	Navy	SWDIV	619-532-1662	NO
RICHARD TAMBARA	SCAAMD	21865 E. COLLEY DR. DIAMOND BAR CA. 91765	909) 396-2319	no
Orlene Chenarides	TRP	17 Merlin Ave. Aliso Viejo 92656	(714) 452-9488	NO
JERRY Hochess	NVA	3486 EBOE IRVINE 92606	714 552 3548	

**MCAS EL TORO
RESTORATION ADVISORY BOARD MEETING
March 26, 1997**

**NON-RAB MEMBER SIGN-IN SHEET
Other Attendees, Guests**

NAME	AFFILIATION	MAILING ADDRESS	PHONE FAX	INTERESTED IN RAB MEMBERSHIP?
 HARRY BROCKY	BNI			
HARRY CHENARIDES	AVCA	17 MERLIN AVE ALISO VIEJO	714- 452-9488	YES NO
BETHANY DILLOW	SVS, Inc	24692 NYMPHA MISSION VIEJO, CA 92691	714-859-7008 472-0483	
Mary Lynn NORBY	Trustm	14512 Emerywood Rd Tustin 92780	714) 8324678	

**MCAS EL TORO
RESTORATION ADVISORY BOARD MEETING
March 26, 1997**

**NON-RAB MEMBER SIGN-IN SHEET
Other Attendees, Guests**

NAME	AFFILIATION	MAILING ADDRESS	PHONE FAX	INTERESTED IN RAB MEMBERSHIP?
DANA SAKAMOTO	SOUTHWEST IN FAC ENG COM			
WALTER KLEIN	U.S. EPA	715 HAWTHORNE ST. S. F. CA 94108		
ANGELO VASSOS	PROJECT '99	79 SETON RD IRVINE 92612	(714) 786-7546	YES

* **MCAS El Toro
Restoration Advisory Board
Meeting**

*26 March 1997 6:30-9:00 PM
Irvine City Hall
Conference and Training Center
One Civic Center Plaza
Irvine*

AGENDA

NOTE: RAB Co-Chairs have agreed that question and answer sessions pertaining to specific presentations will be conducted following each presentation.

Welcome/Introductions/Agenda Review

Dana Sakamoto
U.S. Navy/Southwest Division

Old Business

Approval of 1/30/97 Minutes

Greg Hurley
RAB Community Co-chair

Summary of 2/26/97 RAB Subcommittee Meeting

Chuck Bennett
Chairperson OU-2A RAB Subcom

New Business

Overview of 1997 BRAC Cleanup Plan

Andy Piszkin
U.S. Navy/Southwest Division

Update on Quarterly Groundwater
Monitoring Program

Andy Piszkin

Volatile Organic Compound Source
Area/Site 24 Remediation

Bernie Lindsey
U.S. Navy/Southwest Division

Schedule Update - Federal Facilities
Agreement

Andy Piszkin

Public Notification of Project Milestones

Lt. Matt Morgan
BRAC Public Affairs Office

Regulatory Agency Comment Update

Glenn Kistner
U.S. Environmental Protection
Agency

Tayseer Mahmoud
Cal-EPA, Dept. of Toxic
Substances Control

Meeting Summary

Greg Hurley

Meeting Evaluation

Future Topics and Meetings

Closing

Dana Sakamoto/Greg Hurle

P U B L I C N O T I C E

***MARINE CORPS AIR STATION
EL TORO***

Restoration Advisory Board Meeting



***Participate in the environmental restoration and
cleanup program underway at MCAS El Toro.
Your input is welcome!***

**Wednesday, March 26, 1997
6:30 - 9:00 p.m.**

**Irvine City Hall
Conference and Training Center
One Civic Center Plaza, Irvine**

This meeting will feature the following activities and presentations:

- ***Overview of the 1997 Base Realignment and Closure
Cleanup Plan***
- ***Update on the Quarterly Groundwater Monitoring
Program that Measures and Tracks Water Quality***
- ***Future Soil Cleanup at Installation Restoration
Program Site 24***



For more information about this meeting and the Installation Restoration
Program at MCAS El Toro, please contact:

**Commanding General
AC/S, Environment (1AU)
Attn: Ms. Charly Wiemert, MCAS El Toro
P.O. Box 95001, Santa Ana, CA 92709-5001
(714) 726-2840**

MARINE CORPS AIR STATION EL TORO
RESTORATION ADVISORY BOARD MEETING

January 30, 1997

DRAFT MEETING MINUTES

A Restoration Advisory Board (RAB) meeting for Marine Corps Air Station (MCAS) El Toro was held Thursday, January 30, 1997 at the Irvine City Hall. The meeting began at 6:35 p.m. These minutes summarize the discussions and presentations from the meeting.

WELCOME, INTRODUCTIONS, AGENDA REVIEW

Mr. Joseph Joyce, Marine Corps/Navy RAB Co-Chair, welcomed everyone to the meeting, reminded all present to sign in, and introduced Ms. Marcia Rudolph, Community RAB Co-Chair. After the Pledge of Allegiance, all attendees introduced themselves. The Co-Chairs reviewed the meeting agenda and Mr. Joyce announced changes to the agenda. He added a brief presentation on Installation Restoration Program accomplishments for 1996 and stated that the landfill seismology presentation would be deferred to a future RAB meeting.

OLD BUSINESS

Review and Approval of December 4, 1996 Meeting Minutes

The RAB minutes were approved without amendment.

NEW BUSINESS

Installation Restoration Program Accomplishments for 1996 - Mr. Joyce

Mr. Joyce described key accomplishments:

- Completing Remedial Investigations for Operable Units (OUs) 2A (Volatile Organic Compound [VOC] Source Area, Site 24), OU 2B (Landfill Sites 2 and 17) and OU-2C (Landfill Sites 3 and 5), and OU-3A that encompasses the remaining Installation Restoration Program sites at the Station with shallow soil contamination.
- Completing of draft Feasibility Study Reports were also for OU-1 (Regional Groundwater, VOC plume), OU-2A, OU-2B, and OU-2C.
- Two rounds of quarterly groundwater monitoring, encompassing over 160 groundwater wells were completed.

Mr. Joyce also thanked RAB members for their participation at RAB meetings, subcommittee meetings, reviewing documents, and providing comments during the past year.

Community Co-Chair Election - Ms. Rudolph and Mr. Joyce

Ms. Rudolph briefly described the responsibilities of the Community Co-Chair which includes attending meetings, communicating with Mr. Joyce, and serving as ex-officio member of all RAB subcommittees. The Community Co-Chair also receives all RAB comments on environmental reports and documents and directs them to the Marine Corps/Navy and regulatory agencies. A list of Community Co-Chair responsibilities, excerpted from the RAB Mission Statement and Operating Procedures, was provided as a handout.

Mr. Joyce explained the election procedures and the floor was opened for nominations. Three of four community RAB members nominated respectfully declined their nominations. The fourth nominee, Mr. Greg Hurley, accepted the nomination and was declared by acclamation of the RAB as the new Community Co-Chair. Mr. Hurley, a partner in a law firm specializing in environmental issues, told RAB members of the qualities he brings to the Co-Chair job. These include experience working with regulatory agencies, strong organizational experience, and his own staff to help with executing some of his Co-Chair duties.

Mr. Joyce thanked Ms. Rudolph for her two years of dedicated service as Community Co-Chair and presented her with a plaque from the Marine Corps/Navy for her strong participatory role in facilitating the RAB's involvement in the environmental cleanup program.

RAB Panel Briefing at Defense Environmental Response Task Force (DERTF) Conference - Ms. Rudolph

Ms. Rudolph provided a summary of the presentation of four MCAS El Toro RAB members made to the DERTF. Ms. Rudolph provided a brief history, explained how the Rules of Operation that the RAB follows were developed, and how the RAB is working with the budget constraints imposed last year. She added that Dr. Chuck Bennett covered the landfills and associated issues, Ms. Maria Shayegan explained the trichloroethylene (TCE) plume and groundwater contamination, and Ms. Enid Cohen provided information on the participation of RAB members. Ms. Rudolph said the key concern raised to the DERTF was that the community expects the Department of Defense to be held accountable for remediation and/or monitoring of Station property for the next 30 to 40 years whether it is eventually transferred for reuse or remains as federal property.

RAB members participated in a tour of the Station with DERTF members. An overview of all the Installation Restoration Program sites was included along with stops at the VOC

Source Area (Site 24), the Tank 398 site cleanup, and the landfills. The RAB informed the DERTF of the presumptive remedies, endangered species, and protected habitats associated with the landfills. During the site tour, DERTF members were made aware of the Draft Reuse Plans and how this overlaps with the environmental cleanup underway.

Dr. Bennett stated that the presentation and the tour provided a unique opportunity for the RAB to meet with high level policy advisors and give them specific information that will help them deal with these issues on a general basis. Also, according to Mr. Hurley, the issue regarding the need for continued RAB funding was brought to the attention of the DERTF. Mr. Joyce added that RAB members made a strong impression on the DERTF and that the Task Force stated that the RAB process is working successfully at MCAS El Toro.

Environmental Program Update - Results of Landfill Consolidation Costing - Bernie Lindsey, Remedial Project Manager (RPM), Southwest Division Naval Facilities Engineering Command

Mr. Lindsey's update covered two key topics: (1) results of landfill consolidation costing that will be incorporated into the draft final Feasibility Study Reports for the four MCAS El Toro landfills; and (2) the VOC Source Area, Site 24.

Landfill Consolidation Costing

Mr. Lindsey explained that three years ago the Base Realignment and Closure Team (BCT) chose to follow the "presumptive remedy" approach for landfills that complies with the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The BCT is made up of representatives from the Marine Corps/Navy, U.S. Environmental Protection Agency (U.S. EPA), and the California Environmental Protection Agency's Department of Toxic Substances Control (DTSC) and Regional Water Quality Control Board (RWQCB). The approach involves determining the impact of landfills on surrounding soil and groundwater, leaving the landfill contents in place, capping the landfill, and performing ongoing environmental monitoring to determine if and to what degree any contamination is migrating from the landfills.

Members of the RAB, after review of draft Feasibility Study Reports for the landfills, requested that the BCT also consider landfill consolidation (also referred to as "clean closure") as a potential alternative to be compared with the presumptive remedy, capping and monitoring. Consolidation/clean closure involves digging up landfill contents for disposal at another landfill. Hazardous wastes removed would be disposed of at proper off-Station, state-approved hazardous waste disposal facilities. The cost estimating effort considered information from consolidation efforts being performed in Southern California, most notably those at Norton Air Force Base in San Bernardino. Actual bids for hazardous waste disposal and estimates for labor were also included.

Consolidation/clean closure cost estimates shown below will be included in the draft final Feasibility Study Reports:

- Remove Site 2 (Magazine Road Landfill) contents and dispose at Site 17 (Communication Station Landfill)
 - Presumptive Remedy/Capping and Monitoring = \$10 million
 - Consolidation/Clean Closure = \$40 million
- Remove Site 3 (Original Landfill) contents and dispose at Site 17
 - Presumptive Remedy/Capping and Monitoring = \$1.7 million
 - Consolidation/Clean Closure = \$26 million
- Remove Site 5 (Perimeter Road Landfill) contents and dispose at Site 17
 - Presumptive Remedy/Capping and Monitoring = \$3 million
 - Consolidation/Clean Closure = \$7 million

In response to a RAB member's question regarding monitoring and extraction of methane gas at the landfills, Mr. Lindsey said active extraction of methane is most likely not necessary based on soil gas data collected during the remedial investigation, however, monitoring would be performed at the landfill perimeter, and these monitoring costs are built into the above estimates.

Volatile Organic Compound (VOC) Source Area, Site 24

Mr. Lindsey said the BCT recently examined ways to take accelerate remediation at Site 24 in accordance with CERCLA. The contaminated soil at Site 24 serves as the source and starting point for groundwater contamination that is present in the regional groundwater. It was agreed to first focus on the VOC-contaminated soil at Site 24 and follow up with actions that address VOC-contaminated groundwater. This strategy will allow for faster cleanup of the soil. Therefore, the BCT is planning to sign an Interim Record of Decision (ROD) for the contaminated soil prior to September 30, the end of Fiscal Year 1997. A ROD is the legal document that sets the clean-up standards and documents the selected clean-up remedy. Completing a Final ROD that encompasses both soil and groundwater would follow sometime during Fiscal Year 1998. Steps to each ROD include completion of Feasibility Studies and developing and publishing Proposed Plan Fact Sheets for public review and comment. Mr. Lindsey stressed that public participation is essential and public meetings will be held to provide details on the proposed plans of action for soil and groundwater cleanup. Public comments will be considered and a response will be included in the final ROD that documents the selected cleanup alternatives.

Mr. Lindsey said that soil vapor extraction (SVE) technology, a presumptive remedy for VOC-contaminated soil, provides the most technically feasible and cost-effective method for soil cleanup at Site 24. This technology was evaluated in the draft Feasibility Study Report for Site 24.

The BCT is exploring the possibility of obtaining SVE equipment from Norton Air Force Base. At Norton, a very similar scenario to MCAS El Toro's Site 24 exists including VOC contamination in the soil below two aircraft hangars and contaminated soil resulting in an elongated plume of VOC-contaminated groundwater. Mr. Lindsey said SVE is proven technology and that Norton's system was previously approved by U.S. EPA, DTSC, and the RWQCB. Use of this equipment through technology transfer between the Air Force and Marine Corps/Navy would present a cost savings. Mr. Joyce confirmed that the SVE technology transfer idea has been well received at the Department of Defense in Washington D.C. and by the Air Force and Marine Corps/Navy. Mr. Lindsey said if that system is not available from the Air Force another similar system would be obtained. He reiterated that the Marine Corps/Navy preferred alternative, likely to be SVE, will be presented for public consideration; public comment and participation are of key importance.

Environmental Update - Other Issues

Mr. Lindsey also informed the RAB that the Marine Corps/Navy is busy reviewing U.S. EPA, DTSC, and RWQCB comments on the Operable Unit 3A draft Remedial Investigation Report. A Feasibility Study is planned for sites requiring cleanup action and when the contractual and procurement process is completed the Navy's contractor can begin this effort.

The Federal Facilities Agreement (FFA) schedules for completing the Record of Decision process at MCAS El Toro are still being discussed by the BCT members. It was agreed by the Co-Chairs and the RAB that the FFA Schedule Update would be an agenda item at the next RAB meeting.

Mr. Lindsey reported that the Interim Removal Actions being performed at the landfills are progressing smoothly. He also showed 35-mm slides on improvements being made at Site 2, the Magazine Road Landfill. Activities include trenching to verify site boundaries, debris consolidation, and collection of metal debris and recycling at the Station's Defense Reutilization and Marketing Office facility. Mr. Lindsey said that 171 former underground storage tank sites at the Station have been certified as eligible for property transfer. Slides showing the removal of an underground storage tank were also presented.

Regulatory Agency Comment Update - Tavseer Mahmoud, Remedial Project Manager, Cal-EPA DTSC and Glenn Kistner, Remedial Project Manager, U.S. EPA

Mr. Mahmoud informed the RAB that DTSC recently reviewed draft Feasibility Study (FS) Reports for Sites 3 and Site 5 (landfills), Aquifer Pump Test Report for Site 24, and the draft Remedial Investigation Report for OU-3A. He summarized DTSC comments and provided copies of comments (*see meeting handouts at end of minutes for a complete list of comments*). For the Feasibility Studies, DTSC commented that new remedial

alternatives should be examined for the golf course (Site 5) and that quantitative risks (human health and environmental) need to be further developed for both Sites 3 and 5. For the OU-2A VOC Source Area, Site 24 Aquifer Pump Test, DTSC recommended that the groundwater pumping duration should be increased while the pumping rate should be decreased. He said that DTSC agrees with most of the no further action recommendations in the OU-3A draft Remedial Investigation Report, however, discrepancies in the health and environmental risk analyses need to be addressed.

Mr. Kistner said that U.S. EPA generally concurs with DTSC in their review of the documents mentioned above. However, for the OU-3A sites the no further action recommendations are fine for industrial reuse, but for any residential reuse scenarios deed restrictions may be needed. For the landfills, U.S. EPA also concurred with DTSC but there are some concerns with the capping materials in the conceptual designs presented in the draft Feasibility Studies. U.S. EPA completed review of the OU-2A VOC Source Area, Site 24 Soil Vapor Extraction Pilot Test Report, and felt this report was complete. EPA also approved the soil portion of the draft Feasibility Study Report for OU-2A VOC Source Area, Site 24.

MEETING EVALUATION AND FUTURE TOPICS

The meeting evaluation resulted in the following suggestions from RAB members:

- Speakers should provide the approximate length of their presentation before they begin in order to assist RAB members in gauging when it is best to ask questions.
- RAB members stressed that Co-Chairs need to provide better distinction when the question and answer portions of the meeting are set to occur.
- RAB members said that the aerial map of the Station is very helpful. It was also suggested that a map showing the Station with overlays of the three reuse options be used at future meetings.
- Presenters provided good background material and the discussions were positive and informative.
- Microphones should be provided to assist the hearing impaired.
- RAB meetings should continue to be held on the last Wednesday of the month.

Suggestions for future presentation topics include:

- Irvine Ranch Water District reclaimed water reuse options
- A seismology report in relation to MCAS El Toro landfills
- Federal Facilities Agreement schedule update
- Update on the OU-3A draft Feasibility Study Report
- General presentation on institutional controls, to be followed by a specific presentation at a later RAB meeting
- Environmental investigation performed for fuel pipelines at MCAS El Toro

CLOSING ANNOUNCEMENTS/FUTURE MEETING DATES

- The next RAB meeting is scheduled for 6:30 to 9:00 p.m., Wednesday, March 26, 1997 at the Irvine City Hall, Conference and Training Center, One Civic Center Plaza, Irvine. The facility is available for a RAB Subcommittee meeting on Wednesday, February 26, 1997 from 6:30 to 9:00 p.m.

The meeting was adjourned at 9:20 p.m.

Attachments:

-Sign-in sheets.

Handouts provided at the meeting and available at the Information Repository:

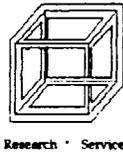
- RAB meeting agenda.
- RAB meeting minutes - 12/4/96 RAB meeting.
- Revised "blue sheet" (1/30/97) MCAS El Toro RAB Major Document Release & Review Dates.
- Defense Environmental Response Task Force (DERTF), by Joseph Joyce, 1/9/97.
- Community Co-Chair Responsibilities, excerpted from the MCAS El Toro Restoration Advisory Board Mission Statement and Operating Procedures, updated July 31, 1996.
- Article provided by Marcia Rudolph, Community Co-Chair, "A Nickel-Iron Wall Against Contaminated Groundwater," by Elaine L. Appleton, Environmental Science and Technology News, Vol. 30, No. 12, 1996.
- Agency Comments - Cal-EPA, Department of Toxic Substances Control
 - Aquifer Pump Test Report for Site 24, Operable Unit 2A, MCAS El Toro, [January 21, 1997]; [DTSC Geological Services Unit, comments dated January 17, 1997].
 - Draft Phase II Feasibility Study Report for the Perimeter Road Landfill, Site 5 Operable Unit 2C, MCAS El Toro [comments dated December 6, 1996]; DTSC General Comments [dated October 1996]; DTSC Human and Ecological Risk Division [comments dated November 16, 1996]; Integrated Waste Management Board [comments dated December 2, 1996].
 - Draft Phase II Feasibility Study Reports for the Original Landfill, Site 3 Operable Unit 2C and Perimeter Road Landfill, Site 5 Operable Unit 2C, Regional Water Quality Control Board, comments dated November 26, 1996.
- Agency Comments - U.S. Environmental Protection Agency

Copies not available at RAB meeting, to be provided with Public Information Material Package in the Information Repository.

A copy of these minutes and the handouts provided at the RAB meeting are available at the MCAS El Toro Information Repository, located at the Heritage Park Regional Library in Irvine. The address is 14361 Yale Avenue, Irvine; the phone number is (714) 551-7151. Library hours are Monday through Thursday, 10 am to 9 pm; Friday and Saturday, 10 am to 5 pm; closed Sunday.

RAB meeting minutes are also located on the Navy's Southwest Division Environmental Web Page. There are two different internet addresses, both sites are identical and either one can be used:
<http://ivory.nosc.mil/~saundel/default.html>
<http://www.efdswest.navfac.navy.mil/DEP/ENV/default.htm>

El Toro / OU2 Roster		
Joe Barney	Jerry B. Werner	
Charles Bennett	John Westermeyer	
Robert McVicker	Don Zweifel	
Fred Meier	Joseph Joyce	- ex officio
Maria Shayegan	Greg Hurley	- ex officio



Research * Service

Project # - El Toro RAB Report
 re: OU 2 Capping vs Consolidation Cost Assessment

I of IV
 Summary of consolidation cost comparisons (based upon Phase II RI/FS data)

Site	Vol (a)	Area (b)	Capping Cost (c)	Consolidation Cost (d)
2	800 - 1000	22	13	44
3	160 - 240	12	7.7	27
5	30-40	1.5	4.4	7.4
17	ng	20	5.9	16

- (a) in 1000 cubic yards ng - not given in Site 17 Draft RI
- (b) landfill area in acres
- (c) includes 30 years of monitoring, in \$1MM
- (d) estimated variance may be > +/- 65%, in \$1MM

OU 2 Sub-Committee

Research * Service

Research * Service

III of IV
 Site 5 Summary

Option / Assumption	Result	Cost (\$MM)
50% haz in waste Phase II RI/FS	unrestricted use	\$ 7.4
Capping & 30 yr monitoring	deed restriction	\$ 4.4
0% haz in waste Phase II RI/FS	unrestricted use	\$ 2.9
0% haz in waste March AFB	unrestricted use	\$ 2.4

OU 2 Sub-Committee

II of IV
 Cost Component Assumptions
 (for Site 5)
 Basis of Consolidation Evaluation

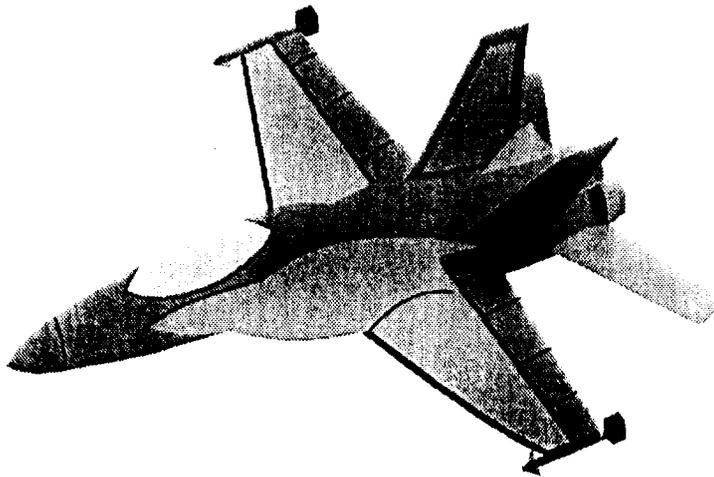
- a) 50% of the wastes in the landfill (= to 33,500 yd³) were classified as hazardous wastes, needing off-site disposal at a Class I landfill.
- b) An average depth of 10 feet of soil underneath the site were to be removed, also (increasing the total wastes by 67%).
- c) \$181 per cubic yard for hazardous waste transport and disposal at Kettleman Hills.
- d) \$39 per cubic yard for on site consolidation.

IV of IV
 Sub-Committee summary of perceptions

- a) No contradictions to the basic premises presented by the project team that were used in the cost evaluations.
- b) Understand and accept that the Remedial Investigation was only intended to define the boundaries of the landfills and migration potential of waste.
- c) Specific cost components used in the estimate did not diverge dramatically from the costs derived from March AFB and IT as supplied in the IT proposal, but were higher.
- d) Recognize that the cost comparison did not include the economic gain in land value resulting from a clean, unrestricted closure.
- e) It is impractical to pursue consolidation options at this time, as the cost uncertainty range is too great, and thus too speculative. However, during design and implementation phases of the El Toro remediation, the consolidation options should be kept open for reconsideration.

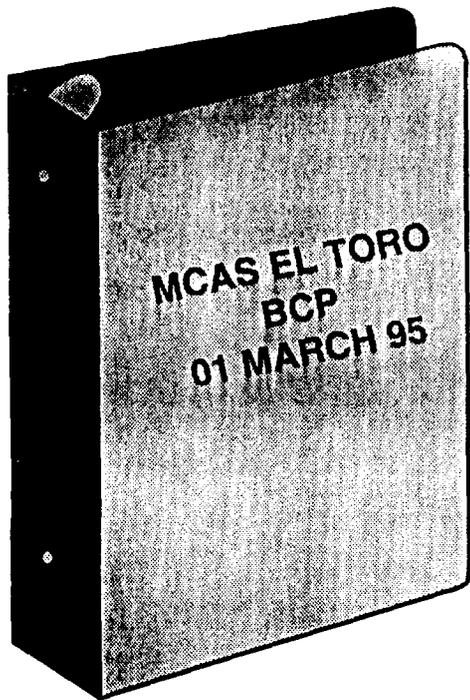
OU 2 Sub-Committee

MCAS EL TORO



**BASE REALIGNMENT
AND CLOSURE (BRAC)
CLEANUP PLAN (BCP)**

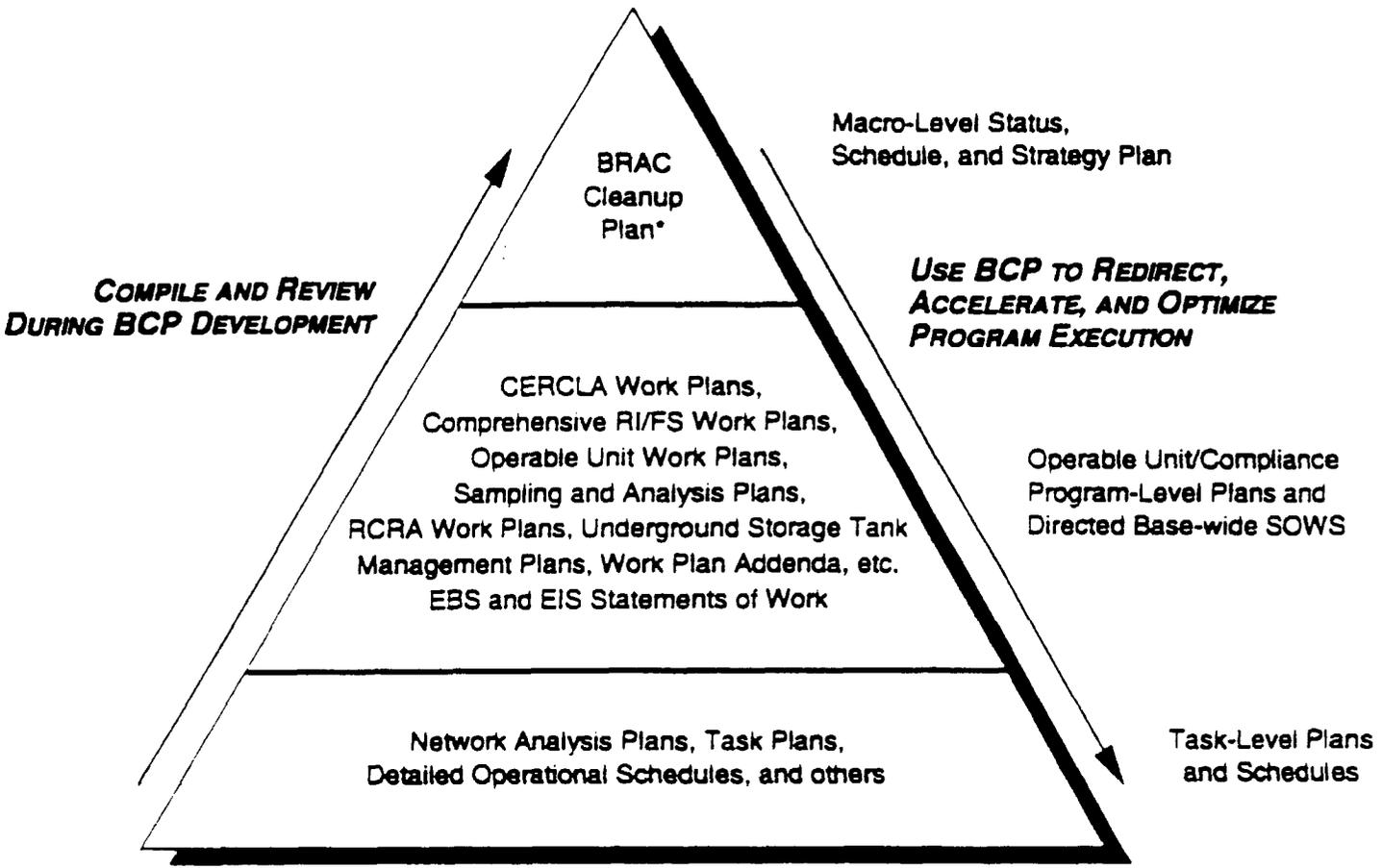
WHAT IS THE BCP?



- A DOCUMENT REQUIRED BY DOD FOR ALL BRAC INSTALLATIONS THAT IS BASED ON A PARTNERING AGREEMENT BETWEEN DOD, EPA, AND STATE
- A DOCUMENT THAT SUMMARIZES PAST ENVIRONMENTAL EFFORTS AT THE STATION

WHAT IS THE BCP? (CONTINUED)

- **A ROADMAP FOR ALL ONGOING AND FUTURE ENVIRONMENTAL PROGRAMS BEING CONDUCTED AT THE STATION**
- **A LIVING DOCUMENT THAT WILL BE UPDATED ON AN ANNUAL BASIS**



* A BCP is a comprehensive summary of the status of your installation's environmental programs, and provides a strategy and schedule for selecting and implementing response actions under all applicable regulatory programs.

- CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act, as amended
- EBS - Environmental Baseline Survey
- EIS - Environmental Impact Statement
- RCRA - Resource Conservation and Recovery Act, as amended
- RI/FS - Remedial Investigation/Feasibility Study

Figure 1-1
Relationship of a BCP to Other Environmental Plans

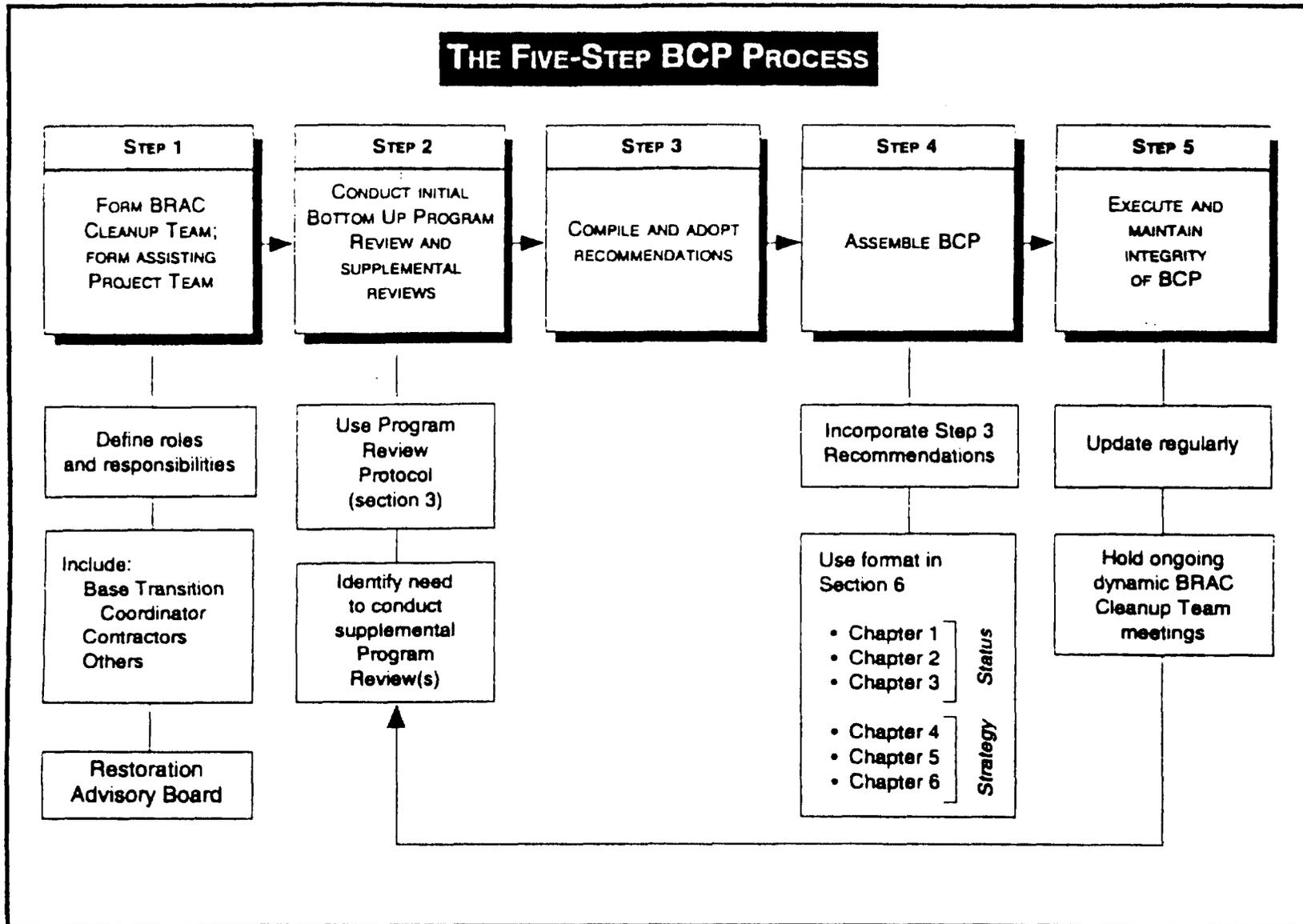
GOALS OF THE BCP

- **ACCELERATE ENVIRONMENTAL CLEANUP AND EARLY REUSE**
- **REVIEW THE STATUS OF THE STATION'S ENVIRONMENTAL PROGRAMS**
- **DEVELOP COMPREHENSIVE STRATEGIES FOR BASE CLOSURE WITH RESPECT TO ENVIRONMENTAL ISSUES**

GOALS

(CONTINUED)

- **PROVIDE RATIONALE FOR FUNDING**
- **PROVIDE A MASTER SCHEDULE FOR ENVIRONMENTAL CLOSURE ACTIVITIES**
- **DEVELOP INFORMATION FOR FEDERAL FACILITIES AGREEMENT SCHEDULE MODIFICATIONS**



*Figure 1-2
Overview of the Five-Step BCP Process*

Exhibit ES-1

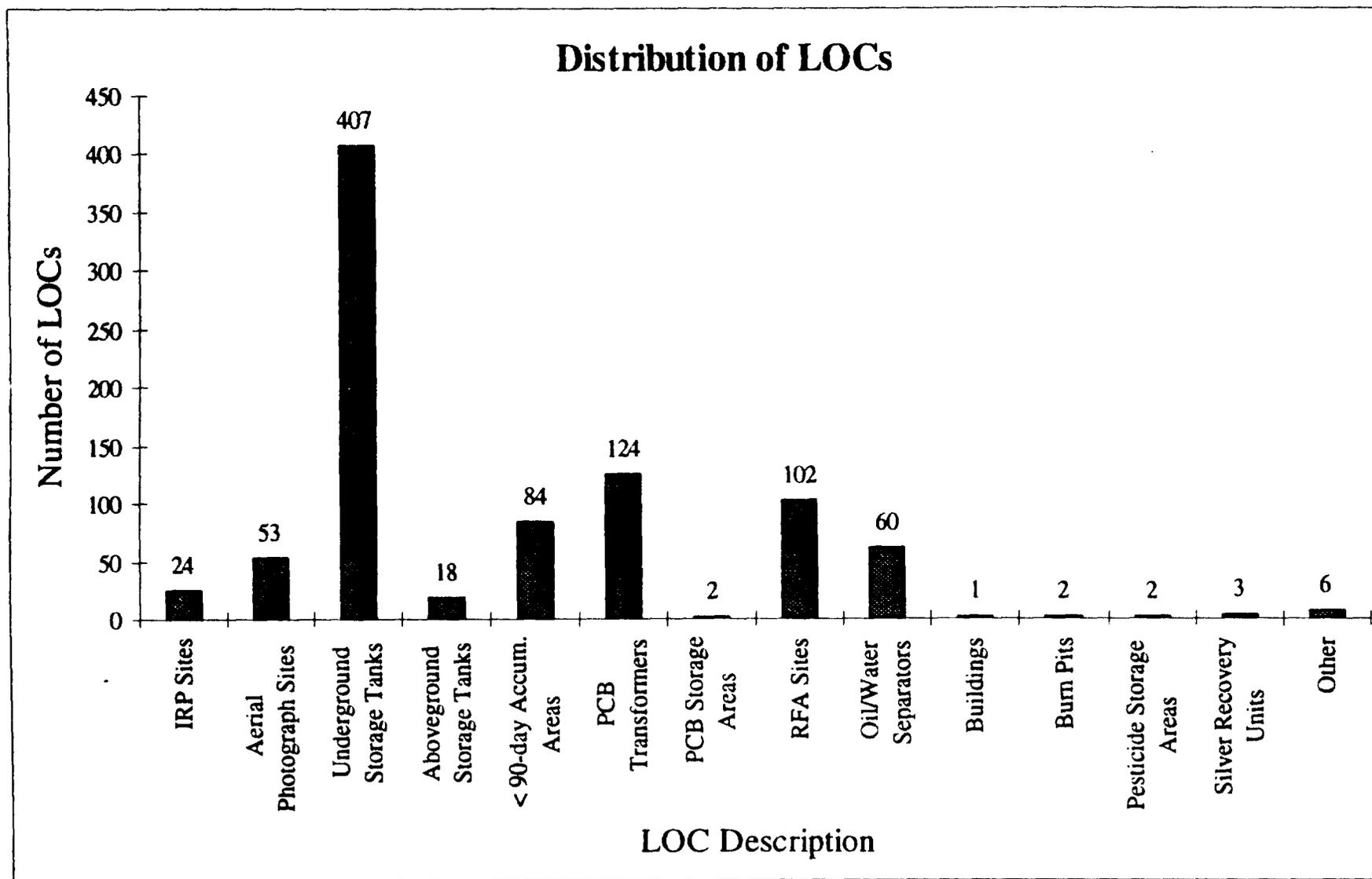


Table 17
Summary of Land Area by ECP Area Type
(Sheet 1 of 1)

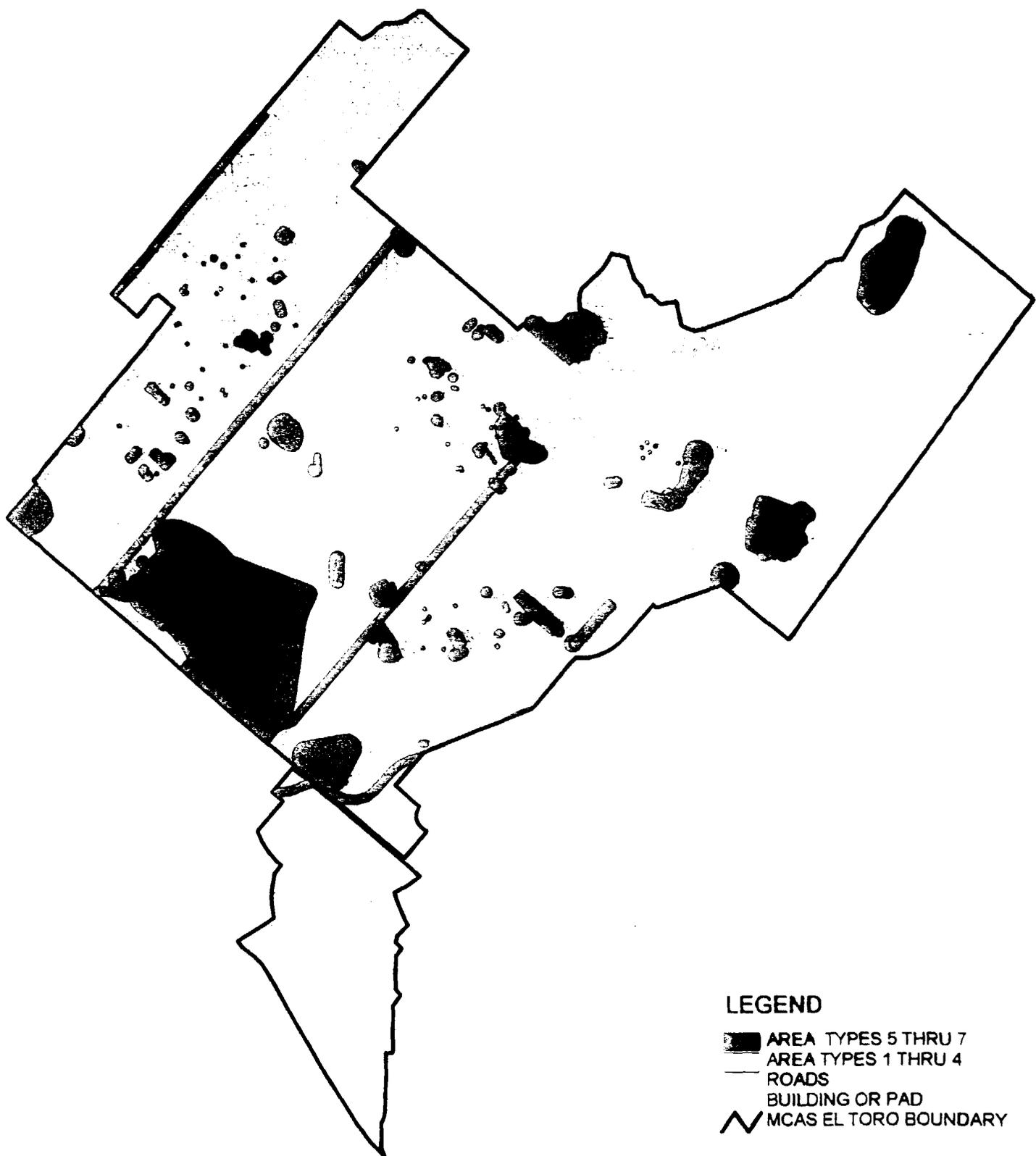
ECP Area Type	STATION PROPERTY		Area Type Definition ²
	Acreage ¹	Percent ¹	
1	3,209.2	66.7%	Areas where no release, or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).
2	126	2.6%	Areas where only release or disposal of petroleum products has occurred.
3	741.9	15.4%	Areas where release of hazardous substances has occurred, but at concentrations that do not require a removal or remedial action.
4	0	0%	Areas where release, disposal of hazardous substances has occurred, and all remedial actions necessary to protect human health and the environment have been taken.
5	98.6	2.1%	Areas where release, disposal of hazardous substances has occurred, and removal or remedial actions are underway, but all required remedial actions have not yet been taken.
6	468.9	9.7%	Areas where release of hazardous substances has occurred, but required actions have not yet been implemented.
7	167	3.5%	Areas that are not evaluated or require additional evaluation.
Totals	4,811.6³	100%	

Notes: ¹ Acreage calculated from current CLEAN II base maps using information in the BCP.

² Definitions as modified by the August 1996 Addendum to the BRAC Cleanup Plan Guidebook

³ Total acreage for the Station is 4,811.6 acres, which includes 4,738.2 acres of on-Station property (based on the 1991 El Toro Master Plan), and 73.4 acres of off-Station property from El Toro housing facilities at MCAS Tustin.

Abbreviations: ECP – environmental condition of property



LEGEND

-  AREA TYPES 5 THRU 7
-  AREA TYPES 1 THRU 4
-  ROADS
-  BUILDING OR PAD
-  MCAS EL TORO BOUNDARY

SUITABILITY OF PROPERTY FOR TRANSFER

United States Marine Corps

Base Realignment and Closure Cleanup Plan (BCP)

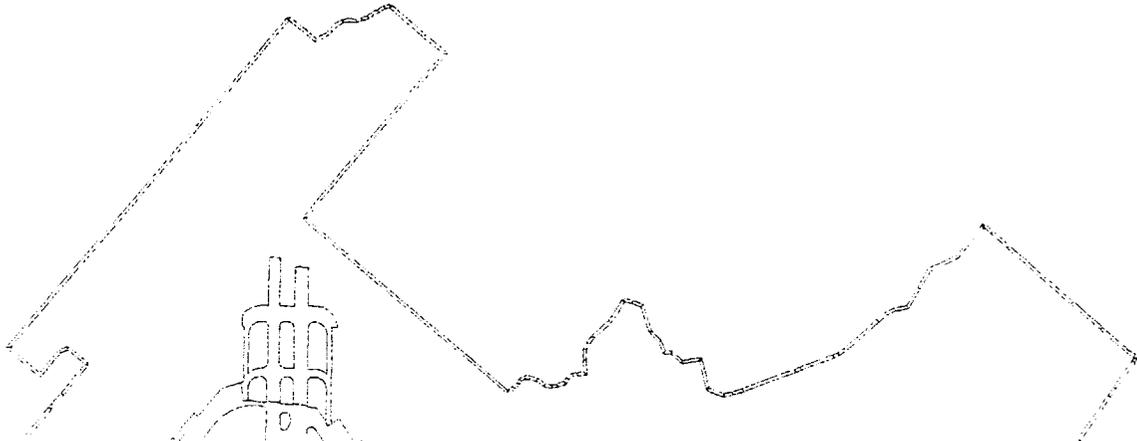


**For
Marine Corps Air Station
El Toro, CA**

CTO-0103
Document Control No.: 0103/0144

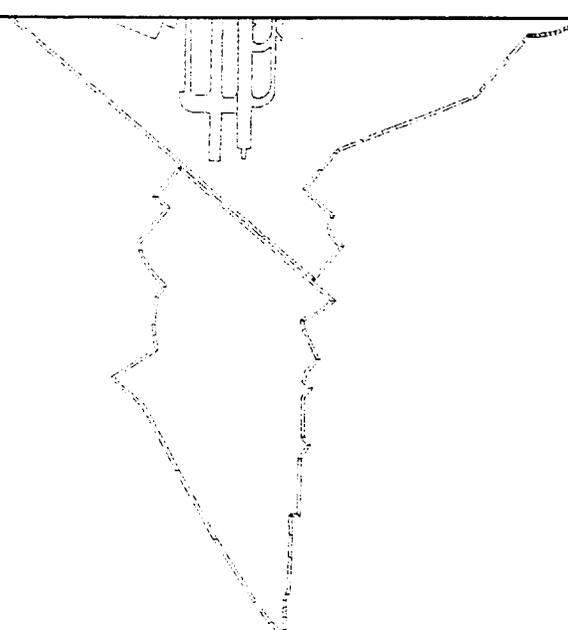
March 1997

**MCAS El Toro BRAC Cleanup Plan
Vision and Mission Statements**



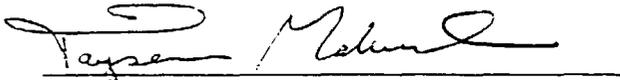
Vision: Maximize restoration and reuse by 1999

Mission: Fast-track remediation of MCAS El Toro to expedite reuse and protect human health and environment



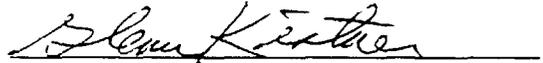
MARINE CORPS AIR STATION
EL TORO, CALIFORNIA
BASE REALIGNMENT AND CLOSURE
(BRAC) CLEANUP PLAN

This BRAC Cleanup Plan provides current summary information on the status of, and strategies for, the cleanup of Marine Corps Air Station El Toro. We, the BRAC Cleanup Team, with consideration of community and stakeholder advice, have cooperatively developed this plan to provide for the safe, effective, timely, and cost-efficient environmental restoration and productive reuse of this closing DoD facility. This plan will be updated periodically to reflect new information regarding the environmental condition of the property, reuse priorities, and availability of funds.

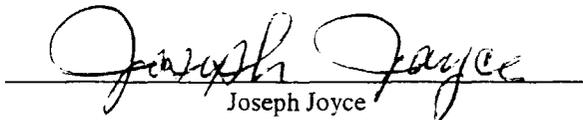


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MCAS El Toro

30 January 1997

Executive Summary

The Navy is planning the closure and disposal of Marine Corps Air Station (MCAS) El Toro (Station) by July 1999, in accordance with the Base Closure and Realignment Act (1993) (BRAC III). The Navy has organized a Base Realignment and Closure (BRAC) Cleanup Team (BCT) to manage and coordinate closure activities and to prepare a BRAC Cleanup Plan (BCP). The BCP describes the status of, management and response strategies for, and action items related to MCAS El Toro environmental restoration and compliance programs. These programs support the environmental restoration of station property and its disposal and reuse. The scope of the BCP considers the following regulatory mechanisms:

- BRAC III;
- National Environmental Policy Act (NEPA);
- Resource Conservation and Recovery Act (RCRA);
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act, and the Community Environmental Response Facilitation Act (CERFA); and
- other applicable state and local laws.

MCAS El Toro was listed on the National Priority List under CERCLA in February 1990.

The BCP is a planning document; therefore, the information and assumptions presented may not have complete approval from the federal and state regulatory agencies. The BCP is a dynamic document that is updated regularly to reflect the current status of response actions, and the changes in strategies or plans that affect the ultimate restoration and disposal of MCAS El Toro property. Comments from various sources, including major claimants, naval activities, and federal and state regulatory agencies, will be evaluated and considered for inclusion in updates of this BCP. This document represents information available as of 31 December 1996. The next update of the BCP is scheduled for March 1998.

STATUS OF DISPOSAL, REUSE, AND INTERIM LEASE PROCESS

In March 1994, the County of Orange (County), along with the Cities of Irvine and Lake Forest, formed a joint powers authority to develop a reuse plan for MCAS El Toro. In January 1995, the County withdrew from the joint powers authority in response to the passage of Measure A, a countywide ballot initiative approved by Orange County voters in November 1994. Measure A anticipates that the principal feature of a County-adopted reuse plan for MCAS El Toro should be a commercial airport. Measure A also established the 13-member El Toro Airport Citizens Advisory Commission to advise the Board of Supervisors and Orange County Planning Commission on base reuse.

In April 1995, the Office of Economic Adjustment formally recognized the Orange County Board of Supervisors as the official Local Redevelopment Authority (LRA) for MCAS El Toro. As the recognized LRA, the Board of Supervisors was given sole responsibility for preparing a Community Reuse Plan (CRP) for submittal to the Department of the Navy (DON). Eight Department of Defense (DoD) and federal agencies submitted formal applications for MCAS El Toro property during the federal

screening process conducted by the Military Department. They are listed in Chapter 2.

The LRA provided its recommendations on each of these requests to the Assistant Secretary of the Navy in early 1995. The LRA has endorsed requests by the Department of Interior for the Habitat Reserve, the Federal Aviation Administration, and the California Air National Guard. The LRA recommended that the remaining requests be denied. No surplus property determination has been made, and none of the transfer actions has been approved by the Assistant Secretary of the Navy as of 15 January 1997.

In the fall of 1995, the LRA conducted the state/local and homeless provider screening process in accordance with the Base Closure Community Redevelopment and Homeless Assistance Act of 1994 and implementing regulations issued by the DoD and the U.S. Department of Housing and Urban Development (HUD) in August 1995.

The LRA prepared a final CRP and draft Environmental Impact Report (EIR) which evaluated three reuse alternatives for the Station. Reuse Alternative A—Commercial Passenger/Cargo Use (the proposed project)—provided for a full service commercial passenger and cargo airport and compatible nonaviation uses. Reuse Alternative B—Cargo/General Aviation Use—provided for a cargo and general aviation airport and compatible non-aviation uses. Reuse Alternative C—Nonaviation—provided for nonaviation uses including an educational campus, visitor-oriented attractions, research and development, and other uses.

In August 1996, the LRA issued the draft MCAS El Toro CRP, Homeless Assistance Submission (HAS) and draft EIR for a 67-day public review and comment period. The written public comment period ended on 15 October 1996. In the fall of 1996, the Orange County Airport Commission, the El Toro Airport Citizens Advisory Commission, and the Orange County Planning Commission conducted public meetings/hearings and adopted recommendations to the Board of Supervisors on the draft CRP, HAS and EIR.

On 11 December 1996, the Board of Supervisors adopted the final MCAS El Toro CRP (P&D Consultants Team, December 1996), which provides for more detailed study of a full-service commercial passenger and cargo airport, as well as compatible nonaviation uses.

The final CRP also incorporates the LRA's previously transmitted recommendations on each of the DoD and federal agency requests for property at the base and the 47 Notice of Interest applications submitted during the state/local and homeless provider screening process conducted by the LRA. The final CRP and HAS were submitted to the Assistant Secretary of the Navy and the Secretary of HUD on 13 December 1996.

Through the final Environmental Baseline Survey (EBS) Report (Jacobs Engineering 1995), and the preparation of this BCP, approximately 3,209 acres (67 percent) of the real property at the Station is eligible under CERFA for transfer as uncontaminated

property (area type 1: no disposal, release, and/or migration of contaminants has occurred). Property designated as area types 1 through 4 is suitable for transfer by deed. This property totals approximately 4,077 acres (85 percent) of Station property. The remaining real property has been identified as area type 5 (disposal, release, and/or migration has occurred, and removal or remedial actions are underway, but all required remedial actions have not yet been taken), area type 6 (disposal, release, and/or migration of contaminants has occurred, but no response actions have been taken), and area type 7 (unevaluated areas or areas requiring additional evaluation). The areal extent of land classified as area types 5, 6, and 7 is approximately 99 acres (2 percent), 469 acres (10 percent), and 167 acres (3 percent), respectively. Environmental restoration activities during 1996 have increased the Station land available for transfer (area types 1 through 4) from 2,992 acres to 4,077 acres. Currently, the Bake Parkway/Interstate 5 public highway expansion project is completed and will result in transfer of approximately 25 acres of MCAS El Toro property during 1997.

The scheduling and prioritizing of parcels for reuse based on the final CRP, will be provided by the LRA in 1997. The BCP will be updated as this information becomes available.

The County and the DON have entered into agreements permitting the transfer by quitclaim deed of the Bake Parkway/Interstate 5 right-of-way at fair market value. The DON issued a license for construction of the road for the Bake Parkway/Interstate 5 project, pending completion of a Finding of Suitability to Transfer and transfer deeds.

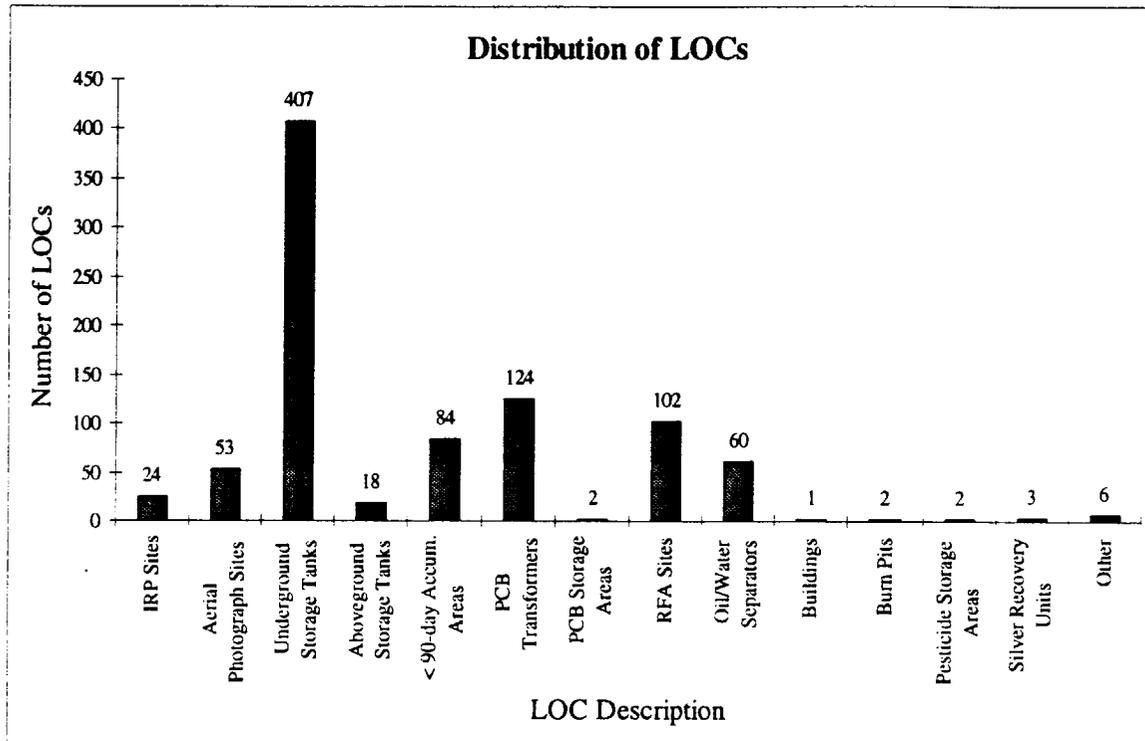
STATUS OF ENVIRONMENTAL RESTORATION PROGRAM

A total of 888 locations of concern (LOCs) has been identified at MCAS El Toro. An LOC is defined as any identified location or area that is potentially contaminated or is a potential source of contamination. Exhibit ES-1 summarizes the types and number of different LOCs at the Station.

Environmental Program Highlights. The following accomplishments highlight the progress of environmental restoration activities at MCAS El Toro:

- initiation of two time-critical removal actions at Sites 2 and 17, and one non-time-critical removal action at Site 19;
- agency approval of the draft final Remedial Investigation (RI) reports for operable unit (OU)-2A, -2B, and -2C, and the approval of the draft OU-2A feasibility study (FS) for the vadose zone;
- continuing operation of a soil vapor extraction (SVE) unit at Tank Farm 2 that has removed 35,000 pounds of petroleum product to date;
- removal of 8,000 gallons (to date) of free-phase petroleum product from the water table at underground storage tank (UST) 398;
- regulatory closure of 178 USTs to date (150 during 1996), including complete closure of Tank Farms 1, 3, and 4;

Exhibit ES-1



Source: Table 3-1a

- continuation of groundwater monitoring, with two sampling rounds completed in 1996;
- SVE pilot testing at 22 Site 24 wells which is effectively removing contamination; on-site investigation-derived waste treatment plant that reduces disposal costs and provides irrigation water for the Station;
- agency approval of the polynuclear aromatic hydrocarbon (PAH) Reference Study (BNI 1996a) that allowed the recategorization of 448 acres of land from area type 7 to area type 3, thus potentially allowing this land to be transferred by deed; and
- continued progress on an agreement between Orange County Water District and MCAS El Toro in support of a multipurpose project to clean up OU-1.

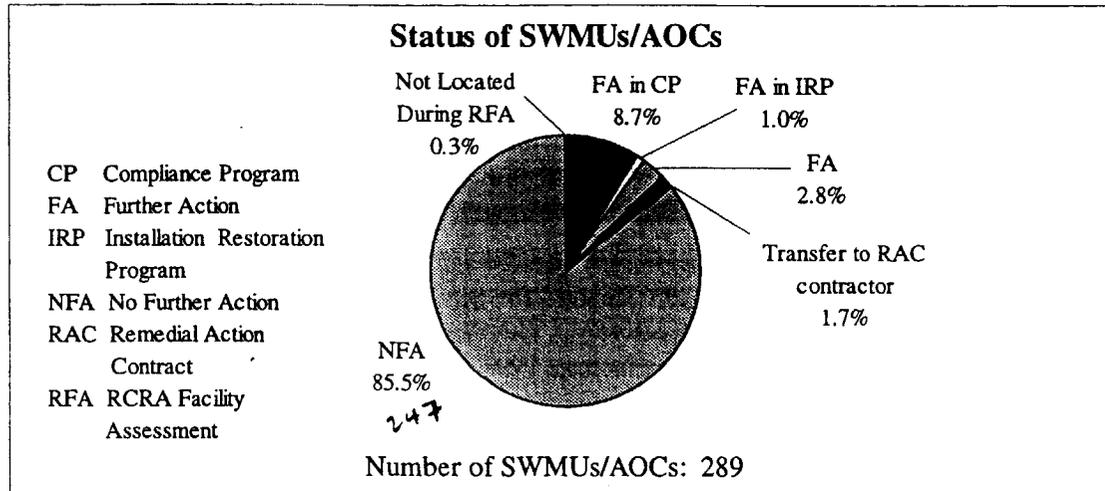
Installation Restoration Program. Currently, a total of 24 sites are being investigated in the Installation Restoration Program (IRP) at the Station (Sites 1 through 22, 24, and 25). Of these, 22 sites were evaluated during the Phase I RI, which was completed in May 1993. Two additional sites were established for investigation in Phase II, bringing the total number of IRP sites to 24. The final Work Plan for the Phase II RI/FS was prepared in July 1995, and these sites are in various stages of the RI/FS process. These 24 sites have been grouped into three OUs: OU-1,

OU-2, and OU-3. The following is a brief summary of the site groupings, current status, and Federal Facilities Agreement schedule for each of the three OUs.

- OU-1 addresses contaminated groundwater on- and off-Station and consists of one IRP Site (Site 18). The final interim RI/FS report for OU-1 was submitted in August 1996, and the draft interim Record of Decision (ROD) is scheduled for September 1997.
- OU-2 consists of three subunits (OU-2A, OU-2B, and OU-2C) and addresses potential source areas of groundwater contamination.
 - OU-2A addresses Sites 24 and 25. The draft final Phase II RI and draft Phase II FS Reports for Site 24 were submitted in June and August 1996, respectively. The draft Phase II RI Report for Site 25 will be submitted in January 1997. The draft ROD for OU-2A is scheduled for July 1997.
 - OU-2B addresses landfill Sites 2 and 17. The draft final Phase II RI and draft FS Reports for OU-2B were both submitted in September 1996. The draft ROD is scheduled for July 1997.
 - OU-2C addresses landfill Sites 3 and 5. The draft final Phase II RI and draft FS Reports for OU-2C were both submitted in October 1996. The draft ROD is scheduled for July 1997.
- OU-3 consists of two subunits (OU-3A and OU-3B) and addresses the remaining 17 sites. Portions of three sites (Sites 15, 19, and 20) are no longer part of the IRP; they have been withdrawn via the CERCLA petroleum exclusion.
 - OU-3A addresses all or portions of 14 IRP sites (Sites 4, 6, 8, 9, 10, 11, 12, 13, 15, 16, 19, 20, 21 and 22). The draft RI Report for OU-3A was submitted in November 1996. The draft FS Report is scheduled for March 1997, and the draft ROD is scheduled for December 1997.
 - OU-3B addresses three IRP sites (Sites 1, 7, and 14). The RI Work Plan for OU-3B is scheduled for May 1997, and fieldwork is scheduled to begin in July 1997.

RCRA Facility Assessment Sites. A RCRA Facility Assessment (RFA) was performed at the Station between 1990 and 1993. The RFA included the investigation of 307 solid waste management units (SWMUs)/areas of concern (AOCs). However, 3 units were located at MCAS Tustin, and 15 units were duplicates of other SWMUs/AOCs. Therefore, a total of 289 SWMUs/AOCs is of interest at the Station. Of these, 140 were included in a sampling effort. The RFA was approved by the Department of Toxic Substances Control contingent upon performance of additional investigation at 14 SWMUs/AOCs. A final addendum to the RFA was completed on 31 May 1996 (BNI 1996a). The addendum presents results and recommendations for the 14 SWMUs/AOCs and recommends closure strategies for 73 temporary accumulation areas. Exhibit ES-2 summarizes the status of SWMUs/AOCs. The number of SWMUs/AOCs in Exhibit ES-2 is greater than the

Exhibit ES-2

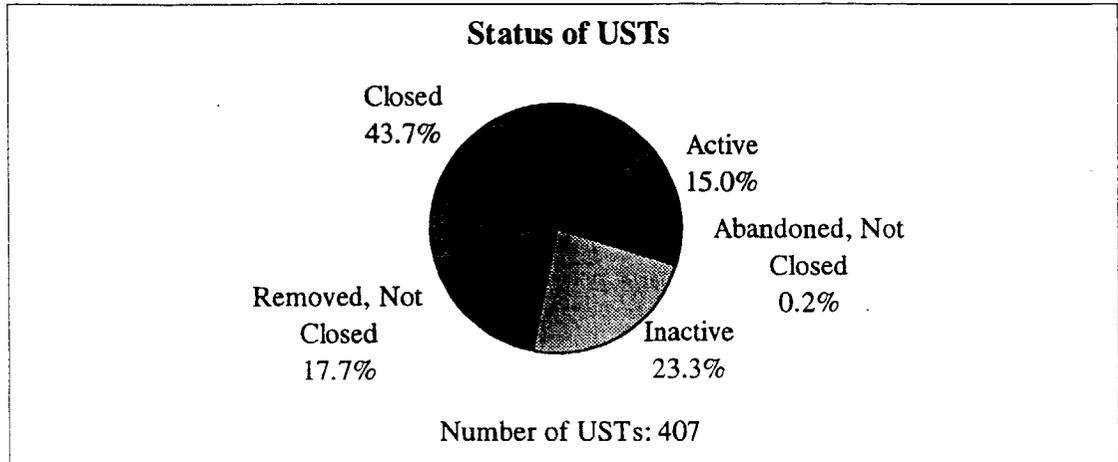


Source: Table 3-13

number of RFA sites indicated in Exhibit ES-1, because some LOCs have been designated as both SWMUs/AOCs and as other types of LOCs. For example, there are USTs that have been identified as SWMUs/AOCs. Exhibit ES-1 refers to these SWMUs/AOCs as USTs instead of as RFA sites.

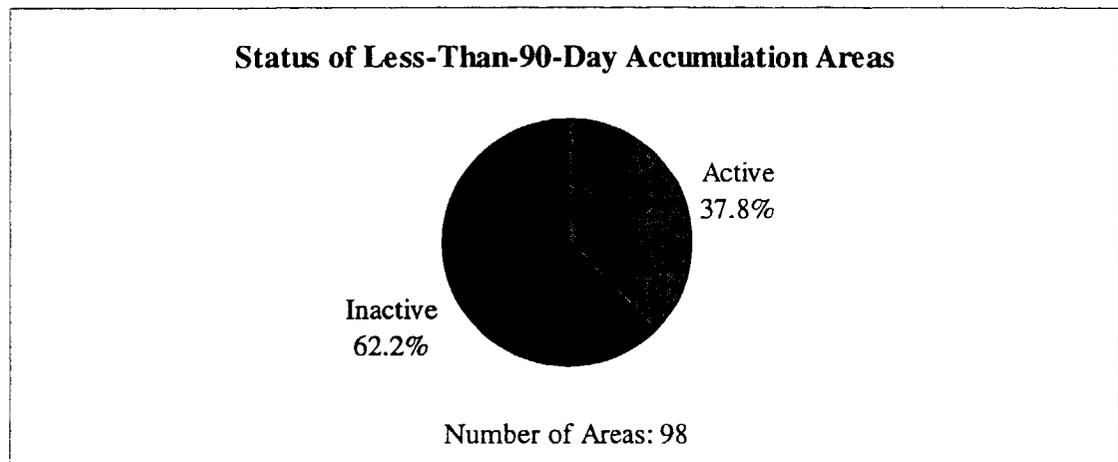
Compliance Program Sites and Other LOCs. There are a number of compliance programs in progress at MCAS El Toro that involve different types of LOCs including USTs, less-than-90-day accumulation areas, polychlorinated biphenyls (PCBs) transformers, and oil/water separators. The status of each of these types of LOCs are summarized in Exhibits ES-3 through ES-6. The status of the remaining types of LOCs (aboveground storage tanks, PCB storage sites, burn pits, silver recovery units, pesticide storage sites, and aerial photograph sites) is discussed in Chapter 3.

Exhibit ES-3



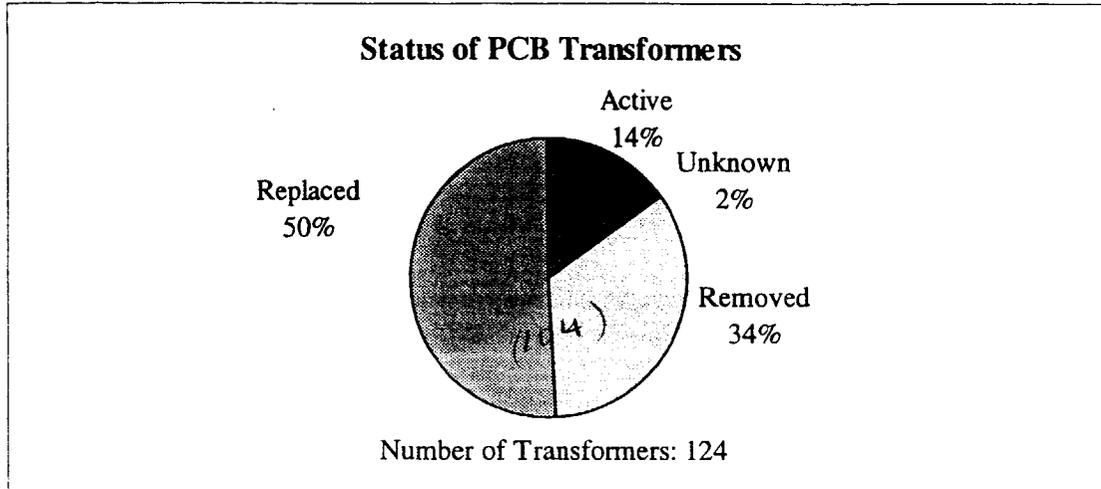
Source: Table 3-7

Exhibit ES-4



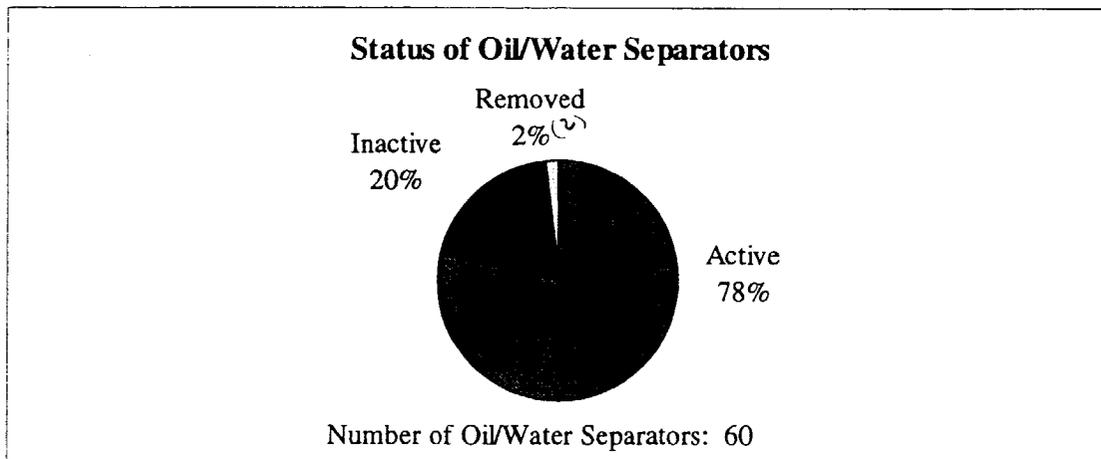
Source: Table 3-9

Exhibit ES-5



Source: Table 3-10

Exhibit ES-6



Source: Table 3-14

INITIATIVES FOR ACCELERATING CLEANUP

The BCT has conducted a “bottom up” review of the environmental programs at MCAS El Toro in accordance with DoD guidance on establishing base realignment and closure cleanup teams (DoD 1993). During the review process, the following ten issues were addressed to identify opportunities for accelerating cleanup activities necessary to facilitate conveyance of real property at the Station.

Technology Review. Publications such as Treatment Technologies Applications Matrix for Base Closure Activities, prepared by the California Base Closure Environmental Committee, dated November 1994 (CBCEC 1994a) and the latest

information from the United States and California Environmental Protection Agencies (U.S. EPA and Cal-EPA) and DoD will be reviewed as part of the evaluations performed in selecting technologies.

Immediate Removal Actions. A UST Tiger Team has been formed at the Station to address compliance and closure issues related to USTs on-Station. In 1996, 150 USTs received regulatory closure, bringing the total number of closed USTs to 178. All of Tank Farms 1, 3, and 4 have been closed. Eighty-one inactive tanks are scheduled for removal in 1997. All 61 currently active tanks and the remaining 14 inactive tanks are scheduled to be removed upon base closure in 1999. The Tiger Team will continue to develop strategies for the removal of the remaining USTs as the Station closure approaches in 1999.

Two time-critical removal action memoranda were submitted for public review in October 1996 for IRP Sites 2 and 17 (landfills), for public safety and to abate erosion of landfill materials. A non-time-critical action memorandum was also submitted for public review in October 1996 for IRP Site 19 (Unit 2). These removal actions are designed to remove the risk to human health and the environment and expedite cost-effective cleanup.

Clean Properties. A basewide EBS for MCAS El Toro was submitted to the United States Environmental Protection Agency (U.S. EPA) and California Environmental Protection Agency (Cal-EPA) on 01 April 1995. The Navy, Marine Corps, and regulators have concurred on the designation of area type 1 parcels as CERFA eligible. The EBS designated approximately 2,982 acres of land as CERFA-eligible. Review of information available since April 1995 indicates that approximately 3,209 acres of land is currently CERFA-eligible. Since uncontaminated areas do not coincide with the zone designations based on current land use, the BCT and the LRA will need to determine how to transfer these properties expeditiously. Options include subdividing the existing zones based on area type.

Overlapping Phases. As an ongoing effort, the BCT will continue to identify phases of the cleanup process that can be overlapped to reduce the time required for completion. Areas of overlap at MCAS El Toro include the following:

- the RFA was conducted concurrently with the Phase I RI;
- treatability studies are being conducted concurrently with the early stages of the OU-2 RI;
- Phase II RI/FS activities for the volatile organic compound (VOC) source area, landfills, and OU-3 sites were conducted simultaneously;
- a Comprehensive Long-Term Environmental Action Navy (CLEAN)/remedial action contract (RAC) contractor integration during the pilot testing at Site 24, and planned integration during future pilot tests; and
- cooperative facilities for conducting RCRA, UST, and RI/FS activities are being used.

Contracting Procedures. A RAC was executed with OHM Remediation Services Corporation to conduct response actions on installations within the purview of Southwest Division Naval Facilities Engineering Command (SWDIV). SWDIV management of the CLEAN, RAC, and indefinite-quantity contracts has been based on a cooperative and interactive approach. Active participation by all members of the Project Team results in a bias for action.

Community Reuse Interface. In an effort to carry out strategies for environmental restoration activities, while assuring proactive community involvement, the Station has adopted an approach to meet the needs of the public as well as the requirements of NEPA, CERCLA, CERFA, and the California Health and Safety Code Section 25356.1. The approach provides for a number of services to inform interested parties (e.g., the city of Irvine, the city of Lake Forest, and Orange County) of environmental restoration activities while maintaining a commitment for efficient and cost-effective cleanup at MCAS El Toro.

Bias for Cleanup. The BCT will continue to emphasize expedited remedial actions and attempt to avoid lengthy site characterization studies and prolonged RI/FS activities. As such, the BCT members will continue to collaborate in devising work plans, identifying cleanup criteria, and selecting remedial actions in an effort to aggressively pursue cleanup instead of studies and data collection. To date, the BCT has successfully expedited environmental restoration by initiating removal actions under the Superfund Accelerated Cleanup Model at three IRP sites.

Validation of Technology: The BCT and BRAC Project Team have been formed to include technical, operational, reuse, and administrative specialists who provide input and support for efforts to achieve accelerated cleanup and transfer of Station property. Some of the project team members include representatives from the following:

- U.S. EPA, Cal-EPA, and other local regulatory agencies (e.g., Orange County Health Care Agency);
- SWDIV;
- MCAS El Toro BRAC Department;
- MCAS El Toro Environmental Department;
- MCAS El Toro Installations Department;
- CLEAN I and CLEAN II contractors; and
- RAC contractor.

The effectiveness of immunoassay field screening kits was validated in the PAH Reference Study (BNI 1996a). The use of these kits allowed for quick, accurate analysis of on-site contaminants during RI field activities.

Presumptive Remedies. Presumptive remedies are preferred technologies for common categories of sites, based on previous remedy selection and U.S. EPA scientific and engineering evaluation of performance data on technology implementation. The presumptive remedy approach is one tool used to accelerate

cleanup under the Superfund Accelerated Cleanup Model. By using presumptive remedies, site investigations and selection of cleanup strategies can be streamlined. Presumptive remedies are expected to assure consistency in remedy selection and reduce time and cost required to clean up similar types of sites. Currently, presumptive remedies are recognized by U.S. EPA for VOC remedies and municipal and military landfill remedies. Presumptive remedies are being considered for the four landfill sites (Sites 2, 3, 5, and 17) and the VOC source area (Site 24).

Partnering: A partnering agreement among the Project Team is essential for efficient management of the base closure process. The BCT has established a partnering agreement and team charter that incorporates the latest and most efficient management techniques to coordinate installation restoration activities.

The following team charter agreement for MCAS El Toro was developed during a team-building seminar held in October 1994.

We, the MCAS El Toro partners, commit to effectively working together to maximize restoration and reuse of MCAS El Toro by 1999. We will accomplish this goal through teamwork, dedicated and focused participation, our ethics outlined below, and effective communication between all partners.

We want the project to be enjoyable to work on and will work together with trust and respect, and will ensure that all team members' interests impact decisions. Problems will be resolved quickly or escalated if appropriate by team members closest to the issue. As partners, we commit to communicating our mission and partnership goals to new project members and encourage them to embrace this partnership.

Involvement of the regulatory agencies during pre-proposal meetings for new work to gain concurrence from the entire BCT at the earliest possible phases of investigation and cleanup.

Our mutually agreed upon ethical standards are listed below.

CODE OF ETHICS

- Integrity
- Trust
- Leadership
- Sincerity
- Empathy
- Responsibility
- Objectivity
- Dependability
- Accountability
- Credibility
- Candor
- Honesty

Additionally, we will listen to and value others' opinions, honor diversity, model the behavior we expect from others, and have fun.

Through frequent meetings and conference calls, the BCT has worked together as a team to discuss and resolve issues related to environmental restoration activities at MCAS El Toro with a focus on expediting reuse while protecting human health and the environment. One manifestation of this partnering is involvement of the regulatory agencies during preproposal meetings for new environmental work in order to gain concurrence from the entire BCT at the earliest possible phases of investigation and cleanup.

SUMMARY OF CURRENT BCP ACTION ITEMS

Table ES-1 provides a list of recommendations and issues associated with the environmental restoration and compliance that require further evaluation and action by the BCT. The list covers key items identified during the course of the BCP preparation and includes the BCT activities relating to the base closure.

The BCT has coordinated and managed a number of tasks relating to the BRAC cleanup activities at MCAS El Toro during the past year. A brief list of accomplishments includes:

- continuing progress by the UST Tiger Team to address UST compliance and closure issues;
- acceleration of an expedited UST removal program for the removal of 81 of the remaining 95 inactive USTs in 1997;
- reduction in the number of IRP sites investigated under CERCLA via the CERCLA petroleum exclusion;
- continued Restoration Advisory Board meetings during 1997; and
- publication of fact sheets for public information and awareness.

**Table ES-1
BCT/Project Team Action Items
(Sheet 1 of 3)**

Action Items	STATUS		
	In Progress	To Be Performed	Completed
COMPLIANCE ACTIVITIES			
UST Removal/Compliance			
Install UST monitoring systems	X		
Remove 81 of 95 remaining inactive USTs in 1997	X		
Obtain regulatory closure on removed USTs	X		
RCRA Facilities			
Implement closure strategies for 73 temporary accumulation areas		X	
OWSs			
Remove inactive OWSs		X	
Evaluate active OWSs for removal after 1999		X	
PCBs			
Evaluate past PCB transformer storage areas	X		
Perform survey of and inventory all transformers on station to evaluate potential PCB content	X		
Hazardous Waste Management			
Maintain current compliance program	X		
Wastewater Discharges			
Maintain compliance with NPDES Permit	X		
Air Emissions			
Maintain current compliance program	X		
Comply with air regulations when implementing remedial actions		X	
Lead-Based Paint			
Maintain current compliance program	X		

**Table ES-1
BCT/Project Team Action Items
(Sheet 2 of 3)**

Action Items	STATUS		
	In Progress	To Be Performed	Completed
Asbestos			
Conduct survey of housing facilities			X
Perform abatement as needed.	X		
Cleanup Standards			
Develop cleanup standards for various media	X		
Conceptual Models			
Update conceptual site models	X		
Risk Assessments			
Update risk assessment	X		
Early Action Items			
Identify opportunities	X		
Implement opportunities <ul style="list-style-type: none"> - One non-time-critical removal action memorandum and two time-critical removal action memoranda are in public review. - To date, portions of three sites have been eliminated from the RI/FS process through the petroleum exclusion process. - To date, one unit of one site has been eliminated from the RI/FS process with a no further investigation decision. 	X		
CERCLA 120(h)(3) CONSIDERATIONS			
Develop an inventory of sites recommended for no further action	X		
Evaluate identified features of potential environmental concern through BCT site walks (e.g., aerial photograph sites, Desert Storm hazardous waste storage area, pesticide storage areas, PCB storage areas, former silver recovery units, and possible mercury leaks)		X	
COMMUNITY RELATIONS			
Update the community relations plan as required			X
Maintain and update the mailing list	X		
Maintain the information in the repository	X		
Update the administrative record quarterly	X		
Publish updated fact sheets	X		
Publish public notices as needed	X		

**Table ES-1
BCT/Project Team Action Items
(Sheet 3 of 3)**

Action Items	STATUS		
	In Progress	To Be Performed	Completed
MANAGEMENT AND ADMINISTRATIVE SUPPORT ACTIVITIES			
Data Management			
Update and maintain Geographic Information System	X		
Update and maintain database of analytical results from environmental sampling programs	X		

Abbreviations: BCT – Base Realignment and Closure (BRAC) Cleanup Team
 UST – underground storage tank
 RCRA – Resource Conservation and Recovery Act
 SWMU/AOC – solid waste management unit/area of concern
 DTSC – California Environmental Protection Agency Department of Toxic Substances Control
 OWS – oil/water separator
 PCB – polychlorinated biphenyl
 NPDES – National Pollution Discharge Elimination System
 RI/FS – Remedial Investigation/Feasibility Study
 CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act

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MCAS EL TORO Groundwater Monitoring Update

**4th Quarter 1996
3/26/97 RAB Meeting**

**F.A. Piszkin
c:gw4mp973.ppt**

1

Primary Objectives

- **181 Monitoring Ports**
- **Monitor and Document Groundwater**
 - » **Quality & Flow**
- **Monitor and Assess Existing Plumes**
 - » **Extent & Movement**
- **Provide Support Data**
 - » **Remedial Design & Remedial Actions**

2

Groundwater Elevations

- **October - December 1996**
- **Groundwater Elevation**
 - » Shallow Groundwater Unit - increase
 - » Principal Aquifer - decrease
- **Local Pumping Impacts PA**
- **Consistent with Past Data**
 - » Flow Direction
 - » Gradient

3

Results: VOCs (solvents)

- **Similar Extent & Concentrations**
 - » On-Station Source Area
 - » Off-Station Regional Plume
- **VOC Source Continues to Migrate**
- **Site 2 Landfill**
- **Site 1 - upgradient (?)**

4

Results: Other

- **Benzene**

- » Fuel Farms and Tank 398 Area
- » Low Concentrations

- **Semi-VOCs**

- » Results Confirm Past Data

- **Pesticides & Herbicides**

- » No Detects

5

Results: Other (cont.)

- **Metals**

- » Results Confirm Past Data
- » Tested for Hexavalent Chromium

- **General Chemistry**

- » Consistent with Past Results

6

Data Trends

- **Groundwater Gradient/Direction**
- **VOC Source Continues to Migrate**
- **VOC Extent Generally Steady**
- **Benzene only at Fuel Areas**

7

Next Steps

- **Complete Round 5 Sampling**
- **Continue Focused Monitoring**
 - » Landfills
 - » VOC Source Area and Off-Station
- **Develop Long-term Monitoring Program**

8

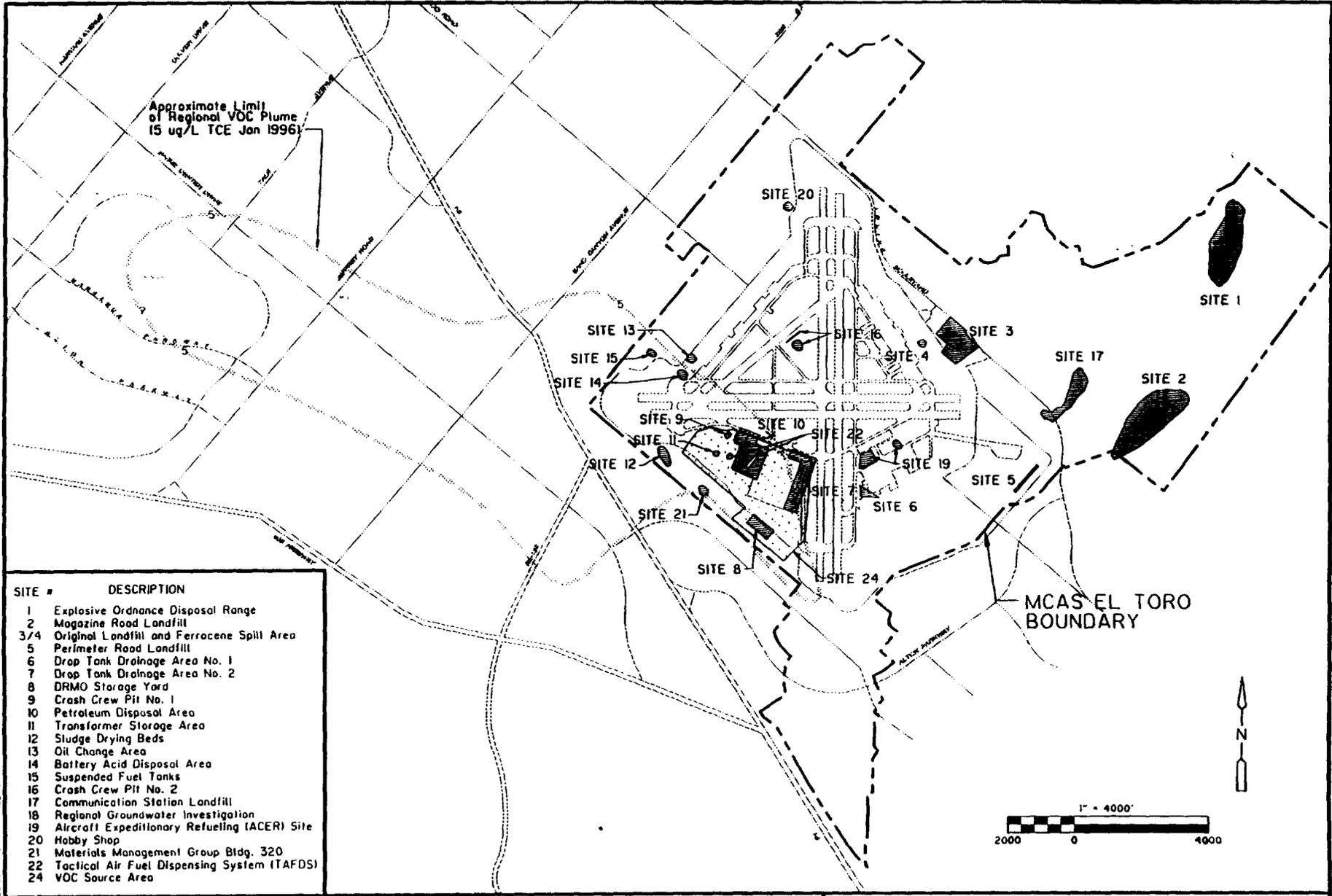


Figure 1-3
 LOCATION OF RI/FS SITES

STA. 000
 02/14/93 10:32:00
 02/14/93 10:32:00
 FIG. 1-3

VOLATILE ORGANIC COMPOUND (VOC) SOURCE AREA

**OPERABLE UNIT 2A
SITE 24**

Marine Corps Air Station - El Toro

Restoration Advisory Board Meeting

March 26, 1997



FEASIBILITY STUDY

- **Vadose Zone**
 - » **Subsurface Located Above Water Table**
- **Completed**
- **Agency Concurrence**

REMEDIATION

- **Soil Vapor Extraction (SVE)**
- **Presumptive Remedy at CERCLA VOC Sites**
- **Pulls Contaminants From Soil In Vapor Form**
- **Proven Innovative Treatment Technology**
- **Preferred Alternative Over Excavation**

SVE SYSTEM- First Step

- **Install Vapor Extraction Wells**
 - » **20 SVE Wells Already Installed**
 - » **Vertical**
 - » **Extraction Equipment**
 - » **Treatment Equipment**

SVE PILOT TESTING

- **Summer 1996**
- **November 1996-Present**
- **Very Positive Results**
 - » **>600 lbs. VOCs Removed**
 - » **SVE Is An Implementable Technology**
- **Injection Wells Not Currently Planned**
- **Air Sparging Not Planned**

SVE SYSTEM - Second Step

- **Obtain Equipment**
- **Norton AFB System (Potential)**
 - » **SVE with Carbon Adsorption**
- **Technology Transfer, Lessons Learned Available, Considerable Cost Savings**
- **Coordinate With Operations**

SCHEDULE

- **Proposed Plan - April 30, 1997**
- **Public Comment - May 1997**
- **Public Meeting - May 15, 1997**
 - » **This Room (4:30-8:30 PM)**
- **Record of Decision (ROD) -
September 1997**

CONCLUSION

- **SVE Is Very Effective**
- **Site Specific Effectiveness Demonstrated Through Pilot Testing**
- **SVE “the technique” Is Important**
 - » **Norton AFB System Just One Possibility**
 - » **Other Existing Systems May Be Considered**
 - » **New Design/Purchase**



A Citizen's Guide to Soil Vapor Extraction and Air Sparging

Technology Innovation Office

Technology Fact Sheet

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Soil vapor extraction, known as SVE, is the most frequently selected innovative treatment at Superfund sites. It is a relatively simple process that physically separates contaminants from soil. As the name suggests, SVE *extracts* contaminants from the soil in *vapor* form. Therefore, SVE systems are designed to remove contaminants that have a tendency to *volatilize* or evaporate easily. SVE removes *volatile* organic compounds (VOCs) and some *semi-volatile* organic compounds (SVOCs) from soil beneath the ground surface in the unsaturated zone—that part of the subsurface located above the water table. By applying a vacuum through a system of underground wells, contaminants are pulled to the surface as vapor or gas. Often, in addition to vacuum extraction wells, air *injection* wells are installed to increase the air flow and improve the removal rate of the contaminant. An *added* benefit of introducing air into the soil is that it can stimulate *bioremediation* of some contaminants.

SVE is sometimes called in situ volatilization, enhanced volatilization, in situ soil venting, forced soil venting, in situ air stripping, or soil vacuum extraction.

What is air sparging?

Used alone, soil vapor extraction cannot remove contaminants in the *saturated* zone of the subsurface, the water-soaked soil that lies below the water table. At sites where contamination is in the saturated zone, a process called air sparging may be used along with the SVE system. Air sparging means pumping air into the saturated zone to help flush (bubble) the contaminants up into the unsaturated zone where the SVE extraction wells can remove them (Figure 1).

For air sparging to be successful, the soil in the saturated zone must be loose enough to allow the injected air to readily escape up into the unsaturated zone. Air sparging, therefore, will work fastest at sites with coarse-grained soil, like sand and gravel.

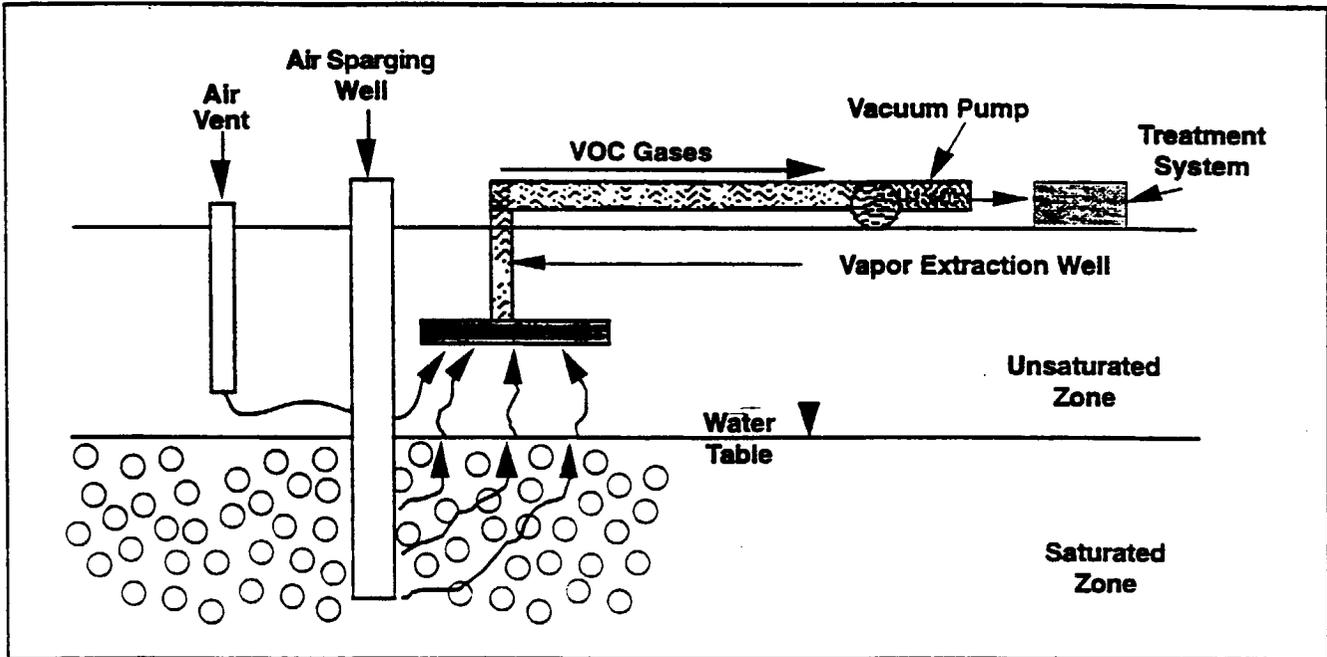
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Figure 1
A Combined Soil Vapor Extraction/Air Sparging System



As with SVE, an added benefit of air sparging is that it provides an oxygen source that helps stimulate the *bioremediation* of some contaminants. Bioremediation is an innovative treatment technology that uses microorganisms, such as bacteria, that live in the soil or groundwater to break down contaminants into harmless substances. (Bioremediation is explained in detail in another Citizen's Guide. See the "For More Information" box on page 4.) Air sparging also can be a quick and effective treatment for VOCs in groundwater.

How does an SVE system work?

The first step to constructing an SVE system is to install vapor extraction wells and injection wells (or air vents) in the contaminated area. Air injection wells use air compressors to force air into the ground. Air vents serve the same function as air injection wells, but are passive—instead of pumping air they just provide a passage for air to be drawn into the ground. When incoming air passes through the soil on its way to the extraction wells, contaminants evaporate out of the spaces between the soil particles and are pulled by the air to the wells and removed.

Vapor extraction wells can be placed either vertically or horizontally. Typically, they are placed

vertically and are designed to penetrate the lower portion of the unsaturated zone.

Vapors extracted by the SVE process are typically treated using carbon adsorption, incineration, catalytic oxidation, or condensation. Other methods, such as biological treatment and ultraviolet oxidation, also have been used with SVE systems. The type of treatment chosen depends on which contaminants are present and their concentrations.

Carbon adsorption is the most commonly used treatment for contaminated vapors and is adaptable to a wide range of volatile organic compounds.

When properly designed and operated, SVE is a safe, low maintenance process. Explosion-proof equipment is available to handle the potentially explosive mixtures of extracted gas that may be encountered on some landfill or gasoline spill sites.

SVE with thermal enhancement. SVE performance can be *enhanced* or improved by injecting heated air or steam into the contaminated soil through the injection wells. The heated air or steam helps to "loosen" some less volatile compounds from the soil. Researchers have done large-scale demonstrations of SVE with steam injection at several sites. In

addition to heated air or steam, another enhancement of SVE is the use of radio-frequency (RF) heating to better vaporize or volatilize compounds in clay and silt-type soils. Demonstrations of RF heating are underway.

Dual phase extraction. Dual phase extraction is a treatment system similar to SVE, but the extraction wells are sunk more deeply into the ground—below the water table into the saturated zone. Strong vacuum is applied through the extraction wells to simultaneously remove groundwater and vapors from the subsurface. Once above ground, the extracted vapors and groundwater are separated and treated. Dual phase extraction is more effective than SVE at sites with dense, clayey soil. When dual-phase extraction is combined with bioremediation, air sparging or bioventing, it can shorten cleanup times.

Why consider SVE or air sparging?

SVE is very effective at removing VOCs from the unsaturated zone. With the addition of an air sparging system, contaminants can be removed from the saturated zone as well. Neither technique requires excavation of the contaminated soil. (Excavation is undesirable because it is expensive, creates dust, and allows volatile contaminants to escape untreated into the atmosphere.) The extracted vapors usually require treatment, but costs for treating extracted vapors and liquids are low compared to the costs of technologies requiring excavation. The technologies are relatively simple to install, can be used effectively in combination with other treatment technologies, and are effective under a variety of site conditions.

Will SVE or air sparging work at every site?

SVE and air sparging may be good choices at sites contaminated with solvents and other volatile organic compounds (such as trichloroethane, trichloroethylene, benzene, toluene, ethylbenzene, and xylene) and fuels. Because properties of the soil have such an important effect on the movement of soil vapors, the performance and design of SVE and air sparging systems depend greatly on the properties of the soil. SVE is best used at sites with loose unsaturated soil, such as sand, gravel, and coarse silt or fractured bedrock. However, it has been applied to sites with denser soils, although treatment may take longer.

Also, the higher the moisture content of the soil, the slower SVE works.

Where are SVE and air sparging being used?

SVE has been used at many Superfund and other hazardous waste sites. The Verona Well Field in Michigan is a Superfund site at which SVE was used to treat a one-half acre area to a depth of 20 feet contaminated with trichloroethene, tetrachloroethylene, and "BTEX," a mixture of benzene, toluene, ethylbenzene, and xylene. The SVE system removed and treated a total of 45,000 pounds of contaminants from the treatment area. EPA set target cleanup levels for 19 different contaminants at the site and the SVE system successfully met the goals for all the contaminants. Table 1 on page 4 lists other Superfund sites at which SVE, air sparging, and dual-phase extraction are planned or have been used.

What Is An Innovative Treatment Technology?

Treatment technologies are processes applied to hazardous waste or contaminated materials to permanently alter their condition through chemical, biological, or physical means. Treatment technologies are able to alter, by destroying or changing, contaminated materials so they are less hazardous or are no longer hazardous. This may be done by reducing the amount of contaminated material, by recovering or removing a component that gives the material its hazardous properties or by immobilizing the waste. *Innovative treatment technologies* are technologies that have been tested, selected or used for treatment of hazardous waste or contaminated materials but still lack well-documented cost and performance data under a variety of operating conditions.

Some innovative treatment technologies, such as SVE and thermal desorption, are so widely used that the term "innovative" may seem inappropriate. However, innovative variations on these technologies are still being developed and EPA still is not able to predict with certainty the time and cost required to clean up a site using them. For these reasons, EPA continues to track these technologies and collect data about them.

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Rocky Mountain Arsenal, CO	SVE	Completed	VOCs
Lindsay Manufacturing, NE	SVE	Operational	VOCs
Applied Environmental Services, NY	SVE/AS	Operational	BTEX, VOCs, semi-volatile organic compounds (SVOCs), polyaromatic hydrocarbons (PAHs)
Wayne Reclamation and Recycling, IN	SVE/AS	Operational	VOCs, BTEX
Sand Creek Industrial, CO	SVE/DPE	Pre-design	VOCs, PAHs, BTEX
Linemaster Switch Corporation, CT	SVE/DPE	In design	VOCs
Rochester Property, SC	AS	Operational	VOCs
Fairchild Air Force Base, WA	AS	Operational	VOCs, BTEX

For a listing of Superfund sites at which innovative treatment technologies have been used or selected for use, contact NCEPI at the address in the box below for a copy of the document entitled *Innovative Treatment Technologies: Annual Status Report (7th Ed.)*, EPA 542-R-95-008. Additional information about the sites listed in the Annual Status Report is available in database format. The database can be downloaded free of charge from EPA's Cleanup Information bulletin board (CLU-IN). Call CLU-IN at 301-589-8366 (modem). CLU-IN's help line is 301-589-8368. The database also is available for purchase on diskettes. Contact NCEPI for details.

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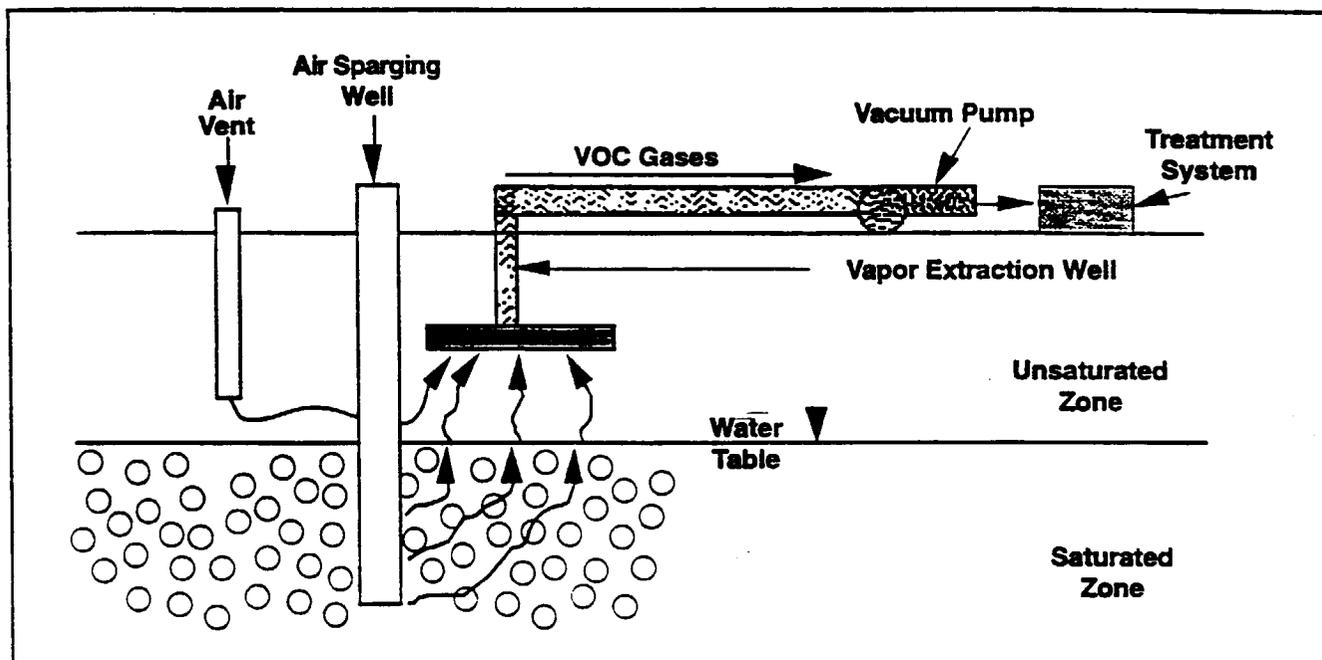
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Southwest Division
Naval Facilities Engineering Command
Contracts Department
1220 Pacific Highway, Room 135
San Diego, California 92132-5187

Contract No. N68711-92-D-4670

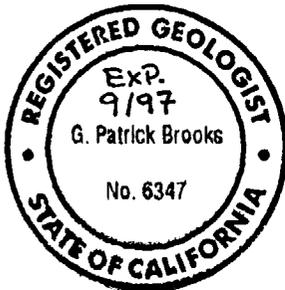
**COMPREHENSIVE LONG-TERM ENVIRONMENTAL
ACTION NAVY
CLEAN II**

**DRAFT FINAL PHASE II VADOSE ZONE
FEASIBILITY STUDY REPORT
OPERABLE UNIT 2A – SITE 24
MARINE CORPS AIR STATION
EL TORO, CALIFORNIA**

CTO-0073/0317

March 1997

Prepared by:



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



Signature: G. Patrick Brooks
G. Patrick Brooks, R.G., CTO Leader

Date: 3/11/97

EXECUTIVE SUMMARY

This report presents the results of a vadose zone feasibility study (FS) conducted to identify and evaluate potential remedial action alternatives for volatile organic compound (VOC)-contaminated soil at Site 24, the VOC Source Area, at Marine Corps Air Station (MCAS) El Toro. This FS report was prepared by Bechtel National, Inc., on behalf of the Department of the Navy, Southwest Division Naval Facilities Engineering Command, in accordance with Contract Task Order No. 0073, under the Comprehensive Long-Term Environmental Action Navy contract No. N68711-92D-4670. Initially, soil and groundwater remedial action alternatives were presented together in the draft Site 24 FS. Soil and groundwater issues are now considered separately. Remedial action alternatives for soil are presented in this report. Remedial action alternatives for groundwater will be presented later in the draft final groundwater FS.

BACKGROUND

Site 24 is located in the southwest quadrant of MCAS El Toro. The site contains two large aircraft hangers (Buildings 296 and 297) and several smaller buildings that are used for aircraft and vehicle maintenance and repair (Figure ES-1). Past industrial activities at Site 24, such as dust suppression with waste liquids, paint stripping, degreasing, vehicle and aircraft washing, and waste-disposal practices, may have involved the use of solvents containing VOCs such as trichloroethene (TCE) and tetrachloroethene. Wastes from these practices may have reached the surface or subsurface through leakage, runoff, storm drains, or direct application to the soil. Although interviews with former MCAS personnel support this hypothesis, an extensive records review did not produce any documentation of work practices involving TCE or tetrachloroethene.

In 1985, routine groundwater sampling performed by Orange County Water District discovered TCE in groundwater from an agricultural well located about 3,000 feet west of the Station. Subsequent investigations by Orange County Water District concluded that the TCE had originated from the Station. As a result of these findings, the United States Environmental Protection Agency placed the Station on the National Priorities List in 1990, and the Marine Corps subsequently agreed to conduct a Remedial Investigation/Feasibility Study.

The Phase I and Phase II Remedial Investigations identified a plume of TCE in groundwater originating beneath Site 24 that extends approximately 3 miles off-Station and downgradient of MCAS El Toro. The area of highest TCE concentrations in groundwater was located beneath Building 296.

NATURE AND EXTENT OF CONTAMINATION

The chemicals of concern for this feasibility study are VOCs. The VOC detected most often and at the highest concentrations during the Phase I and Phase II Remedial Investigations was TCE. The horizontal and vertical extent of TCE in the vadose zone was characterized using soil gas sampling and analysis. This characterization showed that the primary TCE source is present beneath Buildings 296 and 297, extending to the south with decreasing concentrations to the southern Station boundary. Several smaller source areas exist in the soil beneath Site 24, including a PCE soil gas plume located west

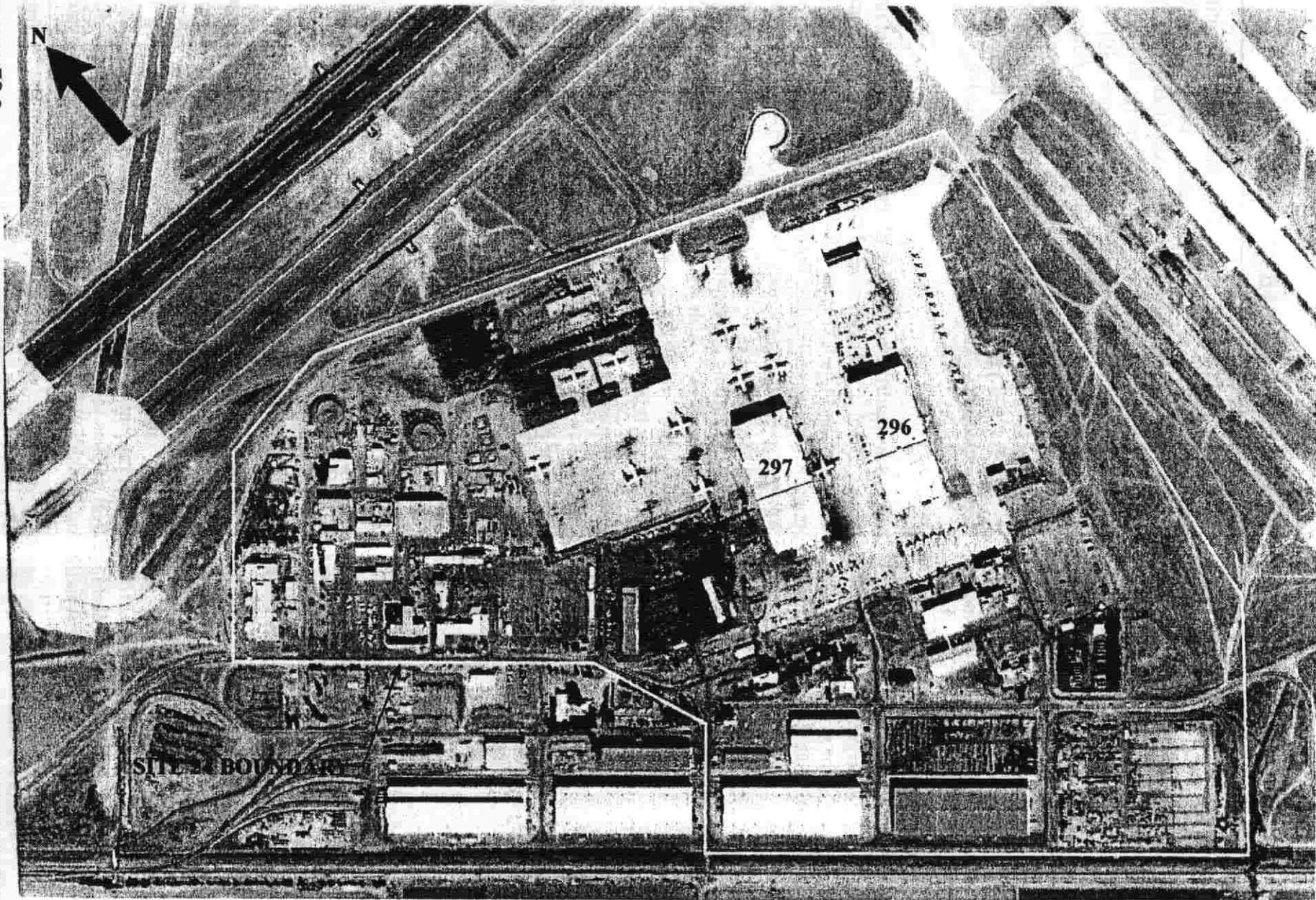


Figure ES-1
Aerial Photograph of Site 24 (1980)

EXECUTIVE SUMMARY (continued)

of Building 297. The TCE concentrations in soil gas generally increase with depth, and the highest concentrations occur near the water table. VOCs in the area of Buildings 296 and 297 extend to groundwater directly beneath those buildings. Measured soil gas and groundwater TCE concentrations demonstrate that TCE mass flux is from the vadose zone toward groundwater. The trend of increasing soil gas concentrations with depth suggests a depleting source at the surface that is consistent with the end of TCE usage in approximately 1975.

Although the VOC contamination at Site 24 is believed to have entered the soil at or close to the surface, the current contamination level near the surface is low. Soil samples collected from the upper 10 feet of soil at Site 24 contained TCE concentrations less than 21 micrograms per kilogram. Low TCE concentrations in the soil near the surface may be due to the continued flushing by infiltrating water after TCE use was discontinued and the volatilization of TCE into the atmosphere in the past.

The highest reported TCE concentration in soil was 400 micrograms per kilogram. These relatively low concentrations suggest that TCE may have been introduced in the dissolved form. However, because solvents may also have been used in a pure or nonaqueous phase, the potential for the existence of dense nonaqueous-phase liquid (DNAPL) at the site was investigated during the Phase I and Phase II Remedial Investigations. The conclusion by both investigative teams is consistent: there is little evidence for DNAPL at Site 24. The VOC concentrations reported for soil, soil gas, and groundwater are well below the levels that would be expected if an active DNAPL source were present at the site (U.S. EPA 1991a). Even though no direct evidence was found, it is possible that some residual DNAPL may be trapped between soil grains in the vadose zone or within the aquifer skeletal material.

The primary TCE source in the vadose zone beneath Buildings 296 and 297 is linked to a shallow groundwater TCE hot spot. This hot spot is defined as the area of TCE in groundwater that exceeds 500 micrograms per liter (the maximum reported concentration is 3,100 micrograms per liter). It begins beneath Building 296 and extends approximately 2,800 feet downgradient to the northwest. Within the hot spot, TCE concentrations are fairly uniform in the top 40 feet. Silt and clay layers separate the generally sandy upper 40 feet of the shallow groundwater unit from deeper sands. TCE concentrations decrease markedly in groundwater beneath the silt and clay layers. Although the deeper principal aquifer is contaminated with TCE off-Station, a review of the data does not suggest principal aquifer contamination beneath Site 24. Off-Station, the maximum reported TCE concentration is 47.8 micrograms per liter.

At Site 24, approximately 1,500 pounds of TCE are estimated to be present in soil gas in the primary TCE vadose zone source. Assuming the soil pore space is equally shared by soil gas and soil moisture, an additional 4,000 pounds of TCE would be present in the soil moisture. Based on the low organic carbon content of the soil, the adsorbed mass of TCE is on the order of 500 pounds. The mass of TCE in groundwater beneath Site 24 is estimated to be approximately 2,000 pounds. Based on these estimates, there is approximately 3 times more TCE in the vadose zone than in the groundwater at Site 24.

EXECUTIVE SUMMARY (continued)

BASELINE RISK ASSESSMENT FOR VOLATILE ORGANIC COMPOUNDS

In 1995, a baseline human-health risk assessment was conducted to estimate the risk from VOCs found at Site 24. Four receptors were evaluated: 1) a resident living in a house on-site, 2) an office worker employed at the site, 3) a construction worker performing excavation work at the site, and 4) a child playing at an on-site park. The baseline human-health risk assessment indicated that lifetime excess upper-bound cancer risk presented by the VOCs in the soil is less than approximately five chances in one billion (5×10^{-9}). This is well below the United States Environmental Protection Agency target risk threshold of one in ten thousand (1×10^{-4}) to one in a million (1×10^{-6}). Based on the human-health risk assessment, concentrations of VOCs in the soil are not high enough to cause noncarcinogenic effects to the same receptors.

The lifetime excess upper-bound cancer risk to a resident from exposure to VOCs in the groundwater is on the order of one chance in a thousand (1×10^{-3}). This assumes that groundwater is drawn from an on-site well located in the shallow groundwater unit. This water is also assumed to be used for all consumptive uses (e.g., drinking and washing). The results also showed that VOC concentrations in groundwater are high enough to potentially cause noncarcinogenic effects to the resident.

REMEDIAL ACTION OBJECTIVES

Based on the Phase I and Phase II Remedial Investigations, the baseline human-health risk assessment, and a review of applicable or relevant and appropriate requirements, the following remedial action objectives were established for soil and groundwater at Site 24:

- **Vadose Zone**
 - reduce concentrations of VOCs in the VOC source areas to prevent or minimize further degradation of the shallow groundwater unit above the maximum contaminant level for drinking water; and
 - continue vadose zone remediation until the average VOC soil gas concentrations are below threshold concentrations (concentrations capable of contaminating groundwater above the maximum contaminant levels).

DEVELOPMENT OF REMEDIAL ALTERNATIVES

Remedial action objectives for groundwater at Site 24 will be presented in the draft final groundwater FS. Two remedial alternatives were selected for detailed evaluation in this FS:

- Alternative 1: No Action; and
- Alternative 2a: Soil vapor extraction in the vadose zone source area.

EXECUTIVE SUMMARY (continued)

The development of remedial alternatives was guided by prior United States Environmental Protection Agency experience at VOC-contaminated sites. The document *Presumptive Remedies: Policies and Procedures* (U.S. EPA 1993a) describes certain preferred technologies or presumptive remedies for VOC-contaminated soil. The objective of the presumptive remedy is to use past experience to expedite the investigation and selection of cleanup alternatives. The presumptive remedy approach allows the FS to bypass the identification and screening of remedial technologies and focus on those technologies that have proved to be most effective in the past. The presumptive remedy selected for detailed evaluation in the FS was soil vapor extraction (SVE). SVE from the VOC source area forms the basis of Alternative 2.

As part of the RI/FS process, SVE pilot tests were conducted to evaluate the efficiency of using SVE to remove VOCs at Site 24. The first pilot test, conducted for 19 days, removed approximately 225 pounds of TCE and 50 pounds each of 1,1-DCE and Freon 113 from one SVE well. The influence of the well was estimated to be approximately 280 feet. Additional 1-day tests confirmed that many of the other SVE wells had a similar influence. Based on the 1-day test data, an initial VOC mass removal rate of about 190 pounds per day was estimated from 20 SVE wells. The test data show that SVE is a promising technology for removing VOCs at Site 24.

Alternative 1

In Alternative 1, no action is required by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 to provide a basis from which to develop and evaluate the other remedial alternatives. Under the no action alternative, no remedial activities would be initiated at Site 24. Although groundwater monitoring is not a part of Alternative 1, sampling and analysis of groundwater would continue under the Long-Term Groundwater Plan. With no action, VOCs in the soil beneath Site 24 would continue to contaminate the shallow groundwater at levels exceeding the federal maximum contaminant levels for drinking water and would cause the eventual cleanup of groundwater to be more costly and time consuming. There is no direct cost associated with Alternative 1.

Alternative 2

Alternative 2 removes VOCs from soil using SVE, the United States Environmental Protection Agency presumptive remedy for VOC-contaminated soil (U.S. EPA 1993b). SVE is the most frequently selected innovative treatment at Superfund sites. It is a relatively simple process that physically separates contaminants from the soil. As the name suggests, SVE extracts contaminants from the soil in the vapor form. Therefore, SVE systems are best suited to contaminants that have a tendency to volatilize or evaporate easily, such as VOCs. By applying a vacuum to a network of SVE wells, VOCs are pulled to the surface as a vapor or gas. This vapor is then filtered with activated carbon to trap the VOCs before the air is discharged to the atmosphere. When the activated carbon filters become saturated with VOCs, the carbon is sent back to the

EXECUTIVE SUMMARY (continued)

manufacturer where it is regenerated and the VOCs destroyed. By removing VOCs from the soil, further groundwater contamination is prevented or minimized, thereby reducing the time required for groundwater cleanup. Remedial actions for groundwater at Site 24 will be described in a separate FS.

In accordance with the National Oil and Hazardous Substances Pollution Contingency Plan, the remedial alternatives developed in this FS were evaluated on the basis of seven criteria: overall protection of human health and the environment; compliance with federal and state applicable or relevant and appropriate requirements; long-term effectiveness and permanence; reduction of toxicity, mobility, or volume; short-term effectiveness; implementability; and cost. Following review of this report by state environmental agencies, state concerns will be addressed; following public review and comment, the concerns of the public will be addressed.

RESULTS OF REMEDIAL ALTERNATIVE EVALUATION

Alternative 2 is the preferred remedial alternative. Performing soil cleanup using SVE at Site 24 would eliminate most of the TCE contamination and other VOCs that serve as the source of the regional groundwater contamination. With most of the soil contamination eliminated, time required for follow-up groundwater cleanup will be reduced. Soil and groundwater cleanup will be conducted independently. This strategy coincides with the goal of conducting expedited efforts to clean up the Station in support of eventual closure and reuse of the property.

In summary, the preferred remedial alternative includes the following:

- construction, operation, and maintenance of an SVE system using a phased-approach to remediation;
- performance monitoring to be conducted throughout the predicted 2 years of remediation;
- treatment of VOC-contaminated soil gas with activated carbon prior to discharge to the atmosphere;
- reduction of VOC concentrations in the soil gas to levels that will not contaminate groundwater above their respective MCLs; and
- confirmation soil-gas sampling using direct-push technology.

The estimated present-worth cost for Alternative 2 is approximately \$3.5 to \$5 million. Some uncertainty is estimated because the exact number and locations of SVE wells will be determined during the remedial design phase of the project. Alternative 2 protects human health and the environment by removing VOCs from the soil before they further contaminate the groundwater. Alternative 2 also complies with applicable or relevant and appropriate requirements. SVE is an established remedial technology that has been successfully pilot tested at Site 24.

MCAS EL TORO Schedule Update Federal Facility Agreement

3/26/97 RAB Meeting

F.A. Piszkin
c:sch973.ppt

1

VOC Source Area Vadose Zone

- **Public Comment Period**
 - » April 30 - May 30, 1997
 - » Public Meeting: May 15 (4:30pm - 8:30pm)
- **Record of Decision - Agency Review**
 - » June 17 - July 18, 1997
- **Record of Decision - Signing**
 - » September 22, 1997

2

VOC Groundwater Source & Regional (tentative)

- **Proposed Plan - Agency Review**
 - » June 16 - August 15, 1997
- **Public Comment Period**
 - » October 15 - November 17, 1997
- **Record of Decision - Agency Review**
 - » December 23, 1997 - February 27, 1998
- **Record of Decision - Signing**
 - » June 01, 1998

3

Landfills Sites 3 & 5

- **Proposed Plan - Agency Review**
 - » August 08 - October 09, 1997
- **Public Comment Period**
 - » December 19, 1997 - February 04, 1998
- **Record of Decision - Agency Review**
 - » February 19 - April 21, 1998
- **Record of Decision - Signing**
 - » July 23, 1998

4

Landfills Sites 2 & 17

- **Proposed Plan - Agency Review**
 - » August 08 - October 09, 1997
- **Public Comment Period**
 - » December 19, 1997 - February 04, 1998
- **Record of Decision - Agency Review**
 - » March 19 - May 20, 1998
- **Record of Decision - Signing**
 - » August 20, 1998

5

Proposed No Further Action Sites

- **Public Comment Period**
 - » June 06 - July 08, 1997
 - » Public Meeting: June 18 (4:30pm - 8:30pm)
- **Record of Decision - Agency Review**
 - » July 21 - August 08, 1997
- **Record of Decision - Signing**
 - » September 29, 1997

6

Sites 8, 11, & 12

- **Feasibility Study - Agency Review**
 - » July 11 - September 11, 1997
- **Proposed Plan - Agency Review**
 - » February 19 - April 21, 1998
- **Public Comment Period**
 - » June 30, 1998 - July 29, 1998
- **Record of Decision - Agency Review**
 - » August 13 - October 15, 1998

7

Sites 1, 7, 14, & 16

- **Feasibility Study - Agency Review**
 - » September 14 - November 16, 1998
- **Proposed Plan - Agency Review**
 - » April 23 - June 24, 1999
- **Public Comment Period**
 - » September 01 - October 01, 1999
- **Record of Decision - Agency Review**
 - » October 18 - December 21, 1999

8



70012

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

March 11, 1997

Mr. Joseph Joyce
BRAC Environmental Coordinator
U. S. Marine Corps Air Station - El Toro
P. O. Box 95001
Santa Ana, California 92709-5001

Re: U. S. EPA Technical Comments, Draft Final Phase II Feasibility Study Reports - Sites 3 & 5,
Marine Corps Air Station, El Toro, California

Dear Mr. Joyce:

The United States Environmental Protection Agency (EPA) has reviewed the above referenced documents dated February, 1997. We appreciate your revision/responses in response to EPA's comments on the first drafts, however, there are new issues as well as some outstanding issues from the revised reports that have not been adequately addressed. Before the reports can be approved, EPA's comments must be satisfactorily addressed.

We will be submitting comments in two parts. The first part will consist of technical comments and the second part to be submitted the week of March 17, will consist of comments relating to ARARs and institutional controls.

Attached are EPA's technical comments. Please feel free to contact me at (415) 744-2210 if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Glenn R. Kistner".

Glenn R. Kistner
Remedial Project Manager

Attachments

cc: Tayseer Mahmoud, DTSC
Larry Vitale, RWQCB
Andy Piszkin, SWDIV
Craig Carlisle, Bechtel

**REVIEW COMMENTS ON THE DRAFT FINAL
PHASE II FEASIBILITY STUDY REPORT
OPERABLE UNIT 2C - SITE 3
MARINE CORPS AIR STATION EL TORO**

GENERAL COMMENTS

1. The strikeout/underline format was very helpful and facilitated review of this document.
2. The rationale for capping the landfill is still unclear. The sample results do not indicate that risks are due to materials disposed at the landfill. The risk assessment indicates risk is due to arsenic, but the detected levels of arsenic may be representative of natural (background) conditions.
3. Section 2.2.4.1 indicates that the risks are due to arsenic. At many sites, background concentrations of arsenic result in this degree of risk. More work may be needed to evaluate whether the risk is based on natural arsenic concentrations. Further, the source for cap materials may have the same or higher arsenic concentrations. Arsenic concentrations in the clean cap materials should be tested prior to capping.
4. Alternative 3 appears to be the most attractive when compared to the other capping alternatives. However, the infiltration rates for the native cap are based on data that was not collected from the likely cap material. Before the decision is made to accept Alternative 3, additional permeability data is needed. The FS should de-emphasize the calculated infiltration estimates for native cap material due to the high degree of uncertainty about actual permeability.

SPECIFIC COMMENTS

1. **General Comment Response 1.** Although it is helpful that the RBCs have been included, this information should be used in a discussion to show that the RBCs are exceeded.
2. **General Comment Response 3.** Please revise the text to reflect the response given for this comment.
3. **Response 6.** Please revise the text to reflect the response given for this comment. It is confusing to discuss the samples taken within an old boundary and then provide a figure showing the revised boundary with no discussion. The text should be consistent with the figure provided in this report.
4. **Response 9.** To be complete, the text should indicate that no chemicals were detected in 3SB5. This could be done in a general statement.

5. **Table 3-4.** The ex-situ treatment options were eliminated based on cost effectiveness, but the reason why these technologies are deemed not cost effective is not discussed. These technologies have been used in numerous groundwater pump and treat systems nationally and have been shown to be cost effective. Cost effectiveness is not a justifiable reason to eliminate the technologies at this point in the FS. One or several of these technologies should be included in the development of alternatives to treat groundwater if groundwater contamination is truly a concern.
6. **Section 3.1.3, p. 3-16, paragraph 3.** The lack of established background concentrations does not mean it is technically infeasible to achieve background. Please revise the first sentence.
7. **Section 4, p. 4-2, paragraph 1.** All the alternatives should not rely on natural attenuation to resolve the concerns with groundwater quality. This approach does not provide a basis for comparison since this natural process occurs for every alternative, including the no action and institutional controls alternatives. Include one or more active groundwater remediation alternatives to address groundwater contamination.
8. **Section 4.1.1, p. 4-23, paragraph 1.** This last sentence says the liner will be HDPE but Figure 4-10 indicates that PVC will be used. HDPE is not the optimum liner due to its rigidity. Please revise.
9. **Response 47.** It appears that the geotextile overliner has not been eliminated in Figure 4-11 as stated in the comment response.
10. **Section 5.1.4, p. 5-2.** It is incorrect to state that "all alternatives except Alternative 1 reduce the toxicity and volume of contaminants in groundwater through natural precipitation." Because natural precipitation occurs continuously without interference or help from humankind, Alternative 1 also reduces the toxicity and volume of contaminants in groundwater through natural precipitation. The only real difference is that there is no way to monitor the effectiveness of this natural process in a no action alternative. Please revise the text to be consistent.
11. **Section 5.2.3.2, p. 5-10, ARARS.** The performance of this native soil cap appears to be based on a single permeability test done on a sample of the material collected at 80 feet below the surface. The infiltration rate of 0.5 inches/year has much uncertainty because it is not based on near surface soil permeability. Additional information is necessary to support the conclusion that the native soil cap will perform equally as well as the prescriptive cap.
12. **Section 5.2.6.1, p. 5-47, Long Term Effectiveness and Table 6-1.** Infiltration for the concrete/FML cap is greater than for the FML cap (Alternative 4d) alone. It seems that the concrete should help reduce infiltration rates. Please clarify or correct as necessary.

13. **Section 5.2.6.1, p. 5-52, Long Term Effectiveness and Table 6-1.** Infiltration for the asphalt/FML cap is greater than for the FML cap (Alternative 4d) alone. It seems that the concrete should help reduce infiltration rates. Please clarify.
14. **Section 6.4, p. 6-14, and Table 6-4.** Based on the fact that natural precipitation of metals occurs continuously, the reduction in toxicity also occurs for Alternatives 1 and 2. Please revise the text and table to be consistent.
15. **Section 7, p. 7-1, 2nd bullet.** There is no difference between Alternative 1 and 2 with regard to groundwater remediation through natural precipitation. Alternative 1 is just as effective as the rest of the alternatives with regard to natural precipitation. Please revise.
16. **Section 7, p. 7-1, 4th bullet.** The effectiveness of Alternative 3 is uncertain because of the lack of information on the permeability of native soil. The reader is led to believe that a native soil cap should be the recommended remedy. Additional permeability data should be gathered for the soil likely to be used for the cap before a recommendation is made.

**REVIEW COMMENTS ON THE DRAFT FINAL
PHASE II FEASIBILITY STUDY REPORT
OPERABLE UNIT 2C - SITE 5
MARINE CORPS AIR STATION EL TORO**

GENERAL COMMENT

1. The ~~strikeout~~/underline format was very helpful and facilitated the review of this document.
2. Please be consistent discussing whether there is a reduction in the toxicity and volume of contaminants for each alternative, and in summary text and tables. In some sections, it is stated that there is no reduction in volume, however in Section 5.1.4, it states that there is a reduction in volume.

The "natural precipitation" of metals occurs continuously (i.e., for all alternatives). This natural process does not stop for the no action and institutional controls alternatives, however, under no action, it is not possible either to measure the effectiveness of natural precipitation or to calculate the resulting reduction in risk.

SPECIFIC COMMENTS

1. **Section 2.2.2.1, p. 2-11 and Bullet 1, p. ES-2.** The text on page 2-11 states that the main body of the landfill covers 1.7 acres, but this bullet in the Executive Summary says that Unit 1 is the principal body of the landfill and comprises 1.8 acres. Please be consistent.
2. **Section 2.2.3.1, p. 2-27, paragraph beginning "One approach for evaluating..."** There are two typographical errors in this paragraph.
3. **Section 3.1.3, p. 3-16, paragraph 3.** The lack of established background concentrations does not mean that it is technically infeasible to achieve background. Please revise the first sentence.
4. **Section 3.5.2.3, Landfill Gas Monitoring.** The last sentence seems incomplete because the monitoring results could be consistent, exceed air criteria, and therefore be unacceptable. Please explain, and revise as necessary.
5. **Section 3.6, last sentence.** Please provide the missing section citation. The sentence currently reads: "Comparing this estimate to other alternatives as developed in section, the clean closure..."

6. **Response 24.** A 60 mil liner is no more likely to stop an animal than a 40 mil liner. The only effective deterrent for burrowing animals is a 6-inch layer of large gravel placed above the liner.
7. **Section 4, p. 4-1.** All of the alternatives should not rely on natural attenuation to resolve concerns with groundwater quality. This approach does not provide a basis for comparison, since this process occurs for every alternative, including the no action and institutional controls alternatives. Include one or more active groundwater remediation alternatives to address groundwater contamination.
8. **Section 4.6.1, p. 4-21, paragraph 1 and Figure 4-10.** The text in the last sentence of this paragraph says that the liner will be HDPE but the figure indicates that PVC will be used. HDPE is not the optimum liner material due to its rigidity. Please revise and be consistent.
9. **Response 31.** It appears that the geotextile overliner has not been eliminated from Figure 4-11 as stated in the comment response.
10. **Section 5.1.4, p. 5-2, new text.** It is incorrect to state that "all alternatives except Alternative 1 reduce the toxicity and volume of contaminants in groundwater through natural precipitation." Because natural precipitation occurs continuously without interference or help from humankind, Alternative 1 also reduces the toxicity and volume of contaminants in groundwater through natural precipitation. The only real difference is that there is no way to monitor the effectiveness of this natural process in a no action alternative. Please revise the text to be consistent.
11. **Section 5.2.1.2, p. 5-5, second line.** It would be more accurate to state that because of the process of natural precipitation of metals, some reduction in risk will occur, but this reduction cannot be measured in the no action alternative.
12. **Section 5.2.2.2, Compliance with ARARs, new text, second sentence.** Please change the text to read "Alternative 2..." instead of "Alternative 5..."
13. **Section 6.2, p. 6-11 and Section 7, p. 7-1, second bullet.** Since there is no difference in the occurrence of natural precipitation for Alternatives 1 and 2, if the chemical specific ARARs are met for Alternatives 3, 4, 5, and 6, the ARARs will also be met for Alternative 1, however it is not possible to evaluate the effectiveness of this process for Alternative 1. Please be consistent in how natural precipitation is discussed.
14. **Table 6-1.** There are some discrepancies between the annual infiltration numbers given in this table and those given in the text in Section 5. One example is the number quoted on page 5-46 (for alternative 6a). Please cross check the text and this table and cite the correct numbers.

15. **Section 7.1, p. 7-1, bullet 4.** The effectiveness of alternative 3 is uncertain because of the lack of information on the permeability of native soil. The reader is lead to believe that this native soil cap should be the recommended remedy. Additional permeability data should be gathered for the soil likely to be used for the cap before a recommendation is made.

16. **Section 6.4 and Table 6-4.** Based on the fact that natural precipitation of metals occurs continuously, the reduction in toxicity also occurs for Alternatives 1 and 2. Please revise the text and table to be consistent.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

March 24, 1997

Mr. Joseph Joyce
BRAC Environmental Coordinator
U.S. Marine Corps Air Station- El Toro
P. O. Box 95001
Santa Ana, California 92709-5001

Re: Additional U. S. EPA Comments on Draft Final Phase II Feasibility Studies Operable Unit
2C- Sites 3&5, Marine Corps Air Station- El Toro, California

Dear Mr. Joyce:

The United States Environmental Protection Agency (EPA) has reviewed the above referenced documents dated February, 1997. Per my letter dated March 11, 1997, this letter contains additional comments mainly concerning ARRARs and institutional controls. Although this letter focuses on the Site 5 Feasibility Study, our comments also pertain to the Site 3 Feasibility Study, since these sites share similar characteristics and the Feasibility Studies are also similar if not identical.

Site 5 comments:

GENERAL COMMENTS:

1. The language in the FS that states that the DON policy allows deed restrictions to be established only through negotiation of a BRAC transfer is not acceptable. The FS and the ROD need to identify the restrictions on use and access that will be part of the remedy, e.g., restrictions on use of groundwater, restrictions on excavation, maintenance of integrity of cap, etc.
2. The DON seems to be identifying two sets of ARARs under RCRA, i.e., Subtitle C and Subtitle D which creates inconsistency problems. If the DON believes that there is hazardous waste at the Site, Subtitle C requirements are the ARARs; if the DON believes the site qualifies as a MSWLF, then Subtitle D requirements are the ARARs. The DON seems to think that designating Subtitle C as "relevant and appropriate" and Subtitle D as "applicable" resolves the inconsistency problem. It doesn't. Once you designate requirements as "relevant and appropriate requirements." these are like any other ARARs and must be complied with. In other words, they would be no different in weight than the applicable requirements. For instance, if you have an activity like landfill capping where the DON has designated both Subtitle C and D as ARARs (one as relevant and appropriate, the other as applicable), the question is which of these requirements regarding

landfill capping must be complied with?

SPECIFIC COMMENTS:

1. p.ES-9: As previously mentioned, alternative 1 (no action) also accomplishes remediation of groundwater through precipitation. On this page and all throughout the document, monitoring is described as an institutional control. Monitoring is really not part of institutional controls.

2.p.ES-10: First underlined paragraph - refers to State's acceptance of the different variations of alternative 4. What about State's acceptance alternatives 5 and 6? Also, what about EPA's acceptance of these alternatives? On the same page, first bullet under "Results of Remedial Alternative Evaluation," states that alternative 1 is not expected to comply with ARARs. A no action alternative does not trigger ARARs.

3.p.ES-13: Underlined section, last bullet - this sentence seems to contradict itself, i.e., the alternative will result in continued low-level releases of gas from the LF surface and decreased releases at the periphery of the LF.

4.p.ES-15: Table ES-3 - ranks the various alternatives. Since "Overall Protection of HHE" and "Compliance with ARARs" are threshold criteria that must be complied with, these should not be ranked (low, moderate, high). In other words, when looking at alternatives, the first question is - do these alternatives make it past the two threshold requirement? If an alternative does, you compare it with the other alternatives with regard the other balancing criteria. That's when the ranking of alternatives should take place.

5.p.2-6: Last paragraph - what is "no significant" surface drainage?

6.p.3-1: This section discusses the screening of presumptive remedy technologies. Did the DON look at the EPA Guidance on "Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills?" There is no mention of it here.

7.p.3-8: Last paragraph - first underlined section. The substantive portions of Article 7.8 are potentially applicable, not relevant and appropriate.

8.p.3-9: first paragraph - 40 CFR Part 258 are applicable (not relevant and appropriate); and change the reference here from Site 17 to Site 5. On the same page, the last paragraph - since production from Site 5 aquifer may be as high as 500 to 2,000 gallons per day, the provisions of Res. 88-63 DO apply to Site 5.

9.p.3-10: First row - how are the 66264.309(a) substantive environmental standards? The requirements in the second row are not cited in the text.

10.p.3-11: First row - 17774(g)(1) requirements are not in the text.

11.p.3-12 and 3-13: The following are not cited in the text - 17777(a); 86264.117(b)(1) and (2); 17788(a); 17788.

11.p.3-16: First paragraph - states that because background levels for metals have not been prepared, attaining background levels is not considered feasible. That's a big assumption. On the same page, the third paragraph - mcls are the cleanup goals for this site, yet mcls may not be appropriate for other sites. Explain this. Also, last paragraph - please provide a citation for the Subtitle D requirement being referenced here.

12.p.3-19: First paragraph under Section 3.2 - talks about response actions for hazardous waste sites. Is Site 5 a hazardous waste site or a MSWLF?

13.p.3-20 and 3-23 - the bullet lists source area groundwater control but the text regarding this is deleted.

14.p.3-23: Last paragraph - states that leachate collection and treatment is ruled out at this time. What about if the golf course scenario happens? Will leachate collection and treatment still be ruled out then?

15.p.3-29: First underlined paragraph.- the logic here seems sort of circular.

16.p.3-31: As mentioned above, its really not accurate to include monitoring as part of institutional controls. There should really be a separate section for monitoring since all the alternatives will require monitoring.

17.p.3-33: Section 3.6, Clean Closure - is this still part of the presumptive remedy?

18.p.3-34: Under Section 3.7 - reference is made to the sections which do not exist. These are 3.6.1, 3.6.6, 3.6.7.

19.p.3-43: Section 3.7.6, Disposal Actions - this is confusing. Clarify that this is not a stand alone remedy but part of a remedy, where groundwater is treated and the question then is, what to do with the treated effluent?

20.p.4-1, Section 4 - talks about the development of alternatives for the soil at Site 5? What about the groundwater?

21.p.4-2: First paragraph - inadvertently deletes sentence regarding the first type of control.

22.p.5-10 and 5-11: in p.5-11, it states that alternative 3 is expected to meet all ARARs and provide equivalency to the Title 14, Title 23 prescriptive cap. In the previous page, it says that this alternative will achieve an equivalent standard of performance to the Title 23 cap only in to

nonirrigated scenario.

23.p.5-11: Last paragraph - why was it necessary to discuss here in “Compliance with ARARs” the interest in monolithic caps?

24.p.5-16: Last paragraph - the discussion of HHE is limited to a discussion of the soil contamination. What about the groundwater?

25.p.5-17: Under “Long Term Effectiveness,” the text leads one to conclude that compacted clay barrier layer will not work. The question then is, why are we considering this alternative?

26.p.5-22: Under State Acceptance - this is the only place where groundwater is discussed. Also on this page, under “Overall Protection of HHE,” there is a sentence that states that the cap will also reduce infiltration into landfill contents, thus minimizing further impacts to groundwater. Why doesn't this sentence appear in p.5-16?

27.p.5-44: Why did the State not comment on alternative 5b?

28.p.5-49: Why did the State not comment on alternative 6a?

29.p.5-54: Why did the State not comment on alternative 6b?

30.p.6-1: Are there any RAOs for groundwater remediation?

31.p.6-5: Second row, alternative 4a - states that this complies with the Title 23 prescriptive cap. This wasn't clear in the text.

32.p.6-7: Third row, alternative 2 - states that implementability of this alternative is high because there are no construction activities. What about the implementability of the deed restrictions? Also on this page, last row - both 4b and 5b cost \$4.7 m. Yet, 4b is the second most costly and 5b is third most costly.

COMMENTS TO ARARs (Appendix A)

1.p.A1-5: Delete “significant provisions” in the first sentence that refers to Subtitle D requirements. Do this mean *substantive* provisions?

2.p.A1-6: Why is it necessary to have a separate RCRA corrective action section (specifically a section on CAMU) here? The other Subtitle C requirements are discussed on page A1-4.

3.p.A2-2: There should be a footnote here that clarifies that when stated “relevant and appropriate for all alternatives,” it means all except alternative 1.

4.p.A2-3: Last row - TCLP regulatory levels applicable only if hazardous waste is generated.

5.p.A2-8: First paragraph - ACLs under CERCLA are not analyzed as part of the ARARs process. Also on this page, I believe the federal water quality standards promulgated by EPA for California were for toxic pollutants. In the same section (Clean Water Act), it states that FWQC are potentially relevant and appropriate only in the absence of promulgated mcls or mcrls. Is that the case here? Primary and Secondary State mcls are ARARs only if they are more stringent, and in the case of secondary mcls, if they have been promulgated by the State.

6.p.A2-10: Please delete the last sentence in the first paragraph that starts with the word "Authorizes..." The second paragraph refers to implementation plans to meet water quality objectives. Many of these implementation plans are not ARARs. In the Citation section on this page, it cites 13241, 13243, 13263(a) and 13360 of the Water Code. The only one cited in the narrative text is 13263(a).

7.p.A-2-11: First row - cites Res. 89-42. What is this? This was also not cited in the text.

8.p.A2-14: Top of the page - states that the aquifer is estimated to have a production rate of greater than 200 gallons per day. This means that the groundwater is a potential municipal or domestic water supply.

9.p.A2-16: First paragraph - states; because Res.92-49 incorporates and relies upon the provisions of Title 23 which are not more stringent than Title, Res. 92-49 is not a valid State ARAR. This seems inconsistent with the "stand alone" approach advocated in the previous page (p.A2-15).

10. p.A2-18: - First bullet under Groundwater Chemical ARARs - refers to waste discharge limitations. It is my understanding that waste discharge requirements are permits issued by the Water Board. If they are indeed permits, one should be careful in citing them as ARARs.

11.p.A4-5: First row - there will be no placement of hazardous waste at all? On the same page, last row, Title 22 closure performance standards are relevant and appropriate only if there is hazardous waste in Site 5.

12.p.A4-7: First row - this was struck out. I am assuming it is because this is not landfill containing RCRA hazardous waste. Yet, there are other requirements in the ARARs Table and text that pertain to Subtitle C requirements. This goes to my general comment above regarding the inconsistent approach taken by the DON. Also on this page, last row - is the requirement for a map a substantive requirement?

13.p.A4-8: Here it appears that the controlling ARARs are Title 14 and 23, not Title 22. Please see my general comment above.

14.p.A4-9: Second row - states that the requirement to continue to operate leachate collection is not an ARAR because the landfill is not fitted with a leachate collection system. The question is, is there a need for a leachate collection system, not whether or not one currently exists.

15.p.A4-14: Last row - states that 40 CFR Part 258.61 is not an ARAR because it is not more stringent than Title 23. Its the other way around: the starting point is Part 258, the federal ARAR. Then, the issue is whether Title 23 is more stringent than Part 258.

16. p.A4-16: Why is there no citation of the Title 22 regulations here regarding CAMU?

17. p.A4-17: Why is it necessary to cite this? Isn't there already an ARAR that addresses point of compliance? If so, the DON should just consolidate all the citations to the same requirement in one place.

18.p.A4-18: Dept of Transportation requirements are offsite requirements. They can be discussed in the text but should be taken out of the ARARs discussion because it can be confused with ARARs requirements.

19.p.A4-24: Last row - please see comment above regarding waste discharge requirements.

20.p.A4-27: Last row - corrective action is not an ARAR because the CERCLA response action is equivalent to a corrective action.

21.p.A4-33: Second row - both Title 14 and Title 23 contain the State of California's Subtitle D requirements. So, in a way, they are both the controlling ARARs for Subtitle D but only if they are more stringent than 40 CFR Part 258. Also, on this page, last row - this one states that Title 22 is the controlling ARAR. This illustrates the point made earlier about the confusing and inconsistent approach to Title 22 (Subtitle C) and Title 14/Chapter 15 (Subtitle D) requirements.

23.p.A4-39: What are the substantive requirements in closure certification?

24.p.A4-47: Why are these stormwater requirements TBCs instead of ARARs?

25.p.A4-49: Last row - what is this CA. Water code, chapter 5, Article 1 requirement? Please give specific citation.

26.p.A4-53: Why were the Clean Air Act requirements deleted?

If you have any questions concerning the comments above, please feel free to contact me at (415) 744-2210.

Sincerely,



Glenn R. Kistner
Remedial Project Manager

cc: Tayseer Mahmoud, DTSC
Larry Vitale, RWQCB
Andy Piszkin, SWDIV
Thelma Estrada, EPA
Tom Huetteman, EPA
Tim Latas, Bechtel



February 20, 1997

Cal/EPA

Department of
Toxic Substances
Control

245 West Broadway,
Suite 425
Long Beach, CA
90802-4444

Mr. Joseph Joyce
BRAC Environmental Coordinator
U.S. Marine Corps Air Station - El Toro
P. O. Box 95001
Santa Ana, California 92709-5001

Pete Wilson
Governor

James M. Strock
Secretary for
Environmental
Protection

**COMMENTS ON DRAFT PHASE II REMEDIAL INVESTIGATION/FEASIBILITY
STUDY REPORT FOR SITE 25, MAJOR DRAINAGES, OPERABLE UNIT (OU)-2A,
MARINE CORPS AIR STATION (MCAS) EI TORO**

Dear Mr. Joyce:

The Department of Toxic Substances Control (DTSC) and the Santa Anã Regional Water Quality Control Board (RWQCB) have completed the review of the above subject document dated January 21, 1996, prepared by Bechtel National, Inc. The report presents the results of remedial investigation conducted at Site 25, the Major Drainages designated as one of two sites in OU-2A. Site 25 was once thought to be a potential source of the regional groundwater volatile organic compound contamination.

This letter is to transmit the enclosed RWQCB comments dated February 5, 1997. Please provide the revisions to the report addressing RWQCB's comments by March 20, 1997. If you have any questions, please call me at (562) 590-4891.

Sincerely,

Tayseer Mahmoud
Remedial Project Manager
Office of Military Facilities
Southern California Operations

Enclosure

cc: Mr. Glenn Kistner, SFD-8-2
Remedial Project Manager
U. S. Environmental Protection Agency
Region IX
Federal Facilities Cleanup Office
75 Hawthorne Street
San Francisco, California 94105-3901



Mr. Joseph Joyce
February 20, 1997
Page 2

cc: Mr. Lawrence Vitale
Remedial Project Manager
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, California 92501-3339

Mr. Pat Brooks
Bechtel National, Inc.
401 West A street, Suite 1000
San Diego, California 92101-7905

Mr. Andy Piszkin
Remedial Project Manager
Naval Facilities Engineering Command
Southwest Division, Code 1831.AP
1220 Pacific Highway
San Diego, California 92132-5187

Memorandum

To: Tayseer Mahmoud
Department of Toxic Substances Control
245 West Broadway, Suite 350
Long Beach, CA 90802-4444

Date: February 5, 1997

From: CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - SANTA ANA REGION
2010 IOWA AVENUE, SUITE 100, RIVERSIDE, CALIFORNIA 92507-2409
Telephone: CALNET 632-4130 Public (909) 782-4130

Subject: DRAFT PHASE II REMEDIAL INVESTIGATION/FEASIBILITY STUDY
ADDENDUM SITE 25 - MAJOR DRAINAGES, MARINE CORPS AIR STATION
EL TORO

We have reviewed the subject document dated January 21, 1997 and received by us on January 22, 1997. In general, we agree with the report findings and conclusions. However, we have the following comments:

Executive Summary

1. Page ES-1

The second paragraph states that Site 25 was once thought to be a source of regional groundwater VOC contamination but the draft Final Phase II RI for Site 24 demonstrated that Site 24 was the source of groundwater contamination, not Site 25. Based on this scenario, please explain the objective for this RI/FS addendum for Site 25.

2. Page ES-3 Subsurface Soil

A Phase I soil sample collected beneath Agua Chinon had a reported concentration of 131,000 mg/kg TPH as gasoline and 15,300 mg/kg TPH as diesel at a depth of 17 feet below ground surface. The report states that the TPH contamination has been delineated vertically and horizontally. Please explain what if any action was taken to remediate the contamination.

Section 8, Conclusions

3. Page 8-2. Surface Water

The first paragraph states, "Results from surface water sampling indicate that there is no significant Station contribution beyond what is expected in an urban environment."

Draft Phase II RI/FS Addendum
Site 25, Major Drainages

February 5, 1997

Also, " These low concentrations are typical of storm water runoff from parking lots and roadways." Please provide the source of information used to characterize the expected runoff from a "urban environment" and "typical" stormwater runoff from parking lots and roadways.

If you have any questions, please call me at 909-782-4998.



Lawrence Vitale
DoD Section



Cal/EPA

March 12, 1997

Department of
Toxic Substances
Control

Pete Wilson
Governor

245 West Broadway,
Suite 425
Long Beach, CA
90802-4444

Mr. Joseph Joyce
BRAC Environmental Coordinator
U.S. Marine Corps Air Station - El Toro
P. O. Box 95001
Santa Ana, California 92709-5001

James M. Strock
Secretary for
Environmental
Protection

**DRAFT FINAL PHASE II FEASIBILITY STUDY REPORT FOR THE ORIGINAL
LANDFILL, SITE 3, OPERABLE UNIT 2C, MARINE CORPS AIR STATION
(MCAS) EL TORO**

Dear Mr. Joyce:

The California Environmental Protection Agency (Cal/EPA) has completed the review of the above subject document dated February 1997, prepared by Bechtel National, Inc. The report presents the results of a Feasibility Study (FS) conducted to identify and evaluate potential remedial action alternatives at Site 3, the Original Landfill. Site 3 is one of two sites in Operable Unit 2C for the MCAS El Toro.

We are unable to approve the document because you did not provide adequate responses to the comments we sent you on December 6, 1996. This letter is to transmit the enclosed Department of Toxic Substances Control (DTSC) and California Integrated Waste Management Board (CIWMB) comments dated March 10, 1997. Our primary concern is that the FS does not contain a clear description of the institutional controls for each alternative as described in the general comments. Also, the proposed institutional controls may not accommodate the Local Redevelopment Authority (LRA) reuse plan in the remedial analysis. Please note that the intent of institutional controls is to maintain the remedy so that it is protective of human health and the environment. This information is required so that the LRA, public, and regulators can fully evaluate the remedy for CERCLA compliance and compatibility with the reuse plan. DTSC will not approve the FS until the institutional controls proposed for each alternative are sufficiently described in enough detail for the public to understand the implications of such controls.

The Santa Ana Regional Water Quality Control Board has no comments on the document. Please provide revisions to the report addressing DTSC's and CIWMB's comments by April 14, 1997.

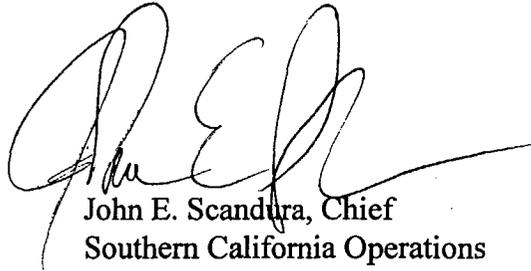


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Mr. Joseph Joyce
March 12, 1997
Page 2

If you have any questions or need clarifications, please call
Mr. Tayseer Mahmoud at (562) 590-4891.

Sincerely,

A handwritten signature in black ink, appearing to read 'John E. Scandura', written over a horizontal line.

John E. Scandura, Chief
Southern California Operations
Office of Military Facilities

Enclosures

cc: Mr. Glenn Kistner, SFD-8-2
Remedial Project Manager
U. S. Environmental Protection Agency
Region IX
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Mr. Lawrence Vitale
Remedial Project Manager
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Mr. Peter Janicki
California Integrated Waste Management Board
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Mr. Steven Sharp
County of Orange
Environmental Health Division
Solid Waste Local Enforcement Agency
2009 E. Edinger Avenue
Santa Ana, California 92705

Mr. Joseph Joyce
March 12, 1997
Page 3

cc: Mr. Tim Latas
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San Diego, California 92101-7905

Mr. Andy Piszkin
Remedial Project Manager
Naval Facilities Engineering Command
Southwest Division, Code 1831.AP
1220 Pacific Highway
San Diego, California 92132-5187

DEPARTMENT OF TOXIC SUBSTANCES CONTROL
Comments on
Draft Final Phase II Feasibility Study Report (FS) for Site 3, OU-2C
Marine Corps Air Station-EI Toro
Dated February 1997

The list of comments below were prepared by Mr. Tayseer Mahmoud, Remedial Project Manager, and Mr. Ronald Okuda, Environment Assessment and Reuse Specialist from the Department of Toxic Substances Control. The comments are directed to the Department of Navy and their consultants.

GENERAL COMMENTS:

The Navy has not adequately addressed DTSC's comments regarding institutional controls and the accommodation of the Local Redevelopment Authority (LRA) reuse plan in the remedial analysis. The Site 3 FS recommends institutional controls as a component for all remedial alternatives except alternative 1 (No Action). The intent of institutional controls is to maintain the remedy so that it is protective of human health and the environment. Institutional controls are also used to assure long-term permanence of the remedy. Since institutional controls are an instrumental part of the remedy, it is imperative that the FS contains a clear description of the institutional controls for each alternative. This information is required so that the LRA, public, and regulators can fully evaluate the remedy for CERCLA compliance and compatibility with the reuse plan.

DTSC does not agree with the revised explanation of institutional controls throughout the document. Deed restrictions should not be negotiated at the time of BRAC transfer, but discussed as early in the remedial evaluation process as possible. We acknowledge that in the CERCLA process, the specifics of institutional controls/deed restrictions may be finalized during the remedial design phase. This may include negotiations with the responsible party over who will maintain ownership of the land. However, in a BRAC closure, the military will not be the future property owner. The intent of the base closure laws is to rapidly make available closing bases for local redevelopment and job creation. Therefore, the LRA as either the transferee or the local entity created to plan the redevelopment of the base has to know the constraints of any future institutional controls. The FS, as written, fails to disclose this vital information for the reader to evaluate the protectiveness of the alternatives, the long-term permanence of the remedy and the compatibility with the future redevelopment.

SPECIFIC COMMENTS/ NAVY'S RESPONSE TO DTSC COMMENTS:

1. DTSC general comment number 2 was *"Future Land Use: The draft Community Reuse Plan, dated August 1996, prepared by the MCAS El Toro Local Redevelopment Authority has listed the primary alternative for future redevelopment of the area where Site 3 is located as "R&D/Light Industrial/Institutional)." The FS does not include a remedial action alternative(s) meets the intended future use of Site 3."*

The Navy's response was *"A discussion of the potential reuse of Site 3 and the impact of the proposed alternatives has been added to the FS."*

DTSC disagrees that the FS has been modified to address the potential land use of Site 3. In December 1996, the MCAS El Toro Local Redevelopment Authority approved the reuse plan for MCAS El Toro. The reuse plan designated Site 3 as a R&D/Light Industrial/Industrial. Although the Navy was aware of the reuse plan, the draft final FS does not include or describe how any of the alternatives could coexist with the development of Site 3 for these reuse purposes. This is not consistent with DoN Environmental Policy Memorandum 95-02, which states in part, "It is DoN policy to ensure that remedies and cleanup levels . . . are consistent with approved community reuse plans." The FS needs to clearly evaluate and discuss whether each alternative will result in a remedy compatible with industrial use.

2. DTSC specific comment number 2 was *"Section 3.4.5, Institutional Controls, page 3-19: This section states that "Access controls (e.g., fencing and signs) are expected to be necessary to assure the integrity of the landfill cover subsequent to the completion of closure." Please be advised that the draft Community Reuse Plan, dated August 1996 [Approved in December 1996], prepared by the MCAS El Toro Local Redevelopment Authority has listed the primary alternative for future redevelopment of the area where Site 3 is located as "R&D/Light Industrial/Institutional." Please evaluate the appropriate institutional controls for the intended use."*

The Navy's response was *"The discussion of access controls has been revised in light of the proposed reuse of Site 3. In particular, site access controls such as fencing will be commensurate with the reuse."*

The draft final FS was revised to state that "restricting site access

commensurate with the planned reuse.” This statement is vague and appears to conflict with the statement that “access controls (e.g., fencing and signs) are expected to be necessary to assure the integrity of the landfill cover.” Also in Section 3.5.2.1, the text indicates that the most common type of fence to restrict access is an 8-foot-high chain link fence.” Fencing Site 3 to restrict access is inconsistent with the reuse plan. The FS needs to clarify how fencing off the landfill will be compatible with an industrial use scenario.

The FS fails to mention that institutional controls will be required in the future to ensure that the area around the wells are kept unobstructed and access will be necessary to allow monitoring of landfill gas, leachate and groundwater.

3. DTSC specific comment number 3 was “Section 3.5.2.2, DEED RESTRICTIONS, page 3-24: The comment provided above (comment number 2) also applies here.”

The Navy’s response was “*The Department of Navy on deed restrictions requires that these types of restrictions to be negotiated at the time of BRAC transfer. Until that time the Base Master Plan will restrict land use and access.*”

The draft final FS fails to clearly describe the land use restrictions proposed for each alternative. DTSC disagrees with the statement that “Per DON policy, restrictions on land and groundwater use can only be negotiated in a BRAC transfer.” This statement implies that institutional controls can be modified after the Record of Decision. Institutional controls/ land use restrictions are proposed as part of the remedy. If the restrictions are not described in the FS, what assurances does the public and regulators have that the “negotiated” restrictions will be protective of human health and the environment? The FS also does not state who will be negotiating the restrictions.

The statement also conflicts with DoN Environmental Policy Memorandum 95-02 which states that “If DoN proposes a cleanup which depends on land use restrictions to assure protection of human health and the environment, such restrictions and any appropriate institutional controls to establish and maintain the restrictions shall be discussed in the Feasibility Study, Proposed Plan, and the Record of Decision.” The draft final FS does not contain sufficient information to evaluate what constraints the deed restrictions would have on the future development.

OTHER COMMENTS:

4. We could not find, in the tables or sections of Appendix A, responses to DTSC 's submitted ARARS, Orange County Health Care Agency, and Orange County Fire Department ARARS. DTSC's submitted ARARS include Title 22, CCR 66264.14(a), 66264.19(a, c), 66264.51, 66264.52(b), 66264.97 to 100, and 66264.117(c, d, f).

5. Section A3.1, location Specific ARARS, page A3-1

Having a section similar to A3-1 on page A3-1 that lists the citations examined would be good for the other sections such as Chemical and Action Specific ARARS.

6. APPENDIX A, Action-Specific ARARS

The draft final FS has deleted the discussion of Land Use Restrictions from Appendix A (formerly Sections A4.1, A4.1.1, A4.1.2, A4.5 and A4.5.1) without providing the rationale. Institutional controls/deed restrictions will be requirements of the remedy if contaminants will be left in place after property transfer. Since the FS has proposed institutional controls as part of the remedy, land use restrictions should be discussed in this section.

7. Table A4-1, page A4-5

Please list the appropriate sections listed under 66264.111(c) that are relevant ARARS. Some sections listed in the table may not be appropriate.

8. Section A.4.2.2.1, page A4-53

Convert the sentence " . . . ~~did not commenced~~ closure prior ~~prior~~ after the effective date . . . " to read better.



Pete Wilson
Governor

James M. Strock
Secretary for
Environmental
Protection

MAR 10 1997



Cal/EPA

California
Environmental
Protection
Agency

Integrated
Waste
Management
Board

8800 Cal Center Dr.
Sacramento CA 95826
(916) 255-2200

Mr. Tayseer Mahmoud
California Environmental Protection Agency
Department of Toxic Substances Control
Office of Military Facilities
Southern California Operations
245 W. Broadway, Suite 350
Long Beach, California 90802-4444

Subject: Review of Revised Draft Phase II Feasibility Study Report and
Related Documents for Operable Unit 2C - Site 3, Marine Corps
Air Station, El Toro, California

Dear Mr. Mahmoud:

On February 18, 1997, California Integrated Waste Management Board (Board) Closure and Remediation Branch staff received a submittal addressing revisions to Draft Phase II Feasibility Study Report for Operable Unit 2C, Site 3, Marine Corps Air Station (MCAS), El Toro. The submittal included the following documents:

- ▶ Response to Comments, Draft Phase II Feasibility Study Report (FSR) for Operable Unit 2C - Site 3, MCAS El Toro, California; and
- ▶ Draft Final Phase II Feasibility Study Report, Operable Unit 2C - Site 3, Marine Corps Air Station, El Toro, California, dated February 6, 1997.

Board Closure and Remediation staff have conducted an in-depth review of the aforementioned documents and compiled several comments. Please note that specific comments have numbers corresponding to those from the previous comment letters.

General Comment

Because it has been acknowledged that the postclosure land use for this site will be light industrial, Board staff will evaluate all available site investigation and feasibility study submittals in context of their relevance and compatibility with the proposed Site 3 reuse. This includes not only any already conducted or future investigation and design work but also methodology on which these activities have been based.



Comments on Draft FSR and Revised Draft FSR

General Comment

Because of a fairly specific postclosure land use proposed for Site 3 (light industrial with possible warehouse structures) and potentially very demanding postclosure maintenance resulting from it, all institutional controls (site security, access to monitoring points, restrictions on on-site development, and site maintenance), should be identified, established and integrated into the landfill closure and postclosure maintenance programs. Board staff do not find acceptable the approach taken in the FS to refer the institutional controls to a negotiation process during the base transfer. Both the design and operation of institutional controls should be derived in conjunction with landfill closure.

Specific Comments

In order to reduce the size of the Board staff review letter, the original Board staff comments are not cited in this portion of the review letter. Please refer to Board staff letter of December 2, 1996, to view the original comments.

1. Board staff have no comment.
2. After reviewing the revised FS, it does not appear that the proposed closure alternatives have been tailored specifically for a light industrial and warehouse use. The issue of surface integrity, its maintenance, and differential settlement reducing measures (important in an event of heavy surface loading from truck traffic and storage, and on-site structures) have not been addressed. Also, the matter of compatibility of each of the alternatives with on-site activities and repair of final cover have not addressed.
3. It is unclear how the waste quantity estimate was derived. Also, it is unclear how the percentage of hazardous waste vs. non-hazardous waste was estimated. While only partial site investigation information exists (especially limited beneath and within the waste pile), the estimated percentage of hazardous waste is 25 percent. This is not consistent with assumptions made at Site 5, where up to 50 percent of waste was assumed to be hazardous. Board staff request that the justifiable assumptions be provided for both the total and hazardous waste quantities.

Board staff are unclear about the accuracy of a clean closure alternative cost estimate. Because this alternative may be environmentally most beneficial and least limiting to postclosure land use, it is requested that the detailed clean closure analyses be conducted. The analyses should include justification for both assumptions and construction (excavation, hauling, etc.) costs for clean closure. It is recommended that clean closure costs acquired during clean closure projects at other military facilities in California be used for comparison.

4. Board staff have no comment.
5. Board staff disagrees that the annual postclosure maintenance costs should be based on a net present worth concept. Because of a large number of uncertainties associated with a landfill postclosure maintenance (in this case, further amplified by the proposed land use), discounting practice is generally discouraged in California (see attached excerpts from U.S. EPA Final Rule regarding Final Assurance Mechanism for Municipal Solid Waste Facilities [40 CFR Part 258]).
6. Board staff feel that at least basic soil loss calculations should be conducted at this time in order to verify the feasibility of installing a final cover instead of clean closure.
7. Board staff have no comment.
8. Board staff concur.
9. Because Site 3 will be used as a light industrial and warehouse location, any compatible final cover alternative (utilizing asphalt, concrete, GCL or FML materials) and no field waste characterization or vertical extent of waste studies have been conducted, a reinforcement layer (for example, geonet) would be required.
10. Board staff have no comment. However, should a monolithic cover be proposed, an extra time allowance should be made for Board staff to review such proposal.
11. Response noted.
12. Board staff find the response acceptable.

13. Board staff find the response acceptable.
14. Board staff find the response acceptable.
15. Board staff find the response acceptable.

Should you have any questions regarding this matter, please call me at
(916) 255-1195.

Sincerely,

A handwritten signature in black ink, appearing to read "Janicki". The signature is written in a cursive style with a long, sweeping underline.

Peter M. Janicki
Closure and Remediation South
Permitting and Enforcement Division

Enclosure

Part II

Environmental Protection Agency

40 CFR Part 258

Financial Assurance Mechanisms for Local Government Owners and Operators of Municipal Solid Waste Landfill Facilities; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 258

[FRL-5654-3]

RIN 2050-AD04

Financial Assurance Mechanisms for Local Government Owners and Operators of Municipal Solid Waste Landfill Facilities

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: As part of the President's regulatory reform initiative, the Environmental Protection Agency (EPA) is amending the financial assurance provisions of the Municipal Solid Waste Landfill Criteria, under subtitle D of the Resource Conservation and Recovery Act. The financial assurance provisions require owners and operators of municipal solid waste landfills (MSWLFs) to demonstrate that adequate funds will be readily available for the costs of closure, post-closure care, and corrective action for known releases associated with their facilities. The existing regulations specify several mechanisms that owners and operators may use to make that demonstration. Today's rule increases the flexibility available to owners and operators by adding two mechanisms to those currently available. The additional mechanisms, a financial test for use by local government owners and operators, and a provision for local governments that wish to guarantee the costs for an owner or operator, are designed to be self-implementing. Use of the financial test provided in this rule allows a local government to use its financial strength to avoid incurring the expenses associated with the use of a third-party financial instrument. Demonstrating that the costs of closure, postclosure care, and corrective action for known releases are available protects the environment by assuring that landfills will be properly managed at the end of site life when revenues are no longer being generated and physical structures may begin to break down.

DATES: The effective date for this final rule is April 9, 1997. The compliance date for MSWLF's is April 9, 1997, except for small, dry or remote landfills which have until October 9, 1997 to comply.

ADDRESSES: Supporting materials are available for viewing in the RCRA Information Center (RIC), located at Crystal Gateway I, first Floor, 1235 Jefferson Davis Highway, Arlington, VA. The Docket Identification Number is F-96-LGFF-FFFFF. The RIC is open from 9 a.m. to 4 p.m., Monday through Friday, excluding Federal holidays. To review docket materials, it is recommended that the public make

out that such practices are prohibited in many states.

Response: Today's rule maintains the local governments guarantee as proposed and does not restrict its use. As discussed above, EPA believes that a local government that meets the financial, public notice, recordkeeping and reporting requirements of the financial test will be able to fund the assured MSWLF closure, post-closure care or corrective action obligations in a timely manner. A local government may, of course, only guarantee the closure, post-closure or corrective action costs of another MSWLF owner and operator, if such an arrangement is consistent with state law. Even if a local government guarantee is not precluded by state law, a state may nevertheless disallow the use of the guarantee if it determines that there is the potential for abuse.

Comment: Commenters suggested several clarifications to provisions of the proposed local government guarantee. Response: Today's rule clarifies that if a guarantee is cancelled, then pursuant to Sec. 258.74(h)(1)(iii) the owner or operator of the MSWLF must obtain alternate financial assurance within 120 days following "the guarantor's notice of cancellation" (not within 120 days following "the close of the guarantor's fiscal year"). Similarly, today's rule clarifies that if the local government guarantor no longer qualifies to use the financial test, then, pursuant to Sec. 258.74(h)(2)(iii), the owner or operator of the MSWLF must obtain alternate financial assurance within 90 days following "the determination that the guarantor no longer meets the requirements of paragraph (f)(1) of this section"; not within 90 days following "the guarantor's notice of cancellation."

[[Page 60335]]

C. Discounting of Costs in Calculating Financial Assurance Cost Estimates

The financial assurance requirements under RCRA subtitle D currently require owners and operators to calculate cost estimates in current dollars, and aggregate those estimates (even though these costs may be incurred many years in the future). Owners must obtain a financial responsibility instrument for at least the amount of this aggregated cost estimate. In the preamble to the December 27, 1993 proposed rule (58 FR 68353, 68361), EPA solicited comments on whether MSWLF owners and operators should be allowed to use a present value based on a discount rate to estimate certain financial assurance costs. Cost discounting would allow owners and operators to adjust an aggregated cost estimate to reflect the fact that activities are scheduled to occur in the future and to obtain a financial instrument for less than the aggregate costs (i.e. the "present value" of the aggregated costs). (See Comment Response Document, Section 7) Comment: A number of commenters opposed allowing MSWLF owners and operators to discount financial assurance costs because of their belief that landfill owners and operators often underestimate cost estimates and that the timing of a closure event is uncertain. One commenter suggested that the risks of discounting could be minimized with State oversight if EPA provided specific guidelines. Response: The Financial Accounting Standards Board (which sets standards for corporate accounting) allows discounting only when costs and timing of closure are certain and then only for an essentially risk free rate, adjusted for inflation. The Agency agrees with commenters that cost estimates are frequently underestimated and that the closure date is usually uncertain because sites may fill up more quickly than expected or they may close because of enforcement actions as a result of rule violations. We also agree with the Financial Accounting Standards Board that discounting is only appropriate when cost estimates and closure dates are certain. For these reasons, the Agency has decided against allowing discounting without State oversight. Because the Agency recognizes that there are cases where cost estimates are accurate and closure dates are certain, we have decided to allow State Directors to allow discounting for closure, postclosure, and corrective action costs if they believe that cost estimates are accurate and the closure date is certain and where the local government has submitted a finding from a Registered Professional Engineer that cost estimates are accurate and certifies that there are no known factors which would change the estimated closure date. The State must also determine that the facility is in compliance with all regulations it determines to be applicable and appropriate. Consistent with other elements of this rule, cost estimates must be adjusted annually to reflect inflation and remaining site life. The discount rate used may not be greater than the rate of return for essentially risk free investments, such as 1 year Treasury bills, net of inflation. As noted above, discounting at an essentially risk free rate of return is that allowed by the Financial Accounting Standards Board and was supported by several commenters. The Government Accounting Standards Board notes that EPA is allowing for discounting for inflation because it allows annual adjustments of cost estimates for inflation. For this reason the Agency requires that inflation be deducted from an essentially risk free rate



Cal/EPA

Department of
Toxic Substances
Control

245 West Broadway,
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Long Beach, CA
90802-4444

Mr. Joseph Joyce
BRAC Environmental Coordinator
U.S. Marine Corps Air Station - El Toro
P. O. Box 95001
Santa Ana, California 92709-5001

March 12, 1997



Pete Wilsc
Governor

James M. Stro
Secretary for
Environmental
Protection

**DRAFT FINAL PHASE II FEASIBILITY STUDY REPORT FOR THE PERIMETER
ROAD LANDFILL, SITE 5, OPERABLE UNIT 2C, MARINE CORPS AIR STATION
(MCAS) EL TORO**

Dear Mr. Joyce:

The California Environmental Protection Agency (Cal/EPA) has completed the review of the above subject document dated February 1997, prepared by Bechtel National, Inc. The report presents the results of a Feasibility Study (FS) conducted to identify and evaluate potential remedial action alternatives at Site 5, the Perimeter Road Landfill. Site 5 is one of two sites in Operable Unit 2C for the MCAS El Toro.

We are unable to approve the document because you did not provide adequate responses to the comments we sent you on December 6, 1996. This letter is to transmit the enclosed Department of Toxic Substances Control (DTSC) and California Integrated Waste Management Board (CIWMB) comments dated March 10, 1997. Our primary concern is that the FS does not contain a clear description of the institutional controls for each alternative as described in the general comments. Also, the proposed institutional controls may not accommodate the Local Redevelopment Authority (LRA) reuse plan in the remedial analysis. Please note that the intent of institutional controls is to maintain the remedy so that it is protective of human health and the environment. This information is required so that the LRA, public, and regulators can fully evaluate the remedy for CERCLA compliance and compatibility with the reuse plan. DTSC will not approve the FS until the institutional controls proposed for each alternative are sufficiently described in enough detail for the public to understand the implications of such controls.

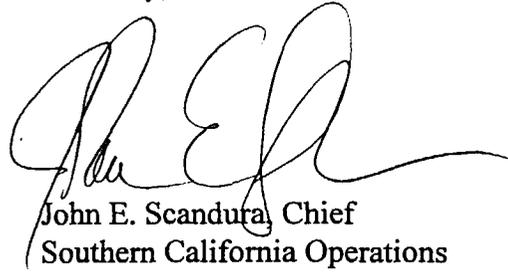
The Santa Ana Regional Water Quality Control Board has no comments on the document. Please provide revisions to the report addressing DTSC's and CIWMB's comments by April 14, 1997.



Mr. Joseph Joyce
March 12, 1997
Page 2

If you have any questions or need clarifications, please call
Mr. Tayseer Mahmoud at (562) 590-4891.

Sincerely,

A handwritten signature in black ink, appearing to read 'John E. Scandura', written in a cursive style.

John E. Scandura, Chief
Southern California Operations
Office of Military Facilities

Enclosures

cc: Mr. Glenn Kistner, SFD-8-2
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Region IX
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75 Hawthorne Street
San Francisco, California 94105-3901

Mr. Lawrence Vitale
Remedial Project Manager
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
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Mr. Peter Janicki
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Sacramento, California 95826

Mr. Steven Sharp
County of Orange
Environmental Health Division
Solid Waste Local Enforcement Agency
209 E. Edinger Avenue
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Mr. Joseph Joyce
March 12, 1997
Page 3

cc: Mr. Tim Latas
Bechtel National, Inc.
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Mr. Andy Piszkin
Remedial Project Manager
Naval Facilities Engineering Command
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San Diego, California 92132-5187

DEPARTMENT OF TOXIC SUBSTANCES CONTROL
Comments on
Draft Final Phase II Feasibility Study Report (FS) for Site 5, OU-2C
Marine Corps Air Station-EI Toro
Dated February, 1997

The list of comments below were prepared by Mr. Tayseer Mahmoud, Remedial Project Manager, and Mr. Ronald Okuda, Environment Assessment and Reuse Specialist from the Department of Toxic Substances Control. The comments are directed to the Department of Navy and their consultants.

GENERAL COMMENTS:

The Navy has not adequately addressed DTSC's comments regarding institutional controls and the accommodation of the Local Redevelopment Authority (LRA) reuse plan in the remedial analysis. The Site 5 FS recommends institutional controls as a component for all remedial alternatives except alternative 1 (No Action). The intent of institutional controls is to maintain the remedy so that it is protective of human health and the environment. Institutional controls are also used to assure long-term permanence of the remedy. Since institutional controls are an instrumental part of the remedy, it is imperative that the FS contains a clear description of the institutional controls for each alternative. This information is required so that the LRA, public, and regulators can fully evaluate the remedy for CERCLA compliance and compatibility with the reuse plan.

DTSC does not agree with the revised explanation of institutional controls throughout the document. Deed restrictions should not be negotiated at the time of BRAC transfer, but discussed as early in the remedial evaluation process as possible. We acknowledge that in the CERCLA process, the specifics of institutional controls/deed restrictions may be finalized during the remedial design phase. This may include negotiations with the responsible party over who will maintain ownership of the land. However, in a BRAC closure, the military will not be the future property owner. The intent of the base closure laws is to rapidly make available closing bases for local redevelopment and job creation. Therefore, the LRA as either the transferee or the local entity created to plan the redevelopment of the base has to know the constraints of any future institutional controls. The FS, as written, fails to disclose this vital information for the reader to evaluate the protectiveness of the alternatives, the long-term permanence of the remedy and the compatibility with the future redevelopment.

SPECIFIC COMMENTS/ NAVY'S RESPONSE TO DTSC COMMENTS:

1. DTSC general comment number 2 was "Future Land Use: The draft Community Reuse Plan, dated August 1996, prepared by the MCAS El Toro Local Redevelopment Authority has listed the primary alternative for future redevelopment of the area where Site 5 is located as "Recreation (golf)." The FS does not include a remedial action alternative for a recreation/golf course proposal."

The Navy's response was "The FS has been modified to address the potential recreational use of Site 5."

DTSC disagrees that the FS has been modified to address the potential land use of Site 5. In December 1996, the MCAS El Toro Local Redevelopment Authority approved the reuse plan for MCAS El Toro. The reuse plan designated Site 5 as a recreational area, potentially for the expansion of the existing golf course on base. Although the Navy was aware of the reuse plan, the draft final FS does not include or describe how any of the alternatives could coexist with the development of Site 5 as a recreational area/golf course. This is not consistent with DoN Environmental Policy Memorandum 95-02, which states in part, "It is DoN policy to ensure that remedies and cleanup levels are consistent with approved community reuse plans." The FS needs to clearly evaluate and discuss whether each alternative will result in a remedy compatible with a golf course or recreational use. Appendix D, Section D2.2 does state that sensitivity runs that account for the effects of irrigation for a golf course scenario were conducted, but the discussion of the alternatives in Section 3 does not mention the compatibility of the alternatives with golf course type vegetation and irrigation use.

2. DTSC specific comment number 4 was "Section 3.4.5. Institutional Controls, page 3-19: This section states that "Access controls (e.g., fencing and signs) are expected to be necessary to assure the integrity of the landfill cover subsequent to the completion of closure." Please be advised that the draft Community Reuse Plan, dated August 1996 [Approved in December 1996], prepared by the MCAS El Toro Local Redevelopment Authority has listed the primary alternative for future redevelopment of the area where Site 5 is located as "Recreation (golf)." Please evaluate the appropriate institutional controls for recreation/golf reuse scenario and the impact on the landfill cover."

The Navy's response was *"Under the golf course scenario, site security will be commensurate with this activity and unauthorized access to monitoring wells will be controlled."*

The draft final FS was revised to state that "security commensurate with recreational (golf) reuse will be provided." This statement is vague and appears to conflict with the statement that "access controls (e.g., fencing and signs) are expected to be necessary to assure the integrity of the landfill cover." Also in Appendix C, Section C5.5, the text indicates that the site will be surrounded by a fence containing one gate. Fencing Site 5 to restrict access is inconsistent with the reuse plan. The FS needs to clarify how fencing off the landfill will be compatible with a recreational/golf course scenario.

The FS mentioned that monitoring wells will be locked and maintained to restrict unauthorized use. The FS however failed to mention that institutional controls will be required in the future to ensure that the area around the wells are kept unobstructed and access will be necessary to allow monitoring of landfill gas, leachate and groundwater.

3. DTSC specific comment number 5 was "Section 3.5.2.2. DEED RESTRICTIONS, page 3-24: The comment provided above (comment number 4) also applies here."

The Navy's response was *"The Department of Navy on deed restrictions requires that these types of restrictions to be negotiated at the time of BRAC transfer. Until that time the Base Master Plan will restrict land use and access."*

The draft final FS fails to clearly describe the land use restrictions proposed for each alternative. DTSC disagrees with the statement that "Per DON policy, restrictions on land and groundwater use can only be negotiated in a BRAC transfer." This statement implies that institutional controls can be modified after the Record of Decision. Institutional controls/ land use restrictions are proposed as part of the remedy. If the restrictions are not described in the FS, what assurances does the public and regulators have that the "negotiated" restrictions will be protective of human health and the environment? The FS also does not state who will be negotiating the restrictions.

The statement also conflicts with DoN Environmental Policy Memorandum 95-02 which states that "If DoN proposes a cleanup which depends on land use

restrictions to assure protection of human health and the environment, such restrictions and any appropriate institutional controls to establish and maintain the restrictions shall be discussed in the Feasibility Study, Proposed Plan, and the Record of Decision.” The draft final FS does not contain sufficient information to evaluate what constraints the deed restrictions would have on the future development.

OTHER COMMENTS:

4. We could not find, in the tables or sections of Appendix A, responses to DTSC 's submitted ARARS, Orange County Health Care Agency, and Orange County Fire Department ARARS. DTSC's submitted ARARS include Title 22, CCR 66264.14(a), 66264.19(a, c), 66264.51, 66264.52(b), 66264.97 to 100, and 66264.117(c, d, f).

5. Section A3.1, location Specific ARARS, page A3-1

Having a section similar to A3-1 on page A3-1 that lists the citations examined would be good for the other sections such as Chemical and Action Specific ARARS.

6. APPENDIX A, Action-Specific ARARS

The draft final FS has deleted the discussion of Land Use Restrictions from Appendix A (formerly Sections A4.1, A4.1.1, A4.1.2, A4.5 and A4.5.1) without providing the rationale. Institutional controls/deed restrictions will be requirements of the remedy if contaminants will be left in place after property transfer. Since the FS has proposed institutional controls as part of the remedy, land use restrictions should be discussed in this section.

7. Table A4-1, page A4-5

Please list the appropriate sections listed under 66264.111(c) that are relevant ARARS. Some sections listed in the table may not be appropriate.

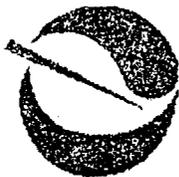
8. Section A.4.2.2.1, page A4-53

Convert the sentence “. . . ~~did not commenced~~ closure prior after the effective date . . .” to read better.

9. Appendix D, Table D-1, page D-2

Table D-1 shows the estimated monthly irrigation under a golf course reuse scenario. However, the data shown is from water usage at North Island Naval Air Station. Wouldn't the water usage at the existing golf course at MCAS El Toro be a better example to estimate irrigation? Is there a significant different in the water usage between the two golf courses?

=



Cal/EPA

California
Environmental
Protection
Agency

Integrated
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Board

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Pete Wilson
Governor

James M. Strock
Secretary for
Environmental
Protection

MAR 10 1997

Mr. Tayseer Mahmoud
California Environmental Protection Agency
Department of Toxic Substances Control
Office of Military Facilities
Southern California Operations
245 W. Broadway, Suite 350
Long Beach, California 90802-4444

Subject: Review of Revised Draft Phase II Feasibility Study Report and
Related Documents for Operable Unit 2C - Site 5, Marine Corps
Air Station, El Toro, California

Dear Mr. Mahmoud:

On February 13, 1997, California Integrated Waste Management Board
(Board) Closure and Remediation Branch staff received a submittal addressing
revisions to Draft Phase II Feasibility Study Report for Operable Unit 2C,
Site 5, Marine Corps Air Station (MCAS), El Toro. The submittal included
the following documents:

- ▶ Response to Comments, Draft Phase II Feasibility Study Report (FSR)
for Operable Unit 2C - Site 5, MCAS El Toro, California; and
- ▶ Draft Final Phase II Feasibility Study Report, Operable Unit 2C - Site
5, Marine Corps Air Station, El Toro, California, dated February 6,
1997.

This submittal was followed on March 4, 1997, with a facsimile of Response
to Comments, Potential Reuse Issues Associated with Operable Unit 2C -
Site 5, MCAS El Toro, California (Board letter of October 25, 1996).

Board Closure and Remediation staff have conducted an in-depth review of
the aforementioned documents and compiled several comments. Board staff
comments were divided into three categories: Response to Reuse Issues,
Response to Comments on Draft FSR, and Revised Draft FSR. Please note
that specific comments have numbers corresponding to those from the
previous comment letters.

General Comment

Because there is a strong consent (supported by the reuse plan developed for
this site) that the postclosure land use for this site will be an irrigated golf
course, Board staff evaluated all available site investigation and feasibility
study submittals in context of their relevance and compatibility with the
proposed Site 5 reuse. This includes not only any already conducted or
future investigation and design work but also methodology on which these
activities have been based. As a result of Board staff review, it appears that



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the final cover alternative employing a flexible membrane liner (FML) would provide the most stringent environmental protection and maximize Site 5 reuse potential. The superiority of the FML was also acknowledged by the Department of Navy in their responses to Board staff comments. However, the project proponent may consider other final cover alternatives as long as it can be demonstrated that level of environmental protection they provide would be adequate to support an irrigated golf course (in the case of monolithic cover, a full compliance with the requirements of Title 14, California Code of Regulations (14 CCR) Section 17773 (b) would be required).

Response to Reuse Issues

The text using italic font indicates the original language of Board staff letter of October 25, 1996.

1. *"Comprehensive landfill extent delineation survey for both the vertical and lateral limits of the waste fill.*

Although the response states that no vertical extent of the waste investigation had been conducted, as per agreement in the Phase II RI (Remedial Investigation)/FS Work Plan, it should be noted that this approach was acceptable in the context of an non-irrigated open space postclosure land use for Site 5. As it was stated in Board staff previous correspondence, should the postclosure land use be changed to a more complex one, involving irrigation (golf course), additional site investigation and/or design considerations may be required.

Because the golf course may require additional soil to be deposited over the final cover, knowledge of vertical configuration of the landfill (along with waste characterization) could be very useful in estimating the potential for differential settlement. Differential settlement is an important factor which could affect performance of the subsurface drainage system beneath the golf course. Since the golf course will be irrigated on a regular basis (according to the FS, almost 31 inches per year), the issue of adequate subsurface drainage should be addressed, if not through accurate differential settlement analyses, then through installing a reinforcement beneath the final cover (geonet, etc.) to eliminate potential low spots in the drainage system.

It should be pointed out that the capping of the landfill (along with all necessary institutional controls and monitoring systems) is not required solely to limit water infiltration into the landfill but also to prevent potential landfill gas emissions and provide environmental protection to any proposed developments on the land surrounding the landfill.

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2. *"Waste characterization study including types of waste, age of waste, moisture content and saturation capacity."*

The premise behind conducting a waste characterization study and establishing waste moisture content is the evaluation of landfill gas generation potential after the site has been capped. The age of the waste may not necessarily be a good indicator of waste decomposition. Because the landfill does not have an impermeable barrier in place, there is a possibility that waste decomposition did not take place uniformly throughout the landfill, especially that the on-site precipitation is relatively low (less than 14 inches per year).

However, under confinement of an (relatively) impermeable final cover, any moisture trapped in the waste (existing or supplied by leaks in the low permeability cover) will be retained in waste and thus potentially promote waste decomposition. Since both the waste composition and its state of decomposition are unknown, there may be a potential of developing future increased landfill gas production areas within the landfill. As a result, special design considerations such as a moisture detection system and irrigation system leak detection may be required as a part of the golf course design.

3. *"Comprehensive landfill gas survey with samples collected from the fill area at several representative depths. The laboratory analyses would have to include both fixed gases and organic compounds analyses."*

As it was stated in the response to this comment, the landfill gas investigation was focused on analyzing soil gas samples, mainly close to the surface. Since no representative samples were collected from within the waste fill (as recommended in past correspondence), no conclusion can be drawn about landfill gas potential migration after installation of final cover. The issue of off-site gas migration requires a serious consideration based on the proposed land use on site (golf course) and surrounding land (housing developments are very likely). Although methane was detected in low concentrations, this situation may change after capping the site. Also, methane may serve as a carrier for other constituents which, even in very low concentrations, may pose a public health threat, should development around the landfill ever take place.

Although Board staff concur that for the time being, methane off-site migration monitoring would be sufficient at this site, monitoring results should be closely watched, and if necessary, corrective actions be taken immediately. Since corrective actions may involve installing and operating a gas collection system, proposed final cover design should be evaluated for the purpose of compatibility with a gas collection and ease of installation of such system.

4. *"Landfill gas generation potential study based on gas monitoring results collected over a period of one year from perimeter probes constructed in accordance with 14 CCR 17783.5."*

Board staff find the response to this comment acceptable. As mentioned above, should results of the monitoring indicate a gas migration problem, a corrective action would be required.

5. *"Modified HELP model infiltration analyses based on the proposed irrigation and approved final cover design."*

The response to this comment (and revised FS) state that the irrigation rate of 30.6 inches per year was used to conduct HELP analyses. However, the irrigation rate was supplied by the superintendent of the golf course at North Island Naval Air Station. An explanation why the irrigation rate from the golf course at El Toro was not used instead should be provided.

Based on the results of HELP analyses for monolithic cover, it appears that this type of cover is unsuitable for Site 5 (an irrigated golf course). However, should the project proponent still consider a monolithic native soil cover as a viable option, such proposal must be submitted in accordance with 14 CCR, Section 17773 (b) as a part of the FS submittal.

"In addition to the site investigation requirements and based on its results, modifications to the design of the final cover may be required as well. The modifications may include the following elements:"

6. *"Modified final cover design which would include a synthetic impermeable membrane along with a subsurface drainage layer connected to the runoff collection system."*

Board staff concur with the response to this comment.

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7. *"In addition to the final cover design modification or in lieu of, a subsurface moisture sensing system synchronized with the onsite irrigation system may be required."*

Board staff concur with the response to this comment.

8. *"Landfill gas monitoring and collection systems and audible gas detection devices (for onsite enclosed structures) may be required, based on the results of the landfill gas survey."*

As it was stated previously, a comprehensive landfill gas survey involving sampling from within the waste pile would be necessary to conclusively determine landfill gas generation potential at the site. Nevertheless, Board staff concur with the proposed quarterly landfill gas inspection schedule as a protective measure after the closure of the landfill.

However, the assurance, "onsite enclosed structures are not considered as part of the irrigated golf course reuse but this will be negotiated at the time of BRAC transfer", is not acceptable. Depending on the complexity of the on-site structures, should any be proposed at a later date, certain modifications to the proposed final cover design an/or monitoring and control systems may be requested by the Board Closure and Remediation Branch staff under a change of postclosure land use guidelines. Thus, in order to control land use at Site 5, institutional controls (development restrictions) must be clearly identified and in place upon landfill closure. Such restrictions should not be negotiated later but be in place as an integral part of closure design.

9. *"Special design consideration should be given to allow ease of all monitoring and control systems related to the landfill postclosure maintenance."*

Access to monitoring and control systems should be included as an integral part of landfill closure and should not be negotiated during the transfer process.

"As an alternative to constructing actual irrigated golf course over the fill, the project proponent may consider designating the landfill for golf course related functions such as parking lot, restrooms, etc. By eliminating site irrigation, the site investigation and closure requirements may be then reduced."

Board staff concur with the response to this statement, however, should any enclosed structures be proposed, additional issues and concerns may be identified then.

"It should be pointed out that the extent of site investigation may have a direct effect on the final cover and other closure related requirements for this project. Should the site investigation supply sufficient information about the landfill's low environmental threat potential, the extent of the closure and, subsequently, construction and postclosure maintenance costs may be greatly reduced. Conversely, should the proposed design address all potential public health and safety and environmental impacts (worst case scenario), the necessity for a comprehensive site investigation will be reduced."

Based on a limited site investigation conducted at Site 5, Board staff cannot agree with the statement that, "the existing environmental threats from Site 5 are minimal". It would be more appropriate to conclude that the conducted site investigation (acceptable for an open and non-irrigated space postclosure land use) did not identify any serious environmental threats.

Comments on Draft FSR and Revised Draft FSR

General Comment

Because of a fairly specific postclosure land use proposed for Site 5 (irrigated golf course) and potentially very demanding postclosure maintenance resulting from it, all institutional controls (site security, access to monitoring points, restrictions on on-site development, and site maintenance), should be identified, established and integrated into the landfill closure and postclosure maintenance programs. Board staff do not find acceptable the approach taken in the FS to refer the institutional controls to a negotiation process during the base transfer. Both the design and operation of institutional controls should be derived in conjunction with landfill closure.

Specific Comments

In order to reduce the size of the Board staff review letter, the original Board staff comments are not cited in this portion of the review letter. Please refer to Board staff letter of December 2, 1996, to view the original comments.

1. Board staff have no comment.
2. After reviewing the revised FS, it does not appear that the proposed closure alternatives have been tailored specifically for an irrigated golf course. The issue of subsurface drainage collection system, its maintenance, and differential settlement reducing measures (crucial for a functional subsurface drainage collection system) have not been addressed. Also, the matter of compatibility of each of the alternatives with an on-site irrigation system, its maintenance and leak detection and repair have not been addressed (along with a potential for a point source leak event).
3. It is unclear how the waste quantity estimate was derived. Also, it is unclear how the percentage of hazardous waste vs. non-hazardous waste was estimated. While only partial site investigation information exists (especially limited beneath and within the waste pile), the estimated percentage of hazardous waste was as high as 50 percent. This is not consistent with assumptions made at Site 3, where only 25 percent of waste was assumed to be hazardous. Board staff request that the justifiable assumptions for both the total and hazardous waste quantities be provided.

Board staff are unclear about the accuracy of a clean closure alternative cost estimate. Because this alternative may be environmentally most beneficial and least limiting to postclosure land use, it is requested that the detailed clean closure analyses be conducted. The analyses should include justification for both assumptions and construction (excavation, hauling, etc.) costs for clean closure. It is recommended that clean closure costs acquired during clean closure projects at other military facilities in California be used for comparison.

4. Board staff have no comment.

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5. Board staff disagrees that the annual postclosure maintenance costs should be based on a net present worth concept. Because of a large number of uncertainties associated with a landfill postclosure maintenance (in this case, further amplified by the proposed land use), discounting practice is generally discouraged in California (see attached excerpts from U.S. EPA Final Rule regarding Final Assurance Mechanism for Municipal Solid Waste Facilities [40 CFR Part 258]).
6. Board staff feel that at least basic soil loss calculations should be conducted at this time in order to verify the feasibility of installing a final cover instead of clean closure.
7. Board staff have no comment.
8. Board staff concur.
9. Because Site 5 will be used as an irrigated golf course, use of a subsurface drainage layer is very likely. Thus, the appropriate alternatives (along with cost estimates) should account for this element of the final cover. Furthermore, since no field waste characterization or vertical extent of waste studies have been conducted, a reinforcement layer (for example, geonet) would be required as well.
10. Board staff have no comment. However, should a monolithic cover be proposed, an extra time allowance should be made for Board staff to review such proposal.
11. Response noted.
12. Board staff find the response acceptable.
13. Board staff find the response acceptable.
14. Board staff find the response acceptable.
15. Board staff find the response acceptable.

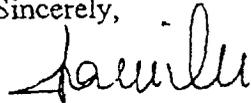
Mr. Tayseer Mahmoud

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Should you have any questions regarding this matter, please call me at
(916) 255-1195.

Sincerely,



Peter M. Janicki
Closure and Remediation South
Permitting and Enforcement Division

Enclosure

[Federal Register: November 27, 1996 (Volume 61, Number 230)] [Rules and Regulations]
[Page 60327-60339]
From the Federal Register Online via GPO Access [wais.access.gpo.gov]

[[Page 60327]]

Part II

Environmental Protection Agency

40 CFR Part 258

Financial Assurance Mechanisms for Local Government Owners and Operators of Municipal Solid Waste Landfill Facilities; Final Rule

[[Page 60328]]

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 258

[FRL-5654-3]
RIN 2050-AD04

Financial Assurance Mechanisms for Local Government Owners and Operators of Municipal Solid Waste Landfill Facilities

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: As part of the President's regulatory reform initiative, the Environmental Protection Agency (EPA) is amending the financial assurance provisions of the Municipal Solid Waste Landfill Criteria, under subtitle D of the Resource Conservation and Recovery Act. The financial assurance provisions require owners and operators of municipal solid waste landfills (MSWLFs) to demonstrate that adequate funds will be readily available for the costs of closure, post-closure care, and corrective action for known releases associated with their facilities. The existing regulations specify several mechanisms that owners and operators may use to make that demonstration. Today's rule increases the flexibility available to owners and operators by adding two mechanisms to those currently available. The additional mechanisms, a financial test for use by local government owners and operators, and a provision for local governments that wish to guarantee the costs for an owner or operator, are designed to be self-implementing. Use of the financial test provided in this rule allows a local government to use its financial strength to avoid incurring the expenses associated with the use of a third-party financial instrument. Demonstrating that the costs of closure, postclosure care, and corrective action for known releases are available protects the environment by assuring that landfills will be properly managed at the end of site life when revenues are no longer being generated and physical structures may begin to break down.

DATES: The effective date for this final rule is April 9, 1997. The compliance date for MSWLF's is April 9, 1997, except for small, dry or remote landfills which have until October 9, 1997 to comply.

ADDRESSES: Supporting materials are available for viewing in the RCRA Information Center (RIC), located at Crystal Gateway I, first Floor, 1235 Jefferson Davis Highway, Arlington, VA. The Docket Identification Number is F-96-LGFF-FFFFF. The RIC is open from 9 a.m. to 4 p.m., Monday through Friday, excluding Federal holidays. To review docket materials, it is recommended that the public make

out that such practices are prohibited in many states.

Response: Today's rule maintains the local governments guarantee as proposed and does not restrict its use. As discussed above, EPA believes that a local government that meets the financial, public notice,

recordkeeping and reporting requirements of the financial test will be able to fund the assured MSWLF closure, post-closure care or corrective action obligations in a timely manner. A local government may, of course, only guarantee the closure, post-closure or corrective action costs of another MSWLF owner and operator, if such an arrangement is consistent with state law. Even if a local government guarantee is not precluded by state law, a state may nevertheless disallow the use of the guarantee if it determines that there is the potential for abuse.

Comment: Commenters suggested several clarifications to provisions of the proposed local government guarantee. Response: Today's rule clarifies that if a guarantee is cancelled, then pursuant to Sec. 258.74(h)(1)(iii) the owner or operator of the MSWLF must obtain alternate financial assurance within 120 days following "the guarantor's notice of cancellation" (not within 120 days following "the close of the guarantor's fiscal year"). Similarly, today's rule clarifies that if the local government guarantor no longer qualifies to use the financial test, then, pursuant to Sec. 258.74(h)(2)(iii), the owner or operator of the MSWLF must obtain alternate financial assurance within 90 days following "the determination that the guarantor no longer meets the requirements of paragraph (f)(1) of this section"; not within 90 days following "the guarantor's notice of cancellation."

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C. Discounting of Costs in Calculating Financial Assurance Cost Estimates

The financial assurance requirements under RCRA subtitle D currently require owners and operators to calculate cost estimates in current dollars, and aggregate these estimates (even though these costs may be incurred many years in the future). Owners must obtain a financial responsibility instrument for at least the amount of this aggregated cost estimate. In the preamble to the December 27, 1993 proposed rule (58 FR 68353, 68361), EPA solicited comments on whether MSWLF owners and operators should be allowed to use a present value based on a discount rate to estimate certain financial assurance costs. Cost discounting would allow owners and operators to adjust an aggregated cost estimate to reflect the fact that activities are scheduled to occur in the future and to obtain a financial instrument for less than the aggregate costs (i.e. the "present value" of the aggregated costs). (See Comment Response Document, Section 7) Comment: A number of commenters opposed allowing MSWLF owners and operators to discount financial assurance costs because of their belief that landfill owners and operators often underestimate cost estimates and that the timing of a closure event is uncertain. One commenter suggested that the risks of discounting could be minimized with State oversight if EPA provided specific guidelines. Response: The Financial Accounting Standards Board (which sets standards for corporate accounting) allows discounting only when costs and timing of closure are certain and then only for an essentially risk free rate, adjusted for inflation. The Agency agrees with commenters that cost estimates are frequently underestimated and that the closure date is usually uncertain because sites may fill up more quickly than expected or they may close because of enforcement actions as a result of rule violations. We also agree with the Financial Accounting Standards Board that discounting is only appropriate when cost estimates and closure dates are certain. For these reasons, the Agency has decided against allowing discounting without State oversight. Because the Agency recognizes that there are cases where cost estimates are accurate and closure dates are certain, we have decided to allow State Directors to allow discounting for closure, postclosure, and corrective action costs if they believe that cost estimates are accurate and the closure date is certain and where the local government has submitted a finding from a Registered Professional Engineer that cost estimates are accurate and certifies that there are no known factors which would change the estimated closure date. The State must also determine that the facility is in compliance with all regulations it determines to be applicable and appropriate. Consistent with other elements of this rule, cost estimates must be adjusted annually to reflect inflation and remaining site life. The discount rate used may not be greater than the rate of return for essentially risk free investments, such as 1 year Treasury bills, net of inflation. As noted above, discounting at an essentially risk free rate of return is that allowed by the Financial Accounting Standards Board and was suggested by several commenters. The Government Accounting Standards Board notes that EPA is already allowing for discounting for inflation because it allows annual adjustments of cost estimates for inflation. For this reason the Agency requires that inflation be deducted from an essentially risk free rate