

Public Information Materials

5/29/02

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

Materials/Handouts Include:

- *RAB Meeting Agenda/Public Notice – 5/29/01 RAB meeting.
- *Meeting Minutes from the March 27, 2002 RAB Meeting – 56th RAB.
- *MCAS El Toro RAB Subcommittee Meeting Minutes, January 30, 2002 meeting.
- MCAS El Toro RAB Meeting Schedule, Full RAB and RAB Subcommittee (Sept. 2002 – July 2003).
- MCAS El Toro RAB Mission Statement and Operating Procedures.
- RAB Membership Application – MCAS El Toro RAB.
- MCAS El Toro Installation Restoration Program – Mailing List Coupon.
- MCAS El Toro Restoration Advisory Board – Membership Roster
- MCAS El Toro Administrative Record File - Information Sheet (for on-Station access).
- MCAS El Toro Information Repository - Information Sheet.
- Internet Access – Environmental Web Sites.
- MCAS El Toro Marine Corps/Navy RAB Co-Chair (address, telephone, fax, e-mail).
- MCAS El Toro Project Contacts – Where to Get More Information.
- Contact information for Steven Sharp, RAB member representing Orange County Health Care Agency.
- Glossary of Technical Terms.
- MCAS El Toro Base Realignment and Closure Business Plan, Introduction Section, March 2002.
- MCAS El Toro Environmental Compliance Program Location of Concern (LOC) Status Table (Updated May 24, 2002).
- LOC's Status Map
- Environmental Compliance Program Documentation Update (14 May 2002)
- TCE Concentrations in the Shallow Groundwater Unit and Principal Aquifer Map, Round 14, September 2001
- Excerpts from Discussion of Chromium VI in Groundwater – 31 January and 21 March 2001 RAB Meetings.
- Update on Norwalk Pipeline, Dean Gould, BEC MCAS El Toro and John Rifilato, Defense Fuels Representative, Presentation from 31 January 2001 RAB Meeting.
- Department of Navy – Policy for Conducting Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Statutory Five-Year Reviews, November 2001.
- Department of Navy – Land-Use Controls at Marine Corps Air Station (MCAS) El Toro.
- Department of Defense – Institutional Controls, Spring 1997.
- Department of Defense – A Guide to Establishing Institutional Controls at Closing Military Installations, February 1998.
- Department of Defense – Responsibility for Additional Environmental Cleanup after Transfer of Real Property.
- U.S. EPA Fact sheet – A Citizen's Guide to Natural Attenuation, October 1996.
- *Presentation* – Navy/Marine Corps' review of Environmental Site Assessment for Former MCAS El Toro, Prepared by GeoSyntec Consultants for MCAS El Toro Local Redevelopment Agency, Presented by Kyle Olewnik, SWDIV Navy RPM, May 29, 2002.
- *Presentation* – Former MCAS El Toro, RAB Meeting, Station-wide Update: Environmental Baseline Survey (EBS); Finding of Suitability to Transfer (FOST); and Finding of Suitability to Lease (FOSL), May 29, 2002, Presented by Kyle Olewnik, SWDIV Navy RPM and Eli Vedagiri, Earth Tech, Inc.
- *Presentation* – Compliance Program Update, MCAS El Toro, Restoration Advisory Board Meeting, May 29, 2002, Presented by Dhananjay Rawal, IT Corporation.
 - Map of MSC-JP5 - Inactive Fuel Supply Pipeline System, MCAS El Toro (accompanies above presentation).
- *Presentation* – Aquifer Test IRP Site 2, May 29, 2002, Presented by Crispin Wanyoike, Earth Tech, Inc.

* mailed to all RAB meeting mailer recipients on 5/22/02.

Agency Comments and Letters - U.S. Environmental Protection Agency (U.S. EPA)

- U.S. EPA, Response to EPA Comments on Draft Final Phase II Focused Feasibility Study for Site 16, (MCAS El Toro), dated March 26, 2002 - To: Dean Gould, BEC, MCAS El Toro; From: Nicole G. Moutoux, Remedial Project Manager, U.S. EPA (letter dated April 18, 2002).
- U.S. EPA, FFA Schedule Extension Request for Sites 3 and 5, MCAS El Toro, dated April 26, 2002 - To: Dean Gould, BEC, MCAS El Toro; From: Nicole G. Moutoux, Remedial Project Manager, U.S. EPA (letter dated May 7, 2002).

Agency Comments and Letters – California Environmental Protection Agency (Cal-EPA)

- Cal-EPA, Department of Toxic Substances Control (DTSC) – Comments on Draft Work Plan Preliminary Assessment of Locations of Concern, Environmental Baseline Survey, MCAS El Toro – To: Dean Gould, BEC, MCAS El Toro; From: Triss M. Chesney, Remedial Project Manager, DTSC (letter dated May 23, 2002).

California Regional Water Quality Control Board (RWQCB), Santa Ana Region

- No Items Submitted

RAB Subcommittee Handouts and Letters (provided by Marcia Rudolph, MCAS El Toro RAB Subcommittee Chair)

- MCAS El Toro RAB Subcommittee Meeting Minutes, January 30, 2002 meeting (available as separate handout at the 5/29/02 RAB meeting).
- MCAS El Toro RAB Subcommittee Meeting Minutes, March 27, 2002 meeting (single copy provided by Ms. Rudolph for placement in the MCAS El Toro Administrative Record; copies will be included in the next RAB meeting mailer and be available at the next RAB meeting.)

**MCAS El Toro
Restoration Advisory Board**

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

**May 29, 2002
6:30-9:00 p.m.
57th Meeting**

**RAB Subcommittee Meeting
5:00-6:00 p.m., Room L-104**

AGENDA

RAB members that are unable to attend please call either Dean Gould, Marine Corps/Navy RAB Co-Chair at (949) 726-5398 or (619) 532-0765 -or- Jerry Werner, RAB Community Co-Chair at (949) 859-1322.

Question and Answer (Q&A) Ground Rules

- Q&A follows individual presentations; time designated for presentations includes Q&A time.
- "Open Q&A" session (environmental topics) is at the end of the New Business segment.
- After adjournment, Marine Corps/Navy representatives are available to answer more questions.

Welcome/Introductions/Agenda Review (6:30-6:40)

Dean Gould
Marine Corps/Navy RAB Co-Chair

Old Business (6:40-7:05)

Approval of 3/27/02 Minutes (6:40-6:45)

Jerry Werner
RAB Community Co-Chair

Announcements/Review of Action Items (6:45-6:55)

Dean Gould & Jerry Werner

Subcommittee Meeting Report (6:55-7:05)

Marcia Rudolph
RAB Subcommittee Chair

New Business (7:05-8:55)

Regulatory Agency Comment Update (7:05-7:20)

Nicole Moutoux <i>U.S. EPA</i>	Triss Chesney <i>Cal-EPA DTSC</i>	Patricia Hannon <i>RWQCB</i>
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- Update on Irvine Desalter Project (7:20-7:30)

Dean Gould

- Navy's Response to Environmental Site Assessment for the Former MCAS El Toro, prepared by GeoSyntec Consultants for the County of Orange (7:30-7:40)

Kyle Olewnik
SWDIV

- Update on Environmental Baseline Survey (7:40-8:00)

Eli Vedagiri
Earth Tech

BREAK (8:00-8:10)

- Environmental Compliance Program Update (8:10-8:25)

Dhananjay Rawal
IT Group

- Site 2 Aquifer Testing/Hydrogeological Informational Presentation (8:25-8:50)

Crispin Wanyoike
Earth Tech

Open Q&A (Environmental Topics) (8:50-8:55)

Dean Gould

Meeting Summary & Closing (8:55-9:00)

Jerry Werner & Dean Gould

Meeting Evaluation & Topic Suggestions for Future Meetings

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

MARINE CORPS AIR STATION EL TORO
Restoration Advisory Board Meeting



57th Meeting
Wednesday, May 29, 2002
6:30 - 9:00 p.m.

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

The Restoration Advisory Board (RAB) is composed of concerned citizens and government representatives involved in the environmental cleanup program at MCAS El Toro since 1994. Community participation and input is important and appreciated. This meeting will feature the following activities and presentations specific to MCAS El Toro:

- Update on Irvine Desalter Project
- Navy's Response to Environmental Site Assessment of MCAS El Toro, prepared by GeoSyntec Consultants for the County of Orange
- Update on MCAS El Toro Environmental Baseline Survey
- Environmental Compliance Program Update
- Site 2 Aquifer Test/Hydrogeological Informational Presentation



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

Base Realignment and Closure
Mr. Dean Gould
BRAC Environmental Coordinator
P.O. Box 51718, Irvine, CA 92619-1718
(949) 726-5398 or (619) 532-0784

MARINE CORPS AIR STATION EL TORO
RESTORATION ADVISORY BOARD MEETING

March 27, 2002 – 56th Meeting

MEETING MINUTES

The 56th Restoration Advisory Board (RAB) meeting for Marine Corps Air Station (MCAS) El Toro was held Wednesday, March 27, 2002 at the Irvine City Hall. The meeting began at 6:41 p.m. These minutes summarize the discussions and presentations from the RAB meeting.

WELCOME, INTRODUCTIONS, AGENDA REVIEW

Mr. Dean Gould, BRAC Environmental Coordinator (BEC) for MCAS El Toro and Marine Corps RAB Co-Chair, called the 56th RAB meeting to order. He asked all those in attendance to introduce themselves and self-introductions were made.

Mr. Gould presented an overview of the agenda. He noted that tonight promises to be a good meeting because the RAB will have the opportunity to catch up on many outstanding issues. He also said that the County of Orange was planning to present a video tonight discussing the County's due diligence study reviewing the Navy and Marine Corps' environmental investigations at MCAS El Toro ["Final Report Environmental Site Assessment for Former MCAS El Toro," prepared for Orange County's Local Reuse Authority (LRA) by GeoSyntec Consultants, Inc.]. However, this presentation will be postponed until the next RAB meeting because Ms. Polin Modanlou, representative from the County of Orange's Local Reuse Authority, was given the wrong tape. The Navy's presentation of its review of the study and responses to issues raised by the County of Orange, was to be given by Ms. Kyle Olewnik, SWDIV Remedial Project Manager (RPM), but it will also be carried over until the next RAB meeting to coincide with the due diligence study presentation.

OLD BUSINESS

Review and Approval of the January 30, 2002 RAB Meeting Minutes

Mr. Jerry Werner, RAB Community Co-Chair, asked for any changes or comments prior to the approval of the January 30, 2002 RAB meeting minutes. The minutes were approved by the RAB without amendment.

Announcements

- Mr. Werner made the recommendation that Ms. Marcia Rudolph, RAB Subcommittee Chair, become the RAB Community Vice Co-Chair. Ms. Rudolph declined the position.
- Mr. Gould noted the RAB has previously expressed an interest in a base tour. He stated that this tour could be arranged during May 2002 and asked RAB members to contact him if they are interested in participating. The tour can be scheduled for either a weekday or weekend or if

requested both times could be arranged. Approximately five RAB members expressed interest in a weekday tour with an equal number interested in a weekend tour.

- Mr. Gould presented the proposed RAB meeting schedule for September 2002 through July 2003 and asked RAB members to provide him with any conflicts. He said that within the next week or so these dates need to be locked in so that the meeting room can be reserved.
- Mr. Gould pointed out that there is a wealth of information available to attendees on the sign-in table. He emphasized that documents available tonight include a Secretary of Defense Memorandum covering the Navy's long-term commitments for environmental cleanup after property transfer (the "come-back" policy), and a letter to the City of Irvine addressing institutional controls. These documents provide a lot of information that helps the community understand the numerous MCAS El Toro restoration program activities.
- Mr. Gould stated that the radiological survey is complete and the Draft Radiological Release Report is scheduled for distribution in April 2002. Ms. Content Arnold, Lead RPM, explained that this report will summarize the results of the survey and will document: 1) which sites can be "radiologically released" meaning no other activities or actions are necessary, and 2) which sites will require further action.
- To follow-up on an issue raised by RAB members at the January 30, 2002 RAB meeting, Mr. Gould noted that in July 2001, the Marine Corps terminated the National Pollution Discharge Elimination System (NPDES) permit for MCAS El Toro because there are no longer any industrial activities generating stormwater runoff. Ms. Patricia Hannon, RAB member representing the Regional Water Quality Control Board (RWQCB), added that the Station's storm drains would have to comply with Orange County's countywide NPDES permit because the County has a master lease for the base. Therefore, the lessee would report to the County, which in turn would report to the RWQCB. Mr. Bob Woodings, RAB member representing the City of Lake Forest, asked if a Navy representative would be attending the municipal stormwater permitting meetings. Mr. Gould replied that he did not expect that the Navy would attend these meetings because the Marine Corps is not currently generating any industrial runoff.
- Mr. Gould stated that the investigation of solvents at Building 307 is complete. The Navy expects to issue a position paper summarizing the findings and conclusions shortly. A copy of the paper will be sent to the RAB Community Co-Chair and to the RAB Subcommittee Chair.
- The RAB Subcommittee had previously requested information on 1,2 DCA at Site 16. Mr. Gould said that samples were collected from eight wells in May/June 1999. Detections of 1,2-DCA were reported at two wells, MW-3 (8.7 micrograms per liter [$\mu\text{g/L}$]) and at MW-2 (0.45 $\mu\text{g/L}$). He noted that the U.S. EPA maximum contaminant level (MCL) for 1,2-DCA is 5 $\mu\text{g/L}$ and for the State of California it is 0.5 $\mu\text{g/L}$. Therefore, one reading did exceed the MCL, so the concentrations of 1,2-DCA at Site 16 are being closely monitored. In 2000, another round of sampling was conducted. At that time, the concentration of 1,2-DCA in MW-3 was 0.3 $\mu\text{g/L}$ and the concentration in well MW-2 was at non-detect (a level so low it could not be detected by laboratory instrumentation). In 2001, 1,2-DCA concentrations at both wells were non-detect. He added that 1,2-DCA was not encountered in any wells during the last base wide groundwater monitoring round (Round 14).

RAB Subcommittee Meeting Report, Ms. Marcia Rudolph, RAB Subcommittee Chair

Ms. Rudolph led the meeting attendees in the Pledge of Allegiance. She then provided copies of minutes from the January 30, 2002 MCAS El Toro RAB Subcommittee meeting for placement in the

Administrative Record and the Information Repository. Ms. Rudolph thanked Triss Chesney, Project Manager, from the Department of Toxic Substances Control (DTSC), for attending the RAB Subcommittee meeting this evening and answering questions. Next she reviewed the key issues that are of concern to the RAB Subcommittee. Below is a synopsis of those issues:

- The RAB Subcommittee has questions regarding the Record of Decision (ROD) for Sites 18 and 24, groundwater cleanup of the VOC plume.
- The RAB Subcommittee still has concerns about the perchlorate plume at Site 1.
- There are still outstanding issues with the Environmental Impact Statement (EIS) that has a deadline for responses in the first week in April 2002. She said that during the scoping meeting for the EIS she noted that the initial baseline date for the base environmental data and conclusions was either 1988 or 1992. The RAB Subcommittee is concerned that with all the data that has been collected since that date, it seems unrealistic and suspicious to use data from that earlier date to draw conclusions.
- Ms. Rudolph stated that the RAB Subcommittee is very interested in the County of Orange Environmental Site Assessment (due diligence) Report for MCAS El Toro and the Navy's responses. The RAB Subcommittee is very interested to hear both of these presentations at the next RAB meeting.
- Ms. Rudolph explained that Ms. Chesney clarified how Anomaly Area 3 has been folded in with Installation Restoration Program (IRP) Site 3 landfill for funding purposes. However, the RAB Subcommittee would still like to see more information on Anomaly Area 3.
- The RAB Subcommittee is looking forward to the Navy's response to the City of Irvine Solvent Study, and the supplemental information to the Navy's response given at previous RAB meetings.
- The RAB Subcommittee is interested in having the County provide some information on the NPDES permit. She said that they are aware that there have been challenges to the current, stringent Santa Ana RWQCB requirements from some of the municipalities as well as the County of Orange. She stated that there are issues particularly with the washes that go through the Station and with the Navy No Further Action determination for Site 25, so it would be interesting to hear the reaction of the County.
- The RAB Subcommittee is aware of the request from Lieutenant Governor Bustamante to the Navy for submitting of reports pertaining to MCAS El Toro to the States Lands Commission on a six-month cycle. Mr. Gould responded that the Navy plans to submit the MCAS El Toro Business Plan on an annual basis. Ms. Rudolph asked if this would be adequate for the Lands Commission, or would they want something more comprehensive.
- The RAB Subcommittee would like to know if there are environmental funding issues, including how the program will be funded and if there will be enough money available to complete remediation of the base.
- The RAB Subcommittee would like a site tour that would be more of an overview of the base, including Anomaly Area 3. She said this would provide a current look that can be compared to what RAB members already know historically about the base. Ms. Rudolph encouraged everyone present at tonight's RAB meeting to attend the tour.

Ms. Rudolph stated that the RAB Subcommittee meetings usually get started at 5:30 p.m. and offered an extended invitation to all RAB meeting attendees to attend the RAB Subcommittee

meetings. She explained that if there are any questions or anything that needs to be said, feel free to participate. The meetings are conducted with an open forum with a lot of give and take.

NEW BUSINESS

◆ Regulatory Agency Comment Update

Nicole Moutoux, Project Manager, U.S. Environmental Protection Agency (EPA) Region IX

Ms. Moutoux briefly reviewed the handouts she put on the information table and summarized U.S. EPA comments.

- U.S. EPA provided comments on the Draft ROD for Operable Unit 1, Sites 18 and 24. She stated that there were not a lot of comments, and most were just requests for clarification. The most substantial comment requested input for the remedial design of the off-base plume cleanup. U.S. EPA's legal counsel also requested more detailed information on the institutional controls, specifically who is responsible for enforcing the controls for the off-base plume.
- U.S. EPA provided comments on the Draft Work Plan for the Removal Site Evaluation (RSE) for Anomaly Area 3. Most of the comments request more detail in regard to the waste that encounters groundwater at the site and groundwater monitoring network that will be used to evaluate and characterize the site.
- U.S. EPA's response to the Navy's request for extension for the Draft Final ROD for Sites 3 and 5. She said that U.S. EPA is not opposed to the extension. However, she has asked for more details as to how the information being gathered will be incorporated into the ROD and when information is going to be shared with the regulators. She also said that U.S. EPA believes that some additional public participation activities should occur.
- U.S. EPA approved the Navy's request for a schedule extension for Site 1.
- U.S. EPA provided one minor comment on the MCAS El Toro Business Plan.

Discussion

A RAB attendee asked why the Navy asked for extensions for Site 1 and Sites 3 and 5. Ms. Moutoux responded that at Sites 3 and 5, Anomaly Area 3 and two smaller areas near Site 5 are being incorporated into the ROD. For Site 1, there was a substantial amount of BCT participation during the review of work plans and in development of a public notification process for site investigation activities that delayed the schedule.

Patricia Hannon, Project Manager, Santa Ana Regional Water Quality Control Board (RWQCB)

Ms. Hannon stated that she does not have any letters available tonight. However, she has reviewed the documents that U.S. EPA mentioned above. She said that the NPDES stormwater permit issue was addressed previously.

Triss Chesney, Project Manager, Cal/EPA Dept. of Toxic Substances Control (DTSC)

Ms. Chesney stated that there are three DTSC letters available on the information table this evening:

- DTSC provided comments, dated February 13, 2002, on the Draft Work Plan for the Remedial Site Evaluation (RSE) for Anomaly Area 3. She said that the Navy is proposing to collect and analyze samples of soil vapor, soil matrix, groundwater, surface water and surface water sediments at Anomaly Area 3. Samples are being collected to confirm the lateral limits of waste placement at this area and to evaluate human and ecological risk. Soil sampling is also being done to support the geotechnical assessment of Anomaly Area 3. She said that the DTSC Geological Services Unit also reviewed the work plan. Their comments mostly relate to adequate characterization of groundwater and soil and understanding the geology at the site.
- DTSC provided comments, dated March 3, 2002, on the Draft ROD for Sites 18 and 24 groundwater plumes. The comments focused on making sure that the data from the remedial investigation/feasibility study (RI/FS) is summarized in the ROD so that it is clear which chemicals and media were addressed and how the decisions were made.
- DTSC provided comments, dated March 15, 2002, on the Draft Technical Memorandum for the Risk Evaluation for Monitoring Well (Wood-INLK/1), situated at the Woodbridge Village residential community in Irvine. Water from this well supplies recreational water for North Lake and a children's pool. Ms. Chesney stated that the DTSC toxicologist reviewed the evaluation, and generally agrees with the Navy's evaluation of the risk.

Discussion

Mr. Don Zweifel, RAB member, asked about the extent of the groundwater plume at Site 18 as the map provided cuts off the length of the plume. Mr. Matt Brookshire, of CDM a Navy contractor, responded that there is a map in the handout for the Groundwater Monitoring Update presentation that shows the entire extent of the plume.

◆ **Station-Wide Groundwater Monitoring Update, Marc Smits, SWDIV, and Matt Brookshire, CDM**

Mr. Marc Smits, SWDIV RPM, explained that he oversees the groundwater program at MCAS El Toro. He said that he would be providing a big picture of the groundwater monitoring program and what it is designed to accomplish. Mr. Matt Brookshire, of CDM, who actually conducts the groundwater monitoring, will provide details from the last two rounds of groundwater monitoring (Rounds 13 and 14). Mr. Smits explained that the data collection for Round 15 groundwater monitoring has been completed, but the report for this round has not yet been prepared.

Mr. Smits said that groundwater monitoring has been conducted at MCAS El Toro since 1992 under CERCLA as part of the original RI/FS. At the beginning of the program, the Navy knew that the groundwater plume existed but did not know the source of the contamination. So, an objective of the groundwater monitoring was to identify the source of the plume. The monitoring program objectives also included examining areas throughout the base where the existence of groundwater contamination was suspected. He explained that what the Navy found is that the main groundwater contaminants at MCAS El Toro are volatile organic compounds (VOCs). These VOCs are industrial solvents, or components of industrial solvents, that were used for washing equipment or mechanical

repair activities. He explained that the Navy has completed 15 rounds of groundwater monitoring since 1993, and that includes 4 rounds completed in the last 2 years.

Mr. Smits said that the objectives of the groundwater monitoring program have definitely changed since 1992. Mr. Smits stated that currently, the Navy has a better idea of where the plumes are located, what their shape and size are, and if they are migrating. The monitoring program will continue to provide data on trends in concentrations and water levels for these plumes. He stated that the Navy wants to document changes in the plume configuration over time. The data collected so far for the Site 18 and 24 VOC plume indicates that there has been minimal movement or migration. He also explained that when the agricultural wells in the vicinity are very active, there are large changes in the groundwater elevations that occur mostly off-site.

He explained that an objective of the base wide groundwater monitoring is to support the CERCLA program and other groundwater investigations, remedial designs, and other activities taking place at the IRP sites. For example, the groundwater program has provided data for the radionuclide study and the perchlorate study. He explained that the Navy also collected additional data at certain wells to assist in those studies.

Mr. Smits explained that the groundwater sampling rounds are performed in March and September because these are the months when the local water districts perform their sampling. He stated that the Navy also wants to continually incorporate any comments and recommendations from the regulators, water districts, and the RAB into the overall monitoring program.

During Round 14, the Navy collected water level measurements and groundwater samples at a total of 85 wells or ports. Mr. Smits explained that the ports are components of off-base wells, called Westbay wells, that vary from depths of 500 to 1000 feet and that allow for multi-depth sampling through ports at various depths.

Mr. Smits stated that the samples were analyzed for VOCs, the main chemicals of concern in groundwater at MCAS El Toro, during the semi-annual groundwater monitoring. On an annual basis samples are collected from selected wells for analysis of gross alpha/beta, dissolved metals, general chemistry, and perchlorates. This effort supports the overall program and site-specific investigations, including the perchlorate study for Site 1. He explained that samples are collected from Sites 1, 3, 5, 16, 17, 18, and 24. These sites either currently have groundwater plumes, or the sites, such as the landfills, are considered to have potential for groundwater contamination.

An example of another activity the groundwater monitoring program supports is a replacement well evaluation that was conducted in November 2000. This evaluation was conducted to determine if the placement of the screening interval (where the water comes into the well) impacts the chemical concentrations reported in groundwater. Mr. Smits explained that there are chemicals that rise to the surface, and if the sampling is from a deeper interval, you may not detect those chemicals. Sampling was conducted from 15 pairs of wells that are spaced approximately 10 feet apart, and samples were collected from various depths. He stated that for five pairs of wells there were slight variations in the concentrations of VOCs. However, additional data was needed to conclude if this result was based on the screening interval. So under the groundwater monitoring program, these five pairs of wells were sampled again. This additional data led to the conclusion that the placement of the screened

interval made a difference in concentrations for petroleum hydrocarbons, but did not have a significant effect for VOCs.

Mr. Smits stated that there have been some changes in the program since Round 12 sampling that started in June 2000. The number of wells has increased from 55 wells sampled during Round 12 to 93 wells sampled during the most recent sampling round, Round 15. These changes were based on discussions with the regulators and the water districts. The changes included sampling at additional ports in the Westbay wells, using Site 16 wells for sampling as the investigation for this site had moved on to a different stage, and adding sampling wells at Site 1. All of these changes enhance the evaluation at each of the sites and the Sites 18 and 24 VOC plume in order to further evaluate changes in concentrations and provide a better definition of plume configuration over time.

Mr. Smits explained that in the future, the Navy intends to incorporate the petroleum hydrocarbon sites with the sites for the CERCLA groundwater monitoring program. This will eliminate duplicated effort and the additional information will provide a bigger picture. The Navy will also use the monitoring results to assist with remedial design considerations. An example is using monitoring results to support groundwater modeling or in determining how a plume movement will impact remedial designs and well placement. The base wide groundwater monitoring program will continue until the base completed remedial action activities, such as when the landfills are capped, or groundwater extraction starts at Site 24. Then the Navy would switch to site-specific monitoring to determine if the site remedy is effective.

Mr. Brookshire provided a chronology of monitoring events and the number of wells monitored during each event. Routine groundwater monitoring started during Round 3, in January-February 1996, and 182 wells ports were sampled during this round. He explained that more wells were monitored early in the program to support the CERCLA investigations that took place in the early and mid-1990s. Since Round 12, there has been a steady increase in the number of wells monitored to make sure that the monitoring program is meeting all the needs of the CERCLA program. Since the last RAB groundwater monitoring program presentation, Rounds 13 and 14 have been finalized:

- Round 13, February 2001 – 78 wells/ports were sampled, including 20 dedicated wells, 18 non-dedicated wells, and 12 Westbay ports from 6 Westbay wells.
- Round 14, September 2001 – 85 wells/ports were sampled, including 49 dedicated wells, 23 non-dedicated wells, and 13 Westbay ports from 6 Westbay wells.

Mr. Brookshire stated that water levels were taken at all the wells in Rounds 13 and 14. In addition, all Round 13 and Round 14 wells/ports were sampled for VOCs. Selected Round 14 wells were sampled for gross alpha/beta, dissolved metals, perchlorate, and general chemistry parameters as well.

The groundwater wells are also monitored for potentiometric elevations. Mr. Brookshire explained that this is the measured water level in the well, not in the aquifer itself, as the pressure in the aquifer pushes the groundwater up the well casing to a certain level. Groundwater elevations increased in the shallow groundwater unit an average of 0.05 feet from Round 12 to Round 13 and another 0.23 feet from Round 13 to Round 14. Groundwater elevations in the principal aquifer increased an average of 25.6 feet from Round 12 to Round 13 and then decreased an average of 31.7 feet from Round 13 to Round 14.

Mr. Brookshire presented a graph of the historical water levels for the base. A well at Site 9 in the shallow groundwater unit has remained fairly stable over time. Another shallow aquifer well at Site 2 has some fluctuations, but in general the levels have stayed stable. An off-site well in the principal aquifer had much larger fluctuations. He stated that, with agricultural production, there is a fairly large decrease in the water levels for the principal aquifer.

Mr. Brookshire summarized the Round 13 and 14 VOC trends at several IRP sites as follows:

- Sites 18 and 24 – the concentrations and distribution of VOCs in the principal aquifer (Site 18) and shallow groundwater unit (Site 24) were similar to those levels of VOCs measured during prior rounds. He explained that trichloroethene or TCE is the main VOC of concern at both sites and is the most widely distributed.
- Site 1 – monitoring of this site started in Round 13, but only groundwater levels were collected. For Round 14, no VOCs were reported at Site 1. In Round 16, Site 1 will also be sampled for perchlorate.
- Site 2 – PCE (tetrachloroethene) and TCE are the main VOCs of concern. There was no significant change in the concentrations of either chemical since Round 12. Site 2 was not monitored in Round 13.
- Site 3 – several VOCs were reported, but only one VOC (benzene) was reported above the screening criteria and this level was reported at only one of the recent replacement wells. Benzene concentrations will continue to be monitored at this site in future monitoring rounds.
- Site 5 – TCE, chloroform and bromodichloromethane were reported at Site 5, but all concentrations were below the screening criteria. These chemicals will continue to be monitored and evaluated during future monitoring rounds.
- Site 16 – this site was first monitored during Round 14. Samples collected from three wells indicate that there is a localized VOC plume consisting mainly of TCE. No 1,2-DCA (dichloroethane) was reported at the site.
- Site 17 – CFC 113 (also referred to as Freon-113) was reported in samples collected from two wells. These are new detections that were well below screening criteria for this chemical. This chemical will continue to be evaluated during future monitoring rounds.

Mr. Brookshire showed slides illustrating the concentrations of TCE in four wells. In well 18_MCAS09, TCE concentrations have been essentially level since 1997. In well 09_DBMW45 at Site 24, TCE concentrations have varied but appear to be decreasing since 1997. Concentrations of 1,2-DCE have only been identified a few times in a few rounds, so there is no established trend for this chemical. In well 21-UGMW37 at Site 24, TCE concentrations have been steady, with a slight peak in 1997. In this same well, 1,2-DCE has been identified in a few rounds and shows a slow decline. In well 24_EX60B1, one of the more recent wells where the Navy has only collected data since 1998, TCE showed an initial increase, but now the concentrations appear to be level.

Mr. Brookshire showed slides depicting the extent of the TCE plume at Sites 18 and 24 as evaluated during Rounds 12, 13, and 14. He explained that there have only been very minor differences in the configuration of the plume over the three monitoring rounds.

Mr. Brookshire stated that Round 15 sampling was completed last Wednesday, March 20, 2002. A total of 93 wells/ports were sampled and were measured for groundwater levels. The report on this round is due in summer 2002. Round 16 is tentatively scheduled for September 2002.

Discussion

Mr. Werner asked about the depth of the off-station wells. Mr. Brookshire replied that the Westbay wells reach a depth of up to 940 feet below ground surface.

A RAB attendee asked what are the relative depths of the groundwater units. Mr. Brookshire replied that the shallow groundwater unit is approximately 280 feet below ground surface, and the principal aquifer is more than 1,000 feet below ground surface.

Note: Clarification on Groundwater Information

- *Groundwater in the shallow groundwater unit on-Station is generally in the range of 160 to 200 feet below ground surface.*
- *In between the shallow and principal aquifer is an intermediate zone consisting of fine-grained alluvial sediments ranging in thickness from 70 to 140 feet.*
- *The principal aquifer generally can be measured beginning at approximately 300 feet and extends as far down as over 1,000 feet below ground surface.*
- *During the last sampling round, the deepest sample was collected within the principal aquifer at a depth of 919 feet at well 18_MCAS07.*

Mr. Zwiefel asked what is meant by a dedicated well. Mr. Brookshire replied that this is a well that has a bladder pump installed at all times. A non-dedicated well has only a well casing, and a submersible pump is inserted during each sampling event. The difference in the wells is that the dedicated wells do not require purging because they reach directly into the aquifer. The non-dedicated wells require three casing volumes to be purged before the sample can be collected. This can mean up to 800 gallons of groundwater has to be purged.

Ms. Rudolph asked whether the Navy has sampled groundwater at Anomaly Area 3. Mr. Smits replied that this has not been done as there are not currently any wells at this site. The need for monitoring will be determined when the area is evaluated. Ms. Arnold added that, although there is no dedicated monitoring well at this site, back in January 2002 a work plan was issued and a comprehensive evaluation is currently being performed for this area. So it is possible that wells may be added in the future.

Ms. Rudolph asked if the Navy would cease groundwater monitoring once the remedial action is complete. Mr. Smits replied that the monitoring would continue under long-term monitoring for the sites. He explained that for Sites 18 and 24, once the Irvine Desalter Plant is running, sampling will be more extensive to determine if the remedy is effective. The sampling plan for monitoring of remedy effectiveness will be determined in the design phase of the remedy.

Ms. Rudolph asked if there would be a separate groundwater report on radionuclides. Mr. Smits replied that the measurements for gross alpha and beta during the groundwater monitoring program are for routine monitoring over time, not specifically for a radionuclide evaluation. Ms. Arnold replied that the last radionuclide groundwater evaluation was done in conjunction with the water districts. She added that data from that report closed out the radionuclide issue. The key conclusion

of that report was that radionuclides were not manmade but were naturally occurring. Therefore, no further radionuclide sampling was warranted. She explained that the water districts concurred with this conclusion. Mr. Smits added that the Navy would continue to sample for gross alpha and beta during the monitoring rounds, just as a component of the overall groundwater monitoring program.

Ms. Rudolph asked if the Navy is communicating with and providing the radionuclide results from the groundwater monitoring program to the contractor preparing the report for the radiological survey. Mr. Smits replied that the Navy's results are in line with the results from the radionuclide groundwater evaluation. Ms. Rudolph noted that her concern is to have soil and groundwater evaluations tied together. Mr. Smits replied that these results would be tied together once data is available from both evaluations.

Mr. Fred Meier, RAB member, stated that the plume map should be larger as it is hard to read, and it needs street names to make it more meaningful. Mr. Gould agreed and said that street names will be added and 11" x 17" maps will be available at the next meeting.

Mr. Zwiefel asked whether the TCE concentration close to 1000 µg/L for well 09_DBMW45 and well 24_EX60B1 indicate any horizontal plume migration. Mr. Smits replied that these two wells are near the source area that could still be supplying contaminants to the plume. The source area has highest concentrations of TCE. He explained that wells downgradient from those two wells are being monitored, and that data contained in the groundwater monitoring reports is being evaluated to determine if plume migration is occurring. Mr. Smits added that Site 18 wells are located off site where the TCE concentrations are much lower.

Mr. Zwiefel asked whether the Navy is monitoring for chromium-6 and MTBE. Mr. Gould replied that that Navy has given a detailed response in the past to the findings on these chemicals and he would look up that response and provide it to Mr. Zweifel.

◆ **Irvine Desalter Project Update, Dean Gould, MCAS El Toro BRAC Environmental Coordinator, and Mr. Ray Herndon, Orange County Water District**

Mr. Gould noted that the BCT review period for the Draft ROD for Sites 18 and 24 was over on March 8, 2002. To date, very few comments have been received. He explained that the next step is to incorporate regulatory comments and issue the Draft Final ROD. The Draft Final ROD is scheduled for issuance on May 9, 2002, with an anticipated signature on the Final ROD in early June 2002. A public notice announcing the signing would run in the local newspapers shortly thereafter. He said that it is very exciting that these decision documents are so close to finalization.

Mr. Roy Herndon, RAB member representing the Orange County Water District (OCWD), added that he is aware of agency comments on institutional controls, but that other than that the ROD looked very good. Mr. Gould added that off-base institutional controls are being developed with input from the regulatory agencies.

◆ Woodbridge Village Association, Dean Gould, MCAS El Toro BEC and Mr. Bob Figeira, Woodbridge Homeowners Association, and Dr. Andrea Temeshy, Bechtel Environmental, Inc.

Mr. Gould explained that the Woodbridge Homeowners Association, a community in Irvine, has been in existence for 25 years. During that time, the Homeowners Association has been using water from the principal aquifer to fill North Lake, a manmade lake, and a nearby children's pool referred to as the lagoon. Recently, the Orange County Health Care Agency (OCHCA) issued documentation to the Homeowners Association expressing concern with the water source and citing some regulatory issues. He explained that groundwater is being drawn from the plume, but that this is a very large, very diluted TCE groundwater plume. Mr. Figeira stated that OCHCA took samples from the lake in August 2001 and analysis determined they were non-detect for TCE. He stated that the Homeowners Association has a time-critical need for a water source, but there are concerns about the water quality from the current well.

Mr. Gould stated that the Navy performed a risk assessment in 1996, and has performed an updated risk assessment in January 2002 for groundwater being used by the Homeowners Association at North Lake and the lagoon. He also stated that these wells are part of the groundwater monitoring program, so the Navy is very much aware of these levels, and from the Navy's perspective, are very pleased with the results of the monitoring and the risk assessment. According to the federal regulations that the Navy has to adhere to, the risk has been adequately addressed. It is understood that there are local and state requirements regarding the water source and long-term concerns for public health.

He introduced Dr. Andrea Temeshy, Risk Assessor with Bechtel, a Navy contractor, to provide the risk assessment results. Mr. Gould added that there are two handouts provided for this presentation: (1) Dr. Temeshy's presentation, and (2) a copy of the technical memorandum that presents the updated health-risk assessment results.

Dr. Temeshy greeted the RAB and informed meeting attendees she toured North Lake earlier today. She explained that the groundwater from well Wood_INLK1 is used to supply North Lake and a swimming lagoon. The Navy has performed a risk assessment to determine what the risk would be for someone exposed to recreational activities at the lake and the lagoon. As input to the risk assessment, exposure to water coming directly from the well was used, which is an extremely conservative scenario. She stated that there are two chemicals that were detected, 1,2-DCE and TCE at very low concentrations and those were used for the risk assessment.

Dr. Temeshy reviewed some of the assumptions that were made for the risk assessment. The first assumption is for the lagoon. She pointed out that the lagoon is only open from May through September. However, to be conservative for the risk assessment, the assumption used is that the lagoon is open 12 months of the year. Two scenarios were used, one for a child swimming in the lagoon two hours a day, 350 days a year. There are three exposure routes used for the water, dermal (skin) contact, incidental ingestion, and breathing vapor from evaporating water. She reiterated that the risk assessment focused on direct exposure to the groundwater not to the surface water after it was pumped into the lagoon. The second scenario used is for an adult, exposed 350 days a year for 30 years. The City of Irvine asked that an additional scenario be used for the risk assessment where by a child is exposed to the groundwater for six hours a day, 350 days a year.

Dr. Temeshy said the lake was also included in the risk assessment, and the same conservative assumptions were used, 350 days a year, and 30 years exposure for an adult. The risk assessment used scenarios for a swimmer, recreational use by a non-swimmer such as someone sitting in a lounge chair or strolling around the lake, and a fisherman who eats the fish they catch. She explained that during her visit to the lake earlier today, there is a sign posted that the fish must be released after they are caught (catch and release rule) so eating the fish is not allowed. Therefore, the risk assessment assumptions are extremely conservative when you factor in that someone would be eating the fish throughout their lifetime. She said that not only was direct exposure to the groundwater assessed making the risk assessment overly conservative but swimming in the lake was also assessed even though swimming is prohibited at North Lake.

Dr. Temeshy stated that the risk assessment is addressing two different endpoints – the cancer effect (carcinogenic), and the non-cancer effect (non-carcinogenic). The cancer potential is discussed within the context of U.S. EPA guidelines. A slide was used to illustrate the cancer risk results and she explained that for all the scenarios the risk was in the acceptable range, which means that there is no cancer risk. For the non-cancer risk, the threshold is 1, so if the risk is below 1, there is no potential for non-cancer effects. In this case, the non-cancer risk was well below 1. She summarized the results stating there is no risk for contracting of cancer and no risk from other health effects from direct exposure to the groundwater from the well that is used for supplying water for North Lake and the lagoon.

Mr. Gould asked the regulatory agencies what their opinions are after review of the risk assessment. The representatives for U.S. EPA, DTSC, and RWQCB all said that they concur with the findings of the risk assessment.

Discussion

Mr. Zwiefel pointed out that people have different susceptibilities and asked how the risk assessment accounted for this variation? Dr. Temeshy replied that these susceptibilities are taken into account in the U.S. EPA toxicity criteria that is used for the risk assessment.

Mr. Meier asked where in the TCE plume is this well located. Mr. Smits used a figure to show the location of the well. At this location, the concentration of TCE is slightly above 10µg/L. He explained that the data collected from this well, however, shows that the TCE concentrations have hovered around the federal and state MCL for TCE (5 µg/L) for several years.

Mr. Woodings asked whether there would be an impact on the plume due to the new wells that will be added for the Irvine Desalter Project. Mr. Gould responded that it is too early to determine this because the extraction well locations have not been finalized and the Irvine Desalter Project design phase has not started.

Mr. Zwiefel asked if volatilization and aeration, that lower the concentrations of TCE, had been factored into the risk assessment. Dr. Temeshy responded that this is not taken into account because the model used a worst-case scenario. The risk is assessed as though a user is inside the well and exposed directly to the untreated groundwater.

Mr. Figeira asked whether this risk assessment would satisfy OCHCA so that the Homeowners Association could use the water for the lagoon. Mr. Larry Honeybourne, a staff member of OCHCA, said that the agency concurs with the Navy's assessment on risk. However, the issue is that the concentration of TCE in the groundwater exceeds the MCL, which is the drinking water standard. Regulations require that the water source for the lagoon be a permitted water supply well or an approved alternative source. The well that is being used to fill the lagoon is not a permitted water supply well, and has not been approved as an alternative source.

Mr. Honeybourne stated that OCHCA has taken limited samples of water from the lagoon and the results came back non-detect. So there seems to be a mechanism passively removing the TCE. It is probably being air stripped, but OCHCA would like to have the system evaluated to determine how the TCE is being removed, and ensure that treatment is reliable. If this water were to be used for domestic drinking water purposes, the water supplier would have to come up with a treatment process, apply for a permit to the State Department of Health Services, and have an ongoing extensive program to make sure that the MCL is not exceeded. Mr. Honeybourne explained that the MCLs are based on ingestion (drinking the water). Though this is not the case here, the OCHCA is not able to "pick and choose" when MCLs would apply based on exposure pathways. OCHCA needs a continuous reliable assurance that the method currently removing the TCE will continue to be protective of public health. He also pointed out that OCHCA is concerned that there may be other chemicals of concern that might be present; that for some chemicals a methodology for detection does not currently exist. He said that the chemical 1,4-dioxine is one such example.

Mr. Honeybourne explained that the overall concern is that untreated groundwater is being used for an essentially domestic use. He explained that OCHCA is not saying that the well cannot be used to supply the lake and the lagoon; they just want an engineering report and a practical solution. If the report says that the iron/manganese filtration system is capable of removing the TCE to below the MCL, and there is a monitoring program in place, OCHCA will evaluate use of the well. He added that OCHCA is only addressing groundwater. Other agencies (such as the South Coast Air Quality Management District) may have a concern about releases from the system to the air if air stripping is being used for treatment.

Mr. Gould said that the Navy would be glad to work with the Homeowners Association and water districts to facilitate a solution. The Navy is willing to offer some technical suggestions and work with the water districts on how to come up with a reliable water source that meets the OCHCA criteria. Mr. Woodings asked if this meant that the Navy would authorize use of their consultants and expertise to assist Woodbridge in preparing an action plan. He pointed out that the cause of the problem is clearly shown to be MCAS El Toro and that there is an equity issue involved for the Homeowners Association. Therefore, would the Navy be willing to step up and solve the problem since they caused the problem. Mr. Gould responded that the Navy would be willing to provide assistance to the extent based on obligations and guidelines under the CERCLA program. However, the Navy's position is that it is the Homeowners Association responsibility to prepare the action plan. He explained that solving this problem does not appear to be a Navy obligation, as by the regulations which the Navy is required to adhere to, the risks at the lakes for their current uses are well within acceptable regulatory limits.

Mr. Steve Sharp, RAB member representing OCHCA, said that if the water were extracted, and a NPDES permit was sought for discharging to a storm drain, the effluent would have to meet MCLs

before discharge. So essentially what OCHCA is asking for is a practical solution for monitoring to ensure health and safety. Ms. Hannon agreed that in this RWQCB region (Region 8), even for recreation and beneficial uses, the concentrations would have to be at or below MCLs.

◆ **MCAS El Toro Business Plan, Dean Gould, MCAS El Toro BEC**

Mr. Gould stated that there is a copy of the introduction of the MCAS El Toro Base Realignment and Closure Business Plan 2001 in Review available on the information table. This plan is issued annually in March and presents a reader-friendly summary of activities during the previous year and the Navy's schedule for accomplishments for the upcoming year. The complete Business Plan document was provided to the RAB Community Co-Chair and the RAB Subcommittee Chair. It is available for review at the Information Repository and the Administrative Record. Information about how to access documents at these locations is also available on the information table.

Mr. Gould stated that the Business Plan provides a history of the base and discusses such issues as interim use, leasing of property, and property types. He noted that property types 1 through 4 (see description below) are eligible for transfer and that part of the Station (over 900 acres) has already been transferred to the Federal Aviation Authority. Approximately 3,800 acres remain.

Property Types 1 through 4 are described below:

- Property Type 1 – Areas where no release or disposal of hazardous substances or petroleum products (including migration) has occurred.
- Property Type 2 – Areas where only release or disposal of petroleum product has occurred.
- Property Type 3 – Areas of contamination below action levels.
- Property Type 4 – Areas where all remedial action has taken place.

Mr. Gould explained that there are a total of 887 locations of concern (LOCs) at MCAS El Toro. Of the 887 LOCs, 723 have received No Further Action (NFA) concurrence. Page 5 of the Business Plan is a table that provides additional information about the different types of LOCs and whether they require further action (FA) or have received NFA concurrence. He stated that pages 7 and 8 of the Business Plan summarize the Installation Restoration Program (IRP) for the base, listing the Operable Units (OUs) and the 24 IRP sites that make up the OUs. The status of the Resource Conservation and Recovery Act (RCRA) sites is provided on page 9.

Mr. Gould said that page 12 summarizes environmental program highlights from 2001, including sites that were closed and documents that were finalized. Page 13 provides planned goals for 2002:

- Issue the Draft ROD for Sites 18 and 24 for public comment – May 2002.
- Issue the Final Focused Feasibility Study (FFS) for Site 16 – July 2002. The Proposed Plan and ROD are follow-on documents to the FFS and would be issued shortly after July 2002.
- Complete radiological survey and issue the Draft Radiological Release Report – April 2002.
- Prepare updated Environmental Baseline Survey (EBS) – August 2002. The EBS will assess and document the current condition of the base and address any sites that the County identifies in the due diligence report. The EBS will support the preparation of a FOST that is scheduled for completion by the end of August 2002.

- Complete the Draft Remedial Investigation (RI) Report for Site 1 – February/March 2003. All the field activities at this site have been well documented, including the RI and the range evaluation.
- Issue the Draft Final Vadose Zone Closure Report for Site 24 – the goal is to close out this site later in 2002.
- Conduct soil sampling activities for lead-base paint at the housing areas – June 2002. Mr. Smits is the lead RPM for this project.
- Continue coordination of the landfill cover design for Sites 2 and 17 with United States Fish and Wildlife Service, the Integrated Waste Management Board/Local Enforcement Authority, the Local Reuse Authority, and the BCT.
- Update the Community Relations Plan (CRP) – Ms. Arnold stated that a survey would be included in the upcoming fact sheet. Responses to that survey will be used to update the CRP. This update will be performed in consultation with the regulatory agencies, specifically the DTSC public participation specialist.

Mr. Gould said that Table 5 in the Business plan shows the current status of all 25 IRP sites. Table 6 provides a summary of the funding for the IRP, including how much has been spent to date and what the projected cost to complete the IRP.

Discussion

Mr. Zwiefel said that the Marine Corps Recruit Depot in San Diego would like to come to MCAS El Toro. He asked if the areas they would like to occupy are decontaminated. Mr. Gould responded that he could not answer this question as the MCRD issue is very tentative.

Mr. Zwiefel asked about the status of the PCB transformers. He stated that he thinks these transformers may be buried in the landfills. Mr. Gould replied that remediation of the transformers is complete.

Mr. Zweifel asked how long it has been since an Environmental Baseline Survey (EBS) was last prepared. Mr. Gould replied that the last EBS was prepared in 1995.

A RAB attendee asked if the Finding of Suitability to Transfer (FOST) scheduled for August 2002 would cover all IRP sites. Mr. Gould responded that there are a number of sites throughout the base that will not be ready for closeout in August 2002. So the Navy may do one FOST for sites that are ready for closeout and transfer and another FOST later for the remaining sites. However, it is too early to say with certainty how the ultimate conveyance strategy will be handled. He stated that the National Environmental Policy Act ROD is scheduled for April 23, 2002, and that the final conveyance method is still to be determined.

Mr. Gould stated that RAB attendees should pick-up a copy of the Navy's letter to the City of Irvine. This letter summarizes all the sites that the Navy expects to have some type of long-term institutional controls. He stated that there are also maps available this evening that contain the street names.

Mr. Zweifel asked about IRP Site 11, the transformer storage area. He noted that Table 5 lists this site as 60% complete as of December 31, 2001. Mr. Gould replied that the Navy is continuing the dialogue with the regulatory agencies to determine the final approach for this site. Ms. Moutoux added that the DTSC risk assessors are completing a review of the reevaluation of risk based on new

toxicity values. The regulators are keeping this issue on hold until that reevaluation process is completed.

OPEN QUESTION AND ANSWER

Ms. Arnold stated that Ms. Rudolph had asked a question about monitoring wells at Anomaly Area 3. She clarified that there are four monitoring wells in the vicinity of that area.

Mr. Peter Hersh, RAB member, said that he read that President Bush will be cutting back BRAC funding. How would this impact MCAS El Toro? Mr. Gould replied that the Navy is committed through the Federal Facilities Agreement to carry out the remediation of the base. At this time the funding profile for this year and next year looks very positive, and so far the environmental funding for the base has been there. However, he would not be able to determine at this time if there would be a long-term impact for the base. Ms. Kim Foreman, DTSC Public Participation Specialist, clarified that those news articles recently published about funding dealt with regular Superfund sites not federal military BRAC sites. There is a separate funding source for the BRAC sites.

Mr. Zwiefel noted that the Navy has conducted tests on the JP-5 pipeline and asked if this line has now been filled with slurry. Mr. Gould responded that he would provide Mr. Zweifel with a copy of the pipeline presentation

MEETING EVALUATION AND FUTURE TOPICS

Meeting evaluation by RAB members:

RAB members stated that the North Lake discussion was very beneficial in understanding this complicated groundwater quality issue.

Suggestions for future presentation topics include:

- Presentation on radiological survey results
- County of Orange due diligence presentation
- Irvine Desalter Program update
- Outcome of Woodbridge well and water supply for North Lake and the lagoon
- Status of the remedial design for Sites 2 and 17
- Compliance program update

CLOSING ANNOUNCEMENTS/FUTURE MEETING DATES

Upcoming RAB Meeting and Subcommittee Meeting

The next RAB meeting will be held from 6:30 to 9 p.m., May 29, 2002 in the regular meeting location – Irvine City Hall, Conference and Training Center (CTC), One Civic Center Plaza, Irvine. The RAB Subcommittee meeting will be held from 5 to 6 p.m., on the same evening in Room L-104 at Irvine City Hall.

Recent RAB Subcommittee Meetings

On Wednesday, 3/27/02, at Room L-104, Irvine City Hall, before the RAB meeting.

The 56th meeting of the MCAS El Toro Restoration Advisory Board was adjourned at 9:10 p.m.

Attachments:

- Sign-in sheets from 3/27/02 RAB meeting.

Handouts provided at the meeting:

- RAB Meeting Agenda/Public Notice – 3/27/01 RAB meeting.
- Meeting Minutes from the January 30, 2002 RAB Meeting – 55th RAB.
- MCAS El Toro RAB Subcommittee Meeting Minutes, September 19, 2001 meeting.
- MCAS El Toro RAB Subcommittee Meeting Minutes, November 29, 2001 meeting.
- Executive Summary – Environmental Site Assessment – MCAS El Toro Work Element I Final Report prepared by GeoSyntec Team for County of Orange, Local Reuse Authority.
- MCAS El Toro RAB Meeting Schedule, Full RAB and RAB Subcommittee (Sept. 2001 – July 2002).
- MCAS El Toro RAB Mission Statement and Operating Procedures.
- RAB Membership Application – MCAS El Toro RAB.
- MCAS El Toro Installation Restoration Program – Mailing List Coupon.
- MCAS El Toro Restoration Advisory Board – Membership Roster
- MCAS El Toro Administrative Record File - Information Sheet (for on-Station access).
- MCAS El Toro Information Repository - Information Sheet.
- Internet Access – Environmental Web Sites.
- MCAS El Toro Marine Corps/Navy RAB Co-Chair (address, telephone, fax, e-mail).
- MCAS El Toro - For More Information on Redevelopment.
- Contact information for Steven Sharp, RAB member representing Orange County Health Care Agency.
- Glossary of Technical Terms.
- MCAS El Toro Base Realignment and Closure Business Plan, Introduction Section, March 2002.
- MCAS El Toro Environmental Compliance Program Location of Concern (LOC) Status Table (March 25, 2002).
 - LOC's Status Map
 - IRP Site Status Map
- Department of Navy – Policy for Conducting Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Statutory Five-Year Reviews, November 2001.
- Department of Navy – Land-Use Controls at Marine Corps Air Station (MCAS) El Toro.
- Department of Defense – Institutional Controls, Spring 1997.
- Department of Defense – A Guide to Establishing Institutional Controls at Closing Military Installations, February 1998.
- Department of Defense – Responsibility for Additional Environmental Cleanup after Transfer of Real Property.
- Photocopy of brochure – Commonly Asked Questions Regarding the Use of Natural Attenuation for Chlorinated Solvent Spills at Federal Facilities.
- U.S. EPA Fact sheet – A Citizen's Guide to Natural Attenuation, October 1996.
- *Presentation* – Stationwide Groundwater Monitoring Update (Groundwater Rounds 13 and 14), MCAS El Toro, March 27, 2002, Presented by Marc P. Smits, Navy SWDIV and Matthew Brookshire, CDM.
- *Presentation* – Woodbridge Village Association – Draft Technical Memorandum – WOOD-INKL/1 Risk Evaluation (two handouts), Presented by Dean Gould, Marine Corps/Navy RAB Co-Chair and Dr. Andrea Temeshy, Bechtel.
- *Presentation* – MCAS El Toro Base Realignment and Closure Business Plan, Introduction Section, March 2002, Presented by Dean Gould (handout listed above).

RAB Subcommittee Handouts and Letters (provided by Marcia Rudolph, MCAS El Toro RAB Subcommittee Chair)

- MCAS El Toro RAB Subcommittee Meeting Minutes, January 30, 2002 meeting.

Agency Comments and Letters - U.S. Environmental Protection Agency (U.S. EPA)

- U.S. EPA, Comments on Draft ROD for OU-1, Sites 18 and 24, MCAS El Toro, dated January 2002 - To: Dean Gould, BEC, MCAS El Toro; From: Nicole G. Moutoux, Remedial Project Manager, U.S. EPA (letter dated March 7, 2002).
- U.S. EPA, Comments on Draft ROD for OU-1, Sites 18 and 24, MCAS El Toro, dated January 2002 - To: Dean Gould, BEC, MCAS El Toro; From: Nicole G. Moutoux, Remedial Project Manager, U.S. EPA (letter dated March 19, 2002).
- U.S. EPA, Comments on Draft Work Plan, Removal Site Evaluation, Anomaly Area 3, MCAS El Toro, dated January 2002 - To: Dean Gould, BEC, MCAS El Toro; From: Nicole G. Moutoux, Remedial Project Manager, U.S. EPA (letter dated February 7, 2002).
- U.S. EPA, FFA Schedule Extension Request for Sites 3 and 5, MCAS El Toro, dated February 15, 2002 - To: Dean Gould, BEC, MCAS El Toro; From: Nicole G. Moutoux, Remedial Project Manager, U.S. EPA (letter dated February 21, 2002).
- U.S. EPA, FFA Schedule Extension Request for Site 1, MCAS El Toro, dated February 19, 2002 - To: Dean Gould, BEC, MCAS El Toro; From: Nicole G. Moutoux, Remedial Project Manager, U.S. EPA (letter dated February 21, 2002).
- U.S. EPA, Draft BRAC Business Plan, MCAS El Toro, dated January 29, 2002 - To: Dean Gould, BEC, MCAS El Toro; From: Nicole G. Moutoux, Remedial Project Manager, U.S. EPA (letter dated February 12, 2002).

Agency Comments and Letters – California Environmental Protection Agency (Cal-EPA)

- Cal-EPA, Department of Toxic Substances Control (DTSC) – Comments on Draft Work Plan and Draft Health and Safety Plan, Removal Site Evaluation for Anomaly Area 3, MCAS El Toro – To: Dean Gould, BEC, MCAS El Toro; From: Triss M. Chesney, Remedial Project Manager, DTSC (letter dated February 13, 2002).
- Cal-EPA, DTSC – Comments on Draft Record of Decision and Responsiveness Summary, Operable Unit (OU)-1, Installation Restoration Program (IRP) Site 18 and OU-2A, IRP Site 24, MCAS El Toro – To: Dean Gould, BEC, MCAS El Toro; From: Triss M. Chesney, Remedial Project Manager, DTSC (letter dated March 8, 2002).
- Cal-EPA, DTSC – Comments on Draft Technical Memorandum – WOOD-INLK/1 Risk Evaluation, MCAS El Toro – To: Dean Gould, BEC, MCAS El Toro; From: Triss M. Chesney, Remedial Project Manager, DTSC (letter dated March 15, 2002).

Agency Comments and Letters – California Regional Water Quality Control Board (RWQCB), Santa Ana Region

- No Items Submitted

Copies of all past RAB meeting minutes and handouts 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 telephone number is (949) 551-7151. Library hours are Monday through Thursday, 10 am to 9 p.m.; Friday and Saturday, 10 am to 5 p.m.; Sunday 12 p.m. to 5 p.m.

See next page for Internet sites.

Internet Sites

Navy and Marine Corps Internet Access

*Naval Facilities Engineering Command, Southwest Division, Environmental Web Sites
(includes RAB meeting minutes):*

www.efdswnavfac.navy.mil/environmental/envhome.htm

Department of Defense – Environmental Cleanup Home Page Web Site:

<http://www.dtic.mil/envirodod/>

U.S. EPA:

www.epa.gov (this is the homepage)

www.epa.gov/superfund/index.html (site for Superfund)

www.epa.gov/ncea (site for National Center for Environmental Assessment)

www.epagov/fedrgstr (site for Federal Register Environmental Documents)

Cal/EPA:

www.calepa.ca.gov (this is the homepage)

www.dtsc.ca.gov (site for Department of Toxic substances Control)

www.swrcb.ca.gov/ (site for Santa Ana Regional Water Quality Control Board)

**MCAS EL TORO
RESTORATION ADVISORY BOARD MEETING
March 27, 2002**

RAB MEMBER SIGN-IN SHEET

Name	Signature	Name	Signature
Bell, Richard		Marquis, Roland	
Britton, George		Marquis, Suzanne	
Chesney, Triss	<i>Triss M. Chesney</i>	Matheis, Mary Aileen	<i>Mary Aileen Matheis</i>
Crompton, Chris		Mathews, Thomas	
Farber, Dr. Joseph		Meier, Fred J.	<i>Fred Meier</i>
Gould, Dean - Co-Chair	<i>Dean Gould</i>	Olquin, Richard	
Hannon, Patricia	<i>Patricia Hannon</i>	Reavis, Gail	
Herndon, Roy	<i>Roy Herndon</i>	Rudolph, Marcia	<i>Marcia Rudolph</i>
Hersh, Peter	<i>Peter Hersh</i>	Sharp, Steven	
Hurley, Greg		Werner, Jerry - Co-Chair	<i>Jerry Werner</i>
Jung, Dan	<i>Dan Jung</i>	Woodings, Bob	<i>Bob Woodings</i>
Moutoux, Nicole	<i>Nicole Moutoux</i>	Zweifel, Donald E.	<i>Donald E. Zweifel</i>

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PRIVATE CITIZENS' HOME ADDRESSES HAVE BEEN
REDACTED IN ACCORDANCE WITH THE PRIVACY ACT

QUESTIONS MAY BE DIRECTED TO:

**DIANE C. SILVA
RECORDS MANAGEMENT SPECIALIST
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132**

TELEPHONE: (619) 532-3676

New attendees
will be added
to the MCAS
El Toro
Mailing List.

MCAS EL TORO
RESTORATION ADVISORY BOARD MEETING
March 27, 2002

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

NAME <u>PLEASE PRINT CLEARLY</u>	AFFILIATION	<u>COMPLETE MAILING ADDRESS</u> [STREET NUMBER, STREET NAME, CITY, STATE, ZIP CODE]	PHONE FAX	INTERESTED IN RAB MEMBERSHIP?
JEFF LAWRENCE	R.F. WESTON	3375 SRACREST DR, CARLSBAD, CA 92008		
Tom O'Malley	ETRPA			
Regina Clifford	CDM	3760 Conby St #210 San Diego, CA 92111		
Bill Sedlak	Kennedy Jenks			no
Gordon Brown	SWDIV	1230 Columbia San Diego		na
Kyle Olewnik	SWDIV	1230 Columbia SD, CA		

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Content P. Arnold	SWDIV			
BOB HARTMAN	HILLMANN ENVIRONMENTAL			
Polin Modanlou	County of orange			
Seda Yaghoubian	ETRPA			
Crispin Wanyolke	Earth Tech	100 W. BROADWAY SUITE 240 LONG BEACH CA 90802		
RICH TAMBARA	SCAAMD			

CONFIDENTIAL RECORD

PORTIONS OF THIS RECORD ARE CONSIDERED
CONFIDENTIAL AND ARE NOT FOR PUBLIC VIEWING

PRIVATE CITIZENS' HOME ADDRESSES HAVE BEEN
REDACTED IN ACCORDANCE WITH THE PRIVACY ACT

QUESTIONS MAY BE DIRECTED TO:

**DIANE C. SILVA
RECORDS MANAGEMENT SPECIALIST
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132**

TELEPHONE: (619) 532-3676

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MCAS EL TORO CONFIDENTIAL
RESTORATION ADVISORY BOARD MEETING
March 27, 2002

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

<u>NAME</u> <u>PLEASE PRINT CLEARLY</u>	<u>AFFILIATION</u>	<u>COMPLETE MAILING ADDRESS</u> <small>[STREET NUMBER, STREET NAME, CITY, STATE, ZIP CODE]</small>	<u>PHONE</u> <u>FAX</u>	<u>INTERESTED</u> <u>IN RAB</u> <u>MEMBERSHIP?</u>
Scott KERE	US NAVY	MCAS EL TORO CSO		
Kim Foreman	DTSC			
JIM MORIN	Allwest Remediation	1201 Barsten Way Anaheim, CA 92806		
Ray Ouellette	Resident Mission Viejo			
LEW ALLEN	NINYO & MIKE			
Paul Williams	President Logan Hospital			

PLEASE PRINT CLEARLY AND PROVIDE COMPLETE INFORMATION

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MCAS EL TORO
RESTORATION ADVISORY BOARD MEETING
March 27, 2002

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Other Attendees, Guests

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Matt Brookshire	COM	3760 Conroy St. Ste 210 San Diego, CA 92111		
LORI SUBASH	BECHTEL	MCAS - TUSTIN		
Jane Wilzbach	Bechtel	1230 Columbia San Diego		
Angela Williams	Bechtel	//		
LARRY HONEYBURNIS	O.C. HCA	2009 E. EDINGER SANTA ANA		
Marc P. Smits	SWDIV	1230 Columbia S.D., CA		

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Violet Cooper	US EPA	San Francisco CA 75 Hawthorne St 94105	(415) 972-3243	
BOB FLEINA	Woodbridge Village Assoc		45-986-1800 X128	

PLEASE PRINT CLEARLY AND PROVIDE COMPLETE INFORMATION

Minutes of the El Toro Technical Review Committee
January 30, 2002

The meeting was called to order by Marcia Rudolph. All attendees introduced themselves. (List Appended). Minutes were reviewed from the September 19 and November 29, 2001 meetings. The Minutes were approved as submitted.

Marcia reviewed the status of various documents received during the period since our last meeting. The committee reviewed various topics that needed to be brought to the attention of the full RAB committee. A list of subjects was developed and consisted of the following items:

- The Orange County Register carried an article regarding Brownfield Landfills and How the US EPA was going to enable the PRPs to haul out the contents and re-fill the old landfills with clean dirt. Question: Why was this process not good for the NAVY but is now acceptable for Brownfield cleanups?
- The 60% landfill report was given to Agencies to review on January 17. The Navy is considering the monitoring of Soil Moisture in the Cover.
- What is the EPA status on new Perchlorate standards?
- Where did the 1,2-DCA come from at Site 16?
- Has the Navy issued a letter on the investigation of Building 307?
- What is the history of the Storm Water Permit for the Base? Has a new permit been developed incorporating the new TMDL requirements?
- The LRA issued a Final Report on the Environmental Assessment of El Toro. Could the Navy and Orange County LRA make a presentation at the next RAB meeting?
- Request that the Executive Summary of the LRA report be included with the minutes of the RAB meeting.

It was learned that Mr. Greg Hurley resigned his position as co-chair of the RAB. Mr. Hurley was requested to continue his association with the RAB. He was also thanked for his efforts in promoting the RAB.

The next Technical Review Committee meeting will take place at 5:00 p.m. in the Irvine City Hall before the next RAB Meeting that is scheduled for 27 March 2002.

There being no further business, the meeting was adjourned.

Respectfully Submitted,



Raymond E. Ouellette
Secretary

**TECHNICAL REVIEW COMMITTEE
EL TORO RAB**

ATTENDEES

DATE 1/30/2002

	Present	e-mail	Telephone	Fax
Marcia Rudolph	X	<u>Rudolphm@earthlink.net</u>	949 461-3400 949 830-9816 (h)	714 461-3511 949 830-4698 (h)
Jerry Werner	X	<u>Jbwer@surfside.net</u>	949 859-1322	-
Raymond E. Ouellette	X	<u>Rayouellette@kennedyjenks.com</u>	949 261-1577	949 261-2453
Joe Farber		<u>Jofarber@pacbell.net</u>	949 454-9147	949 724-6440
Gail Reavis	X	<u>RickgailR@cox.net</u>	949 461-0020	949 461-0064
Peter Hersh	X	<u>peterhersh@aol.com</u>	714 323-4700	714 249-3610
Mike Brown	X	<u>michaelsbrown@concentric.net</u>	805 898-0980	805 898-0087
Richard Bell		<u>Bell@irwd.com</u>	714 453-5582	714 453-0228
Roy Herndon		<u>Rherndon@ocwd.com</u>	714 378-3260	714 378-3369
Greg Hurley	X	<u>Gregory.Hurley@KutakRock.com</u>	<u>940 719-2289</u>	949 718-6708
Don Zweifel		<u>Zweifel@earthlink.net</u>	<u>714 937-3240</u>	-
Rich Olquin		<u>rolquin@msn.com</u>	<u>949 716-3384</u>	<u>949643-5207</u>
Scott Kurtz		<u>skurtz@ninyoandmoore.com</u>	<u>949 472-5444</u>	<u>949 472-5445</u>
Len Allen		<u>lallen@ninyoandmoore.com</u>	<u>949 472-5444</u>	<u>949 472-5445</u>
Seda Yaghoubian	X	<u>sedayag@msn.com</u>	<u>949-261-8111</u>	-
Mailing List				
Dean Gould		<u>Goulda@efds.navfac.navy.mil</u>	(619) 532-4155	(619) 532-4160
R. Coleman		<u>Rbcolema@bechtel.com</u>	(619) 744-3016	(619) 687-8787

MCAS El Toro -- Meeting Schedule
Restoration Advisory Board (RAB)
Full RAB and RAB Subcommittee Meetings

September 2002 – July 2003

RAB Meetings: The Conference and Training Center (CTC) at Irvine City Hall is being reserved for RAB meetings (full RAB) on the last Wednesday of the month, dates are listed below. **Time: 6:30 – 9:00 p.m.**

RAB Subcommittee Meetings: Subcommittee meetings will now be on the *SAME DAY* as the full RAB meeting from 5 to 6:00 p.m. in a smaller room. The preferred room is by the Council Chambers, Room L-104. **General Meeting Time: 5:00 – 6:00 p.m. (Room is available from 4:30 to 6:30 p.m.)**

RAB and Subcommittee Meeting Dates	RAB Meeting Room – Conference and Training Center (CTC) 6:30 – 9:00 p.m.	Subcommittee Meeting Room – Room L-104 5:00 – 6:00 p.m.
+September 25, 2002	CTC	Room L-104
*Dec. 4, 2002	CTC	Room L-104
January 29, 2003	CTC	Room L-104
+March 26, 2003	CTC	Room L-104
May 28, 2003	CTC	Room L-104
July 30, 2003	CTC	Room L-104

+ Start times for these meetings will be at 7:00 p.m. (unless otherwise noted).

* Traditionally when Thanksgiving falls on the last week of November, the RAB meeting has been held the first week of December. (In Nov. 2002, the last Wednesday of the month is the day before Thanksgiving.)

MARINE CORPS AIR STATION EL TORO
Installation Restoration Program
Restoration Advisory Board Mission Statement and Operating Procedures

This "Marine Corps Air Station (MCAS) El Toro, Installation Restoration Program, Restoration Advisory Board (RAB), Mission Statement and Operating Procedures," replaces the Revised Version dated January 31, 1996. This revised document contains a new section on the RAB Subcommittee, which replaces the old section. The new section is based on modifications made and approved by a majority vote of the RAB members present at the April 21, 1999 RAB meeting with further refinements made at the May 26, 1999 RAB meeting. Modifications incorporated resulted in revising the subcommittee structure so there is now only one RAB subcommittee. (Note: the original Mission Statement document was dated and signed on February 28, 1995.)

The Restoration Advisory Board (RAB) mission statement and operating procedures, herein referred to as "the mission statement and operating procedures", is entered into by the following parties; U. S. Marine Corps (USMC); U. S. Environmental Protection Agency (USEPA), Region 9; California Department of Toxic Substances Control (DTSC), Region 4; and the RAB. Marine Corps Air Station (MCAS) El Toro has developed a Community Relations Plan (CRP) which outlines the community involvement program. The RAB supplements the community involvement effort. A copy of the CPP is available at the information repository located at the Heritage Park Regional Library, 14361 Yale Avenue, Irvine, CA 92714.

I. Mission Statement of the RAB

a. The mission of the RAB is to promote community awareness and obtain timely constructive community review and comment on proposed environmental restoration actions to accelerate the cleanup and property transfer of MCAS El Toro. The RAB serves as a forum for the presentation of comments and recommendations to USMC, Remedial Project Managers (RPMS) of USEPA, and DTSC.

II. Basis and Authority for this Mission Statement and Operating Procedures

a. This mission statement and these operating procedures are consistent with the Department of Defense (DoD), USEPA Restoration Advisory Board Implementation Guidelines of September 27, 1994, and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendment and Reauthorization Act (SARA) of 1986, particularly Sections 120 (a), 120 (f), 121 (f), and 10 U.S.C. 2705, enacted by Section 211 of SARA, and September 9, 1993, DoD policy letter entitled, "Fast Track Cleanup at Closing Installations".

III. Operating Procedures

A. Membership

1. All RAB members must reside in or serve communities within Orange County.
2. Members shall serve without compensation. All expenses incidental to travel and review inputs shall be borne by the respective members or their organization.
3. If a member fails to attend two consecutive meetings without contacting the RAB, or at least one of the RAB co-chairs, or fulfill member responsibilities including involvement in a subcommittee, the RAB co-chairs may ask the member to resign.
4. Members unable to continue to fully participate shall submit their resignation in writing to either of the RAB co-chairs.
5. Total membership in the RAB shall not exceed 50 members.
6. Applications for RAB membership vacancies shall take place as such vacancies occur. Applications will be reviewed and approved by the Base Realignment and Closure (BRAC), Environmental Coordinator (BEC), USEPA, and DTSC along with consultation with the RAB community co-chair. Candidates will be notified of their selection in a timely manner.
7. Each RAB community member is considered equal whatever their position in the community, and has equal rights and responsibilities.

RAB Membership Responsibilities

- a. Actively participate in a subcommittee and review, evaluate, and comment on technical documents and other material related to installation cleanup, all assigned tasks are to be completed within the designated deadline date.
- b. Attend all RAB meetings.
- c. Report to organized groups to which they may belong or represent, and to serve as a mediator for information to and from the community.
- d. Serve in a voluntary capacity.

B. RAB Structure

1. The RAB shall be co-chaired by the MCAS El Toro BEC, and a community co-chair member. The BEC shall preside over the orderly administration of membership business.

2. A community co-chair will be selected by a majority vote of the RAB community members in attendance. Elected officials and government agency staff members of any legally constituted MCAS El Toro reuse groups are excluded from holding the community co-chair position. The community co-chair will be selected annually on the anniversary of the effective date of the agreement.

Community Co-Chair Responsibilities

- a. Assure those community issues and concerns related to the environmental restoration/cleanup program are brought to the table.
 - b. Assist the USMC in assuring that technical information is communicated in understandable terms.
 - c. Coordinate with the BEC to prepare and distribute an agenda prior to each RAB meeting, and for the review and distribution of meeting minutes.
 - d. Assist subcommittees in coordinating and establishing meeting times/locations.
 - e. The community co-chair may be replaced by a majority vote of the RAB community members present at the meeting in which a vote is undertaken.
3. The RAB shall meet quarterly. More frequent meetings may be held if deemed necessary by the RAB co-chairs. The BEC will facilitate in the arrangement of the meetings and notify members of the time and location.
4. Agenda items will be compiled by the RAB co-chairs. Suggested topics should be given to the BEC or community co-chair no later than two (2) weeks prior to the meeting. The BEC shall be responsible for providing written notification to all RAB members of the upcoming agenda and supporting documents, at least two (2) weeks prior to the date, time, and place of scheduled RAB meeting.
5. The BEC shall be responsible for recording and distribution of meeting minutes. Also, the BEC shall collect a written list of attendees at each meeting, which will be incorporated into the meeting minutes. For quarterly meetings, the minutes will be distributed 30 days prior to the following meeting. For more frequent meetings, the minutes will be distributed as soon as possible.
6. A copy of the RAB meeting minutes will be sent to all RAB members. Supporting documents will be available for public review in the information repository and other repositories as identified.
7. RAB members will be asked to review and comment on various environmental restoration documents. Written comments may be submitted individually by a member, or by the RAB as a whole. Written comments will be submitted to the community co-chair on the subject documents within the schedule as provided for regulatory agency comments. The community

co-chair will consolidate comments from RAB members and provide all comments received to the BEC. The BEC will ensure that a written response is provided to the RAB in a timely manner.

RAB Subcommittee

8. On April 21, 1999, the RAB concurred that only one subcommittee is necessary to provide a concentrated focus on environmental cleanup issues. Therefore, the existing relevant subcommittees envisioned in the original "Mission Statement and Operating Procedures" dated February 28, 1995, have been dissolved, and incorporated into one subcommittee.

a. Membership on the subcommittee will be comprised of volunteers from the RAB, or may be selected by the BEC and the community co-chair.

b. The regular bimonthly RAB subcommittee meeting will continue to be scheduled for the last Wednesday of the month alternating with the regular meeting of the full RAB held at Irvine City Hall, Conference and Training Center, Irvine, California.

c. The subcommittee will set their own agendas and meetings and will be open to the public. The subcommittee chair will notify the BEC and community co-chair of all meeting times and places including additional subcommittee meetings other than the regularly scheduled bimonthly subcommittee meeting.

d. The subcommittee will elect a chair. The subcommittee membership may dismiss a subcommittee chair by a majority vote. Subcommittee chair removal is determined at the meeting where removal is addressed by majority vote of the RAB members present.

e. Membership on the subcommittee will include the RAB community co-chair.

f. Subcommittee status will be reviewed annually, in May, to determine if changes are needed or the continued existence is required.

g. The RAB subcommittee may establish ad hoc subcommittees for specific issues and purposes that would focus efforts on a short-term basis.

h. The subcommittee may request the participation, involvement, and advice of regulatory agency members.

9. MCAS El Toro has established an information repository for public documents relating to restoration activities at MCAS El Toro. The repository is located at the Heritage Park Regional Library, 14361 Yale Avenue, Irvine, CA 92714. RAB members, as well as the general public, are authorized access to any documents, studies or information, which have been placed in the repository or distributed at RAB meetings. The community co-chair will be provided one (1) copy of all draft documents. The subcommittee will be provided up to seven (7) copies of draft documents.

IV. Effective Date and Amendments

a. The effective date of this mission statement and operating procedures shall be the date that the last signatory signs this mission statement and operating procedures.

b. This mission statement and operating procedures may be amended by a majority vote of the RAB members present. Amendments must be consistent with the MCAS El Toro Federal Facility Agreement (FFA), and the statues stated in Part 11 of the mission statement and operating procedures, (Basis and Authority for this Mission Statement and Operating Procedures).

V. Terms and Conditions

a. The terms and conditions of this RAB mission statement and operating procedures, and DONs endorsement thereof, shall not be construed to create any legally enforceable rights, claims or remedies against DON or commitments or obligations on the part of DON, and shall be construed in a manner that is consistent with CERCLA, 10 U.S.C. Section 2705, and 40 CFR Part 300.

VI. Termination

a. This mission statement and operating procedures will be terminated upon completion of requirements as stated in the FFA. However, after implementation of the final remedial design, it may be terminated earlier upon a majority vote of the RAB membership.

VII. Signatories to the Membership Mission Statement and Operating Procedures

IN WITNESS WHEREOF, we have set our hand this _____ day of _____ 1995.

MCAS El Toro BRAC Environmental Coordinator

RAB Community Co-Chair

U. S. Environmental Protection Agency RPM

California Department of Toxic Substances Control RPM

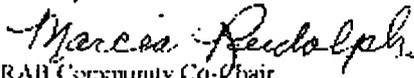
The original "Mission Statement and Operating Procedures", dated February 28, 1995, is on file at Marine Corps Air Station (MCAS) El Toro, Environment and Safety. It was signed by Mr. Joseph Joyce, Base Realignment and Closure (BRAC), Environmental Coordinator (BEC), Ms. Marcia Rudolph, Restoration Advisory Board (RAB), Community Co-chair, Ms. Bonnie Arthur, Environmental Protection Agency (EPA), Remedial Project Manager, and Mr. Juan Jimenez, Department of Toxic Substances Control (DTSC), Remedial Project Manager.

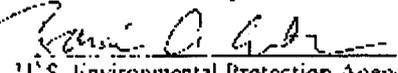
Shown below is an excerpt from the original "Mission Statement and Operating Procedures", dated February 28, 1995 with signatures of the above-mentioned individuals.

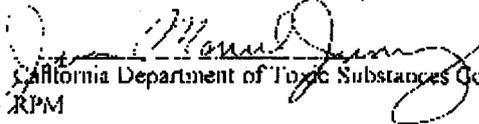
VII. Signatories to the Membership Mission Statement and Operating Procedures

IN WITNESS WHEREOF, we have set our hand this 28th day of FEBRUARY 1995


MCAS El Toro BRAC Environmental Coordinator


RAB Community Co-Chair


U.S. Environmental Protection Agency RPM


California Department of Toxic Substances Control
RPM

2. What has been your experience working as a member of a diverse group with common goals?

- 3 Please indicate if you are interested in being considered for the Community Co-Chairperson position on the RAB by checking the space below:

Yes, I would like to be considered.

4. Are you willing to serve a two (2) year term as a member of this RAB?

Yes, I am willing- to serve for two (2) years.

5. By submitting this signed application, you are aware of the time commitment that this appointment will require of you.
6. By submitting this signed application, you willingly agree to work cooperatively with other members of the committee to ensure efficient use of time for addressing community issues related to environmental restoration of the Station.

Applicant Signature

Date

Please return your completed application to:

Dean Gould
BRAC Environmental Coordinator
Base Realignment and Closure, Environmental Division
P.O. Box 51718
Irvine, CA 92619-1718

(949) 726-5398
FAX (949) 726-6586

San Diego office: (619) 532-0784

MCAS El Toro

Installation Restoration Program

MAILING LIST COUPON

If you would like to be on the mailing list to receive information about environmental restoration activities at MCAS El Toro, please complete the coupon below and mail to:

Base Realignment and Closure
Attn: Environmental, Ms. Marge Flesch
P.O. Box 51718
Irvine, CA 92619-1718

- Add me to the MCAS El Toro Installation Restoration Program mailing list.
- Send me information on Restoration Advisory Board membership.

Name _____

Street _____

City _____ State _____ Zip Code _____

Affiliation (optional) _____ Telephone _____

Administrative Record File

- Located at MCAS El Toro – BRAC Office, Marine Way, Building 368, 2nd floor
- Anyone is welcome to review documents in the file
- To view the documents, schedule an appointment by calling:
 - Ms. Marge Flesch at (949) 726-5398

Information Repository

- Located at Heritage Park Regional Library in Irvine
 - Address: 14361 Yale Avenue, Irvine
 - Hours: Monday-Thursday, 10 am to 9 pm
Friday and Saturday, 10 am to 5 pm
Sunday 12 pm to 5 pm
 - Phone: (949) 551-7151

The Library is temporarily closed for renovation. It is scheduled to reopen on Monday, June 17, 2002.

- Viewing of MCAS El Toro documents can be done at the BRAC Office in Bldg. 368 at MCAS El Toro. To view the documents, schedule an appointment by calling:

Ms. Marge Flesch at (949) 726-5398

Internet Access Environmental Web Sites

Southwest Division Naval Facilities Engineering Command Web Site:

<http://www.efdswnavfac.navy.mil/environmental/envhome.htm>

Department of Defense - Environmental Web Page:

<http://www.dtic.mil/environdod/>

U.S. EPA:

www.epa.gov (homepage)

www.epa.gov/superfund/index.html (Superfund)

www.epa.gov/ncea (National Center for Environmental Assessment)

www.epa.gov/fedrgstr (Federal Register Environmental Documents)

Cal/EPA:

www.calepa.ca.gov (homepage)

www.dtsc.ca.gov (Department of Toxic Substances Control)

www.swrcb.ca.gov/ (Santa Ana Regional Water Quality Control Board)

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1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132**

TELEPHONE: (619) 532-3676

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Marine Corps/Navy RAB Co-Chair

Dean Gould

BRAC Environmental Coordinator

Base Realignment and Closure, Environmental Division

E-mail:

San Diego phone and fax:

(619) 532-0784

FAX (619) 532-0780

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Where To Get More Information:

Copies of Remedial Investigation reports, other key documents, and additional information relating to environmental cleanup activities at MCAS El Toro are available for public review at the following information repository:

Heritage Park Regional Library
14361 Yale Avenue
Irvine, CA
(949) 551-7151

Current hours:
Monday-Thursday 10am-9pm
Friday-Saturday 10am-5pm
Sunday 12pm-5pm

Key Project Representatives:

Mr. Dean Gould*
BRAC Environmental Coordinator
Base Realignment and Closure,
Environmental Division
MCAS El Toro
P.O. Box 51718
Irvine, CA 92619-1718
(949) 726-5398 or (619) 532-0784

Ms. Nicole Moutoux*
Project Manager
U.S. EPA Region IX
75 Hawthorne St. (SFD-H-8)
San Francisco, CA 94105
(415) 972-3012

Ms. Triss Chesney*
Project Manager
Cal-EPA, Department of Toxic
Substances Control
5796 Corporate Avenue
Cypress, CA 90630
(714) 484-5395

Ms. Patricia Hannon*
Project Manager
Cal-EPA, Regional Water Quality
Control Board
3737 Main Street, Suite 500
Riverside, CA 92501-3338
(909) 782-4498

* BRAC Cleanup Team (BCT) Member

Ms. Viola Cooper
Community Involvement Coordinator
Superfund Division
75 Hawthorne Street (SFD-3)
San Francisco, CA 94105
U.S. EPA, Region IX
(415) 972-3243
(800) 231-3075

Ms. Kim Foreman
Public Participation Specialist
Cal-EPA, Department of Toxic
Substances Control
5796 Corporate Avenue
Cypress, CA 90630
(714) 484-5324

Steven Sharp

**Environmental Health Division
Orange County Health Care Agency**

**2009 East Edinger Avenue
Santa Ana, CA 92705**

(714) 667-3623

FAX (714) 972-0749

Glossary of Technical Terms

Air Stripping: A treatment technology that transforms VOCs in groundwater to gas for removal and treatment.

Aquifer: A particular zone or layer of rock or soil below the earth's surface through which groundwater moves in sufficient quantity to serve as a source of water.

Cleanup Goals: Chemical concentration levels that are the goals of the remedial action. Once the cleanup goals have been achieved, the remedy is considered protective of human health and the environment.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): Commonly known as the Superfund. This law authorizes EPA to respond to past hazardous waste problems that may endanger public health and the environment. CERCLA was authorized and amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA).

Domestic Use: Use of water for drinking, cooking, and bathing.

Downgradient: Groundwater that is downstream of an area of soil or groundwater contamination.

Extraction Wells: Wells used to pump groundwater to the surface for treatment or for use.

Feasibility Study (FS): An analysis of cleanup or remedial alternatives to evaluate their effectiveness and to enable selection of a preferred alternative.

Federal Facility Agreement: A voluntary agreement entered into by the Navy, U.S. EPA, and Cal-EPA (Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board (RWQCB)) establishing an overall framework for how the investigation and cleanup of MCAS El Toro is to be conducted.

Groundwater: Underground water that fills pores in soil or openings in rocks.

Infiltration: Process by which dissolved chemical constituents are carried by water through the soil.

Intermediate Zone: A generally low permeability layer that separates that shallow groundwater unit from the principal aquifer at MCAS El Toro.

Maximum Contaminant Levels (MCLs): The maximum permissible level of a contaminant in water delivered to any user of a public water system. MCLs are enforceable standards.

Maximum Contaminant Level Goal: A non-enforceable concentration of a drinking-water contaminant, set at a level at which no known adverse effects on human health occur.

Monitored Natural Attenuation: Refers to the routine sampling and testing of groundwater to assess the cleanup effectiveness of natural attenuation processes.

Monitoring Well: Wells drilled at specific locations either on or near a hazardous waste site, for the purpose of determining direction of groundwater flow, types and concentrations of contaminants present, or vertical or horizontal extent of contamination.

Natural Attenuation: The process by which a compound is reduced in concentration over time, through adsorption, degradation, dilution, and/or transformation.

Nitrates: Compounds containing nitrogen which dissolve in water and may have harmful effects on humans and animals. Nitrates are commonly used in fertilizers.

Operable Unit (OU): Term for each of a number of separate activities undertaken as part of a Superfund site cleanup.

Plume: A three-dimensional zone within the groundwater aquifer containing contaminants that generally move in the direction of, and with, groundwater flow.

Principal Aquifer: The main (regional) water-bearing aquifer in the vicinity of MCAS El Toro.

Rebound: The tendency of soil gas concentrations to increase after SVE is turned off.

Record of Decision (ROD): A public document that explains what cleanup alternative will be used at a specific NPL site. The ROD is based on information and technical analysis generated during the remedial investigation/feasibility study and consideration of public comments and community concerns.

Remedial Action (RA): The actual construction or implementation phase that follows the remedial design of the selected cleanup alternative at a Superfund site.

Remedial Design (RD): The design of the selected cleanup alternative for a Superfund site.

Remedial Investigation (RI): One of the two major studies that must be completed before a decision can be made about how to clean up a Superfund site. (The FS is the second major study.) The RI is designed to determine the nature and extent of contamination at the site.

Shallow Groundwater Unit: The shallowest water-bearing zone beneath MCAS El Toro.

Soil Gas: Gas found in soil pore space. In contaminated areas, soil gas may include VOCs.

Soil Vapor Extraction (SVE): A process whereby contaminated soil gas is brought to the surface for treatment.

Trichloroethene (TCE): A volatile organic compound that has been widely used as an industrial solvent. TCE is a colorless, odorless liquid that, when inhaled or ingested in large amounts, can cause irritation of the nose, throat, and eyes, nausea, blurry vision, or dermatitis. EPA has classified TCE as a "probable human carcinogen."

Total Dissolved Solids (TDS): Used to reflect salinity of groundwater.

Upgradient: Groundwater that is upstream of an area of soil or groundwater contamination.

Volatile Organic Compound (VOC): An organic (carbon containing) compound that evaporates readily at room temperature. VOCs are commonly used in dry cleaning, metal plating, and machinery degreasing operations.

Water Quality Standards: State-adopted and U.S. EPA-approved ambient standards for water bodies. The standards cover the use of the water body and the water quality criteria which must be met to protect the designated use or uses.

INTRODUCTION SECTION

United States Marine Corps

Base Realignment and Closure Business Plan

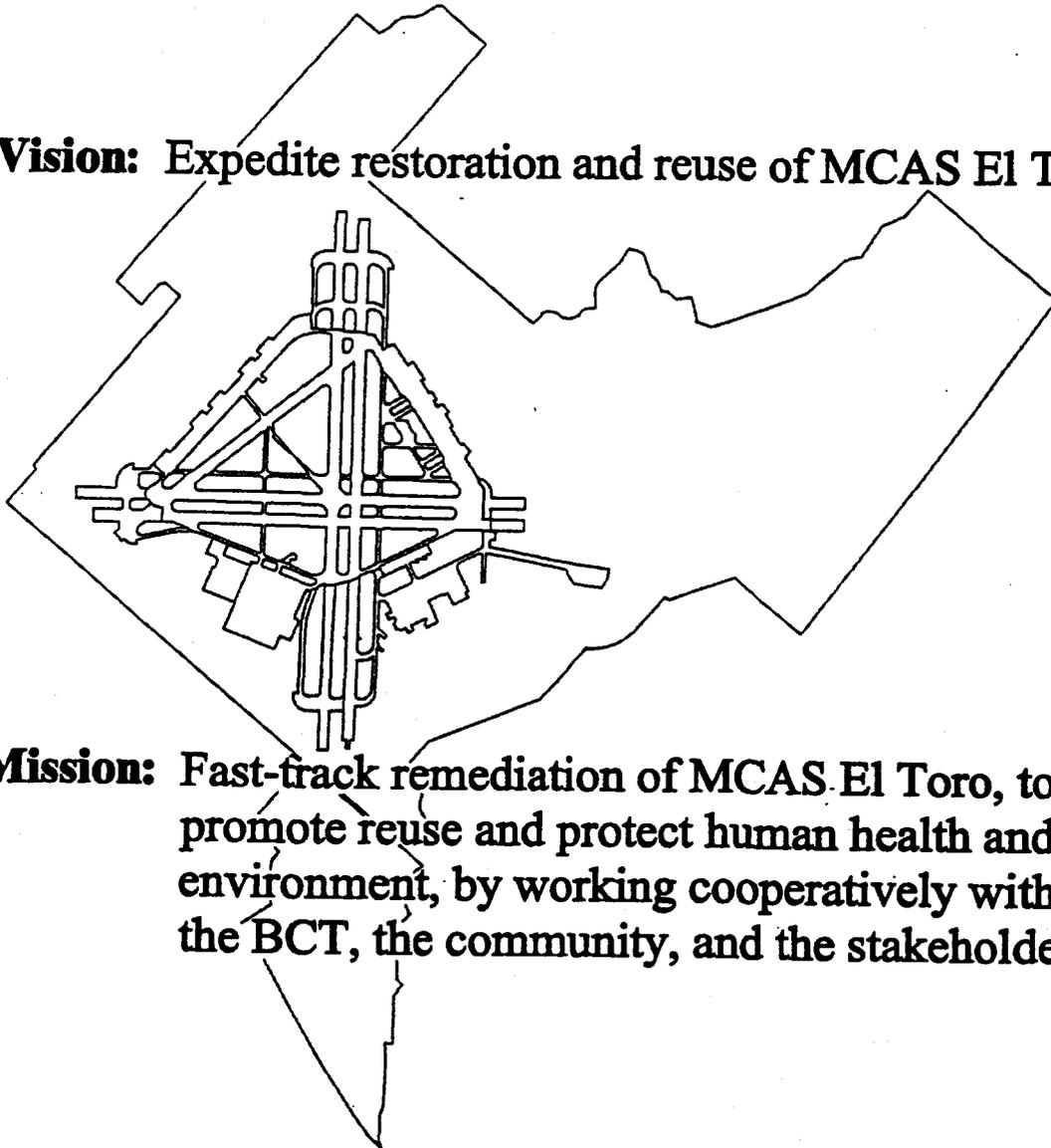


For
**Marine Corps Air Station
El Toro, CA**

MARCH 2002

Vision and Mission Statements

Vision: Expedite restoration and reuse of MCAS El Toro.



Mission: Fast-track remediation of MCAS El Toro, to promote reuse and protect human health and the environment, by working cooperatively with the BCT, the community, and the stakeholders.

INTRODUCTION

The Department of the Navy (DoN) completed the realignment and closure of Marine Corps Air Station (MCAS) El Toro (Station) on 2 July 1999, in accordance with the Base Realignment and Closure Act (1993) (BRAC III). The location of the Station is shown on Figure 1. In 1993, the DoN organized a Base Realignment and Closure (BRAC) Cleanup Team (BCT) to manage and coordinate closure activities and to prepare an annual BRAC Cleanup Plan (BCP). The DoN published the initial BCP in 1994 and issued annual updates in 1995, 1996, 1997, 1998, and 1999. In 1999, the BCT agreed to publish a BRAC Business Plan (Business Plan) for the Year 2000 update. The DoN established the Business Plan, a ten to fifteen page document that is comparable to an extended executive summary, as an alternative to the BCP for installations with continuing environmental restoration programs. The Business Plan provides the status of, management and response strategies for, and action items related to the environmental restoration and compliance programs at MCAS El Toro. The Business Plan presents information available as of 31 December 2001, and describes the most significant environmental Locations of Concern, the acceleration initiatives implemented at MCAS El Toro, and BRAC projects under way. Exhibits, tables, and figures provide additional information pertaining to the environmental Locations of Concern (LOCs).

The scope of the Business Plan 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 Priorities List under CERCLA in February 1990, and the DoN, the United States Environmental Protection Agency, Region 9, the California Department of Health Services (part of which is now the California Department of Toxic Substances Control), and the California Regional Water Quality Control Board, Santa Ana Region entered into a Federal Facilities Agreement (FFA) that establishes a procedural framework and schedule for developing, implementing, and monitoring appropriate response actions. The Business Plan is a planning document; therefore, the information and assumptions presented may not have complete approval from federal and state regulatory agencies. The Business Plan is a dynamic document that is updated regularly to reflect the current status of response actions and changes in strategies or plans that affect the ultimate restoration and disposal of MCAS El Toro property. Comments from various sources, including major

claimants, DoN activities, and federal and state regulatory agencies, were evaluated and considered for inclusion during the preparation of this Business Plan.

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 DoN. Eight Department of Defense (DoD) and federal agencies submitted formal applications for MCAS El Toro property during the federal screening process. 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 (DOI) for the Habitat Reserve, the Federal Aviation Administration (FAA), and the California Air National Guard. The LRA recommended that the remaining requests be denied. A surplus property determination was issued on 31 August 1998. In 1999, DOI withdrew their request for the Habitat Reserve and the FAA expanded its request to include the Habitat Reserve. The 901 acres (corresponding to reuse parcel 5a1) was transferred to FAA on 3 December 2001. The habitat area will be managed for FAA by the United States Fish and Wildlife Service (USFWS).

The suitability of property for transfer was evaluated and documented in the Environmental Baseline Survey (EBS) process, and the Final EBS was published in 1995. Property designated as Environmental Condition of Property (ECP) area types 1 through 4 is environmentally suitable for transfer by deed, and approximately 87 percent of the 4,738 acres of Station property is designated as types 1 through 4. The remaining real property is identified as area types 5, 6, and 7. The extent of land classified as area types 5, 6, and 7 is approximately 252 acres (5 percent), 322 acres (7 percent), and 3 acres (less than 1 percent), respectively. Landfill sites which comprise less than 100 acres will require permanent use restrictions following the completion of the remedial actions, while the remaining property is anticipated to be suitable for unrestricted use following the completion of the remedial actions. The ECP area types are described in Exhibit 1.

Exhibit 1. Environmental Condition of Property (ECP) Types

ECP Type	Description
1	Areas where no release or disposal of hazardous substances or petroleum products (including migration) has occurred.
2	Areas where only release or disposal of petroleum products has occurred.
3	Areas of contamination below action levels.
4	Areas where all remedial action has been taken.
5	Areas of known contamination with removal and/or remedial action underway.
6	Areas of known contamination where required response actions have not been implemented.
7	Areas that are unevaluated or that require further evaluation.

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 non-aviation uses. Reuse Alternative B -Cargo/General Aviation Use - provided for a cargo and general aviation airport and compatible non-aviation uses. Reuse Alternative C - Non-aviation-provided for non-aviation 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 a more detailed study of a full-service commercial passenger and cargo airport, as well as compatible non-aviation 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.

The scheduling and prioritizing of parcels for reuse based on the final CRP was provided by the LRA in 1997. The closure programs summarized in this Business Plan are not anticipated to be adversely impacted by the LRA's parcel prioritization schedule.

The Bake Parkway/Interstate 5 public highway expansion project was completed and resulted in the transfer of approximately 25 acres of MCAS El Toro property in 1998.

In June 1999, Cooperative Agreement N68711-99-2-6504 for caretaker services to protect, secure, and maintain MCAS El Toro was executed with the County of Orange, extending through 31 August 2000. The expiration of the cooperative agreement for caretaker services was concurrent with the execution of a Master Lease, effective 31 August 2000. The Master Lease has a term of five (5) years beginning on 1 September 2000, and the terms and conditions of the Master Lease are identified in *Interim Lease Between The United States of America and County of Orange, California For Property at Marine Corps Air Station, El Toro* dated 31 August 2000. The Master Lease encompasses the entire Station (fence line - to - fence line) with the exceptions of parcels 5a, 13e, and a portion of 12b. The Master Lease included the areas that were identified in the interim lease of 1999: the Golf Course (approximately 225 acres); the Child Development Center (Buildings 656 and 873); the Officers' Club (Building 791); the Horse Stables (approximately 30 acres); the Recreational Vehicle (RV) Storage Area; the Indoor Training Pool (Building 839); and Building 83.

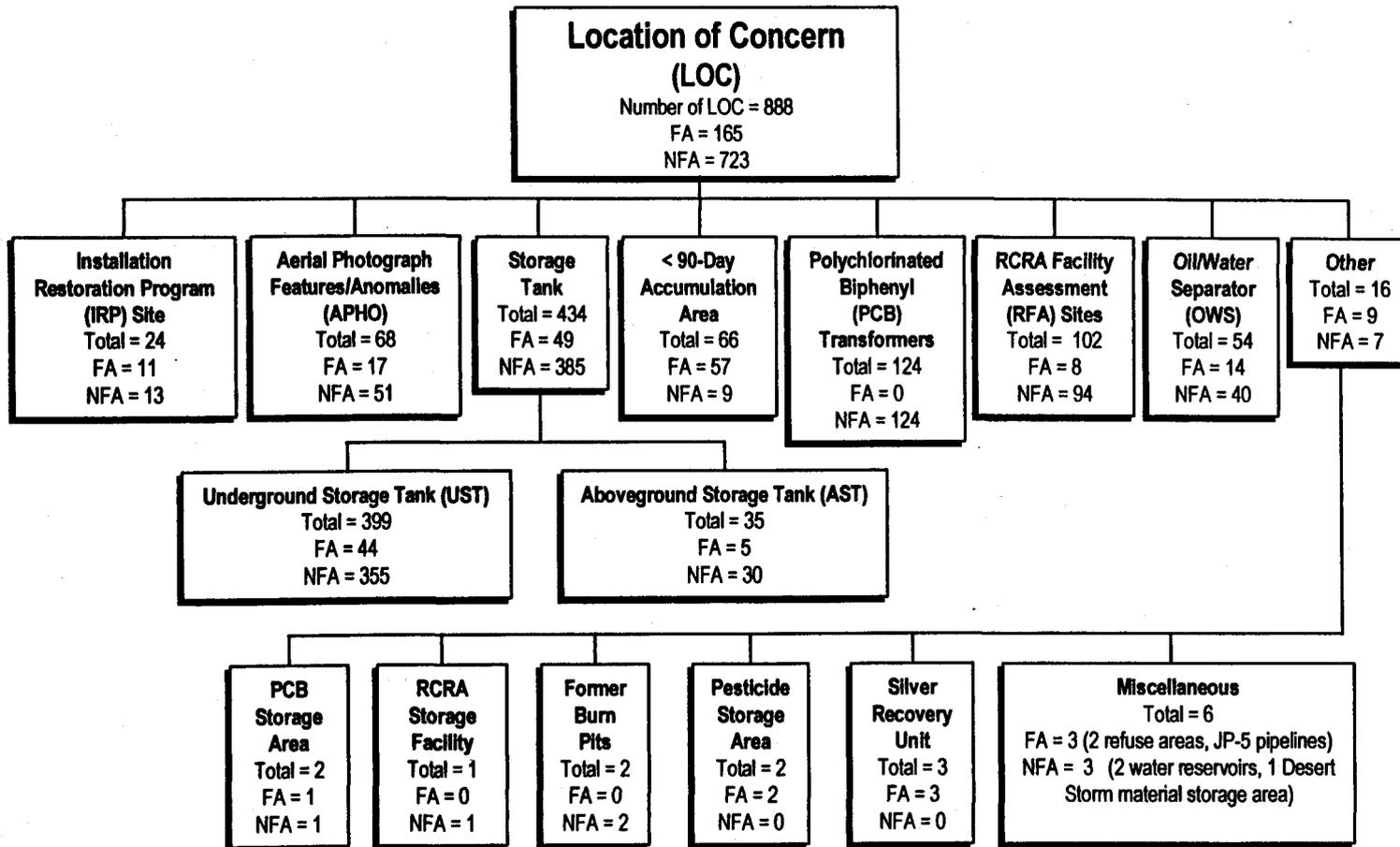
The County of Orange identified a detailed CRP for MCAS El Toro in the Draft Environmental Impact Report (EIR 573) in December 1999, and the proposed future land uses are identified on Figure 2 of this Business Plan. The County of Orange certified their EIR on 23 October 2001.

STATUS OF ENVIRONMENTAL RESTORATION PROGRAM

A total of 888 environmental Locations of Concern, including twenty-four (24) Installation Restoration Program Sites (Sites), have been identified at MCAS El Toro. A Location of Concern (LOC) is defined as any identified location or area that is potentially contaminated or is a potential source of contamination. Several new LOCs were added to the program during 2001: Above-ground Storage Tank (AST) 314, AST 315, AST 658, Underground Storage Tank (UST) 800G, and Temporary Accumulation Area (TAA) 651B. Silver Recovery Unit (SRU) 3 was expanded to include three former silver recovery unit (SRU) sites at Buildings 46, 133, and 457 as well as the former SRU at Building 312.

Exhibits 2, 3 and 4 summarize the types, numbers, and status of different LOCs at the Station.

**Exhibit 2 - Location of Concern Distribution
(as of 31 December 2001)**



Footnotes:

FA = Further Action or Assessment Required
NFA = No Further Action Required

Exhibit 3 – Distribution of 888 LOCs (as of 31 December 2001)

	IRP SITES	APHO SITES	STORAGE TANK SITES	<90-DAY ACCUMULATION AREAS (TAAs)	PCB TRANSFORMERS	RFA SITES	OILWATER SEPARATOR SITES	OTHER
TOTAL	24	68	434	66	124	102	54	16
NFA	13	51	385	9	124	94	40	7
Further Action Required (includes LOCs with NFA Decision Documents in Review or In Development)	11	17	49	57	0	8	14	9

Exhibit 4 – New Sites Added during 2001

Description	APHO SITES	UNDERGROUND STORAGE TANKS	ABOVEGROUND STORAGE TANKS	<90-DAY ACCUMULATION AREAS (TAAs)	RFA SITES	OILWATER SEPARATOR SITES
New Sites	0	1	3	1	0	0

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

- Agency concurrence on a No Action Record of Decision (ROD) for Sites 7 and 14 in 2001;
- Agency concurrence on a No Action ROD for eleven sites from OU-3 and OU-2A (Sites 4, 6, 9, 10, 13, 15, 19, 20, 21, 22, and 25) in September 1997;
- Agency concurrence on the ROD for Site 11 in September 1999;
- Agency concurrence on the OU-2A interim ROD for the vadose zone at Site 24 in September 1997;
- Agency concurrence on the OU-2B interim ROD for Sites 2 and 17 in July 2000;
- Agency approval of the polynuclear aromatic hydrocarbon (PAH) Reference Study (prepared by Bechtel National Incorporated in 1996) that allowed the recategorization of 448 acres of land from area type 7 to area type 3, thus allowing this land to be transferable by deed; and
- Completion of two time-critical removal actions at Sites 2 and 17 in 1997 and one non-time-critical removal action at Site 19 in 1996.

Installation Restoration Program. Currently, a total of 24 sites are being managed 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. These sites are grouped into three OUs: OU-1, OU-2, and OU-3. The following is a brief summary of the site groupings, current status, and FFA 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. The Interim Draft Final Proposed Plan was submitted to the BCT in August 2000. The agreement between Orange County and Irvine Ranch Water District and the DOJ in support of a multipurpose project (the Irvine Desalter Project) to extract and treat regional groundwater contaminated with volatile organic compounds was signed in 2001. The Final Proposed Plan for groundwater at Sites 18 and 24 (OU-2A) was released for public comment in November 2001; The ROD for OU-1 and OU-2A, which will finalize the remedial decision for groundwater, is scheduled to be prepared in the year 2002;
- OU-2 consists of three subunits (OU-2A, OU-2B, and OU-2C) and addresses potential source areas of groundwater contamination.
 - **OU-2A:** OU-2A includes Site 24 (the Volatile Organic Compound (VOC) Source Area) and Site 25 (the Major Drainages). **Site 24:** RI and Draft Phase II FS Reports for Site 24 were submitted in June and August 1996, respectively. Site 24 – the Volatile Organic Compound (VOC) Source Area – encompasses approximately 200 acres in the southwestern section of the Station. The planned reuse for Site 24 is cargo storage. The VOCs at Site 24 may have come from solvents containing trichloroethene (TCE) or perchloroethene (PCE) that were used at Site 24 until approximately 1975. Primary sources include degreaser tanks, storm drains and industrial waste sewers, and washracks. Pilot studies utilizing portable soil vapor extraction (SVE) treatment units were conducted during the period from approximately 1996 through 1998. The interim ROD (vadose zone only) for Site 24 was signed in September 1997, implementation of the final remedy – SVE treatment - commenced in 1999, confirmation sampling of the vadose zone was completed in 2000, and the draft closure report was completed in June 2001. The Final Proposed Plan for groundwater at Sites 18 and 24 was released for public comment in November 2001. The ROD for OU-2A and OU-1, which will finalize the remedial decision for groundwater, is scheduled to be prepared in the year 2002. **Site 25:** The Draft Final ROD for no action was signed in 1997.

- **OU-2B:** OU-2B addresses inactive landfill **Site 2** (Magazine Road Landfill) and **Site 17** (Communication Station Landfill). Sites 2 and 17 are located in the northeastern section of the Station in an area designated for future use as a habitat reserve. The former operational landfill units at Site 2 encompass approximately 27 acres, and the former operational landfill unit at Site 17 encompasses approximately 11 acres. Solid wastes from MCAS El Toro were disposed of at Sites 2 and 17. Suspected types of wastes include construction debris, municipal-type waste from Station operations, and oils and fuels. TCE and PCE have been detected in the groundwater at Site 2. The Draft ROD identified the preferred remedy for the former operational landfill areas at Sites 2 and 17 - a four-foot thick single-layer soil cover. The Final Interim ROD was signed in July 2000. The Final ROD, a future document, will address management of the VOC groundwater plumes at Site 2 and will address radiological contamination, if any, at both sites.

- **OU-2C:** OU-2C addresses inactive landfill **Site 3** (Original Landfill) and **Site 5** (Perimeter Road Landfill). Site 3 encompasses approximately 11 acres in the northeastern section of the Station. Site 5 encompasses approximately 1.8 acres in the southeastern section of the Station. Reportedly, any waste generated on the Station could have been disposed of at these sites. The wastes are likely to have included municipal solid waste, fuels, and solvents. Site 3 included an incinerator, and incinerator ash was probably disposed of within the landfill. The Proposed Plan identified the preferred remedy for the former operational landfill areas at Sites 3 and 5 - a four-foot thick single-layer soil cover. The preferred alternative is based upon U. S. EPA's presumptive remedy approach to landfills. Following the receipt of public comments, the preferred remedy was changed to a single-barrier cap with a two-foot foundation layer, a flexible membrane liner (FML), and a two-foot soil cover. The single-barrier cap design allows for future irrigation of the landfill cover. The Draft ROD was completed in March 1999, and the Draft Final ROD is expected to be completed in the year 2002.

- **OU-3** addresses the remaining sites and information pertaining to the suspected types of wastes at each OU-3 site is presented in Tables 2 and 3. **Sites 4, 6, 9, 10, 13, 15, 19, 20, 21, and 22** were addressed in the ROD for no action sites in 1997; **Sites 7 and 14** were addressed in the ROD for no action sites in 2001. **Site 1** is in the remedial investigation/feasibility study phase. A Draft Final ROD for **Sites 8 and 12** is in development. **Site 11** is in the remedial design/remedial action phase. A pilot study for multi-phase extraction at **Site 16** was completed in April 2001; the results of the pilot study were incorporated into the Draft Final Feasibility Study for Site 16 which was issued in June 2001.

The Navy continued to provide notification to the public for Restoration Advisory Board meetings and agendas, to maintain the Information Repository at the Heritage Park Regional Library, and to update the mailing list.

RCRA Facility Assessment Sites. A RCRA Facility Assessment (RFA) was performed at the Station between 1990 and 1993. The RFA included the investigation of 305 solid waste management units (SWMUs)/areas of concern (AOCs). However, 3 units were located at MCAS Tustin, 15 units were duplicates of other SWMUs/AOCs, and 4 SWMUs/AOCs were researched and identified as phantom sites. Of the remaining 283 SWMUs/AOCs, 140 were included in a sampling effort. The RFA report was approved by DTSC contingent upon performance of additional investigation at 14 SWMUs/AOCs. A final addendum to the RFA report was completed on 31 May 1996. The addendum presents results and recommendations for the 14 SWMUs/AOCs and recommends closure strategies for 73 temporary accumulation areas. The status of SWMUs/AOCs, as presented in the RFA documentation, is summarized as follows:

- 8 addressed in the IRP;
- 1 addressed in the PCB category of LOCs;
- 76 addressed as USTs;
- 30 addressed as OWSs;
- 66 addressed as Temporary Accumulation Areas (TAAs); and
- 102 addressed as RFA sites, of which 14 required further action or assessment.

The number of SWMUs/AOCs (283) is greater than the number of RFA sites indicated in Exhibit 2, 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 and there are TAAs that have been identified as SWMUs/AOCs. Exhibit 2 refers to these SWMUs/AOCs as USTs or TAAs instead of as RFA sites.

Compliance Program Sites and Other LOCs. There are several compliance programs in progress at MCAS El Toro that involve different types of LOCs including USTs, less-than-90-day accumulation areas, polychlorinated biphenyl (PCB)-containing transformers, oil/water separators, aerial photograph anomalies, and miscellaneous sites. The status of each of the types of LOCs is summarized in Exhibit 2.

INITIATIVES FOR ACCELERATING CLEANUP

The BCT conducted a "bottom up" review of the environmental programs at MCAS El Toro in accordance with DoD guidance on establishing BCTs (DoD 1993). During the review process, the following nine issues were addressed to identify opportunities for accelerating cleanup activities necessary to facilitate conveyance of real property at the Station.

1. **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.

2. **Removal Actions.** A UST Tiger Team addressed compliance and closure issues related to USTs on-Station during the 1995-1997 time period, and the Tiger Team worked to identify USTs that could be taken out of service without adversely impacting Station operations. All tanks within the former Tank Farms 1, 2, 3, 4, 5, and 6 have been removed, and most of the tank sites have been closed by the regulatory oversight agencies. Soil vapor extraction (SVE) technology has been utilized to remediate the vadose zone at Tank Farm 2, the Tank 398 site, UST Group 651, and UST Site 364A.

Time-critical removal actions were implemented at IRP Sites 2 and 17 (former landfills) during 1996 and 1997, and a non-time-critical removal action was conducted at IRP Site 19 (Unit 2) in 1996. These removal actions were designed to reduce the risk to human health and the environment and to expedite cost-effective cleanup.

A pilot study utilizing multi-phase extraction for remediation of a combined petroleum hydrocarbon and chlorinated solvent release was completed at Site 16 in April 2001.

3. **Clean Properties.** The suitability of property for transfer is evaluated through the EBS process. The BCT and the LRA will work together to determine how to transfer properties expeditiously.
3. **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.
4. **Contracting Procedures.** SWDIV management of the CLEAN, RAC, and indefinite-quantity contracts is based on a cooperative and interactive approach.
5. **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 the County of Orange) of environmental restoration activities while maintaining a commitment for efficient and cost-effective cleanup at MCAS El Toro.

6. **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. Acceleration of ongoing or future cleanup activities will continue to be in strict compliance with applicable rules, regulations, and public health and safety requirements. Remediation strategies and plans for cleanup activities have been shared with representatives from the known or anticipated reuse organizations including technical, operational, reuse, and administrative specialists.

8. **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. Presumptive remedies are expected to ensure 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.

9. **Partnering.** A partnering agreement among the Project Team is essential for efficient management of the base closure process. 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.

Our mutually agreed upon ethical standards are listed below.

CODE OF ETHICS

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

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

Through 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.

SUMMARY OF CURRENT AND PLANNED BCT ACTION ITEMS

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 for 2001 includes:

Environmental Program Highlights for 2001.

- Signed the agreement between Orange County and Irvine Ranch Water District and the United States (represented by the Department of Justice (DOJ)) in support of a multipurpose project (the Irvine Desalter Project) to remediate regional groundwater contaminated with volatile organic compounds;
- Issued the Final Proposed Plan for Sites 18 and 24 for public comment;
- Conducted six (6) Restoration Advisory Board (RAB) meetings addressing a vast array of issues of public interest during 2001;
- Conducted CERCLA groundwater monitoring activities and investigated perchlorates and radionuclides in groundwater;
- Signed the Final ROD for Sites 7 and 14;
- Conducted the Radiological Survey;
- Completed the Site 16 multi-phase extraction pilot study.
- Completed the draft vadose zone closure report for Site 24;
- Conducted Soil Vapor Extraction (SVE) treatment at UST Group 651 and former UST Site 364A with removal of more than 30,000 pounds of petroleum hydrocarbons during 2001, and conducted SVE testing activities at UST 1B and UST 98A;
- Continued bioventing pilot test activities at Tank Farm 555;
- Conducted testing of sections of JP-5 pipeline in preparation for closure;
- Conducted site verification sampling activities at UST sites, AST sites, OWS sites, and aerial photograph anomaly (APHO) sites, conducted testing activities at

segments of the JP-5 pipelines, and completed closure documentation for more than 20 LOCs.

Planned Goals for Year 2002:

- Issue the Draft ROD for Sites 18 and 24 for public comment;
- Issue the Final Focused FS for Site 16;
- Issue the Proposed Plan for Site 16 for public comment;
- Issue the Draft ROD for Site 16 for public comment;
- Complete radiological survey and issue the Draft Radiological Release Report;
- Prepare updated Environmental Baseline Survey;
- Complete Draft Final RODs for Sites 3 and 5;
- Complete the Draft RI Report for Site 1;
- Issue the Draft Final Vadose Zone Closure Report for Site 24;
- Conduct soil sampling activities for lead-based paint at the housing areas;
- Continue coordination with United States Fish and Wildlife Service, the Integrated Waste Management Board/Local Enforcement Agency, the LRA, and the BCT during the design of landfill covers for Sites 2 and 17 and complete the remedial design for Sites 2 and 17;
- Update the Community Relations Plan;
- Continue groundwater monitoring activities and evaluation of groundwater data; and
- Conduct the site verification and/or remediation activities at UST, OWS, AST, fuel pipeline, and APHO sites.

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

Tables 2 and 3 identify the status of each LOC, and Table 4 identifies the buildings with known asbestos. The current reuse parcel identifier, for the Concept B Reuse Plan of 1999 (County of Orange Draft Environmental Impact Report (EIR) 573), is included for each LOC in Tables 2 and 3. Figures 1, 2, and 3 show the vicinity of the Station and information pertaining to the most current reuse plan (preferred land use plan (Concept B)). Figures 4 through 12 show each type of LOC, Figure 13 shows the IRP Site boundaries with the preferred land use plan, and Figures 14 and 15 show the environmental condition of property.

SCHEDULE/CRITICAL MILESTONES

The Installation Restoration Program milestones are identified in the Federal Facilities Agreement (FFA) for the Marine Corps Air Station, El Toro. The FFA schedule is usually revised or updated three or more times per year.

Critical milestones for the environmental restoration program are presented in Table 5. Historical information pertaining to the expenditures for each Installation Restoration Program Site and cost to complete estimates are presented in Table 6.

TABLE 5. CRITICAL ENVIRONMENTAL RESTORATION PROGRAM AND SELECTED PROPERTY DISPOSAL MILESTONES
Marine Corps Air Station, El Toro (Status as of 31 December 2001)

Activity or Site Identification	Estimated (E) or Actual (A) Completion Date	Estimated % Complete (as of 31 December 2001)	Notes on Remaining Activities and/or Description of No Action Decision Document
Station Closure	7/2/1999 (A)	100	
Public Benefit Conveyance(s)	April 2005 (E)	30	
IRP Site 1 – Explosive Ordnance Disposal (EOD) Range	2/5/2004 (E)	10	Completion of RI/FS, PP, ROD, RD, Remediation.
IRP Site 2 – Magazine Road Landfill	1/14/2005 (E)	70	Completion of ROD, RD, Remediation.
IRP Site 3 – Original Landfill	1/14/2005 (E)	60	Completion of ROD, RD, Remediation.
IRP Site 4 – Ferrocene Spill Area	9/30/1997 (A)	100	No Action Record of Decision of 1997
IRP Site 5 – Perimeter Road Landfill	1/14/2005 (E)	60	Completion of ROD, RD, Remediation.
IRP Site 6 – Drop Tank Drainage Area Number 1	9/30/1997 (A)	100	No Action Record of Decision of 1997
IRP Site 7 – Drop Tank Drainage Area Number 2	6/26/2001 (A)	100	Completion of ROD, RD, Remediation.
IRP Site 8 – DRMO Storage Area	1/14/2005 (E)	60	Completion of ROD, RD, Remediation.
IRP Site 9 – Crash Crew Pit Number 1	9/30/1997 (A)	100	No Action Record of Decision of 1997
IRP Site 10 – Petroleum Disposal Area	9/30/1997 (A)	100	No Action Record of Decision of 1997
IRP Site 11 – Transformer Storage Area	1/14/2005 (E)	60	Completion of RD, Remediation.
IRP Site 12 – Sludge Drying Beds	1/14/2005 (E)	60	Completion of ROD, RD, Remediation.
IRP Site 13 – Oil Change Area	9/30/1997 (A)	100	No Action Record of Decision of 1997
IRP Site 14 – Battery Acid Disposal	6/26/2001 (A)	100	Completion of ROD, RD, Remediation.
IRP Site 15 – Suspended Fuel Tanks	9/30/1997 (A)	100	No Action Record of Decision of 1997
IRP Site 16 – Crash Crew Pit Number 2	1/14/2005 (E)	55	Completion of RI/FS, PP, ROD, RD, Remediation.
IRP Site 17 – Communication Station Landfill	1/14/2005 (E)	70	Completion of ROD, RD, Remediation.
IRP Site 18 – Basewide Groundwater	1/14/2022 (E)	60	Completion of PP, ROD, RD, Remediation.
IRP Site 19 – ACER Site	9/30/1997 (A)	100	No Action Record of Decision of 1997
IRP Site 20 – Hobby Shop	9/30/1997 (A)	100	No Action Record of Decision of 1997
IRP Site 21 – Materials Management Group	9/30/1997 (A)	100	No Action Record of Decision of 1997
IRP Site 22 – Tactical Air Fuel Dispensing System	9/30/1997 (A)	100	No Action Record of Decision of 1997
IRP Site 24 – VOC Source Area	1/14/2022 (E)	65	Completion of Remediation.
IRP Site 25 – The Major Drainages	9/30/1997 (A)	100	No Action Record of Decision of 1997
USTs and ASTs	8/1/2004 (E)	88	Completion of site remediation activities
OWSs	8/1/2004 (E)	74	Completion of site remediation activities
TAAAs and SWMUs	8/1/2004 (E)	61	Completion of site remediation activities
APHOs	8/1/2004 (E)	75	Completion of site remediation activities
MSC LOCs (MSC D1, etc.) and PCB Transformers	8/1/2004 (E)	91	Completion of site remediation activities
Historical Radiological Assessment/Radiological Survey	11/22/2002 (E)	60	Completion of survey and report(s).

NOTE: Bold print indicates that no further CERCLA response actions are required at the site.

Table 6. Installation Restoration Program
Approximate Historical Expenditures by Site (through Fiscal Year 2001 (period ending 30 September 2001))

Operable Unit (OU)	Site	FY 1985 (\$000)	FY 1986 (\$000)	FY 1987 (\$000)	FY 1988 (\$000)	FY 1989 (\$000)	FY 1990 (\$000)	FY 1991 (\$000)	FY 1992 (\$000)	FY 1993 (\$000)	FY 1994 (\$000)	FY 1995 (\$000)	FY 1996 (\$000)	FY 1997 (\$000)	FY 1998 (\$000)	FY 1999 (\$000)	FY 2000 (\$000)	FY 2001 (\$000)	TOTAL (\$000)	Estimated Cost to Complete* (\$000)
OU-1	18	3.7	0	846.1	466.4	401.2	102.4	43.0	976.0	2797.0	1513.8	2254.1	3152.8	1779.5	1693.0	1200.0		40.0	17269.0	
OU-2A	24	0	0	0	0	0	0	0	0	0	3201.8	376.6	700.6	3925.8	2408.8	4300.0	416.0	500.0	15413.6	
	25	0	0	0	0	0	0	0	0	0	3201.8	0	93.8	46.7	0	0	0		3342.3	
OU-2B	2	3.7	0	0	9.7	39.7	12.3	27.0	857.0	98.2	1686.6	1420.7	44.1	2429.5	56.7	1900.0	372.0		8585.2	
	17	3.7	0	0	8.8	39.7	12.3	27.0	857.0	98.2	1686.6	17.0	59.7	2429.5	0	800.0	0		6039.5	
OU-2C	3	3.7	0	0	8.8	39.7	12.3	27.0	857.0	98.2	1686.6	17.0	35.2	26.9	0	100.0	338.0	500.0	3412.4	
	5	3.7	0	0	8.8	39.7	12.3	27.0	857.0	98.2	1686.6	17.0	35.2	26.9	0	100.0	361.0	500.0	3412.4	
OU-3	1	3.7	0	0	1.4	1.1	12.2	27.0	857.0	98.2	76.6	376.6	35.2	0	0	600.0	650.0	700.0	2789.0	
	4	0	0	0	7.7	1.1	12.2	27.0	857.0	98.2	76.6	503.2	35.2	46.6	0	0	0		1664.8	
	6	3.4	0	0	1.4	1.1	12.2	27.0	857.0	98.2	76.6	376.6	35.2	46.7	0	0	0		1535.4	
	7	3.4	0	0	1.4	1.1	12.2	27.0	857.0	98.2	76.6	503.2	35.2	0	351.1	100.0	5.0		2066.4	
	8	0	0	0	1.4	1.1	12.2	27.0	857.0	98.2	88.1	376.6	35.2	205.5	60.0	0	5.0	65.0	1827.3	
	9	3.7	0	0	1.4	1.1	12.2	27.0	857.0	98.2	88.1	376.6	35.2	46.6	0	0	0		1547.1	
	10	3.4	0	0	1.4	1.1	12.3	27.0	857.0	98.2	76.6	376.6	35.2	46.7	0	0	0		1535.5	
	11	3.7	0	0	1.4	1.1	12.2	27.0	857.0	98.2	76.6	503.2	35.2	205.5	59.2	0	218.0	65.0	1945.3	
	12	0	0	0	1.4	1.1	12.2	27.0	857.0	98.2	76.6	376.6	35.2	205.5	60.2	0	138.0	65.0	1816.0	
	13	3.4	0	0	1.4	1.1	12.3	27.0	857.0	98.2	76.6	503.2	35.2	46.6	0	0	0		1662.0	
	14	3.7	0	0	1.4	1.1	12.2	27.0	857.0	98.2	76.6	503.3	35.2	0	351.1	100.0	0		2066.8	
	15	3.7	0	0	1.4	1.1	12.2	27.0	857.0	98.2	76.6	376.6	35.2	46.6	0	0	0		1535.6	
	16	0	0	0	1.4	1.1	12.2	27.0	857.0	98.2	76.6	376.6	35.2	26.9	351.1	100.0	706.0	800.0	3288.3	
	19	0	0	0	17.8	1.1	13.0	27.0	857.0	98.2	76.6	503.2	290.9	46.6	0	0	0		1931.4	
	20	0	0	0	0	0	13.0	27.0	857.0	98.2	76.6	503.2	35.2	46.7	0	0	0		1656.9	
	21	0	0	0	0	0	13.0	27.0	857.0	98.2	76.6	376.6	35.2	46.6	0	0	0		1530.2	
	22	0	0	0	0	0	13.0	27.0	857.0	98.2	76.6	376.6	35.2	46.7	0	0	0		1530.2	
	23	0	0	0	0	0	0	1.2	32.0	20.0	0	0	0	0	0	0	0		53.2	
TOTAL		50.6	0	846.1	544.8	575.4	362.3	611.2	19005.0	4879.0	15989.0	11391.0	4975.5	11774.6	5391.2	9300	3568	3235	88930.8	73226

* NUMBERS SHOWN ARE FOR ESTIMATING PURPOSES ONLY, AND DO NOT REFLECT WORK CURRENTLY IN PROGRESS WHICH HAS ALREADY BEEN FUNDED, OR FUNDING WHICH MAY ACTUALLY BE APPLIED IN FUTURE YEARS. COST TO COMPLETE INCLUDES YEAR 2002 COSTS THROUGH COMPLETION.

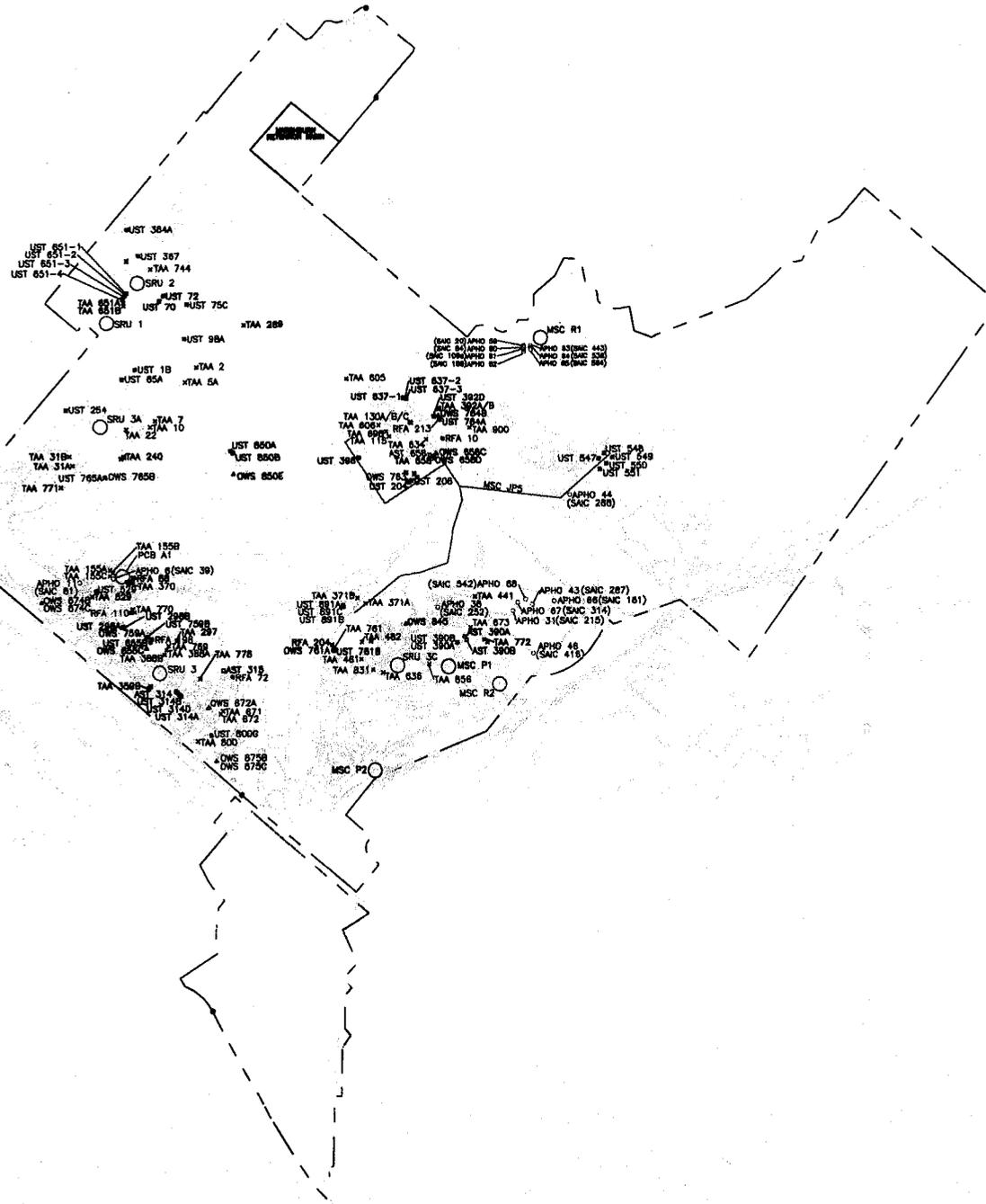
**MCAS EL TORO ENVIRONMENTAL COMPLIANCE
PROGRAM LOCATION OF CONCERN (LOC)
STATUS TABLE (UPDATED MAY 24, 2002)**

**PUBLIC INFORMATION MATERIALS INCLUDING:
RESTORATION ADVISORY BOARD MEETING
AGENDA & PUBLIC NOTICE FROM 29 MAY 2002
MEETING; MINUTES FROM THE 27 MARCH 2002
RAB MEETING; INFORMATION SHEETS; VARIOUS
REGULATORY AGENCY LETTERS, &
PRESENTATION MATERIALS**

**THE ABOVE IDENTIFIED MATERIAL/HANDOUT IS
NOT AVAILABLE.**

**EXTENSIVE RESEARCH WAS PERFORMED BY
SOUTHWEST DIVISION TO LOCATE THIS
MATERIAL/HANDOUT. THIS PAGE HAS BEEN
INSERTED AS A PLACEHOLDER AND WILL BE
REPLACED SHOULD THE MISSING ITEM BE
LOCATED.**

**QUESTIONS MAY BE DIRECTED TO
DIANE C. SILVA
RECORDS MANAGEMENT SPECIALIST
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132
TELEPHONE: (619) 532-3676**



- LEGEND**
- UNDERGROUND STORAGE TANKS
 - OWS 603C ▲ OIL WATER SEPARATOR
 - AST 390B □ ABOVE-GROUND STORAGE TANK
 - SAC ANOMALY SITE
 - EPA ANOMALY SITE
 - * TAA 673
 - RFA 46 ■ SOLID WASTE MANAGEMENT UNIT
 - BLUE SITES UNDER REGULATORY REVIEW
 - MAGENTA SITES WITH WORK IN PROGRESS



SOUTHWEST DIVISION NAVAL FACILITIES ENGINEERING COMMAND		
MCAS EL TORO, CA		
LOC's STATUS		
FILE NO.	FIGURE 2	DATE
18292172.DWG		2/24/02

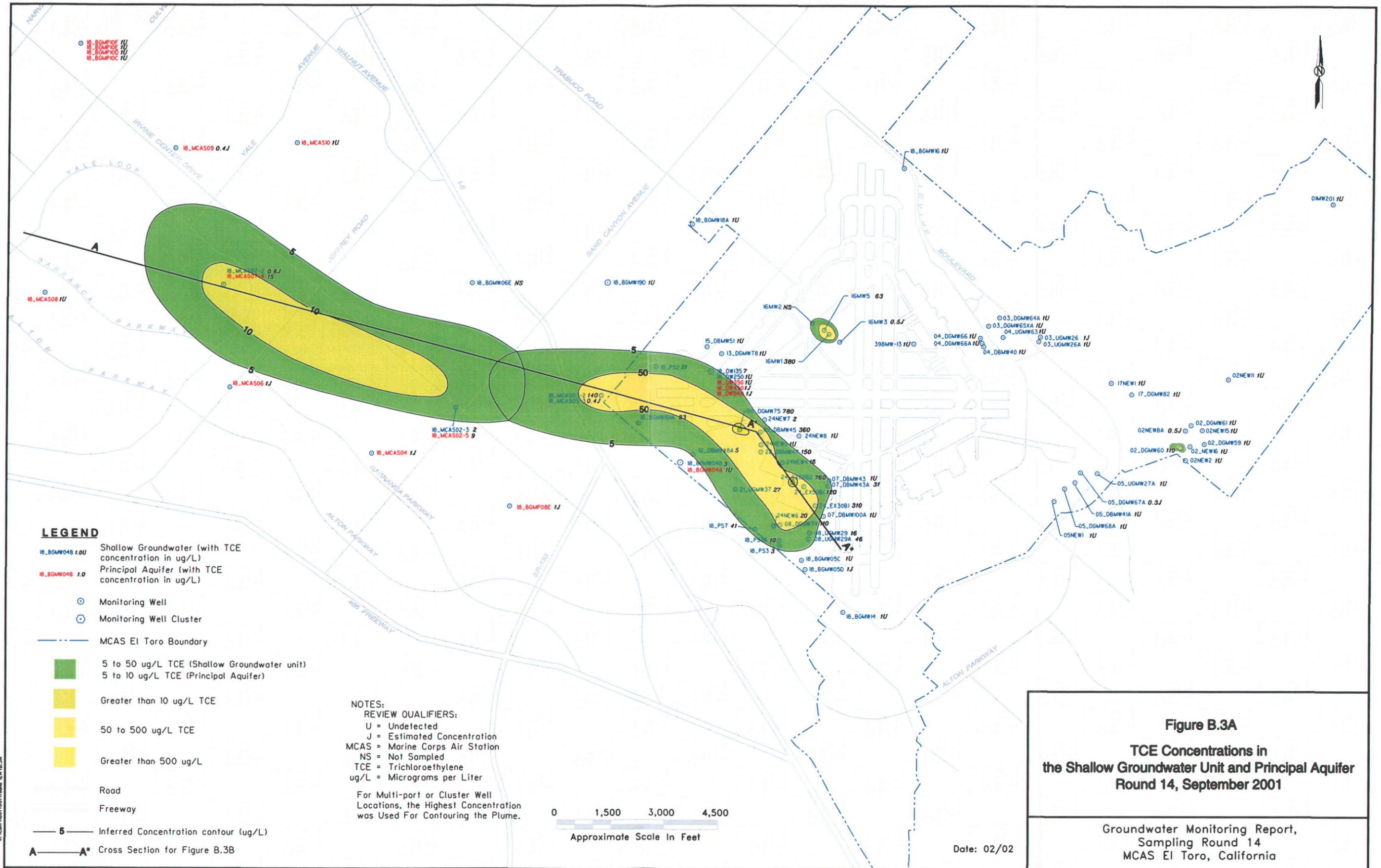


Environmental Compliance Program Documentation Update (14 May 2002)

Underground Storage Tank (UST) Sites, Resource Conservation and Recovery Act Facility
Assessment (RFA) Sites, and other Locations of Concern
Former Marine Corps Air Station, El Toro

Regulatory Submittals

Site Identification	Date of Submittal	Title of Submittal and Lead Regulatory Oversight Agency
USTs 298A & B	13 May 2002	Supplementary Information - RWQCB
TAA 371A	10 May 2002	Summary Report - DTSC
TAA 800	19 April 2002	Summary Report - DTSC
AST 658	18 April 2002	Information Package - DTSC
UST 98A	18 April 2002	Addendum - RWQCB
TAA 155A & TAA 155C	16 April 2002	Technical Memorandum - DTSC
TAA 779	25 March 2002	Summary Report - DTSC
APHO 6	22 March 2002	Summary Report - DTSC
TAA 359B	19 March 2002	Responses to DTSC Comments - DTSC
TAA 769	18 March 2002	Summary Report - DTSC
TAA 856	11 March 2002	Summary Report - DTSC
UST Group 651	7 March 2002	Aquifer Test Results - RWQCB
TAA 831	25 February 2002	Summary Report - DTSC
SWMU 88	19 February 2002	Responses to DTSC Comments - DTSC
SWMU 56	19 February 2002	Summary Report - DTSC
MSC P1	29 January 2002	Closure Report - DTSC
SWMU 50	15 January 2002	Summary Report - DTSC
SWMU 55	14 January 2002	Summary Report - DTSC



LEGEND

- 18_BGMW48 1.0U Shallow Groundwater (with TCE concentration in ug/L)
- 18_BGMW48 1.0 Principal Aquifer (with TCE concentration in ug/L)
- Monitoring Well
- Monitoring Well Cluster
- MCAS El Toro Boundary
- 5 to 50 ug/L TCE (Shallow Groundwater unit)
5 to 10 ug/L TCE (Principal Aquifer)
- Greater than 10 ug/L TCE
- 50 to 500 ug/L TCE
- Greater than 500 ug/L
- Road
- Freeway
- 5 Inferred Concentration contour (ug/L)
- A-A Cross Section for Figure B.3B

NOTES:
 REVIEW QUALIFIERS:
 U = Undetected
 J = Estimated Concentration
 MCAS = Marine Corps Air Station
 NS = Not Sampled
 TCE = Trichloroethylene
 ug/L = Micrograms per Liter

For Multi-port or Cluster Well Locations, the Highest Concentration was Used For Contouring the Plume.

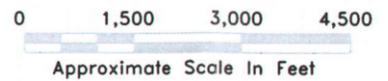


Figure B.3A
TCE Concentrations in the Shallow Groundwater Unit and Principal Aquifer Round 14, September 2001

Groundwater Monitoring Report,
 Sampling Round 14
 MCAS El Toro, California

Date: 02/02

C:\csm\B01\001\round 14\B.3A

EXCERPT

MARINE CORPS AIR STATION EL TORO RESTORATION ADVISORY BOARD MEETING

January 31, 2001 – 49th Meeting

MEETING MINUTES

◆ Groundwater Monitoring Program Update – Marc Smits, Remedial Project Manager, SWDIV

Discussion

Don Zweifel, RAB member, expressed concern over chromium VI (hexavalent chromium) in groundwater in the Irvine Sub-basin. Mr. Smits said that typically sampling is conducted for metals, perchlorate, and radionuclides. VOCs comprise the main category of compounds that are sampled because these generally make up the key contaminants of concern at most sites. Mr. Smits said he would review the data on chromium VI and would provide this information to Mr. Zweifel and at the next RAB meeting.

EXCERPT

MARINE CORPS AIR STATION EL TORO RESTORATION ADVISORY BOARD MEETING

March 21, 2001 – 50th Meeting

MEETING MINUTES

OLD BUSINESS

Announcements

- Mr. Gould said that Mr. Don Zweifel, RAB member, asked about chromium VI sampling at the January 31, 2001 MCAS El Toro RAB meeting. Mr. Gould said that extensive sampling for chromium VI was done from 1992-1997 and has been documented in past groundwater monitoring reports. He said that over 500 samples were analyzed specifically for chromium VI, and over 1,200 total samples analyzed for chromium. Results indicate that chromium is naturally occurring at MCAS El Toro. The highest level of chromium VI detected at MCAS El Toro is 17 micrograms per liter (μg), well below the federal (100 $\mu\text{g}/\text{l}$) and state (50 $\mu\text{g}/\text{l}$) guidelines for total chromium.

MARINE CORPS AIR STATION EL TORO

RESTORATION ADVISORY BOARD MEETING

January 31, 2001 – 49th Meeting

MEETING MINUTES - EXCERPT

John Rifilato, of ITPS, the contractor representing the Defense Energy Support Center, formerly Defense Fuels Supply, can be reached at (562) 921-2271.

◆ Update on Norwalk Pipeline – Dean Gould, BEC MCAS El Toro, and John Rifilato, Defense Fuels Representative

Mr. Gould said that at the last RAB meeting, based on the information that he had on the Norwalk Pipeline, he answered as many questions as he could. Mr. Rifilato of ITPS, a contractor representing Defense Energy Support Center (DESC), formerly called Defense Fuels Supply, is going to describe technical details of the pipeline in which the RAB has shown interest. Mr. Gould said that Mr. Rifilato has attended previous RAB meetings and has been working to support the Norwalk pipeline for 10 years.

Mr. Rifilato said that the pipeline was built in 1955 or 1956 to support the air operations of MCAS El Toro. It is an 8" pipeline that runs from Norwalk to MCAS El Toro that comes onto the base near the commissary located by Irvine Boulevard. It runs along Irvine Boulevard and where the road turns it crosses beneath the road and runs right in front of the off-base commissary and through the middle of base housing to the tank farm. He said that the tanks near the pig launcher are associated with the pipeline but these tanks have always been the responsibility of Station personnel. Aviation fuel was pumped through the pipeline until approximately 1975, and since then JP-5 began was transported through the pipeline. The Navy operated and maintained the pipeline until approximately 1980, and then turned it over to the DESC, a division of the Defense Logistics Agency (DLA), which supplies all the fuel to all the bases.

Mr. Rifilato said in 1988 a loss of pressure in the pipeline was detected. It was tracked down to three pinhole leaks that were consistent with backhoe damage from a previous dig site at the intersection of Old Irvine and Newport Boulevards. He said when the Norwalk pipeline was exposed another pipeline was found just underneath it. The California State Fire Marshal and the Federal Office of Pipeline Safety were alerted and assisted in the investigation of the deeper pipeline to determine whom it belonged to. Nobody responded to the inquiry on that pipeline. Based on the wear on the line, it was estimated that that pipeline underneath the Norwalk pipeline was installed around 1975. Mr. Rifilato reiterated that this has been the only leak and this pipeline is as tight as ever and is in excellent shape.

Mr. Rifilato explained that if the Norwalk pipeline is nicked, this could cause a breakdown of part of the pipeline system. This system is comprised of a coating on the outside of the pipe to protect the metal from alkali in the soil that can corrode metal. Also, fuel that runs through the line creates a static electric charge so a grounding mechanism is installed. At the location

where the grounding mechanism is installed there is a pitting point. He reiterated that just nicking the coating on the pipeline could cause a system breakdown. The pipeline is also comprised of a cathodic protection system that inserts a direct current (DC) charge into the line. It also shoots a charge into the ground that creates a coat between the pipeline and the soils.

Mr. Rifilato said the pipeline is in excellent shape. Over the years numerous relocations of this pipeline have been done. He said that the pipeline used to run straight down Irvine Boulevard, but with Jamoboree Road, the Highway 133 tie-in, and the Highway 261 tie-in, a 1,000-foot relocation was completed in 1995. The pipeline was lowered some 60 feet so that it was at a safe operating distance from the freeway corridor. The pipeline was also inserted into a protective casing.

Mr. Rifilato said that with a relocation, the line is blinded, drained down and cold cut. The new pipe is then installed and welded, and the pipe is put in place in a few hours so the line is only down for about two days. He said that with the expansion of the I-5 Freeway there will probably be three relocations of the pipeline this year. He said that in many areas the pipeline is new. Whenever that pipeline is dug out, pipeline crews are obligated under United States Code of Federal Regulation (CFR 49.195) to inspect the condition of the line.

He said that pipeline maintenance is ongoing. On a daily basis a line rider "rides" the pipeline, and responds to over 300 underground service alerts per month. Every dig near the Norwalk pipeline is observed. At anytime it is determined that the pipeline coating is bad or that the line has been nicked, it can be repaired right there and any problems that might arise are fixed.

Mr. Rifilato said that the pipeline was hydrotested in 1993, which involved pressure testing the entire pipeline (29.3 miles) at both ends and blocking off the entire line. There were no leaks at anytime during this test. He said that if there was a variance in pressure over the 29.3 miles, this would be taken into consideration per the State Fire Marshal regulations and monitored by an outside third-party contractor. If anything were to have failed they would have shut down the hydrotest to inspect the line but no problems were encountered. He also said that the pipeline was tested at 125% of normal operating pressure and there were no leaks. At no point would the line ever get up to this pressure during normal operations.

Mr. Rifilato said that in May 1999 all the fuel was removed using a pigging process, and now nitrogen is the only substance present in the line from Norwalk to MCAS El Toro. The pressure at in the line after the pigging process was 55 pounds per square inch (psi) but it is currently 25 psi because the packing around a valve has dried up due to the pipeline being filled with nitrogen. The packing material on this valve is not compatible with nitrogen. He said that within the next 3 or 4 months that valve will be replaced. This valve never leaked when fuel was in the pipeline and it is aboveground so if it had it would have been easy to detect a leak.

Whenever an area is dug up around the Norwalk pipeline it is checked for fuel remnants. If any fuel remnants are encountered it is fully investigated. No fuel remnants have ever been found at any digs associated with the Norwalk pipeline. Mr. Gould asked how the line is tested for leakage. Mr. Rifilato said the nitrogen-filled pipeline is monitored and charted

daily. He said line logs are maintained and leak detection is covered in those logs. It is important to do this monitoring because one other problem that can be encountered with a pipeline is oxidation. It is very important to prevent any oxygen from getting into the pipeline because it could cause the pipeline to rust. He said that right now oxidation is the only concern in maintaining the pressure in the pipeline. Currently, only nitrogen is present in the pipeline.

Ms. Reavis said that this is a 45-year old, 29.3-mile pipeline that only supplied fuel to MCAS El Toro, so why is money being invested in maintaining the pipeline for a base that is closed? She asked what federal agency is deciding to spend tax dollars to take care of this monstrosity. Mr. Rifilato replied that pipeline maintenance is part of a contract that is already in place, so until the disposal process of this pipeline is conducted, DESC is responsible for maintaining the pipeline and responding to digs near the pipeline as long as it is in the ground. He said that the DESC cannot just leave the pipeline in the ground and walk away. The government has to respond to anyone conducting digs near the pipeline. He added that it would be up to pipeline engineers to determine if the Norwalk pipeline can provide a use in the future. Mr. Gould said that the primary concern of the RAB regarding this pipeline is potential fuel leaks onto the base. He said that future use or reuse of the pipeline is not a RAB concern, and is appropriately addressed in a different forum.

Ms. Reavis asked with maximum pressure on the line, how many gallons of fuel per year were flowing to the base? Mr. Rifilato said that approximately 52 million gallons of fuel was transported to the base per year with shipments twice a week. Mr. Werner asked at the maximum pressure of 350 psi, what is the potential capacity flow rate? Mr. Rifilato replied that the brochure provided to the RAB in the past says that the flow rate is 400 barrels per hour, but the actual potential capacity flow rate is 720 barrels per hour. Mr. Ouellette asked in regards to the pipeline being blocked off, where is the last block located? Mr. Rifilato replied that it is blocked off at the Triple Nickel Tank Farms just past the administrative building where two valves are located at the pig launcher/retriever. Mr. Ouellette asked, at what exact location does DESC responsibility end and the Navy's begin? Mr. Rifilato said that DESC's responsibility ends right at the two valves that are located at the Triple Nickel Tank Farms. The line rider checks that facility almost everyday.

Mr. Rifilato was asked if the inert nitrogen gas in the pipeline is part of the overall remediation strategy for the Norwalk pipeline or is it associated with the leak that did occur? Mr. Rifilato said that there is ongoing remediation for the one leak the pipeline had, and it involves approximately 75 wells in the area around the pipeline. Every other week product is being pulled out of those wells and presently bi-annual sampling is conducted in the area located around the pipeline area. Because this is such a high profile area and there is resistance from property owners, they cannot perform a typical pump and treat operation. Mr. Rifilato reiterated that there is no other remediation other than for this leak.

Mr. Zweifel asked, what is the maximum volume that could be sent down the pipeline to the end user per year? Mr. Rifilato said that it can take roughly 720 barrels per hour, multiply that by 24 hours, multiply that by 365 days, and multiply that by 42 gallons per barrel. This equates to roughly 264,902,400 gallons per year.



DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, D. C. 20350-2000

IN REPLY REFER TO

5090
Ser N453D/1U595697
NOV 29 2001

From: Chief of Naval Operations

To: Distribution

Subj: POLICY FOR CONDUCTING COMPREHENSIVE ENVIRONMENTAL
RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA)
STATUTORY FIVE-YEAR REVIEWS, NOVEMBER 2001

Ref: (a) Navy/Marine Corps Installation Restoration Manual
(Feb 97)

Encl: (1) Navy/Marine Corps Policy for Conducting Comprehensive
Environmental Response, Compensation, and Liability
Act (CERCLA) Statutory Five-year Reviews, November,
2001

1. Enclosure (1) establishes procedures for conducting five-year reviews, facilitates consistency of five-year reviews across the Navy/Marine Corps, clarifies current policy, and delineates roles and responsibilities of various entities in conducting or supporting five-year reviews.

2. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), requires that remedial actions resulting in any hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure be reviewed every five years to assure protection of human health and the environment, regardless of the National Priorities List (NPL) status of the site or installation.

3. This policy has been coordinated and concurred with by the Marine Corps.

4. This policy will be included in the next revision to reference (a). It will also be available on the N45 website (<http://web.dandp.com/n45/index.html>) under Environmental Restoration/Training, References.

Subj: POLICY FOR CONDUCTING COMPREHENSIVE ENVIRONMENTAL
RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA)
STATUTORY FIVE-YEAR REVIEWS

5. Questions or comments concerning this policy should be
directed to Mr. Geoffrey D. Cullison, CNO N453D, 2211 So. Clark
St., Arlington, VA 22202-3735, (703) 602-5329 (DSN 332-5329),
cullison.geoffrey@hq.navy.mil.



R. T. Nolan
By direction

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**Navy/Marine Corps Policy for
Conducting Comprehensive Environmental Response, Compensation,
and Liability Act (CERCLA) Statutory Five-year Reviews
November 2001**

Ref: EPA Comprehensive Five-Year Review Guidance, June 2001, EPA 540-R-01-007,
OSWER No. 9355.7-03B-P, §1.3.1

1. Statutory requirements:

a. The statutory requirement for five-year review was added to CERCLA as part of the Superfund Amendments and Reauthorization Act of 1986 (SARA). A five-year review is required when **both** of the following conditions are met, whether the site is on the National Priorities List (NPL) or not:

1) Upon completion of the remedial actions at a site, hazardous substances, pollutants, or contaminants will remain above levels that allow for unlimited use and unrestricted exposure. For example, if a site is restricted to industrial use because hazardous substances, pollutants, or contaminants remain above levels that allow for unlimited use and unrestricted exposure, five-year reviews must be conducted.

2) The Record of Decision (ROD) or Decision Document (DD) for the site was signed on or after October 17, 1986 (the effective date of SARA).

b. CERCLA §121(c), as amended, states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five-years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

c. The National Contingency Plan (NCP), 42 U.S.C. § 9621(c), implementing regulations, 40 C.F.R. Part 300.430(f)(4)(ii), provide:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after initiation of the selected remedial action.

d. Consistent with Executive Order 12580, the Secretary of Defense is responsible for ensuring that five-year reviews are conducted at all qualifying Department of Defense (DoD) cleanup sites.

e. . . . EPA classifies five-year review as either "statutory" or "policy" depending on whether it is required by statute or conducted as a matter of EPA policy. In particular, EPA views five-year reviews conducted of RODS issued before October 17, 1986 as being conducted as a matter of policy because the five-year review requirement didn't become law until that date. Statutory five-year reviews are required by law and will be conducted by the Navy/Marine Corps at any site meeting the requirements of the law. We generally do not conduct policy five-year reviews.

2. Definitions:

a. For purpose of this policy, "site" means a location on an installation's property where a hazardous substance has been deposited, stored, disposed, or placed, or has otherwise come to be located where, upon completion of the remedial action, hazardous substances, pollutants, or contaminants will remain at the site above levels that allow for unlimited use and unrestricted exposure. This includes areas off the installation where contamination may have migrated. For purpose of this policy, "site" also means Operable Unit.

b. "Unlimited use" and "unrestricted exposure" mean that there are no restrictions on the potential use of land or other natural resources.

3. Purpose of a five-year review:

a. The purpose of a five-year review is not to reconsider decisions made during the selection of the remedy, as specified in the ROD, but to evaluate the implementation and performance of the selected remedy.

b. Where a site has a remedial action that is still in the Remedial Action-Construction (RA-C) phase or the Remedial Action-Operations (RA-O) phase, a five-year review should confirm that immediate threats have been addressed and that the remedy will be protective when complete.

c. Where a site is in the Long Term Management (LTMgt) phase, the five-year review should confirm whether the selected remedy remains protective.

d. When the five-year review indicates that the remedy is not performing as designed, the report should recommend actions to improve performance.

4. NPL status: The continuing presence of hazardous substances, pollutants, or contaminants above levels that allow for unlimited use and unrestricted exposure under CERCLA establishes the requirement for a five-year review, not the NPL status of the installation. Reference (a) states that EPA will delete an installation from the NPL when deletion criteria have been satisfied and that an installation will not be kept on the NPL solely because it is subject to five-year reviews. If the installation has been deleted or is in the process of being deleted, the five-year review report should address the status of any deletion action.

5. Resource Conservation and Recovery Act (RCRA) response: Five-year reviews are not required if cleanup of a site is addressed under RCRA corrective action. In cases where both RCRA and CERCLA authorities are used to address different sites on an installation, a five-year review is only required for those portions of the installation being addressed under CERCLA that meet the criteria for five-year reviews. When a RCRA action is included as a portion of a ROD or DD or other CERCLA decision document, the RCRA action should be included in the five-year review.

6. Interim remedial action: By itself, an interim remedial action at a site does not start the clock for a five year review of that site; it is treated like any other remedial action for the purpose of five-year reviews. An interim remedial action triggers the five-year review clock if it meets any of the criteria outlined in paragraph 1. above. For instance, if an alternate water supply is installed but hazardous substances, pollutants, or contaminants remain onsite above levels that allow for unlimited use and unrestricted exposure, a review is required by statute. A subsequent action may then reduce the hazardous substances, pollutants, or contaminants to levels allowing unlimited use and unrestricted exposure. Remedial actions are those actions consistent with a permanent remedy taken instead of, or in addition to, removal action.

7. Five-year review "trigger":

a. In keeping with the requirements of CERCLA §121(c) and the NCP, initiation of the selected remedial action that will result in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure after the remedial action is complete is the "trigger" that starts the five-year review clock. For most Navy/Marine Corps sites, this "trigger" is the onsite mobilization for commencement of the RA-C phase.

b. The first site on an installation that triggers the five-year review clock triggers the five year review clock for the entire installation, or that portion of the installation addressed under the ROD or DD.

c. Where the selected remedy will result in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure but will not require a RA-C phase, such as monitored natural attenuation using existing wells and/or institutional controls, the remedy start date is the ROD or DD signature date and therefore is also the trigger for the five-year review clock.

8. Five-year review due dates:

a. The five-year review report for a site is to be completed and signed within five years of the trigger date for that site. Subsequent five-year reviews should be signed no later than five-years after the signature date of the previous five-year review reports.

b. Because the regulators do not have a statutory role in the conduct of five-year reviews, it will be up to Navy/Marine Corps to enforce the five-year review dates. To assist the field in tracking five-year review dates, there is a field in NORM that allows management to track these dates.

9. Results of a five-year review: The results of the five-year review are presented in a five-year review report.

a. The five-year review report should;

- 1) clearly state whether the remedy is or is expected to be protective,
- 2) document any deficiencies identified during the review, and
- 3) recommend specific actions to ensure that a remedy will be or will continue to be protective.

b. Where necessary, five-year review reports should include descriptions of follow-up actions needed to achieve, or to continue to ensure, protectiveness. Along with these recommendations, the report should list a timetable for performing the actions and the parties responsible for implementation.

c. If it is determined that cleanup levels or remedial action objectives cannot be achieved through the remedial action, the recommendations may suggest the type of decision process (e.g., ROD or DD, ROD or DD Amendment, Explanation of Significant Differences (ESD)) needed to evaluate or make changes to the remedy, cleanup levels, or remedial action objectives.

d. For sites that are still in the RA-O phase (pre-Response complete) where evaluation and optimization of the remedial action operations are performed routinely, most information for the five-year review should be readily available.

10. Review and Signature: Pursuant to the delegations of authority in sections 2(d) and 11(g) of Executive Order 12580, and DoD Instruction 4715.7 of 22 April, 1996, Department of the Navy (DON) is the approval authority for CERCLA five-year reviews conducted at sites under its jurisdiction, custody or control.

a. Five-year reviews completed with ER,N or BRAC funds will be signed by the Commanding Officer of the supporting EFD/A.

b. Five-year reviews completed with installation funds will be signed by the installation Commanding Officer/Commanding General or a designee of the Regional Environmental Coordinator.

c. Regulatory agencies have no statutory review authority in five-year reviews conducted by DON in its Lead Agent authority except where some past DON Federal Facility Agreements (FFAs) have included five-year review reports as enforceable primary documents. Future FFAs and Federal Facility-State Remediation Agreements (FFSRAs) are not to include five-year review reports as either primary or secondary documents. However, five-year reviews may be submitted to the appropriate regulators for their review and comment as a matter of partnering.

11. Keeping the community informed:

a. Because the five-year review addresses the status and protectiveness of a remedy, it should be used to communicate this information to the community. If the Restoration Advisory Board (RAB) is still active at the installation, preparation for and conduct of the five-year review should be an agenda item at each RAB meeting conducted while the five-year review is underway. Where necessary, additional RAB meetings should be held to ensure the community is kept up to date on progress and results of the five-year review. If the RAB is inactive or has disbanded, the installation shall determine the most effective approach to informing the community based on the level of community interest. At a minimum, community involvement activities during the five-year review should include notifying the community that the five-year review will be conducted, notifying the community that the five-year review has been completed, and providing the results of the review to the local site repository.

b. The installation Public Affairs Officer can recommend appropriate methods of communication (e.g., public notices, fact sheets) for notifying the public.

c. Upon completion of the five-year review and Five-Year Review Report, a brief summary of the report should be made available to the stakeholders. The summary should include a short description of the remedial action, any deficiencies, recommendations and follow-up actions that are directly related to protectiveness of the remedy, and the determination(s) of whether the remedy is or is expected to be protective of human health and the environment. The summary should also provide the location of the site information repository and/or where a copy of the complete report can be obtained, and provide the date of the next five-year review or notify the community when five-year reviews will no longer be necessary.

e. Five year reviews are not Administrative Record material and are not to be included therein. However, the RPM should ensure that the signed five-year review report is placed in the site information repository.

12. Discontinuing five-year reviews:

a. There is no statutory provision for the discontinuation of statutory reviews. However, EPA acknowledges in reference (a) that five-year reviews may no longer be needed when no hazardous substances, pollutants, or contaminants remain on site above levels that allow for unlimited use and unrestricted exposure, reference (a), paragraph 1.2.4. The basis for this finding should be documented in the final Five-Year Review report.

b. If a ROD or DD states that a five-year review will be performed, but prior to conducting the first review the EFD/EFA determines that no review is required, this finding should be recorded in a major document subject to public comment, such as a Proposed Plan or a Notice of Intent to Delete.



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

5090
Ser 06CC.DG/976
November 29, 2000

Mr. Peter Hersh
Assistant to the City Manager
City of Irvine
One Civic Center Plaza
P.O. Box 19575
Irvine, CA 92623-9575

Subj: LAND-USE CONTROLS AT MARINE CORPS AIR STATION (MCAS) EL TORO

Dear Mr. Hersh,

This letter represents the Department of the Navy's (DON's) response to questions raised by the city of Irvine concerning land-use controls at the former Marine Corps Air Station (MCAS) El Toro. The questions were transmitted in a 20 April 2000 letter from you to Mr. Gould (SWDIV), Mr. Kistner (U.S. EPA), Ms. Chesney (Cal-EPA DTSC), and Ms. Hannon (Cal-EPA RWQCB). The letter requested a presentation be made at the next Restoration Advisory Board meeting on the nature and extent of land-use controls to be imposed on the reuse of the former base. Such a presentation was made prior to your letter, on 29 March 2000. This letter supplements that presentation and specifically addresses land-use controls for Installation Restoration Program (IRP) sites being evaluated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. Land-use controls for Resource Conservation and Recovery Act areas of concern, above- and underground storage tanks, and reuse parcels will be addressed in the Finding of Suitability for Transfer (FOST) documents for their respective parcels.

Upon reviewing the city's request, the DON determined that it would be most effective to respond to the city's questions with a comprehensive overview discussion of the land-use restriction issues raised rather than format the response in a point-by-point "Response to Interrogatories" format. In the course of that discussion, all of the specific questions will be addressed.

The DON concurs with the general definition of land-use controls set forth in the city's letter; that is, any restrictions placed upon the use of the land, including, but not limited to, easements, covenants, licenses, institutional controls, ordinances, memoranda of understanding (MOUs), and any other method by which one or more parties may limit the use of parcels at the former base. The DON will be making limited use of such land-use controls at some of the IRP sites at the former MCAS El Toro, although these land-use controls are expected to be necessary on only 7 IRP sites (Sites 2, 3, 5, 16, 17, 18, and 24) out of a total of 24 IRP sites at the former base and on only 5 sites (Sites 2, 3, 5, 16, and 24) that will be conveyed outside federal ownership (Enclosure 1). IRP Site 1 is currently undergoing remedial investigation and will not be addressed in this document because it is not known whether the site will require land-use controls. The approach to IRP Sites 8, 11, and 12 is currently in discussion with the BCT.

To place the issue of land-use controls in perspective, as documented in the Base Realignment and Closure Business Plan for MCAS El Toro (March 2000), 85 percent of the Station property is environmentally suitable for transfer by deed without remediation or land-use restrictions. Most of the remaining 15 percent of the Station consists of areas with subsurface groundwater contamination. Land-use restrictions for such groundwater contamination will be limited to prohibitions on the extraction or use of groundwater and limited surface controls to protect monitoring and remediation equipment.

A. Categories of Land-Use Restrictions

The land-use controls will include land-use restrictions that fall within the following categories.

1. Prohibition upon the following future uses of hazardous waste property in the absence of a variance as required by state law (Health and Safety Code Section 25232(b)(1)(A)): residences, hospitals for humans, schools for persons under 21 years of age, day care centers, and permanently occupied human habitation other than those used for industrial purposes. (These restrictions apply to landfill Sites 2 and 17; they are also expected to apply to landfill Sites 3 and 5.)

2. Restrictions on construction upon or excavations into contaminated soils and waste disposal sites in order to protect human health and the integrity of the remedial action. (This includes the area containing landfill wastes at Sites 2, 3, 5, and 17.)

3. Restrictions upon the extraction and/or use of contaminated groundwater exceeding drinking water standards without prior approval. (These restrictions are expected to apply at Sites 2, 16, 18, and 24.)

4. Restrictions upon damaging or interfering with the operations of remediation or monitoring facilities and associated equipment. (Groundwater extraction and remediation equipment is expected to be located at Sites 16, 18, and 24; monitoring wells will be located as needed throughout the Station.)

B. Types of Land-Use Control Legal Mechanisms

The type of land-use control legal mechanism employed by the DON depends, in part, upon whether the property in question is planned for a transfer by deed to the Local Redevelopment Authority (LRA) or for a transfer to another federal department or agency. Another factor affecting the choice of legal mechanism is whether the contamination is located inside or outside the boundaries of the former base.

1. Land-use restrictions addressing property that will be transferred to the LRA by deed will primarily be implemented through environmental restrictive covenants incorporated into deeds of transfer as provided by California Civil Code Section 1471. These covenants in the deed will be enforceable by the DON. In addition, the DON has agreed to enter into good faith negotiations with the Department of Toxic Substances Control (DTSC) to execute Environmental Restriction Covenants and Agreements pursuant to

California Health and Safety Code Chapters 6.5 and 6.8 and California Civil Code Section 1471. If agreed upon, these Environmental Restriction Covenants and Agreements will incorporate identical land-use restrictions to those in the parallel deeds. The covenants and agreements will give DTSC the authority to enforce these identical restrictions.

2. The DON will rely upon MOUs between the DON and the recipient federal agency as the legal mechanism for implementing land-use controls in transfers from the DON to another federal agency or department.

3. The DON must also select land-use control legal mechanisms to address certain groundwater contamination exceeding drinking water standards that originated within the boundaries of former MCAS El Toro and now underlies adjacent properties owned by other persons. Restrictive covenants in transfer deeds are not available as a mechanism in this situation because the DON does not and has not owned the relevant property. The DON is considering relying upon enforcement of local regulations and ordinance(s) by local units of government in order to regulate the extraction and use of such off-Station contaminated groundwater. This potential land-use control mechanism is still undergoing evaluation.

C. Enforcement and Removal of Land-Use Controls

Land-use restrictions in the deed will be enforced by the DON and by the regulatory agencies that are identified as covenantees. If the DON and DTSC agree upon land-use restrictions in the Environmental Restriction Covenant and Agreement, they will be enforced by DTSC and any cocovenantees identified in such a document. The deeds and Environmental Restriction Covenants and Agreements will contain clauses providing for termination of these restrictions and removal from the legal documents once remediation is complete and/or it can be demonstrated that they are no longer necessary to protect human health and the environment. In addition, Health and Safety Code Section 25234 applies to the removal of land-use restrictions imposed through any Environmental Restriction Covenant and Agreement between the DON and DTSC. Example language for the imposition and removal of environmental covenants, conditions, and restrictions follows. The language is taken from the Naval Air Station Alameda East Housing Deed executed by and between the DON and the Alameda Reuse and Development Authority in June 2000.

The following environmental covenants, conditions, and restrictions (hereinafter "environmental restrictions") regarding the use of the Property have been determined by the GRANTOR in this Covenant to be reasonably necessary to protect present or future human health or safety or the environment as provided by CERCLA and California Civil Code Section 1471. The environmental restrictions made and accepted herein by GRANTEE shall be for the benefit of and enforceable by the GRANTOR herein as provided under Civil Code Section 1471 and applicable Federal statutes and regulations, shall run with the land, and shall be binding on the GRANTEE, its successor and assigns.

These environmental restrictions may be released at such time as the GRANTOR has obtained written confirmation from California

Department of Toxic Substances Control ("DTSC") that the appropriate regulatory agency has determined that the restricted Property is protective of present or future health or safety of the environment for that use that was formerly prohibited. Upon receipt of such written confirmation, the GRANTOR shall deliver to the GRANTEE in recordable form, a release (the "Release") relating specifically to the environmental use restrictions set forth in this deed. The execution of the Release by the GRANTOR shall remove all notices and restrictions relating to the remedy addressed by the restrictions from the title to the Property.

D. Land-Use Controls at Specific IRP Sites

1. Overview

IRP sites that have been addressed in CERCLA Records of Decision (RODs) to date include Sites 2, 4, 6, 9, 10, 11, 13, 15, 17, 19, 20, 21, 22, 24, and 25. IRP sites that have been addressed in Proposed Plans but have not reached the draft final ROD stage include Sites 3, 5, 7, 8, 12, and 14. IRP Sites 1, 16, and 18 are currently being addressed in the CERCLA process and have not yet progressed to the point of having been addressed in a published Proposed Plan. As mentioned previously, IRP Site 1 is currently in the remedial investigation phase. Therefore, it is not known whether any remedial action is necessary at IRP Site 1. IRP Sites 16 and 18 are expected to require land-use controls as discussed below.

Land-use controls are part of the selected remedy for IRP Sites 2 and 17. These sites consist of inactive landfills that will be remediated by capping the landfills with the waste left in place and monitored. Capping and land-use controls have also been proposed for landfill Sites 3 and 5. Land-use controls will be used at all four landfill sites to protect public health and the environment as well as to maintain the integrity of the remedial action at the sites. IRP Sites 2, 16, 18, and 24 are sites where concentrations of volatile organic compounds (VOCs) in groundwater exceed drinking water standards. Land-use controls will be necessary at these sites to prevent extraction or use of the contaminated groundwater without prior approval, to protect the integrity of the remedial action (e.g., protect extraction and treatment equipment and monitoring wells), and to allow access to the site for equipment operation, maintenance, and monitoring.

IRP Sites 4, 6, 9, 10, 13, 15, 19, 20, 21, 22, and 25 were evaluated and found to require no action. This decision is documented in a signed ROD for these sites. Sites 7 and 14 also have been recommended for no action in a Proposed Plan. Sites 8, 11, and 12 contain shallow soil contamination. Soil excavation and off-Station disposal have been proposed. Under such a proposed remedial action, no institutional controls would be expected at Sites 8, 11, or 12. The final approach to these sites is currently in discussion amongst the BCT.

2. Land-Use Restrictions for Waste Disposal Sites

The only sites where the DON plans to transfer property containing wastes in soil that necessitate land-use controls are the landfill Sites 2, 3, 5, and 17. Land-use controls have been selected in an Interim ROD for Sites 2 and 17 and are proposed for Sites 3 and 5 to restrict construction upon and excavation into the landfills and thus prevent exposure to buried waste and protect the integrity of the landfill remedy. See the attached excerpt from the Interim ROD for Operable Unit-2B for a typical example of institutional control provisions for inactive and closed landfills on nonfederal land (Enclosure 2).

Site 17 is expected to be transferred to a federal entity. Sites 3 and 5 and portions of Site 2 are anticipated to be transferred by deed to the LRA. Land-use restrictions addressing construction upon and excavation into the landfills at Sites 2, 3, and 5 will be included in restrictive covenants in the deed as well as in an Environmental Restriction Covenant and Agreement between DTSC and the DON, if agreed upon. In accordance with regulatory requirements, an appropriate buffer zone may be applied beyond the actual limits of the waste. DON and regulatory agency approval would be required prior to development of property within this zone. The purpose of applying the buffer zone is to ensure that the impacts of potential landfill gas migration from the landfill and runoff onto the landfill are properly evaluated prior to construction and that public health and the environment are adequately protected.

The DON currently plans to transfer most of the property containing Sites 2 and 17 to the Federal Aviation Administration (FAA) by means of a federal agency-to-agency transfer. Restrictions would be imposed on that property through an MOU between the DON and the FAA. However, land adjacent to Site 2 is planned to be transferred to the LRA for use for the Alton Parkway Extension. Land-use controls for the purposes of preventing erosion of the landfill cap and groundwater management would be established for this portion of the property using restrictive covenants in the deed of transfer to the LRA and an Environmental Restriction Covenant and Agreement between DTSC and the DON, if agreed upon. The land-use provisions from the ROD for Site 2 are reproduced in Enclosure 2.

3. Land-Use Restrictions for Property Overlying Contaminated Groundwater

Groundwater at Sites 2, 16, 18, and 24 is contaminated by VOCs at concentrations that exceed drinking water standards. Therefore, it is likely that land-use restrictions will be necessary at these sites to prevent extraction and/or use of this groundwater without prior approval until remediation is complete as described below.

Institutional controls are planned for IRP Site 2 to prevent exposure to or use of groundwater containing VOCs at concentrations above drinking water standards; prevent damage to monitoring equipment and associated pipelines and appurtenances; and ensure that the DON and regulatory agencies have the right to enter the property to perform monitoring and remedial activities. Such land-use restrictions would be included in the MOU between the DON and

the FAA for the federal agency-to-agency transfer of the property. These land-use restrictions will be included in restrictive covenants in the transfer deed as well as in an Environmental Restriction Covenant and Agreement between DTSC and the DON, if agreed upon, for the land adjacent to Site 2 whose transfer to the LRA is planned for use for the Alton Parkway Extension. Please see Enclosure 2 for a copy of the land-use restrictions from the ROD for Site 2.

Excavation into soil above contaminated groundwater at Site 2 would be prohibited without the prior approval of the DON and the regulatory agencies. Groundwater is very close to the surface at this site. Part of the approval process would be to ensure that dewatering is performed safely and in accordance with appropriate regulations.

IRP Sites 16 and 24 are located within the boundaries of the former MCAS El Toro in parcels that are expected to be transferred by deed from the DON to the LRA. Restrictive covenants in the deed of transfer to the LRA and an Environmental Restriction Covenant and Agreement between DTSC and the DON will be used to prevent extraction and/or use of groundwater without prior approval, prevent damage to remediation and monitoring equipment, and allow access by the DON and the regulatory agencies to operate and maintain the extraction and treatment equipment and collect samples from the monitoring wells.

Site 18 consists of a plume of VOC-contaminated groundwater that extends from Site 24 beyond the western boundary of the Station approximately 3 miles off-Station to the west beneath the city of Irvine. The United States is currently negotiating with the Orange County Water District and Irvine Ranch Water District regarding an agreement to construct and operate a joint treatment facility commonly called the "Irvine Desalter Project." The facility would be used to remediate contaminated groundwater at Site 18. As noted above, the DON is still evaluating the possibility of relying upon local regulations or ordinances to regulate the extraction and use of contaminated groundwater that exceeds drinking water standards during the time that groundwater remediation is underway. These regulations or ordinances would not restrict surface use of property above the plume.

Deeper soil at Sites 16 and 24 was reported to contain concentrations of VOCs that were high enough to contaminate groundwater above drinking water standards. To reduce the concentrations of VOCs in soil, the interim ROD for the vadose zone at Site 24 selected soil vapor extraction as the cleanup remedy. A similar remedy is expected to be selected for cleanup of soil at Site 16.

Remediation of contaminated soil at Sites 16 and 24 may not be completed prior to property transfer. If soil cleanup is still being performed at the time of property transfer, deed restrictions will be used to protect the wells and equipment and provide access to operate the system. During remediation, deep excavation would be prohibited without prior approval of the DON and regulatory agencies. Land-use controls are not anticipated to be required once remediation is complete.

E. Notifications

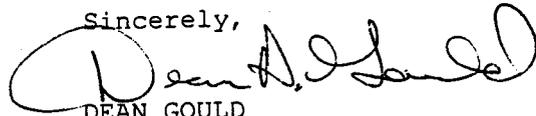
Notification requirements for structures containing asbestos or lead-based paint will be addressed in the FOST documents and in the deeds for the parcels containing the asbestos or lead-based paint in accordance with applicable Department of Defense guidance. Chlorofluorocarbon- and polychlorinated biphenyl-containing equipment will also be evaluated in these transfer documents. In addition, the deed will contain a hazardous substances notification, identifying hazardous substances that were stored for 1 year or more, known to have been released, or disposed on the property.

F. Tracking of Land-Use Controls

The DON is currently evaluating the need for and policy concerning central tracking system for land-use controls for closed installations around the nation. The land-use controls at the former MCAS El Toro installation will be tracked in accordance with the final policy adopted by DON on this issue.

We believe that this response addresses the concerns raised in your letter, keeping in mind that policy is still under development and the final approach to a number of sites is yet to be determined. If you have any further questions, please feel free to contact Ms. Content Arnold, Lead Remedial Project Manager for MCAS El Toro, at (619) 532-0790 or myself, at (619) 532-0784.

Sincerely,



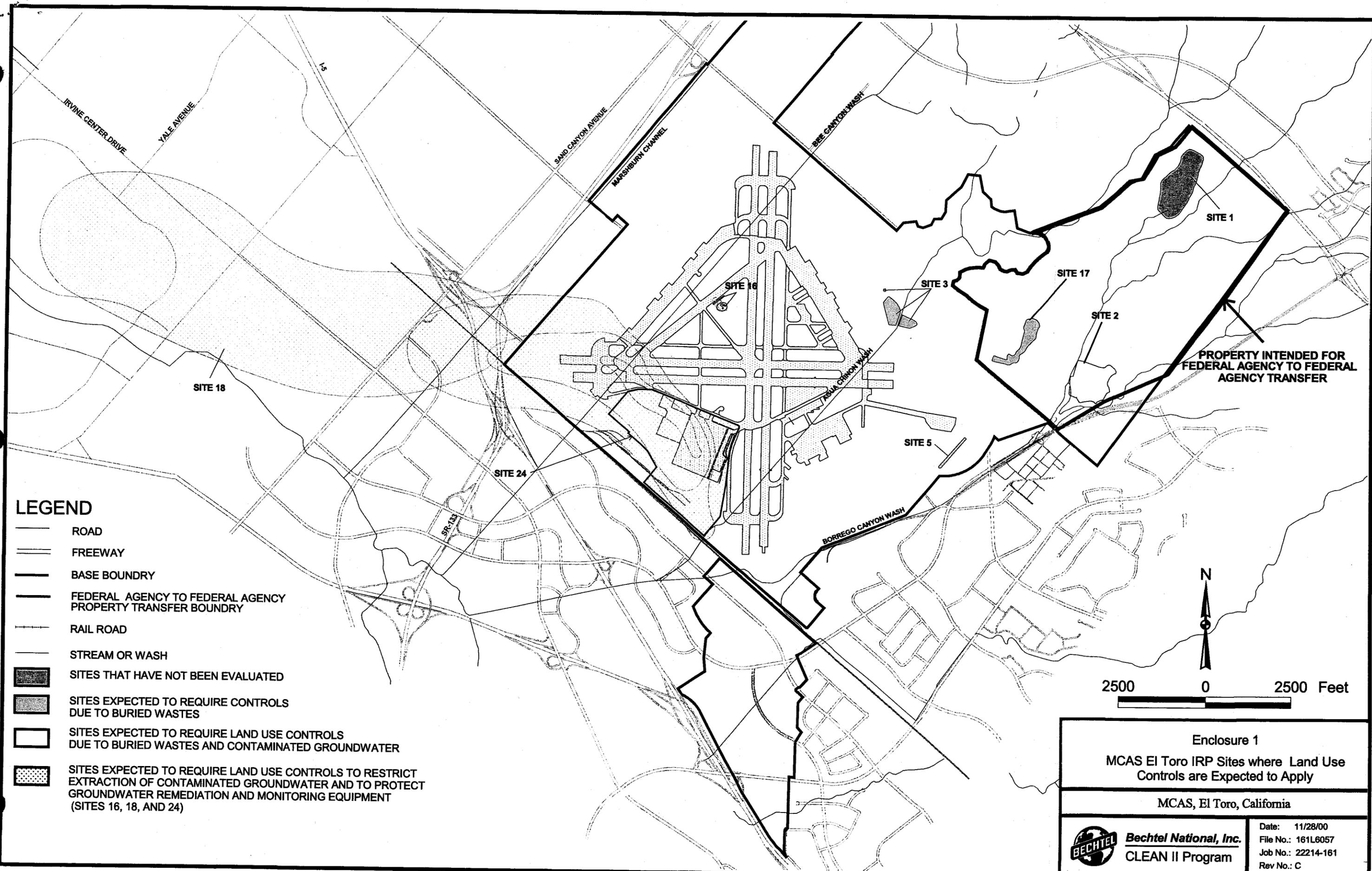
DEAN GOULD
BRAC Environmental Coordinator
MCAS El Toro
By direction of the Commander

Enclosures:

- (1) Currently anticipated land-use controls at MCAS El Toro
- (2) Interim ROD for Operable Unit-2B excerpt

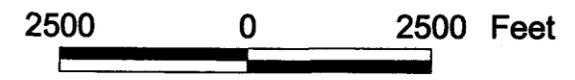
Copy to:

Mr. Glenn Kistner, U.S. EPA
Ms. Triss Chesney, DTSC
Mr. John Broderick, RWQCB
Mr. Greg Hurley, RAB Community Co-Chair
Ms. Polin Modanlou, El Toro Master Development Program



LEGEND

- ROAD
- FREEWAY
- BASE BOUNDARY
- FEDERAL AGENCY TO FEDERAL AGENCY PROPERTY TRANSFER BOUNDARY
- RAIL ROAD
- STREAM OR WASH
- SITES THAT HAVE NOT BEEN EVALUATED
- SITES EXPECTED TO REQUIRE CONTROLS DUE TO BURIED WASTES
- SITES EXPECTED TO REQUIRE LAND USE CONTROLS DUE TO BURIED WASTES AND CONTAMINATED GROUNDWATER
- SITES EXPECTED TO REQUIRE LAND USE CONTROLS TO RESTRICT EXTRACTION OF CONTAMINATED GROUNDWATER AND TO PROTECT GROUNDWATER REMEDIATION AND MONITORING EQUIPMENT (SITES 16, 18, AND 24)



Enclosure 1	
MCAS El Toro IRP Sites where Land Use Controls are Expected to Apply	
MCAS, El Toro, California	
Bechtel National, Inc. CLEAN II Program	Date: 11/28/00 File No.: 161L6057 Job No.: 22214-161 Rev No.: C

Enclosure 2

Example of Institutional Controls Provisions for Inactive and Closed Landfills

9.2 INSTITUTIONAL CONTROLS

Institutional controls are required to maintain the integrity of the caps by preventing excavations; minimizing infiltration of surface waters; preventing land use that presents unacceptable risk to human health and the environment due to residual contamination; protecting groundwater monitoring equipment; and preserving access to the sites and associated monitoring equipment for the DON and the FFA signatories. Such institutional controls shall consist of lease/deed restrictions, MOUs, or other controls mutually agreed to by the FFA signatories and agencies to which the property is being transferred. The DON shall notify the U.S. EPA, DTSC, RWQCB, CIWMB, and the LEA in the event of a transfer of Sites 2 and 17. Transferees of Sites 2 and 17 will be required to notify the LEA and FFA signatories in the event of a significant land-use change at Sites 2 and 17 so that issues related to postremediation land use at these sites are managed appropriately.

9.2.1 Land-Use Control Restrictions

The institutional controls associated with Alternative 3 shall prohibit the following:

- residential use of the sites and construction of hospitals for humans, schools for persons under 21 years of age, day care centers for children, or any permanently occupied human habitation on the sites;
- construction of facilities, structures, or appurtenances; excavation; or any other land-disturbing activity into or on the surface of the landfills that may affect the drainage or increase erosion or infiltration unless prior approval is obtained from the DON and the FFA signatories;
- construction of structures within 1,000 feet of the edge of the landfill without prior approval of the DON (the DON intends to draft this restriction in a manner that will ensure the prompt and reasonable exercise of judgment by the DON);
- planting deep-rooted plants that could threaten the integrity of the landfill cap;
- irrigating the surface of the landfill;
- exposing or extracting groundwater from the shallow or principal aquifer at Site 2 without prior approval of the DON;
- land-disturbing activity on lands adjacent to the landfill that may cause adverse effects upon the landfill through erosion of the surface or diversion of off-site surface water runoff onto the landfill, unless the land owner of the adjacent property provides for mitigation of such adverse effects (e.g., through structural drainage and erosion control measures such as diversion channels, riprap) and obtains the prior approval of DON and FFA signatories (the DON intends to draft this restriction in a manner that will ensure the prompt and reasonable exercise of judgment by the DON); and

Enclosure 2 Example of Institutional Controls Provisions for Inactive and Closed Landfills

- the removal of or damage to security features (e.g., locks on monitoring wells) or to monitoring equipment and associated pipelines and appurtenances.

Institutional controls shall also be used to ensure that the DON and FFA signatories have the right to enter and inspect the property, perform monitoring activities, ensure the viability of the land-use control restrictions, and perform any additional response actions.

9.2.2 Land-Use Control Implementation and Certification Plan

The O&M Plan for Sites 2 and 17 required under Subparagraph 7.3(a)(17) of the FFA shall include an attachment entitled Land-Use Control Implementation and Certification Plan addressing the following elements:

- a description and location of the sites, including a map; the approximate size of the site; and a description of any chemicals of concern;
- the land-use control objectives and restrictions stated in the ROD;
- the specific legal mechanism that will be used to achieve the ROD's land-use control objectives and restrictions;
- the required frequency for periodic inspection of the sites;
- identification of the entities responsible for carrying out the monitoring and inspection;
- the methods for periodically certifying compliance with institutional controls upon completion of inspections; and
- procedures for notifying the DON and FFA signatories in the event of a failure to comply with land-use restrictions.

9.2.3 Environmental Restriction Covenant and Agreement

As noted in Section 7.2.1.4, DON and DTSC shall enter into good faith negotiations to enter into an Environmental Restriction Covenant and Agreement. This agreement will serve as the mechanism to implement the institutional controls for Sites 2 and 17. In addition, DON shall include the same environmental restrictions in the deed between the United States and the transferee(s). DTSC shall be identified in the deed as a covenantee. The deed will be recorded in the Office of the County Recorder for the County of Orange.



INSTITUTIONAL CONTROLS

What they are and how they are used

WHAT IS AN INSTITUTIONAL CONTROL?

The purpose of this fact sheet is to provide an overview of Institutional Controls (IC) and how they are used. A separate fact sheet is being developed on establishing and maintaining ICs as part of an environmental cleanup remedy decision. That fact sheet will also be available on the Department of Defense (DoD) BRAC Environmental homepage at <http://www.dtic.mil/envirodod/envbrac.html>.

- ICs have a long history as a tool in property law and their use in a non-environmental context is quite common. An example of an IC in a non-environmental context is a prohibition against having a television reception satellite dish in a planned community.
- An IC is a legal or institutional mechanism that limits access to or use of property, or warns of a hazard. An IC can be imposed by the property owner, such as use restrictions contained in a deed or by a government, such as a zoning restriction.

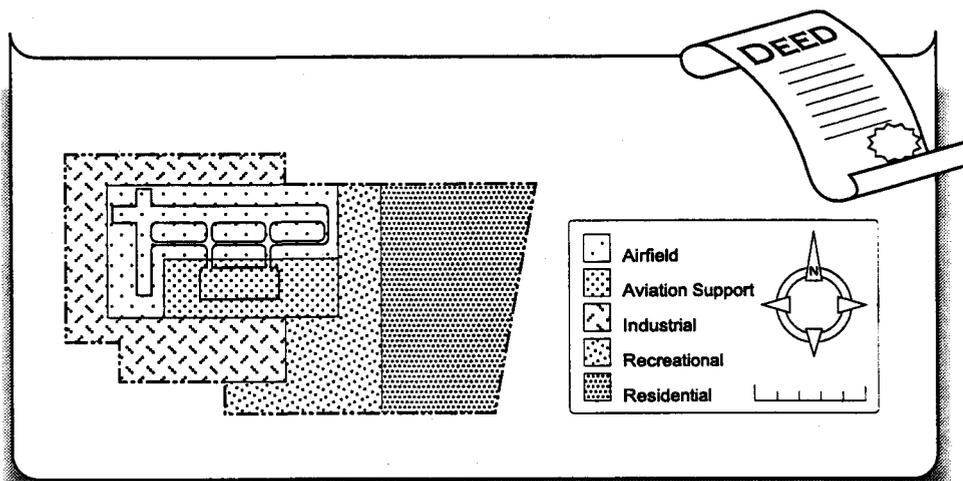
USES OF INSTITUTIONAL CONTROLS IN ENVIRONMENTAL CLEANUP

- ICs are used to ensure protection of human health and the environment.
- ICs are used to protect ongoing remedial activities and to ensure viability of the remedy.
- ICs are specifically provided for by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan (NCP).
- DoD has used and will use ICs in remedial activities during cleanup and as part of a final remedy.

TYPES OF INSTITUTIONAL CONTROLS

ICs fall into two categories:

- Proprietary controls
- Governmental controls



WHAT IS A PROPRIETARY CONTROL?

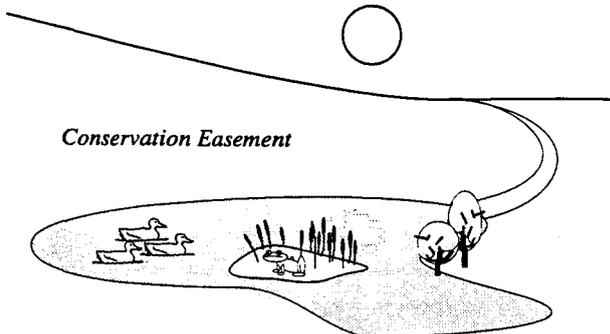
- A proprietary control is a private contractual mechanism contained in

the deed or other document transferring the property.

- Proprietary controls involve the placement of restrictions on land through the use of easements, covenants, and reversionary interests. Easements, covenants, and reversionary interests are nonpossessory interests. Nonpossessory interests give their holders the right to use or restrict the use of land, but not to possess it.
- State law varies on the application and enforcement of such restrictions.

What is an Easement?

- An easement allows the holder to use the land of another, or to restrict the uses of the land. For example, a conservation easement restricts the owner to uses that are compatible with conservation of the environment or scenery.



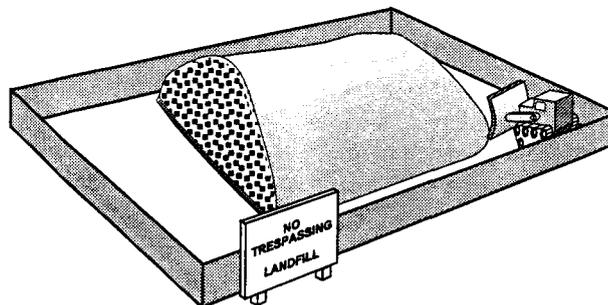
- If the owner violates the easement, the holder may bring suit to restrain the owner.
- An easement "appurtenant" provides a specific benefit to a particular piece of land. For example, allowing a neighbor to walk across your land to get to the beach. The neighbor's land, the holder of the easement, benefits by having beach access through your land.
- An easement "in gross" benefits an individual or company. For example, allowing the utility company to come on your land to lay a gas line. The utility company, the holder of the easement, benefits by having use of the land to lay the gas line.
- An affirmative easement allows the holder to use another's land in a way that, without the ease-

ment, would be unlawful-- for example, allowing a use that would otherwise be a trespass.

- A negative easement prohibits a lawful use of land — for example, creating a restriction on the type and amount of development on land.

What is a Covenant?

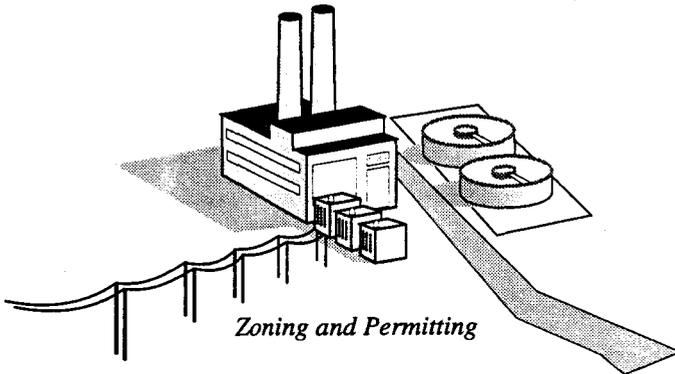
- A covenant is a promise that certain actions have been taken, will be taken, or may not be taken.
- Covenants can bind subsequent owners of the land. There are special legal requirements needed to bind subsequent owners.
- An affirmative covenant is a promise that the owner will do something that the owner might not otherwise be obligated to do -- for example, maintaining a fence on the property that surrounds a landfill.



- A negative covenant is a promise that an owner will not do something that the owner is otherwise free to do -- for example, restricting the use of groundwater on the land.

What is a Reversionary Interest?

- A reversionary interest places a condition on the transferee's right to own and occupy the land. If the condition is violated, the property is returned to the original owner or the owner's successors.
- Each owner in the chain of title must comply with conditions placed on the property. If a condition is violated the property can revert to the original owner, even if there have been several transfers in the chain of title.



WHAT IS A GOVERNMENTAL CONTROL?

- Governmental controls are restrictions that are within the traditional police powers of state and local governments to impose and enforce.
- Permit programs and planning and zoning limits on land use are examples of governmental controls.

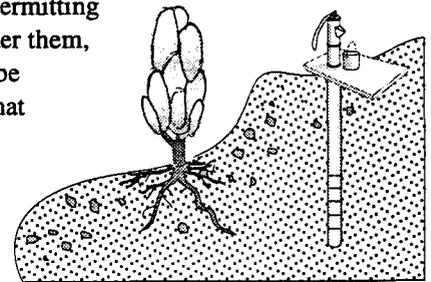
What are possible governmental controls?

- **Zoning**— Use restrictions imposed through the local zoning or land use planning authority. Such

restrictions can limit access and prohibit disturbance of the remedy. Zoning authority does not exist in every jurisdiction.

- **Siting restrictions** — Control land use in areas subject to natural hazards, such as earthquakes, fires, or floods. Such restrictions are created through statutory authority to require that states implement and enforce certain land use controls as well through local ordinances.

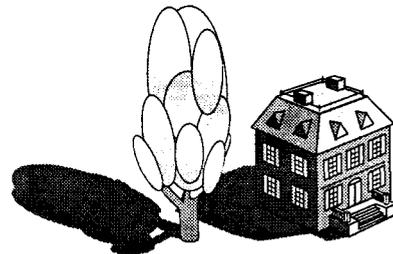
- **Groundwater restrictions**— Specific classification systems used to protect the quality of or use of ground water. These systems operate through a state well permitting system. Under them, criteria may be established that must be met before a use permit or construction is allowed.



Examples of the Application of Institutional Controls

Historic Preservation at U.S. Customs House, Boston

In 1987, the Custom House in Boston was deemed excess and the General Services Administration (GSA), through special legislation, sold it to the Boston Redevelopment Authority. At the time of the sale, the GSA placed an historic preservation covenant in the deed to protect the exterior architectural and structural integrity of the building. The Boston Redevelopment Authority wanted to resell the Custom House to a developer that planned to connect it by a skyway to a building half a block away. When GSA refused to remove the historic covenant, the deal fell through. Several years later, the Marriott Corporation proposed a plan to buy the Custom House and create an urban park between the Marriott at the Wharf and the Custom House. Under the plan, the building will retain its historic appearance and will be used as one of Marriott's time-share properties.



Examples of the Application of Institutional Controls

Limiting Subsurface Use at Former Minuteman Missile Silos

With the end of the Cold War, the Department of Defense announced the retirement of the Force Minuteman missile system in North and South Dakota and Missouri. As allowed by the Strategic Arms Reduction Treaty, the Air Force, after extensive technical analysis and public comment, determined that dismantlement of the missile facilities would be accomplished by imploding the structures, capturing the contamination within the concrete structures; capping each structure with a combination of three feet of soil and a thick plastic liner; and contouring the landscape at an additional depth of seven feet above the facility. The Air Force also determined that CERCLA 120(h) applied to the transfer of these facilities to non-federal entities. The Air Force and the U.S. Environmental Protection Agency (EPA) found a sensible approach to address environmental issues, which was formalized in an agreement between the two agencies. The agreement calls for the GSA in disposing the property to notify federal and state regulators when the property is transferred; provide prior notice to and obtain the approval of federal and state regulators for any construction or other activity that would affect the underground facility or groundwater monitoring wells; and place restrictions in the deed of conveyance to prohibit future property owners from installing water wells or otherwise physically penetrating beneath the surface of the site below two feet. The Air Force and regulators also were provided with rights of access. The ICs are in place for the disposal of these missile sites in North and South Dakota and Missouri.

Other Sources of Information

1. John Pendergrass, *Use of Institutional Controls as Part of a Superfund Remedy: Lessons from Other Programs*, 26 ELR 10219 (March 1996).
2. Report of the Future Land Use Working Group to the Defense Environmental Response Task Force, *Types of Institutional Controls*, (May 1996), available on DoD BRAC environmental homepage at <http://www.dtic.mil/envirodod/envbrac.html>.
3. Report to the Future Land Use Working Group to the Defense Environmental Response Task Force, *Making Institutional Controls Effective*, (September 1996) available on DoD BRAC environmental homepage at <http://www.dtic.mil/envirodod/envbrac.html>.

NOTICE

We welcome and invite your comments on this fact sheet, as we seek ways to improve the information provided. Please send comments to the following address:

OADUSD (Environmental Cleanup)

Attn: Fast-track Cleanup

3400 Defense Pentagon

Washington, D.C. 20301-3400.



February 1998

A Guide to Establishing Institutional Controls at Closing Military Installations

About This Guide

This guide supplements the land use matrix developed under the February 1996 "Guide to Assessing Reuse and Remedy Alternatives at Closing Military Installations" by helping to ensure the compatibility between the selected land use and the selected remedy. The land use matrix is intended as a tool to build consensus among Base Realignment and Closure (BRAC) cleanup teams (BCTs), local redevelopment authorities (LRAs), restoration advisory boards (RABs), and other community members, as well as to identify and resolve the complex restoration and reuse issues at closing installations. This guide further explains land use restrictions, namely institutional controls (ICs), that may be associated with a restoration and reuse alternative. This guide is intended to:

ICs are mechanisms that protect property users and the public from existing site contamination that continues to be present during the use of a site.

- facilitate, early in the process, discussions among stakeholders to enhance understanding of ICs, i.e., what they are and how they might be used as part of a proposed remedy alternative in the BRAC cleanup program;
- act as a planning tool and checklist to assist stakeholders in considering a selected remedy which does in fact include the use of ICs; and
- provide a framework for building cooperation among the stakeholders in the establishment and maintenance of ICs.

For a particular restoration and reuse alternative, the stakeholders may identify the need for ICs. This guide assumes that the LRA will take the environmental condition of property into account in development of its reuse plan, and that use restrictions will be included in the remedy decision arrived at through the remedy selection process. In this guide, ICs are taken to be mechanisms that protect property users and the public from existing contamination that continues to be present during the use of a site. A more detailed explanation of ICs is presented in the BRAC Environmental Program Fact Sheet: *Institutional Controls: What They Are and How They Are Used* (see "Where to Learn More," page 8). There may be other ICs associated with the property but not related directly to an environmental response action, such as historic and cultural preservation, access for utility maintenance, or ecological concerns, e.g., wetlands and wildlife protection.

Conflict can arise among stakeholders during the process of identifying and evaluating restoration and reuse alternatives. A detailed discussion of conflict resolution techniques can be found in the July 1996 document entitled *Partnering Guide for Environmental Missions of the Air Force, Army, and Navy* (see "Where to Learn More," page 8). That guide provides techniques for forming and maintaining an effective problem-finding, problem-solving team. By applying the techniques described, the parties involved in establishing and maintaining ICs can identify common issues and maximize the effectiveness of the tools available to each.



What Is the Role of Institutional Controls in the Remedy Selection Process?

The potential need for ICs is identified when stakeholders develop the land use matrix recommended in the BRAC Environmental Program Fact Sheet: *A Guide to Assessing Reuse and Remedy Alternatives at Closing Military Installations*. When various restoration and reuse alternatives are being developed, the first question to be asked is:

Does this alternative require some sort of control or limit on use of the property?

If the answer to that question is "yes," then this guide should be used to evaluate how an IC would be established. Considering the pros and cons of establishing and maintaining ICs should be an integral part of the decision-making process in the selection of a restoration action. When ICs are used, they are a vital part of the remedy and must be maintained to protect human health and the environment. ICs are legal mechanisms, such as deed restrictions, and may be coupled with physical controls, such as signs posted at the site or fences. The control or notice mechanism will vary depending on the nature of the contamination, its location, the targeted land use, the structures located on the site, and the length of time for which the use is restricted.

During remedy selection, the nature and extent of specific limits placed on future property use should be discussed with the community and the LRA so that they may be considered in planning reuse of BRAC property.

Once remedy alternatives, including ICs, have been identified, the remedy selection process is applied to evaluate the alternative as a whole, including any ICs involved. For example, using the process under the National Contingency Plan (NCP) for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the BCT will develop a proposal on which the public and regulatory agencies will be invited to comment — both in writing and at a public meeting. A response to those comments will be prepared, and a response action selected. Throughout the remedy selection process, the ICs will be evaluated in the same manner as all other components of a potential remedy, as required by statute and Executive Order 12580. Stakeholders need to seriously consider and discuss all aspects of establishing, maintaining, and funding ICs as part of a remedy.

Two situations commonly occur in which ICs play an important role: (1) to protect the integrity of an engineering control intended to contain contamination, reduce its mobility, and minimize exposure, such as a landfill cap, and (2) to limit the exposure of individuals to residual contamination by limiting the reuse activities associated with that portion of the installation.

The information collected during the Remedial Investigation is used to determine if contamination is present and to characterize the site. In some cases, removing all contamination to allow unrestricted use of property may be very costly, the technology may be unavailable, or the time required to remediate and transfer the property may be prohibitive considering the community's reuse requirements for planned reuse and timing of property transfer.

The preferred remedy, protective of human health and the environment, sometimes requires that contaminants not be disturbed, leaving them in place. For example, the excavation of landfills can actually increase the risk to human health and the environment, in the short term, by exposing toxic contamination. One approach to reducing the long-term risk associated with such contamination left in place is to limit the uses to which that property will be put. The limit may be broad — for example, no residential occupancy — or it may be specific — for example, any activity involving the disturbance of soil must be approved in advance and any excavated soil must be disposed of properly.

During the remedy selection, the nature and extent of the specific limits placed on future property use should be discussed with the community and the LRA so that they may be considered in planning reuse of BRAC property. Although the final details, such as engineering plans, zoning plans, and certain longer-term ICs such as deed restrictions, will not be determined until the Remedial Design is developed, the Feasibility Study (FS) should provide as clear a description as possible of the nature of the anticipated restrictions. Another important element of the FS is the anticipated duration of the restriction. If the



restriction is limited to a relatively short period during the actual remediation, it will have a very different impact on reuse than a restriction that is anticipated to last for a longer period of time. Such a longer-term restriction, for example, might be a restriction on groundwater use until treatment or attenuation has reduced contaminant levels to below health-based standards or a restriction on surface use over a landfill cap.

The proposed plan outlines the preferred remedial alternative and summarizes the other alternatives considered in the FS. The proposed plan should be written in a manner that can be easily understood by the public. A clear statement of the restrictions associated with the proposed action should be included to allow the public to be fully informed about the proposed action and implications of using ICs if they are a part of that action. The remedy selection process under CERCLA and the Environmental Protection Agency's (EPA) position on the use of ICs are described in the National Contingency Plan (NCP) (40 CFR Part 300.430(a)(1)(iii)) and its preamble (55 FR 8706). Under the NCP, community acceptance is one of the nine criteria for selecting a CERCLA remedy. While community acceptance is an essential ingredient in making the final remedy selection, it is not always possible to accomplish all the community's goals. It is the Department of Defense's (DoD) responsibility to make the final remedy selection in accordance with applicable laws and requirements and to ensure that it will be protective of human health and the environment, as well as be compatible with, to the extent reasonably practicable, community reuse plans. This final remedy selection is formalized through the Record of Decision (ROD), which will be compatible with any ICs that may be implemented at the site.

When the Selected Response Includes Institutional Controls

Form a Team

When a selected response includes ICs, the team members (see box) involved in developing the future land use and evaluating the response should work together to establish and maintain the selected ICs. Requirements for establishment and maintenance of ICs vary from site to site and are dependent on the real property and environmental cleanup laws and regulations of that jurisdiction. Cooperation, therefore, is essential to achieve success. That success depends on building a team that will be effective in using the tools available at that site and in that location.

Team members already should be a part of the process through their participation in groups such as those listed in the box below. Key members of these existing entities (although others may be consulted as necessary) should be part of the team developing a plan for the success of ICs at that site. It is important to build a team that works together to ensure the success of the response action and the effective reuse of the land.

The Team	<i>Potential Role in Establishing and Maintaining ICs</i>
BRAC Cleanup Team	Identify the remaining contamination and associated risks at a site that requires ICs
Local Redevelopment Authority	Identify the intended use of the site consistent with the environmental condition of property that may require ICs, may assist in the establishment of ICs
Community Stakeholders (including the RAB)	Provide input and recommendations on establishing and maintaining ICs
Base Transition Coordinator	Facilitate the coordination of information for property reuse and transfer with cleanup activities, including establishment of ICs
Real Estate Attorney/Environmental Attorney	Develop deed language for restrictions; may assist in developing other ICs
Federal, State, and Local Government Officials	Establish, monitor, or enforce ICs
Identified Holders of Property Interest	Maintain a use of the site that is consistent with ICs



Establish Cooperation

Such success will be easier to achieve when the following commitments are made:

- The team makes a commitment to the success of ICs
- The team develops the skills needed to work together well
- Throughout the process, all team members make a commitment to open communication
- The team members maintain mutual trust, honor, and respect
- The team members accept responsibility, make decisions, take risks, and resolve issues
- The team makes decisions through consensus
- The team develops creative solutions and applies them to all problems
- The team maintains agreed-upon processes for resolving disagreements or disputes
- The team evaluates progress and recognizes successes

The Task of the Team

This guide identifies issues that may be relevant to any number of response actions. It does not suggest how to resolve specific issues, but offers tools that the team may find useful. It is up to the team establishing the ICs to develop and implement a plan that uses these and other tools and the resources available to them at that site to create an effective remedy.

Checklist of Issues and Tools To Be Considered When Establishing and Maintaining ICs

The following questions should be asked when DoD and stakeholders discuss how to establish and maintain ICs.

Q. What are the ICs meant to accomplish?

What types of reuse are possible, given the environmental condition of property and/or the planned remedial activities?
For example:

TYPE(S) OF REUSE ALLOWED

- Residential
 - Housing
 - Daycare
 - Hospitals
 - Schools
 - Other
- Commercial
- Industrial
- Recreation
- Agricultural
- Other



What are the activities that must be restricted? For example:

SPECIFIC RESTRICTIONS

- Uses of ground and surface water
 - Prohibitions against drinking the water
 - Prohibitions against use of groundwater from existing wells
 - Prohibitions against any other use of the water (e.g., irrigation, watering livestock, or recreational uses, including fishing)
 - Restrictions to maintain the integrity of monitoring and reinjection wells
 - Other
- Use of soils
 - Prohibitions against excavation, construction, drilling, or disturbance of the soil (e.g., well installation that may connect an uncontaminated aquifer with a contaminated aquifer, or maintaining landfill cap)
 - Restrictions governing depth of excavation
 - Other
- Other ICs not directly related to the environmental response
 - Restrictions preserving historic or cultural areas
 - Restrictions protecting wildlife or wetlands
 - Restrictions governing access to the property (e.g., utility maintenance)

Q. What are the techniques and tools available to establish and maintain ICs?

TECHNIQUES: METHODS FOR ACCOMPLISHING THE GOALS OF THE ICs

- Layering:** Layering means the use of a strategy to combine mutually reinforcing controls, for example, a combination of deed restrictions, physical barriers, and notice can expand the number of parties involved and strengthen the network that maintains the remedy and protects human health and the environment. Many tools can be used at the same time and at various levels to accomplish that result. Different team members may have methods available to them that enhance maintenance of the remedy.
- Notice:** Providing notice that controls exist at a site is essential to maintain those controls and ensure that users of the property abide by them. The more people who are aware of and responsible for an IC, the easier it is to ensure that the controls will be heeded and maintained.

The more people who are aware of and responsible for an IC, the easier it is to ensure that the controls will be heeded and maintained.

TOOLS: SPECIFIC ACTIONS THAT CAN BE USED TO IMPLEMENT THESE TWO TECHNIQUES

- Deed Language:** Language in the deed is a good method of providing notice and generally will be an important part of any IC plan. The legal instrument and language used should be tailored to the requirements and processes that are best suited to the jurisdiction. The instrument, which may be separate from the deed, may be a covenant or easement or some other form of property right; however, before relying on any such right, the legality and enforceability of such a right in the jurisdiction must be determined. The legal instrument should provide a



stand-alone explanation of the restrictions and should cite the portions of the administrative record, regulations, and transfer documents that are relevant to establishing the restrictions. Language providing notice and describing the restrictions may also be included in the transfer documents.

Depending on state law, which may vary, and depending on the intentions of the parties to the original transaction and third parties who hold an interest in the land, deed language can be structured to give enforcement rights to the previous owner and to those third parties. Deed restrictions implementing ICs should be structured to run with the land — in other words, to remain in force despite changes in ownership; for example, by stating that the restrictions benefit the surrounding property and benefit the general public, or by stating that the parties intend the ICs to run with the land and bind future parties. State laws vary and the enforceability of deed restrictions should be considered carefully in structuring deed language. The more stakeholders that have authority to enforce a deed restriction, the more effective it will be as a method of control. In spite of any legal limits on the enforceability of deed language, a deed restriction is an important form of notice.

- Records and Community Involvement:** Other available methods of providing notice include the administrative record for the response action; local records like planning and zoning maps and subdivision plats; and similar state records and registries. Means of community education such as public meetings, recurring notices in newspapers, and signs and fences also provide notice.
- Federal, state, and local laws and regulations:** Statutory authority under CERCLA and the Resource Conservation and Recovery Act (RCRA) may provide Federal and state regulators direct legal authority to protect human health and the environment, prevent releases, or control site activities. State and local governments may also play a role through already existing legal frameworks or regulatory programs such as permitting the use of land, monitoring public health through public health statutes, authorizing zoning and land use plans, passing ordinances, and acting under established statewide environmental programs. Such legal avenues can be integrated into an IC plan and provide notice that activities at the site in question are restricted.
- Inspections:** There may be inspections of the affected property associated with the selected remedy, generally as part of the remedy's operation and maintenance. Even though these inspections may not be intended for the purpose of monitoring an IC, they may provide an opportunity to assess activities at the site. For example, an inspection of monitoring wells may also provide an opportunity to establish compliance with an IC restricting excavation. Other existing inspection routines associated with regulatory programs not related to the remediation may also protect the site in question. While such inspections should not be confused with the ICs themselves, they can be used to assist in the maintenance of ICs. Such existing programs can be integrated into an IC plan in association with or in addition to the state and local laws and regulations listed above. The state and Federal members of the BCT may give the appropriate section or branch of the environmental regulatory agency or other pertinent agency notice of the IC or deed restriction by adding the organization's representative to the finding of suitability to transfer distribution list. In addition, the Federal government is required to review a remedy at least every five years, where contamination remains in place. Where ICs are part of the remedy, such reviews should include verification that the ICs are still in place and effective.

- Remedy-specific environmental inspections (generally part of operation and maintenance of a remedy)
 - Inspections to ensure the integrity of the landfill cap
 - Inspections of the leachate treatment system
 - Inspections of the water treatment system
 - Other inspections required for operation and maintenance



- Other Federal, state, and local government inspections not directly related to the environmental response
 - Restrictions preserving historic or cultural areas
 - Restrictions protecting wildlife or wetlands
 - Restrictions governing access to the property (e.g., utility maintenance)
 - Restrictions concerning health
 - Restrictions concerning building standards
 - Other

Q. What are the responsibilities to maintain and ensure the effectiveness of ICs?

As a network for establishing an IC is created, it is also appropriate and necessary to discuss the associated responsibilities for maintaining its effectiveness. As previously noted, there are numerous existing statutory frameworks and regulatory programs at the Federal, state, and local levels that provide the authority to maintain the integrity of the remedy requirements. Stakeholders may need to discuss resources that are available or might be needed for certain ICs. They also need to discuss how long-term responsibilities for IC implementation at the site will be coordinated among team members.

- Statutory authority to enforce RCRA and CERCLA
- State and local, general or site-specific enforcement authorities that can be applied
 - Property laws
 - Zoning
 - Permitting programs
 - Other laws or ordinances
- Funding maintenance of the IC
- Long-term coordination responsibilities

Q. How is an IC modified or terminated?

ICs may also be modified or terminated over time. It is therefore useful to discuss what time frames, if known, and what procedures may be necessary for accomplishing these tasks. Due to the site-specific nature of IC plans, procedures for modifications to ICs may vary depending on that plan.

- Length of time ICs are needed
- Legal steps to remove or modify each IC
- Organizations that may be involved with modification or termination:
 - Federal government
 - State government
 - State court
 - Local government
 - Local court
 - Landowner
 - Adjacent landowner
 - Previous landowner



Where to Learn More

Further information on this and other BRAC issues can be found by reading:

- DoD's Future Land Use Policy: *Responsibility for Additional Environmental Cleanup after Transfer of Real Property* (July 1997)
- BRAC Environmental Program Fact Sheet: *Institutional Controls: What They Are and How Are They Used* (Spring 1997)
- BRAC Environmental Program Fact Sheet: *A Guide to Assessing Reuse and Remedy Alternatives at Closing Military Installations* (February 1996)
- *Fast Track to FOST: A Guide to Determining if Property is Environmentally Suitable for Transfer* (Fall 1996)
- *Partnering Guide for Environmental Missions of the Air Force, Army, and Navy* (July 1996)

Or by contacting:

Office of the Assistant Deputy Under Secretary of Defense
(Environmental Cleanup)
Attn: Fast-Track Cleanup
3400 Defense Pentagon
Washington, D.C. 20301-3400

Or by looking on the World Wide Web at:

<http://www.dtic.mil/envirodod/envbrac.html>

For additional information about selection of response actions, see the following EPA Office of Solid Waste and Emergency Response (OSWER) documents:

- Land Use in CERCLA Remedy Selection Process, OSWER Publication Number PB95-963234NDZ (June 1995)
- Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions, OSWER Publication Number 9355.0-30 (April 1991)
- A Guide to Selecting Superfund Remedial Actions, OSWER Publication Number 9355.0-27FS (April 1990)

These are available on the World Wide Web at:

<http://www.epa.gov/epa/oswer>

The *Guide to Establishing Institutional Controls at Closing Military Installations* was prepared with input from an inter-agency work group made up of representatives of the Office of the Secretary of Defense, the DoD Components, the U.S. EPA, the General Services Administration, the California EPA, the National Association of Attorneys General, the International City/County Management Association, the National Association of Installation Developers, and others. This guide is not a formal statement of DoD policy, but is meant to assist in the establishment and maintenance of ICs at BRAC properties.

Local reproduction of this fact sheet is authorized and encouraged.



ACQUISITION AND TECHNOLOGY

THE UNDER SECRETARY OF DEFENSE
3010 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-3010



JUL 25 1997

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY
(INSTALLATIONS, LOGISTICS AND ENVIRONMENT)
ASSISTANT SECRETARY OF THE NAVY
(INSTALLATIONS AND ENVIRONMENT)
ASSISTANT SECRETARY OF THE AIR FORCE
(MANPOWER, RESERVE AFFAIRS, INSTALLATIONS AND ENVIRONMENT)
DEPUTY UNDER SECRETARY OF DEFENSE
(ENVIRONMENTAL SECURITY)
DEPUTY UNDER SECRETARY OF DEFENSE
(INDUSTRIAL AFFAIRS AND INSTALLATIONS)
DIRECTOR, DEFENSE LOGISTICS AGENCY (D)

SUBJECT: Responsibility for Additional Environmental Cleanup after Transfer of Real Property

The purpose of the attached policy is to describe the circumstances under which DoD would perform additional cleanup on DoD property that is transferred by deed to any person or entity outside the federal government. This policy is applicable to real property under DoD control that is to be transferred outside the federal government, and is effective immediately. For property that is transferred pursuant to section 120(h)(3)(C) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 42 USC 9620(h)(3)(C)), this policy applies after the termination of the deferral period.

DoD continues to be committed to a remedy selection process that provides for full protection of human health and the environment, even after property has been transferred by DoD. The Deputy Under Secretary of Defense (Environmental Security) will issue separately any specific guidance needed to implement this policy. This policy should be read to be compatible with and does not supersede other related DoD policies, and is to be incorporated in the next revision of the appropriate DoD Instruction. I ask for your support in implementing this policy and working with communities so that they can make informed decisions in developing their redevelopment plans.

R. Noel Longuemare
Acting Under Secretary of Defense
(Acquisition and Technology)

Attachment



Policy on Responsibility for Additional Environmental Cleanup

DoD Policy on Responsibility for Additional Environmental Cleanup After Transfer of Real Property

Background. This policy is instituted within the framework established by land use planning practices and land use planning authorities possessed by communities, and the environmental restoration process established by statute and regulation. The land use planning and environmental restoration processes – two separate processes – are interdependent. Land use planners need to know the environmental condition of property in order to make plans for the future use of the land. Similarly, knowledge of land use plans is needed in order to ensure that environmental restoration efforts are focused on making the property available when needed by the community and that remedy selection is compatible with land use. This policy does not supplant either process, but seeks to integrate the two by emphasizing the need to integrate land use planning assumptions into the cleanup, and to notify the community of the finality of the cleanup decisions and limited circumstances under which DoD would be responsible for additional cleanup after transfer.

Cleanup Process. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 42 USC 9601 et seq.) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP, 40 CFR 300) establish the requirements and procedures for the cleanup of sites that have been contaminated by releases of hazardous substances. CERCLA, furthermore, requires that a deed for federally owned property being transferred outside the government contain a covenant that all remedial action necessary to protect human health and the environment has been taken, and that the United States shall conduct any additional remedial action “found to be necessary” after transfer. Within the established restoration process, it is DoD’s responsibility, in conjunction with regulatory agencies, to select cleanup levels and remedies that are protective of human health and the environment. The environmental restoration process also calls for public participation, so that the decisions made by DoD and the regulatory agencies have the benefit of community input.

Land Use Assumptions in Cleanup Process. Under the NCP, future land use assumptions are developed and considered when performing the baseline risk assessment, developing remedial action alternatives, and selecting a remedy. The NCP permits other-than-residential land use assumptions to be considered when selecting cleanup levels and remedies, so long as selected remedies are protective of human health and the environment. The U.S. Environmental Protection Agency (EPA) further amplified the role of future land use assumptions in the remedy selection process in its May 25, 1995, “Land Use in the CERCLA Remedy Selection Process” directive (OSWER Directive No. 9355.7-04).

Development of Land Use Plans. By law, the local community has been given principal responsibility for reuse planning for surplus DoD property being made available at Base Realignment and Closure (BRAC) installations. That reuse planning and implementation authority is vested in the Local Redevelopment Authority (LRA) described in the DoD Base Reuse Implementation Manual (DoD 4165.66-M). The DoD Base Reuse Implementation Manual calls for the LRA to develop the community redevelopment plan to reflect the long term needs of the community. A part of the redevelopment plan is a “land use plan” that identifies the proposed land use for given portions of the surplus DoD property. The DoD is committed to working with local land use planning authorities, local government officials, and the public to develop realistic assumptions concerning the future use of property that will be transferred by DoD. The DoD will act on the expectation that the community land use plan developed by the LRA reflects the long-range regional needs of the community.

Use of Land Use Assumptions in the Cleanup Process. DoD environmental restoration efforts for properties that are to be transferred out of federal control will attempt, to the extent reasonably practicable, to facilitate the land use and redevelopment needs stated by the community in plans approved prior to the remedy selection decision. For BRAC properties, the LRA's redevelopment plan, specifically the land use plan, typically will be the basis for the land use assumptions DoD will consider during the remedy selection process. For non-BRAC property transfers, DoD environmental restoration efforts will be similarly guided by community input on land use, as provided by the local government land use planning agency. In the unlikely event that no community land use plan is available at the time a remedy selection decision requiring a land use assumption must be made, DoD will consider a range of reasonably likely future land uses in the remedy selection process. The existing land use, the current zoning classification (if zoned by a local government), unique property attributes, and the current land use of the surrounding area all may serve as useful indicators in determining likely future land uses. These likely future land uses then may be used for remedy selection decisions which will be made by DoD (in conjunction with regulatory agencies) in accordance with CERCLA and the NCP.

DoD's expectation is that the community at-large, and in particular the land use planning agency, will take the environmental condition of the property, planned remedial activities, and technology and resource constraints into consideration in developing their reuse plan. The February 1996 "Guide to Assessing Reuse and Remedy Alternatives at Closing Military Installations" provides a useful tool for considering various possible land uses and remedy alternatives, so that cost and time implications for both processes can be examined and integrated. Obviously, early development of community consensus and publication of the land use plan by the LRA or the land planning agency will provide the stability and focus for DoD cleanup efforts.

Applicable guidelines in EPA's May 25, 1995, "Land Use in the CERCLA Remedy Selection Process" Directive should be used in developing cleanup decisions using land use assumptions. For a remedy that will require restrictions on future use of the land, the proposed plan and record of decision (ROD) or other decision documents must identify the future land use assumption that was used to develop the remedy, specific land use restrictions necessitated by the selected remedy, and possible mechanisms for implementing and enforcing those use restrictions. Examples of implementation and enforcement mechanisms include deed restrictions, easements, inspection or monitoring, and zoning. The community and local government should be involved throughout the development of those implementation and enforcement mechanisms. Those mechanisms must also be valid within the jurisdiction where the property is located.

Enforcement of Land Use Restrictions. The DoD Component disposal agent will ensure that transfer documents for real property being transferred out of federal control reflect the use restrictions and enforcement mechanisms specified in the remedy decision document. The transfer document should also include a description of the assumed land use used in developing the remedy and the remedy decision. This information required in the transfer documents should be provided in the environmental Finding Of Suitability to Transfer (FOST) prepared for the transfer. The DoD Component disposal agent will also ensure that appropriate institutional controls and other implementation and enforcement mechanisms, appropriate to the jurisdiction where the property is located, are either in-place prior to the transfer or will be put in place by the transferee as a condition of the transfer. If it becomes evident to the DoD Component that a deed restriction or other institutional control is not being followed, the DoD Component will attempt to ensure that appropriate actions are taken to enforce the deed restriction.

The DoD expects the transferee and subsequent owners to abide by restrictions stated in the transfer documents. The DoD will reserve the right to enforce deed restrictions and other institutional controls, and the disposal agent will ensure that such language is also included in the transfer documents. If DoD becomes aware of action or inaction by any future owner that will cause or threaten to cause a

Policy on Responsibility for Additional Environmental Cleanup

release or cause the remedy not to perform effectively, DoD also reserves the right to perform such additional cleanup necessary to protect human health and the environment and then to recover costs of such cleanup from that owner under the terms of the transfer document or other authority.

Circumstances Under Which DoD Would Return to do Additional Cleanup. A determination may be made in the future that the selected remedy is no longer protective of human health and the environment because the remedy failed to perform as expected, or because an institutional control has proven to be ineffective, or because there has been a subsequent discovery of additional contamination attributable to DoD activities. This determination may be made by DoD as a part of the remedy review process, or could be a regulatory determination that the remedy has failed to meet remediation objectives. In these situations, the responsible DoD Component disposing of the surplus property will, consistent with CERCLA Section 120(h), perform such additional cleanup as is both necessary to remedy the problem and consistent with the future land use assumptions used to determine the original remedy. Additionally, after the transfer of property from DoD, applicable regulatory requirements may be revised to reflect new scientific or health data and the remedy put in place by DoD may be determined to be no longer protective of human health and the environment. In that circumstance, DoD will likewise, consistent with CERCLA Section 120(h), return to perform such additional cleanup as would be generally required by regulatory agencies of any responsible party in a similar situation. Also note that DoD has the right to seek cost recovery or contribution from other parties for additional cleanup required for contamination determined not to have resulted from DoD operations.

Circumstance Under Which DoD Would Not Return to do Additional Cleanup. Where additional remedial action is required only to facilitate a use prohibited by deed restriction or other appropriate institutional control, DoD will neither perform nor pay for such additional remedial action. It is DoD's position that such additional remedial action is not "necessary" within the meaning of CERCLA Section 120(h)(3). Moreover, DoD's obligation to indemnify transferees of closing base property under Section 330 (of the Fiscal Year 1993 Defense Authorization Act) would not be applicable to any claim arising from any use of the property prohibited by an enforceable deed restriction or other appropriate institutional control.

Changes to Land Use Restrictions after Transfer. Deed restrictions or other institutional controls put in place to ensure the protectiveness of the remedy may need to be revised if a remedy has performed as expected and cleanup objectives have been met. For example, the specified groundwater cleanup levels have been reached after a period of time. In such a case, the DoD Component disposing of the surplus property will initiate action to revise the deed restrictions or other institutional controls, as appropriate.

DoD will also work cooperatively with any transferee of property that is interested in revising or removing deed restrictions in order to facilitate a broader range of land uses. Before DoD could support revision or removal, however, the transferee would need to demonstrate to DoD and the regulators, through additional study and/or remedial action undertaken and paid for by the transferee, that a broader range of land uses may be undertaken consistent with the continued protection of human health and the environment. The DoD Component, if appropriate, may require the transferee to provide a performance bond or other type of financial surety for ensuring the performance of the additional remedial action. The transferee will need to apply to the DoD Component disposal agent for revision or removal of deed restrictions or other institutional controls. Effective immediately, the process for requesting the removal of such restrictions by a transferee should be specified by the disposal agent in the documents transferring property from DoD.

Making those revisions or changes will be considered by DoD to be an amendment of the remedy decision document. Such an amendment will follow the NCP process and require the participation by DoD and regulatory agencies, as well as appropriate public input.

Disclosure by DoD on Using Future Land Use in Remedy Selection. A very important part of this policy is that the community be informed of DoD's intent to consider land use expectations in the remedy selection process. At a minimum, disclosure shall be made to the Restoration Advisory Board (or other similar community group), the LRA (if BRAC) or other local land use planning authority, and regulatory agencies. The disclosure to the community for a specific site shall clearly communicate the basis for the decision to consider land use, any institutional controls to be relied upon, and the finality of the remedy selection decision, including this policy. In addition, any public notification ordinarily made as part of the environmental restoration process shall include a full disclosure of the assumed land use used in developing the remedy selected.

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A Citizen's Guide to Natural Attenuation

Technology Innovation Office

Technology Fact Sheet

What is natural attenuation?

Natural attenuation makes use of natural processes to contain the spread of contamination from chemical spills and reduce the concentration and amount of pollutants at contaminated sites. Natural attenuation—also referred to as *intrinsic remediation*, *bioattenuation*, or *intrinsic bioremediation*—is an *in situ* treatment method. This means that environmental contaminants are left in place while natural attenuation works on them. Natural attenuation is often used as one part of a site cleanup that also includes the control or removal of the source of the contamination.

How does natural attenuation work?

The processes contributing to natural attenuation are typically acting at many sites, but at varying rates and degrees of effectiveness, depending on the types of contaminants present, and the physical, chemical and biological characteristics of the soil and ground water. Natural attenuation processes are often categorized as *destructive* or *non-destructive*. Destructive processes destroy the contaminant. Non-destructive processes do not destroy the contaminant but cause a reduction in contaminant concentrations.

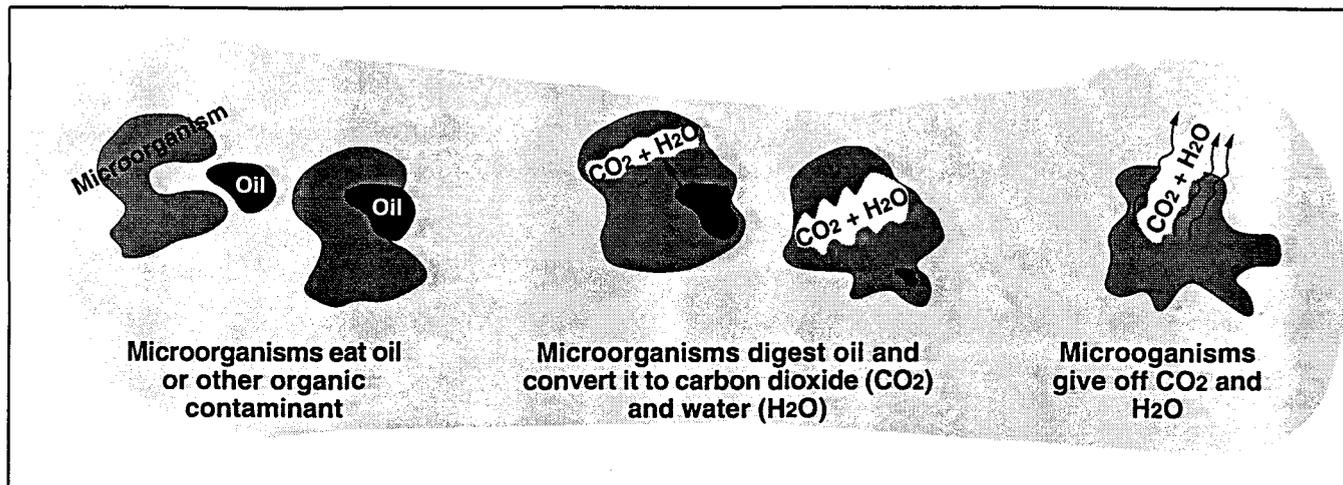
Natural attenuation processes may reduce contaminant mass (through destructive processes such as **abio-degradation** and chemical transformations); reduce contaminant concentrations (through simple **dilution** or **dispersion**); or bind contaminants to soil particles so the contamination does not spread or migrate very far (**adsorption**).

Biodegradation, also called bioremediation, is a process in which naturally occurring microorganisms (yeast, fungi, or bacteria) break down, or *degrade*, hazardous substances into less toxic or nontoxic substances. Microorganisms, like humans, eat and digest organic substances for nutrition and energy. (In chemical terms, “organic” compounds are those that contain carbon and hydrogen atoms.) Certain microorganisms can digest organic substances such as fuels or solvents that are hazardous to humans. Biodegradation can occur in the presence of oxygen (aerobic conditions) or without oxygen (anaerobic conditions). In most subsurface environments, both aerobic and anaerobic biodegradation of contaminants occur. The microorganisms break down the organic contaminants into harmless products—mainly carbon dioxide and water in the case of aerobic biodegradation (Figure 1). Once the contaminants are degraded, the

A Quick Look at Natural Attenuation

- Uses naturally occurring environmental processes to clean up sites.
- Is non-invasive and allows the site to be put to productive use while being cleaned up.
- Requires careful study of site conditions and monitoring of contaminant levels.

Figure 1. Schematic Diagram of Aerobic Biodegradation in Soil



microorganism populations decline because they have used their food sources. Dead microorganisms or small populations in the absence of food pose no contamination risk. The fact sheet entitled *A Citizen's Guide to Bioremediation* describes the process in detail (see page 4).

Many organic contaminants, like petroleum, can be biodegraded by microorganisms in the underground environment. For example, biodegradation processes can effectively cleanse soil and ground water of hydrocarbon fuels such as gasoline and the BTEX compounds—benzene, toluene, ethylbenzene, and xylenes. Biodegradation also can break down chlorinated solvents, like trichloroethylene (TCE), in ground water but the processes involved are harder to predict and are effective at a smaller percentage of sites compared to petroleum-contaminated sites. Chlorinated solvents, widely used for degreasing aircraft engines, automobile parts, and electronic components, are among the most often-found organic ground-water contaminants. When chlorinated compounds are biodegraded, it is important that the degradation be complete, because some products of the breakdown process can be more toxic than the original compounds.

The effects of **dilution** and **dispersion** appear to reduce contaminant concentration but do not destroy the contaminant. Relatively clean water from the ground surface can seep underground to mix with and dilute contaminated ground water. Clean ground water from an underground location flowing into

contaminated areas, or the dispersion of pollutants as they spreading out away from the main path of the contaminated plume also lead to a reduced concentration of the contaminant in a given area.

Adsorption occurs when contaminants attach or *sorb* to underground particles. Fuel hydrocarbons tend to repel water, as most oily substances do. When they have an opportunity to escape from the ground water by attaching to organic matter and clay minerals that also repel water, they do so. This is beneficial because it may keep the contaminants from flowing to an area where they might be a health threat. Sorption, like dilution and dispersion, appears to reduce the concentration and mass of contamination in the ground water, but does not destroy the contaminants.

Why consider natural attenuation?

In certain situations, natural attenuation is an effective, inexpensive cleanup option and the most appropriate way to remediate some contamination problems. Natural attenuation is sometimes mislabeled as a “no action” approach. However, natural attenuation is really a proactive approach that focuses on the confirmation and monitoring of natural remediation processes rather than relying totally on “engineered” technologies. Mobile and toxic fuel hydrocarbons, for example, are good candidates for natural attenuation. Not only are they difficult to trap because of their mobility, but they are also among the contaminants most easily destroyed by biodegradation. Natural attenuation is non-invasive, and, un-

like many elaborate mechanical site cleanup techniques, while natural attenuation is working below ground, the land surface above ground may continue to be used. Natural attenuation can be less costly than other active engineered treatment options, especially those available for ground water, and requires no energy source or special equipment.

Will natural attenuation work at every site?

To estimate how well natural attenuation will work and how long it will take requires a detailed study of the contaminated site. The community and those conducting the cleanup need to know whether natural attenuation, or any proposed remedy, will reduce the contaminant concentrations in the soil and water to legally acceptable levels within a reasonable time.

Natural attenuation may be an acceptable option for sites that have been through some active remediation which has reduced the concentrations of contaminants. However, natural attenuation is not an appropriate option at all sites. The rates of natural processes are typically slow. Long-term monitoring is necessary to demonstrate that contaminant concentrations are continually decreasing at a rate sufficient to ensure that they will not become a health threat. If not, more aggressive remedial alternatives should be considered.

What Is An Innovative Treatment Technology?

Treatment technologies are processes applied to the treatment of hazardous waste or contaminated materials to permanently alter their condition through chemical, biological, or physical means.

Innovative treatment technologies are those that have been tested, selected or used for treatment of hazardous waste or contaminated materials but lack well-documented cost and performance data under a variety of operating conditions.

Because the ability of natural attenuation to be an effective cleanup method depends on a variety of conditions, the site needs to be well-characterized to determine if natural attenuation is occurring or will occur. Sites where the soil contains high levels of natural organic matter, such as swampy areas or former marshlands often provide successful conditions for natural attenuation. Certain geological formations such as fractured bedrock aquifers or limestone areas are less likely candidates for natural attenuation because these environments often have a wide variety of soil types that cause unpredictable ground water flow and make predicting the movement of contamination difficult.

Where is natural attenuation being used?

Natural attenuation is being used to clean up petroleum contamination from leaking underground storage tanks across the country.

Within the Superfund program, natural attenuation has been selected as one of the cleanup methods at 73 ground-water-contaminated sites—but is the sole treatment option at only six of these sites. Some of these sites include municipal and industrial land fills, refineries, and recyclers.

At the Allied Signal Brake Systems Superfund site in St. Joseph, Michigan, microorganisms are effectively removing TCE and other chlorinated solvents from ground water. Scientists studied the underground movement of TCE-contaminated ground water from its origin at the Superfund site to where it entered Lake Michigan about half a mile away. At the site itself, they measured TCE concentrations greater than 200,000 micrograms per liter ($\mu\text{g/L}$), but by the time the plume reached the shore of Lake Michigan, the TCE was one thousand times less—only $200\mu\text{g/L}$. About 300 feet offshore in Lake Michigan, the concentrations were below EPA's allowable levels. EPA estimated the plume took about 20 years to move from the source of contamination to Lake Michigan—plenty of time for the microorganisms naturally present in the ground water to destroy the TCE without any outside intervention. In fact, microorganisms were destroying about 600 pounds of TCE a year at no cost to taxpayers. EPA determined that nature adequately remediated the TCE plume in St. Joseph.

For More Information

The publications listed below can be ordered free of charge by faxing your request to NCEPI at 513-489-8695. If NCEPI is out of stock of a document, you may be directed to other sources. Some of the documents listed also can be downloaded free of charge from EPA's Cleanup Information (CLU-IN) World Wide Web site (<http://clu-in.com>) or electronic bulletin board (301-589-8366). The CLU-IN help line number is 301-589-8368.

You may write to NCEPI at:

National Center for Environmental Publications and Information (NCEPI)
P.O. Box 42419
Cincinnati, OH 45242

- *A Citizen's Guide to Bioremediation*, April 1996, EPA 542-F-96-007.
- *Symposium on Intrinsic Bioremediation of Ground Water*, August 1994, EPA 540-R-94-515.
- *Bioremediation Research: Producing Low-Cost Tools to Reclaim Environments*, September 1995, EPA 540-R-95-523a.
- "Natural Bioremediation of TCE," *Ground Water Currents* (newsletter), September 1993, EPA 542-N-93-008.
- "Innovative Measures Distinguish Natural Bioattenuation from Dilution/Sorption," *Ground Water Currents* (newsletter), December 1992, EPA 542-N-92-006.
- *How to Evaluate Alternative Cleanup Technologies for UST Sites*, (Chapter on Natural Attenuation), May 1995, EPA 510-B-95-007.
- *Bioremediation Resource Guide*, September 1993, EPA 542-B-93-004. **A bibliography of publications and other sources of information about bioremediation technologies.**
- *Engineering Bulletin: In Situ Biodegradation Treatment*, April 1994, EPA 540-S-94-502.
- *Selected Alternative and Innovative Treatment Technologies for Corrective Action and Site Remediation: A Bibliography of EPA Information Sources*, January 1995, EPA 542-B-95-001. **A bibliography of EPA publications about innovative treatment technologies.**
- *WASTECH® Monograph on Bioremediation*, ISBN #1-883767-01-6. Available for \$49.95 from the American Academy of Environmental Engineers, 130 Holiday Court, Annapolis, MD 21401. Telephone 410-266-3311.

NOTICE: This fact sheet is intended solely as general guidance and information. It is not intended, nor can it be relied upon, to create any rights enforceable by any party in litigation with the United States. The Agency also reserves the right to change this guidance at any time without public notice.

MCAS EL TORO RAB MEETING

Navy/Marine Corp's Review of Environmental Site
Assessment for Former MCAS El Toro
Prepared by GeoSyntec Consultants
for MCAS El Toro Local Redevelopment Authority

Presented By
Kyle Olewnik
SWDIV, Navy RPM
May 29, 2002

1

GeoSyntec Environmental Site Assessment

- **Key points of the GeoSyntec report**
 - An independent assessment of current conditions at MCAS El Toro
 - Findings and opinions based on reuse of MCAS El Toro as a commercial airport as defined in EIR 573
 - Reviewed documents available as of 7/25/01

2

GeoSyntec Environmental Site Assessment

- **Summary of GeoSyntec's Assessment**
 - Reviewed documents at MCAS El Toro and other Information Repositories
 - Visited Locations of Concern (LOCs) at MCAS El Toro
 - Conducted interviews
 - Assessed MCAS El Toro past practices and activities
 - Conducted a database search
 - Completed a limited survey of adjacent properties

3

LOCs Identified by GeoSyntec

- **GeoSyntec identified a total of 982 LOCs at MCAS El Toro**
 - 643 No Further Action (NFA)
 - LOCs considered new 13
 - 339 Further Action (FA):
 - LOCs considered new 43
 - LOCs with prior NFA determination 198
 - LOCs with action taken/planned/in review 98

4

New LOCs Identified by GeoSyntec

- **56 identified LOCs considered new**
 - 43 recommended for additional assessment/action
 - 13 recommended NFA
- **GeoSyntec rationale for additional assessment/action**
 - Site not previously investigated by Navy/Marine Corps
 - Site not previously identified as an LOC
 - Sampling inadequate
 - Characterization of LOC not sufficient

5

Navy/Marine Corps Review of 43 New LOCs

- **Navy/Marine Corps review of 43 LOCs recommended for further assessment/action:**
 - 6 proposed for further assessment during Environmental Baseline Survey (EBS) (pending BCT concurrence)
 - 37 do not warrant further assessment/action
 - 13 under jurisdiction of lessees
 - 18 aerial photo anomalies (APHOs)
 - previously identified by Navy/Marine Corps but not determined to be LOCs
 - Determined NFA with BCT concurrence under 1999 Technical Memorandum
 - 4 already identified under existing LOCs
 - 2 basewide LOCs (groundwater and runways)
 - Navy/Marine Corps has sufficiently addressed through various Installation Restoration Program sites (IRPs)

6

NFA LOCs Identified by GeoSyntec Requiring Assessment/Action

- 198 LOCs with existing NFA recommendation/status
- GeoSyntec rationale for additional assessment/action:
 - Site characterization inadequate
 - Sampling inadequate
 - Could not find reports/documents
 - Could not locate LOC
 - Total petroleum hydrocarbons (TPH) remaining in soil

7

198 NFA LOCs Identified by GeoSyntec as Requiring Assessment/Action

- 146 have existing NFA/regulatory closure letter or signed Record of Decision (ROD)
- 52 are recommended for NFA
- Recommendations to the regulatory agencies are still under review by the BCT

8

LOCs Recommended by GeoSyntec for FA with Action Taken/Planned/In Review

- 98 LOCs recommended for further assessment/action
 - *Various recommendations:
 - Additional data analysis
 - Groundwater impact evaluation
 - Additional characterization
 - Soil management

9

Navy/Marine Corps Review of Existing 98 LOCs Identified by GeoSyntec Requiring FA

- All 98 LOCs have been addressed previously or will be addressed
 - > 29 have additional field sampling or remedial design planned
 - > 19 are currently under investigation
 - > 24 are currently under review by regulatory agencies
 - > 10 have remediation activities completed/ongoing
 - > 6 have recently-collected data being evaluated and compiled
 - > 6 have received NFA concurrence by regulatory agency
 - > 4 will be addressed along with existing IRP sites

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Summary of Environmental Site Assessment Review

- Navy/Marine Corps will obtain regulatory agency concurrence
- BCT is considering the addition of 6 new LOCs during the EBS
- Navy/Marine Corps will continue action/assessment of 98 LOCs with further assessment/action recommendation

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FORMER MCAS EL TORO RAB MEETING

Station-wide Update

**Environmental Baseline Survey (EBS)
Finding of Suitability to Transfer (FOST)
Finding of Suitability to Lease (FOSL)**

May 29, 2002

Presented By
Kyle Olewnik, Southwest Div, Navy
Eli Vedagiri, Earth Tech, Inc.

1

FORMER MCAS EL TORO EBS, FOST, and FOSL

OVERVIEW

- **2002 Environmental Baseline Survey (EBS)**
 - **Objective:** To collect data, document the existing environmental condition of the station, and identify areas of environmental concern.
 - EBS shall be comprehensive enough to support a Finding of Suitability to Transfer (FOST)

2

**FORMER MCAS EL TORO
EBS, FOST, and FOSL**

OVERVIEW

- **Example activities of the EBS:**
 - Detailed search and review of all available information and records
 - Visual inspections of MCAS El Toro and adjacent properties
 - Sampling of soil and other materials as required

3

**FORMER MCAS EL TORO
EBS, FOST, and FOSL**

OVERVIEW

- **Preparation of a FOST**

Prepared during the base closure process to identify property that is suitable for transfer, and typically include notifications and restrictions based on the environmental conditions of the property for future use by the transferee
- **Preparation of a FOSL**
 - Update existing FOSL
 - Identify property suitable for lease (not yet suitable for transfer)

4

**FORMER MCAS EL TORO
EBS, FOST, and FOSL**

BACKGROUND

- **1995 EBS**
 - Identified Locations Of Concern (LOCs)
 - IRP Sites
 - RCRA Sites
 - Storage Tanks (Aboveground, Underground, and Pipelines)
 - Hazardous Waste Accumulation Areas
 - PCB areas
 - Miscellaneous (Pesticide Storage Areas, Fire Training Burn Pits, Sliver Recovery Units, and Drum Storage Area)
 - Aerial Photograph Features/Anomalies
 - Airfield Operations Area (Runways, Taxiways, and Adjacent Land)
 - Areas of Groundwater Contamination
 - LOCs identified in Personnel Interviews
 - Spill Incidents
 - Ordnance Storage Areas

5

**FORMER MCAS EL TORO
EBS, FOST, and FOSL**

EBS

- **OBJECTIVE**
 - Update 1995 EBS
 - Classify Environmental Condition of Property (ECP)
 - Unencumbered
 - » ECP Types 1, 2, 3, and 4
 - Encumbered
 - » ECP Types 5, 6, and 7
 - Prepare EBS Report to support FOST and FOSL documents

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FORMER MCAS EL TORO EBS, FOST, and FOSL

EBS

- **ECP Classification**

- Type 1: Areas where no release or disposal of Haz. Sub. or Petroleum products has occurred
- Type 2: Areas where only release or disposal of Petroleum products has occurred
- Type 3: Areas where release of Haz. Sub. has occurred but at concentrations not requiring removal/remedial action
- Type 4: Areas where release, disposal, and/or mitigation of Haz. Sub. has occurred and all remedial actions necessary to protect human health and the environment have taken place
- Type 5: Areas where release, disposal, and/or migration of Haz. Sub. has occurred, and removal/remedial actions are under way, but all required remedial actions have not yet been taken
- Type 6: Areas where release, disposal, and/or migration of Haz. Sub. has occurred, but required response actions have not yet been implemented
- Type 7: Areas that have not been evaluated or require additional evaluation

7

FORMER MCAS EL TORO EBS, FOST, and FOSL

EBS

- **APPROACH**

- Review/Evaluation of Existing Data, including
 - 1995 EBS
 - 2000 Business Plan
 - GeoSyntec ESA
 - RCRA, CERCLA Programs
- Database Setup
- Visual Site Inspections (VSIs)
 - All Buildings and associated areas
 - Areas/Facilities under current Lease, including
 - County
 - Air National Guard
 - Agricultural Lands/Nursery

8

**FORMER MCAS EL TORO
EBS, FOST, and FOSL**

EBS

• **APPROACH**

- Adjacent Properties
- Data Evaluation
 - New LOCs recommended for Further Assessment
 - Additional Data Review
 - Sampling and Analysis
 - Condition of previous LOCs
 - Condition of Currently Leased properties
- ECP Type Classification of Former MCAS El Toro
 - Unencumbered
 - Encumbered

9

**FORMER MCAS EL TORO
EBS, FOST, and FOSL**

EBS

• **APPROACH**

- Sampling and Analysis of New LOCs
 - 6 identified in GeoSyntec Assessment
 - Work Plan submitted to BCT
 - 6 Known LOCs
 - New LOCs - Generic Approach
 - Field Sampling and Quality Assurance requirements
 - Data Quality Objectives
 - Presence of Impact/Release
 - Encumbered
 - Recommendation for further evaluation
 - ECP Type 7
 - Absence of Impact/Release
 - Unencumbered
 - EBS Report will reflect findings

10

**FORMER MCAS EL TORO
EBS, FOST, and FOSL**

FOST

- **SCOPE**
 - Identify Unencumbered Properties
 - Identify Carve-outs
 - Encumbered properties within Transferable Areas
 - Prepare FOST Document
 - Geographic (Grid) Divisions
 - Property Description and Background
 - Past and Current Use
 - Notifications and Restrictions

11

**FORMER MCAS EL TORO
EBS, FOST, and FOSL**

FOSL

- **SCOPE**
 - Identify Encumbered Properties
 - Prepare/Update FOSL Document
 - Property Description
 - Past, Current, and Future Use
 - ECP Type
 - Notifications and Restrictions
 - Enforcement Agreements

12

**FORMER MCAS EL TORO
EBS, FOST, and FOSL**

SCHEDULE

- **VSI: May 02**
- **New LOCs Sampling/Analysis**
 - Work Plan (final): June 02
 - Field Work/Analytical: June-Sept 02
 - Report: Oct 02
- **EBS/FOST/FOSL**
 - Draft: July 02
 - Final: Aug 02
- **EBS/FOST/FOSL Update**
 - Draft: Nov 02
 - Final: Jan 03

Compliance Program Update

Marine Corps Air Station, El Toro

Restoration Advisory Board

Meeting

May 29, 2002

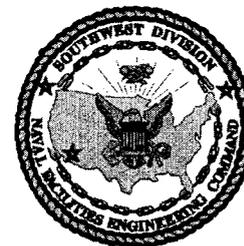
Presented by: Dhananjay Rawal

IT Corporation



IT CORPORATION

A Member of The IT Group



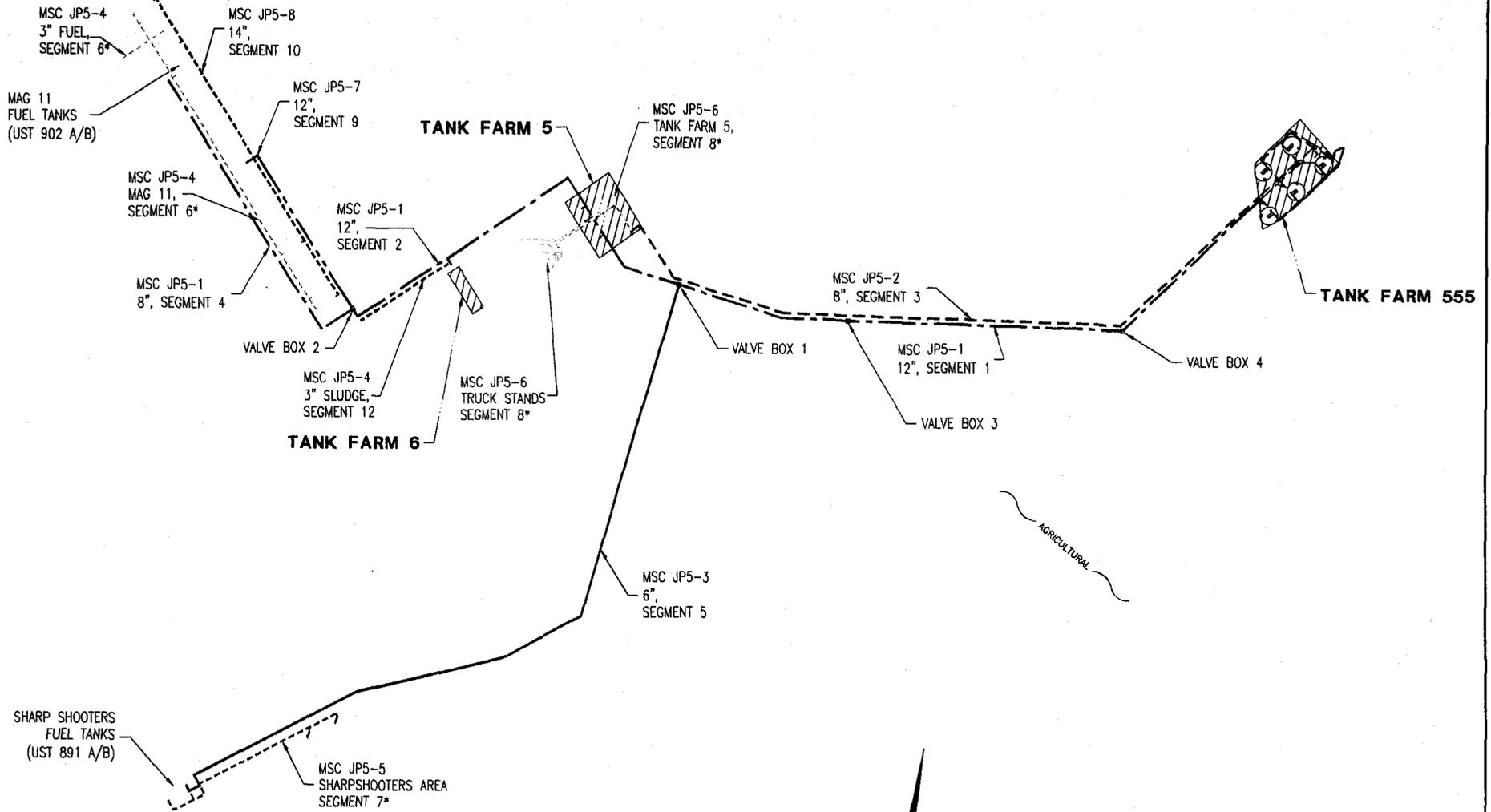
Compliance Program Update

- Status of Compliance Program - Update
- Closure of On-Station Secondary JP-5 Pipeline Components

JP-5 Pipeline Update

Secondary Pipelines Closure

- Residual fuel from all pipeline segments was removed via vacuum trucks and degassing of pipelines segments using portable vapor extraction unit at low point drains.
- Pneumatic test at 92 psig in compliance with the State Fire Marshall requirements using nitrogen gas was conducted to determine pipeline integrity for MSC JP5 Unit 4 and 5 for total of 6,095 liner feet at MAG 11 and Sharpshooters area.
- Hydrostatic test at 70 psig in compliance with the State Fire Marshall requirements using water was conducted to determine pipeline integrity for MSC JP5 Unit 6 for total 1,510 liner feet at Tank Farm 5 truck stands.
- All pipeline segments passed pneumatic and hydrostatic test.



EXPLANATION:

- PRIMARY UNDERGROUND PIPELINE.
- SECONDARY UNDERGROUND PIPELINE.
- [Hatched Box] TANK FARM AREA

- MSC JP5-1, ABANDONMENT PROCEDURES PREVIOUSLY COMPLETED
- MSC JP5-2, ABANDONMENT PROCEDURES PREVIOUSLY COMPLETED
- MSC JP5-3, ABANDONMENT PROCEDURES PREVIOUSLY COMPLETED
- MSC JP5-4
- MSC JP5-5
- MSC JP5-6
- MSC JP5-7, VERIFICATION OF LINE BY POTHOLING IN PROGRESS
- MSC JP5-8, VERIFICATION OF LINE BY POTHOLING IN PROGRESS

NOTES:

1. PIPELINE SEGMENTS 1 THROUGH 5 WERE FILLED WITH CEMENT/BENTONITE SLURRY IN FEBRUARY 2000.
2. *DETAILS OF EACH MSC JP5 SEGMENT ARE PROVIDED IN PLANS 2, 3, 4 AND 5 IN APPENDIX D OF THE EMERGENCY CLOSURE REPORT.



	EFA WEST SOUTHWEST DIVISION NAVAL FACILITIES ENGINEERING COMMAND CONTRACT NO. N62474-98-D2076
	FIGURE 3 MSC JP5 - INACTIVE FUEL SUPPLY PIPELINE SYSTEM MARINE CORPS AIR STATION EL TORO, CALIFORNIA

**MCAS EL TORO
RAB MEETING**

**Aquifer Test
IRP Site 2
May 29, 2002**

Presented By
Crispin Wanyoike
Earth Tech, Inc.

**Aquifer Test
IRP Site 2**

• **BACKGROUND**

- Located between tributaries of the Borrego Canyon Wash.
- Approximately 27 acres.
- Used as the Station landfill from the 1950s to 1980.

• **PREVIOUS INVESTIGATIONS**

- Remedial Investigation (1997).
- Feasibility Study (1997).
- Record of Decision (1999).
- Radionuclide Evaluation (2001).

Aquifer Test IRP Site 2

• EXTENT OF GROUNDWATER IMPACT

- The lateral extent of the tetrachloroethene (PCE) plume in the cross-gradient and downgradient directions has not yet been fully defined.
- The highest reported concentration of PCE was 8 µg/L (based upon data collected in March and April 2000).
- The lateral extent of the trichloroethene (TCE) plume toward the southeast and north/northeast has not yet been fully defined.
- The highest reported concentration of TCE was 152 µg/L (based upon data collected in March and April 2000).
- Hydropunch groundwater samples will be collected for laboratory analysis of VOCs to evaluate the lateral extent of VOC impact.

Aquifer Test IRP Site 2

• OBJECTIVES

- Evaluate the extent of groundwater impacted with volatile organic compounds.
- Evaluate aquifer properties.
- Evaluate mass-removal rates.
- Evaluate the potential for natural attenuation of VOCs.
- Data collected during this test will ultimately be used to select and design the most appropriate response strategy for the VOC plumes.

Aquifer Test IRP Site 2

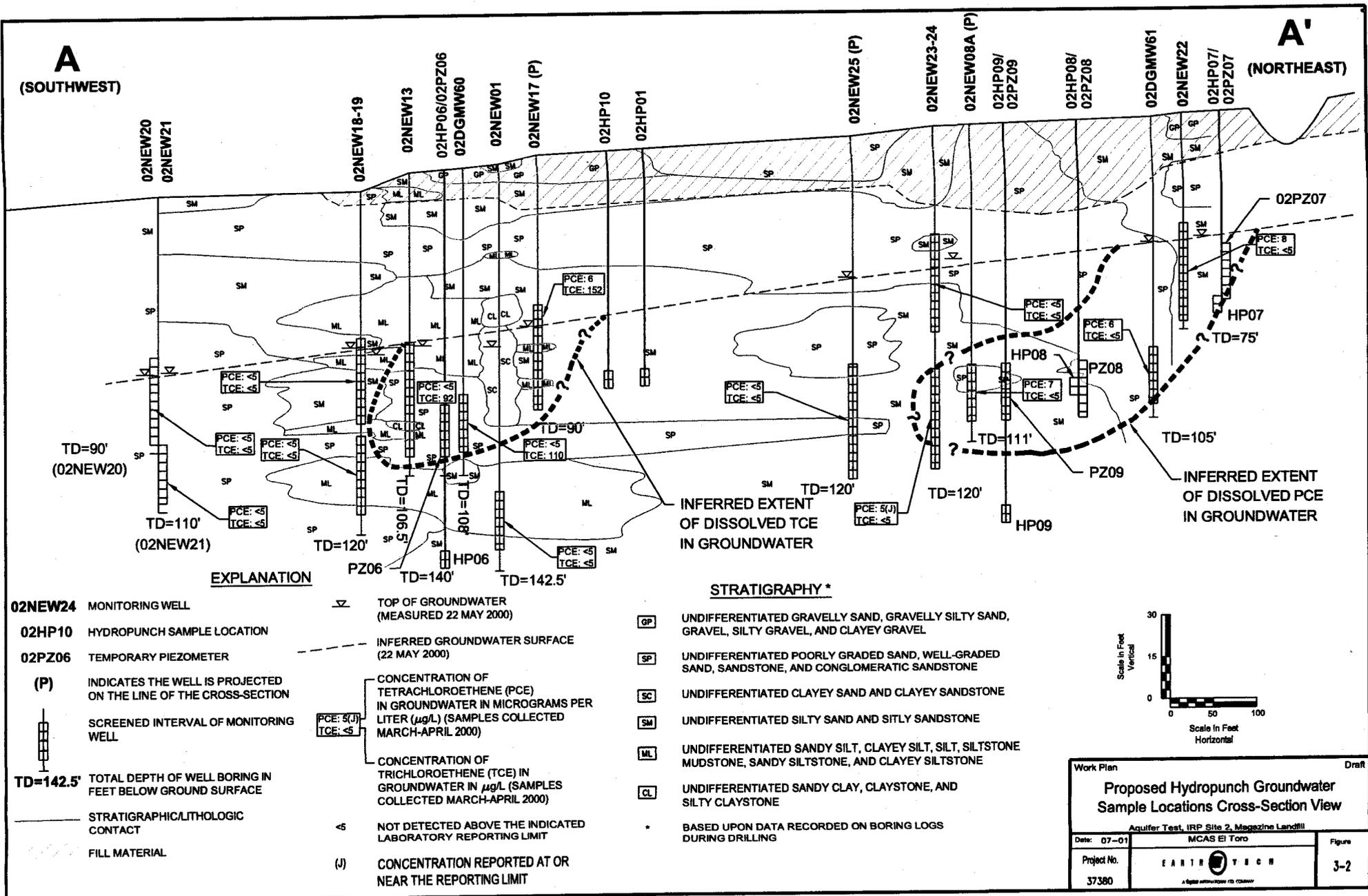
• FIELD WORK

- Existing groundwater monitoring wells will be sampled.
- DO and ORP will be measured in eight existing wells for evaluation of the potential for natural attenuation of VOCs.
- Hydropunch groundwater samples will be collected at ten locations.
- Piezometers will be installed at six of the ten Hydropunch locations.
- During the aquifer test, groundwater will be extracted from six pumping wells and drawdown will be measured in nearby wells and piezometers (between four and ten observations wells will be used for each pumping well).

Aquifer Test IRP Site 2

• DATA COLLECTED DURING THE AQUIFER TEST WILL ALLOW DETERMINATION OF THE FOLLOWING:

- Aquifer Properties (Transmissivity, Hydraulic Conductivity).
- Natural Attenuation Potential
- Capture Zones.
- Mass-Removal Rates.



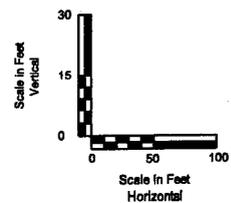
EXPLANATION

- 02NEW24** MONITORING WELL
- 02HP10** HYDROPUNCH SAMPLE LOCATION
- 02PZ06** TEMPORARY PIEZOMETER
- (P)** INDICATES THE WELL IS PROJECTED ON THE LINE OF THE CROSS-SECTION
- SCREENED INTERVAL OF MONITORING WELL
- TD=142.5'** TOTAL DEPTH OF WELL BORING IN FEET BELOW GROUND SURFACE
- STRATIGRAPHIC/LITHOLOGIC CONTACT
- FILL MATERIAL

- v** TOP OF GROUNDWATER (MEASURED 22 MAY 2000)
- - - - - INFERRED GROUNDWATER SURFACE (22 MAY 2000)
- PCE: 5(J)
TCE: <5
- CONCENTRATION OF TETRACHLOROETHENE (PCE) IN GROUNDWATER IN MICROGRAMS PER LITER ($\mu\text{g/L}$) (SAMPLES COLLECTED MARCH-APRIL 2000)
- CONCENTRATION OF TRICHLOROETHENE (TCE) IN GROUNDWATER IN $\mu\text{g/L}$ (SAMPLES COLLECTED MARCH-APRIL 2000)
- <5 NOT DETECTED ABOVE THE INDICATED LABORATORY REPORTING LIMIT
- (J) CONCENTRATION REPORTED AT OR NEAR THE REPORTING LIMIT

STRATIGRAPHY *

- GP** UNDIFFERENTIATED GRAVELLY SAND, GRAVELLY SILTY SAND, GRAVEL, SILTY GRAVEL, AND CLAYEY GRAVEL
- SP** UNDIFFERENTIATED POORLY GRADED SAND, WELL-GRADED SAND, SANDSTONE, AND CONGLOMERATIC SANDSTONE
- SC** UNDIFFERENTIATED CLAYEY SAND AND CLAYEY SANDSTONE
- SM** UNDIFFERENTIATED SILTY SAND AND SILTY SANDSTONE
- ML** UNDIFFERENTIATED SANDY SILT, CLAYEY SILT, SILT, SILTSTONE MUDSTONE, SANDY SILTSTONE, AND CLAYEY SILTSTONE
- CL** UNDIFFERENTIATED SANDY CLAY, CLAYSTONE, AND SILTY CLAYSTONE
- BASED UPON DATA RECORDED ON BORING LOGS DURING DRILLING



Work Plan		Draft
Proposed Hydropunch Groundwater Sample Locations Cross-Section View		
Aquifer Test, IRP Site 2, Magazine Landfill		
Date: 07-01	MCAS El Toro	Figure
Project No. 37380	EARTH TECH <small>A Spill Remediation Company</small>	3-2

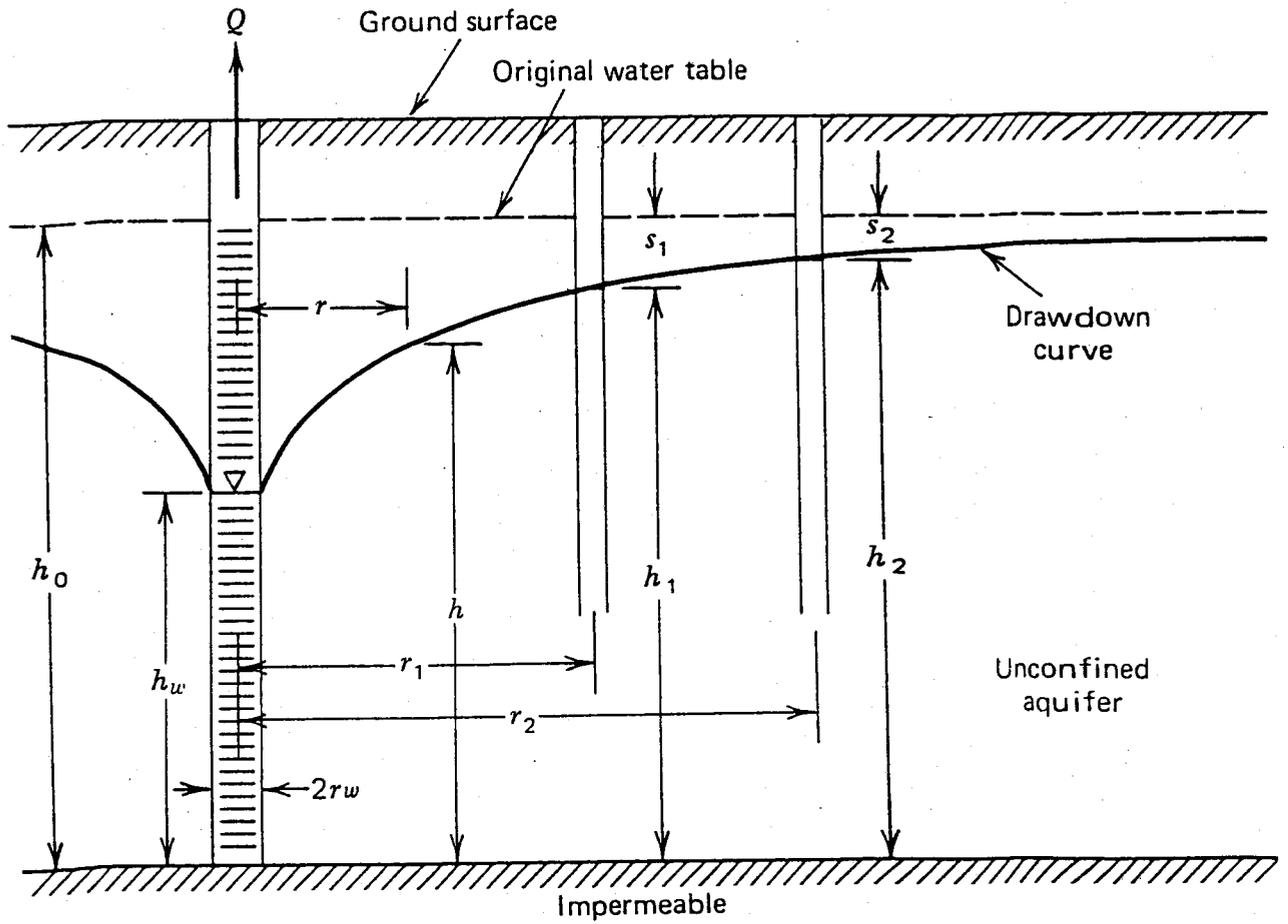


Fig. 4.6 Radial flow to a well penetrating an unconfined aquifer.

Aquifer Test IRP Site 2

• SCHEDULE

- Draft Work Plan - Issued August 2001.
- BCT Review - September 2001.
- Final Work Plan - April 2002.
- Field Work - June 2002 to December 2002.
- Draft Technical Memorandum - February 2003.



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

April 18, 2002

BRAC Environmental Coordinator
Base Realignment and Closure, Environmental Division
Attn: Mr. Dean Gould
P.O. Box 51718
Irvine, CA 92619-1718

RE: Response to EPA comments on Draft Final Phase II Focused Feasibility Study for Site 16,
dated March 26, 2002

Dear Mr. Gould:

We have reviewed the Navy's responses, dated March 26, 2002, to EPA comments, dated September 14, 2001, on the draft final focused Feasibility Study (FS) for Site 16. In addition to reviewing the Navy's response to comments, we also reviewed the revised section 2.1 from the draft final FS and the Decision Tree for Vadose Zone Monitoring. Attached are EPA's specific comments on all three submittals.

We would also like to address several issues relating to ARARs, groundwater cleanup alternatives, and EPA's definition of natural attenuation in this cover letter. The attached comments elaborate further on all three of these areas.

In EPA's comments on the Proposed Plan as well as legal comments on the draft final FS, we indicated that the Navy's preferred remedy of groundwater monitoring with deed restrictions does not meet ARARs. We maintain this position and believe that if groundwater is contaminated above MCLs (Federal ARAR), a remedy is required. Monitoring is not considered a remedy and deed restrictions alone are not sufficient. Please see attached comments from EPA's office of regional counsel for further detail on this issue.

EPA's comment number 1 requested that the Navy provide a more aggressive alternative for groundwater cleanup to which the other alternatives can be compared. The Navy's response is that section 2 will be revised to include more information about why active remediation technologies were eliminated. The Navy further explains that these technologies were deemed ineffective. EPA believes that is necessary to carry at least one active alternative through to the evaluation and comparison stage. The Navy appears throughout its responses to various comments to be making the argument that it is technically infeasible to conduct an aggressive cleanup of the groundwater due to local lower hydraulic conductivity in the area of the main pit. However, given that in alternative 3 the Navy demonstrated that the plume could be cleaned up in 9 years using the containment alternative vs 19 years with the monitoring alternative, EPA

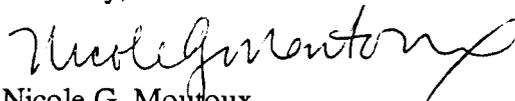
believes that screening out a more aggressive option so early in the FS is inappropriate.

Finally, there appears to be a misunderstanding of EPA's policy regarding Natural Attenuation. In response to comment number 3, the Navy accurately quotes EPA's policy on Natural Attenuation with the following statement, "Natural Attenuation is defined by the U.S. EPA as the biodegradation, dispersion, dilution, sorption, volatilization, and/or chemical and biochemical stabilization of contaminants to effectively reduce contamination, toxicity, mobility, or volume to levels that are protective of human health and the ecosystem". However, later in the response the Navy states that "...because EPA bases the viability of natural attenuation at a site on the presumption that initial biodegradation is anaerobic (reductive), Site 16 is not considered a candidate for natural attenuation". Although it is true that EPA prefers those processes that degrade contaminants, it is not a requirement. Please see the attached guidance as well as responses to specific Navy responses for further information about EPA's policy toward Natural Attenuation. After reviewing the guidance (in particular pages 13-15 and 17-19), the Navy may note that in discussing the monitoring alternative in the draft final FS, the Navy has made an argument for a natural attenuation remedy. EPA believes that with little additional data evaluation post-ROD, this alternative is more appropriately a MNA remedy.

Please note that many comments that EPA made regarding the vadose zone are no longer relevant due to the BCT decision to monitor the vadose zone during post-ROD activities.

If you have any questions, please call me at (415) 972-3012.

Sincerely,



Nicole G. Moutoux
Project Manager
Federal Facilities Cleanup Branch

Enclosures

cc: Marc Smits, SWDIV
Triss Chesney, DTSC
Patricia Hannon, RWQCB
Jerry Werner, RAB Community Co-Chair
Marcia Rudolph, RAB Subcommittee Chair
Ms. Polan Modanlou, MCAS EL Toro Local Redevelopment Authority

**EPA's Comments on Navy's Response to Comments on Draft Final Phase II Focused
Feasibility Study OU-3, IRP Site 16
Marine Corps Air Station, El Toro
April, 2002**

General Comments

1. As mentioned in the cover letter, EPA believes that by carrying an active groundwater treatment option through to evaluation, the Navy will be providing a more thorough analysis of the pros and cons of all possible technologies. It appears that the Navy is basing its determination that an active alternative is ineffective on more than technical reasons. Such a determination is best conducted during the comparison of alternatives, so that all potential remedies can be compared against the 9 criteria. In addition, by carrying forward an active alternative, such an alternative could be combined in the Proposed Plan with Monitored Natural Attenuation such that the active remedy could achieve partial mass removal with natural attenuation treating the residual contamination. See comment #3 for more discussion on this topic.
2. Navy has adequately addressed EPA's comment.
3. As discussed in the cover letter, the Navy's understanding of EPA's policy toward Monitored Natural Attenuation is not accurate. We have enclosed a copy of EPA's policy toward Monitored Natural Attenuation. Although degradation of contaminants is preferred, it is not required. We suggest that the Navy note pages 13-15 and pages 17-18 of the guidance. These pages address sites where MNA may be appropriate and required performance monitoring. EPA's hydrogeologist, Herb Levine, can be available to meet with the BCT to discuss specifics regarding MNA and how it could be appropriate for site 16.

The Navy did not respond to the second piece of EPA's comment which addressed consideration of MNA as a follow-on to a more active remedy. On page 1 of the MNA guidance, the following statement is made, "In the majority of cases where monitored natural attenuation is proposed as a remedy, its use may be appropriate as one component of the total remedy, that is, either in conjunction with active remediation or as a follow-up measure." Please consider that even partial mass removal by one technologies coupled with monitored natural attenuation would constitute a viable remedy.

-
4. The response appears to be adequate in that many of the issues in the Technical Memorandum are now moot.
 5. The response is partially adequate. However, the Navy should provide more site specific information supporting the groundwater flow direction and include specific references to the previous documents. The one added sentence proposed in this response is too general and not adequate for a Feasibility Study.

6. The response is partially adequate, but there is no direct evidence at this point in the remediation progress to demonstrate that the TCE has been removed from the hydrocarbon matrix such that TCE poses no risks to groundwater or other receptors. The Navy cites the mass of TCE removed by the pilot study, but please recognize that the estimates of the initial mass of TCE are subject to large uncertainties, and often so-called "conservative" estimates still underrepresent the mass of non-aqueous phase materials present, and the calculation of mass remaining is then uncertain.
7. This response appears to be partially adequate. However, the following statement is unclear, "If the several model factors were changed to make the model less conservative it is possible that the result would have been a longer, unrealistic clean up time." The issue posed by the initial comment was that the assumptions were conservative for overestimating the extent of TCE migration, but these assumptions would *underestimate* the clean up time, as is apparently acknowledged by this response; it is unclear why the Navy considers the longer clean up time "unrealistic."
8. This response is adequate.

Specific Comments

1. The response appears to be adequate, but as noted in the General Comment section the groundwater flow direction must have some specific documentation and not a general statement.
2. The response appears to be partially adequate, and the proposed additions of text will clarify some issues. However, as noted in the General Comments the estimate of the initial mass of TCE has large uncertainties and therefore mass of TCE remaining is also uncertain. Please recognize that more direct estimates of the TCE present would be available by soils analyses or possibly borings/logging using the PneuLog technology.
3. The response is partially adequate, but other TCE contours should also be provided if the data support their inclusion. Please note that an inability to provide more definitive contours reflects uncertainties that impact the attempts to provide mass estimates of VOCs at the site.
4. The response is partially adequate. However, supporting the mass estimates by citing the MPE results is not necessarily a correct conclusion as mass transfer limitations and the acknowledged complex stratigraphy may make some TCE unavailable to the MPE removal.
5. The response is adequate.
6. The response is partially adequate, but only in the context of the Navy's preferred alternative. Evaluations of natural attenuation will require additional modeling efforts (at least in a sensitivity analysis application) to better estimate the concentrations and expected decrease in TCE concentrations that may be evaluated in 5-year reviews.
7. This response is partially adequate, and recognizes that the model assumption of no sorption of TCE will underestimate the time for TCE to decrease below the 5 microgram per liter

(ug/L) concentration. Please recognize that the VOC analyses of saturated zone soils that are cited as evidence of little sorbed TCE are now widely regarded as generally problematic, and may be unreliable. In reassessing sorption, please review Chapter 8, "Sorption of Dissolved Solvents to Aquifer Materials," in Dense Chlorinated Solvents and other DNAPLs in Groundwater, by J.F.Pankow and J.A.Cherry.

8. This response is adequate.
9. This response is moot as the Navy now appears to have dropped the mass loading threshold estimate approach to assessing threats to groundwater.
10. Please see Specific Comment 9 above.
11. This response is partially adequate because it still does not address the uncertainties in the mass estimates.
12. The response is adequate.
13. The response is adequate.

Comments from EPA's Office of Regional Counsel, Thelma Estrada, on Navy's RTCs

The DON's responses to my comments are not responsive. Again, my comment is that DON's preferred alternative of "monitoring with deed restrictions" is essentially a decision not to clean up the aquifer underneath Site 16 (an aquifer which meets the definition of a potential source of drinking water), and DON needs to justify this decision and how such a decision still complies with Federal and State ARARs. In response, DON states two things: 1) its action complies with ARARs and 2) it is not technically and economically feasible to clean up the aquifer. DON then goes on to say that Resolution 92-49 is not an ARAR because it is no more stringent than Title 22 66264.94 which is a federal ARAR. Putting aside whether Res. 92-49 is an ARAR or not, I believe Title 22 section 66264.94 requires that an aquifer which is a potential source of drinking water be cleaned up to MCLs. How does the DON's preferred alternative of "monitoring with deed restrictions" comply with Title 22 section 66264.94?

As well as defn of DWS requires cleanup to ARARs.

DON also states that it is not technically feasible to clean up the aquifer to background. I don't think anyone is requiring DON to clean up the aquifer to background. At a minimum, however, the aquifer should be cleaned up to MCLs. DON states that alternative 3, with its groundwater extraction and treatment system, will reduce TCE concentration to MCLs in 9 years as opposed to 19 years with alternative 2. Since DON describes alternative 2 as "monitoring with deed restrictions", how will TCE concentrations be reduced under this alternative? If, however, what DON is saying is that TCE contamination will naturally attenuate under alternative 2, then this alternative is more appropriately called Monitored Natural Attenuation rather than "monitoring with deed restrictions."

Review of Decision Tree
Post-ROD Vadose Zone Monitoring
IRP Site 16 at MCAS El Toro

General Comments

These General Comments relate to the scope of the problem as defined by the hypothesis.

1. Other than the data used in the original TCE mass estimate, the known amount of mass removed, and the soil gas measurements in the wells screened in the lowest 15-feet of the approximate 160-foot vadose zone, there are no data that are useful to accurately estimate the amounts of TCE or other chemical constituents present in the hydrocarbon matrix or sorbed on soils in the vadose zone; also, there are no data that specifically assess the constituents in the vapor phase in the upper levels of the vadose zone. Therefore, a Conceptual Model that postulates that natural leaching and diffusion followed by the MPE study near the groundwater interface has successfully extracted TCE vapor from the soils in the upper soils (approximately 130-feet in depth) is not evident, and will not be tested in the proposed program of soil gas and groundwater measurements.
2. Even with a more complete sampling and analysis program, the stated hypothesis can only be tested in the context of how much TCE remains in soil and that may be a threat to groundwater. The issue of closure of the vadose zone is more complex, and the Navy has already acknowledged that the petroleum contamination in the vadose zone will be addressed in a future program. It is also likely that TCE that may remain in the hydrocarbon matrix in the vadose zone will also require remedial action; as noted above and in previous comments on Site 16 documents, there are no analyses for TCE or other constituents that are direct measurements of the current amounts of these constituents in the vadose zone soils.

Specific Comments

1. **Top-left box regarding soil gas samples:** When the Navy is developing its workplan for sampling post- ROD, EPA requests that a complete Sampling and Analysis Plan (SAP), including a Quality Assurance Project Plan (QAPP) be provided for BCT review. To demonstrate any variation in soil gas concentrations over time, the precision of each data set is critical. Additionally, the sampling method and other Data Quality Objective requirements must be completely described, particularly with regard to purging and the resulting representativeness of the sample.
2. Please recognize that the constituents in soil gas samples collected from the approximately 15-foot interval screened in the lower vadose zone is likely a result of constituents that have partitioned into the gas state from the soil matrix, from the hydrocarbon matrix, and from soil moisture, all of which have different mass transfer/desorption characteristics. It should also be recognized that volatilization of constituents from groundwater may also be a source to soil vapor, and that placement of the sampling probe within the 15-foot interval and the purging volume could be critical in the measured result. Please discuss these issues in the SAP/QAPP, and in particular the representativeness of the samples.
3. Please consider a complete constituent analysis of the soil gas samples and report all volatile



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

May 7, 2002

Mr. Dean Gould
Base Realignment and Closure
Environmental Coordinator
Southwest Division
Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, CA 92132-5190

Re: FFA Schedule Extension Request for Sites 3 and 5, Marine Corps Air Station, El Toro,
dated April 26, 2002

Dear Mr. Gould:

On May 2, 2002, EPA received your request for an extension to the FFA schedule for submittal of the draft final ROD for Sites 3 and 5 from February 15, 2002 to November 14, 2002. The request has been revised to reflect the discussion held with the BCT at the March 27, 2002 meeting. The request now includes a schedule for deliverables related to MSCR2, APHO 46, and Anomaly Area 3, all of which the Navy proposes to incorporate into the ROD for Sites 3 and 5.

We appreciate the Navy's response to regulatory concerns regarding Sites 3 and 5 and associated areas and approve the Navy's request to submit the draft final ROD for sites 3 and 5 on November 14, 2002.

The Navy notes that there will be a 30 day review period for the draft final ROD. EPA will attempt to meet this deadline, however, please be aware that if the prior deliverables related to Anomaly Area 3, APHO 46 and MSCR 2 which are to be submitted in October, 2002 are delayed, EPA may need additional time to review the draft final ROD.

If you have any questions, please call me at (415) 972-3012.

Sincerely,


Nicole Moutoux
Project Manager
Federal Facilities Cleanup Branch

cc: Triss Chesney, DTSC
Patricia Hannon, RWQCB
Jerry Werner, RAB Community Co-Chair
Polin Modanlou, MCAS El Toro Local Redevelopment Authority



Department of Toxic Substances Control



Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

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

Gray Davis
Governor

May 23, 2002

Mr. Dean Gould
BRAC Environmental Coordinator
Marine Corps Air Station El Toro
Base Realignment and Closure
P.O. Box 51718
Irvine, California 92619-1718

DRAFT WORK PLAN, PRELIMINARY ASSESSMENT OF LOCATIONS OF
CONCERN, ENVIRONMENTAL BASELINE SURVEY, MARINE CORPS AIR
STATION (MCAS) EL TORO

Dear Mr. Gould:

The Department of Toxic Substances Control (DTSC) reviewed the referenced draft work plan, dated May 2002. This work plan supports the Environmental Baseline Survey (EBS) that will be an update to the EBS conducted in 1995. The EBS consists of two phases. Phase I includes visual site inspections of previously identified and potential new locations of concern (LOCs) and Phase II includes the collection and analysis of samples to evaluate potential releases and to determine if further action is necessary. This work plan details the objectives and sampling and analysis procedures for LOCs where sampling was determined to be necessary as part of Phase II of the EBS.

After review of the document, DTSC has the following comments.

General Comments

1. According to the work plan, sampling may be conducted at additional sites based upon the results of the visual site inspections. The project schedule included in Appendix A indicates that Base Realignment and Closure Cleanup Team (BCT) will receive a briefing on the results of the visual site inspections and additional sampling locations on June 13, 2002. Prior to the briefing, the final work plan will be issued on June 10, 2002. Please clarify how the additional sites will be incorporated into the work plan.

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

2. For each LOC evaluated during the EBS, the EBS Report should include observations made during the visual site inspection, photographs, and a site plan showing the major features of the LOC, dimensions, surrounding environment and sampling locations.

Specific Comments

1. Section 2.4 - Railroad: This section discusses other LOCs that have been evaluated where samples were collected near the railroad tracks. Please include a figure showing the location of the referenced LOCs and associated samples in relation to the railroad tracks.
2. Section 2.5 - Building 435: The third paragraph states, "Underground storage tank (UST) 435 . . . was formerly located at the south end of state distance from Building 435." The term "state distance" appears out of place. Please clarify this sentence.
3. Table 2-1 - Potential LOCs and Associated Contaminants: The following potential contaminants should be added for the following LOC types.
 - Storage Tanks: Polynuclear aromatic hydrocarbons (PAHs) are constituents of diesel and fuel oils.
 - Temporary Accumulation Areas (TAAs): Pesticides and polychlorinated biphenyls (PCBs) were used at the Station and resulting waste may have been temporarily stored at the TAAs.
 - Fuel Pipelines: PAHs are constituents of diesel and fuel oils.
 - Airfield Operations: PAHs are constituents of diesel, fuels oils, and jet exhaust and PCBs may have been included in waste oils used for dust suppression.
 - Railroad Operations: Please refer to enclosed comments from the Geological Services Unit (GSU).
4. Table 2-1 - Potential LOCs and Associated Contaminants: Please specify if "Hazardous Storage Areas" refer to hazardous materials storage or hazardous waste storage (such as TAAs).
5. Section 3.1.2 - PCB-T129, T130, and T131: The problem statement for these LOCs should include determining the source of unidentified fluids observed on the bottom of the boxes and the concrete floor.
6. Section 3.3 - Decision Inputs and Section 3.5 - Decision Rules: A direct comparison to United States Environmental Protection Agency (EPA) Region IX residential Preliminary Remediation Goals (PRGs) only applies if a single

chemical is detected. If multiple chemicals are detected, a screening risk assessment using residential PRGs should be conducted to determine if further action is required. Chemicals of concern (metals detected above background and any other chemicals detected) should be evaluated using a screening risk assessment as described in the DTSC Memorandum, "Recommended Outline for Using U.S. Environmental Protection Agency Region IX Preliminary Remediation Goals in Screening Risk Assessments at Military Facilities," dated October 28, 1994. When performing a screening risk assessment using PRGs, use the most recent PRGs published by EPA, Region IX that also include updated California values.

7. Section 3.4 - Study Boundaries: A sketch of the study boundaries (including the approximate dimensions of the LOC) and any applicable photographs should be included.
8. Section 3.7 - Study Design: Evaluation and sampling of TAA and Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) sites should be as consistent as possible with the *Revised Addendum to the Draft Supplemental Work Plan, Closure of Various Temporary Accumulation Areas and RCRA Facility Assessment Sites, Marine Corps Air Station El Toro* (Revised Addendum), prepared by OHM Remediation Services Corporation (OHM), dated January 15, 2001. For clarification, the holding time for soil samples analyzed for volatile organic compounds specified in Table 6-4 of the Revised Addendum should be 48 hours rather than 14 days.

At a minimum, soil samples should be collected from all four sides of the TAA containment pad. An additional sample should be collected from beneath the sump, regardless of the presence of staining or cracks due to joints that are inherent in the construction of sumps. Samples should also be collected beneath any significant cracks and/or stains on the surface of the containment pad.

The Revised Addendum documented modifications to the *Draft Supplemental Work Plan, Closure of Various Temporary Accumulation Areas and RCRA Facility Assessment Sites, Marine Corps Air Station, Santa Ana, California*, prepared by OHM, dated March 19, 1997. This original 1997 work plan and the Revised Addendum only included the collection and analysis of soil matrix samples for volatile organic compounds (VOCs). Although this was not modified in the Revised Addendum, please note that DTSC prefers the collection and analysis of soil gas samples to investigate the presence of VOCs.

Mr. Dean Gould
May 23, 2002
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9. Appendix A - Sampling and Analysis Plan, Section 2.10 - Investigation-Derived Waste (IDW): In addition to RCRA, generated IDW may also be subject to California State Hazardous Waste Control Law as specified in California Health and Safety Code section 6.5 and requirements in California Code of Regulations, title 22, may apply.

In addition to the comments provided above, comments from the DTSC GSU are enclosed. If you have any questions, please contact me at (714) 484-5395.

Sincerely,



Triss M. Chesney, P.E.
Remedial Project Manager
Office of Military Facilities

Enclosure

cc: Ms. Nicole Moutoux
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Department of Toxic Substances Control



Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

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

Gray Davis
Governor

MEMORANDUM

TO: Triss Chesney
Hazardous Substances Engineer
Base Closure/Reuse Unit

FROM: Dave Murchison, R. G. *DM*
Hazardous Substances Engineering Geologist
Cypress Geological Services Unit

CONCUR: Scott Warren, C. E. G., C. Hg. *SAW*
Supervising Hazardous Substances Engineering Geologist
Cypress Geological Services Unit

DATE: May 22, 2002

SUBJECT: Draft Geologic/Hydrogeologic Review of the
Draft Work Plan, Preliminary Assessment of
Locations of Concern, Environmental Baseline Survey
Former Marine Corps Air Station
El Toro, CA
Prepared by Earth Tech, Inc, Dated May 2002

PCA: 14740

Site Code: 400055-47

Request No. 20017237

As requested, Site Mitigation and Brownfields Reuse Program Geological Services Unit (GSU) staff performed a review of the *Draft Work Plan, Preliminary Assessment of Locations of Concern Environmental Baseline Survey (Workplan)* described above. The Workplan describes a proposed preliminary assessment of seven additional Locations of Concern (LOC) under the environmental baseline survey (EBS) that began in 1995 at former Marine Corps Air Station El Toro. GSU understands that this survey is being performed on an expedited schedule because of the impending transfer of the base.

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Specific comments regarding details of the Workplan follow. Questions regarding the memorandum should be directed to Dave Murchison at (714) 484-5484.

Introduction

The purpose of the Workplan is to assess potential releases at 7 LOCs, including:

- TAA-165. A temporary accumulation area for hazardous and flammable materials.
- PCB-T129, -T130, and -T131. Puddles of oil or other fluid were observed below three electrical boxes described as 'fuse boxes'.
- RFA-747. A fuel sampling area where small samples of fuel were taken from fuel trucks. A stained concrete slab and a sump were present.
- Railroad. A 4500-foot railroad spur that enters at the southern end of the base and served eight or more warehouses on base.
- Building 435. A VOC detection occurred at a water-line excavation near this structure, which lies within IRP Site 24. A No. 2 fuel-oil UST was reportedly removed in 1991; up to 1300 mg/kg TPH and no detectable BTEX was reported in soil, and the UST site was closed NFA.

Additional LOCs may be identified and added to the process. The Workplan presents a table of potential contaminants of concern for a range of potential LOCs.

Data quality objectives and problem statements are summarized for the 7 identified LOCs and general principals stated for any additional LOCs that are subsequently identified.

Study boundaries are defined for each LOC, and decision rules stated for each investigation. An outline of a study design is presented for each LOC. Visual inspection, soil gas sampling, soil matrix sampling, and analysis are the main general methods proposed, to be applied more or less as needed for each LOC.

In general, GSU concurs with the proposed Workplan, subject to the following comments.

General Comments

The following general comments are largely intended to establish the GSU requirements for field procedures, since the Workplan and the attached Sampling and Analysis Plan are brief, the number of individual LOCs is relatively large, and the nature of suspected contamination varies considerably from location to location.

1. Soil gas sampling is proposed as a probable method of investigation for several LOCs. Some discussion of the method is presented in Appendix A Sampling and Analysis Plan. GSU has the following recommendations with respect to this method:
 - 1.1. The Soil Gas Survey (SGS) should be performed in accordance with California Regional Water Quality Control Board (CRWQCB), Los Angeles Region, Interim Guidance for Active Soil Gas Investigation, Well Investigation Procedures (WIP)

guidelines dated February 25th 1997 or later. (Detection Limits (DL) may be in accordance with article 6 below)

- 1.2. At a minimum, soil gas samples should be collected from the probes at depths of 5 and 15 feet Below Ground Surface (BGS) and analyzed in accordance with the CRWQCB protocols. Subsurface structure, shallow bedrock, changes in lithology and/or shallow or deep groundwater may require modification to the standard sampling depths of 5 and 15 feet.
- 1.3. The Department of Toxic Substances Control (DTSC) Geologic Services Unit (GSU) should approve of the proposed sampling locations in advance, and should be notified at least 10 business days prior to starting field activities.
- 1.4. If the probe holes are drilled or pushed in, and the rod is removed, then a sand pack should be installed to a minimum of six inches above and two inches below the soil gas sampling port. The sand pack should be appropriately sized to minimize disruption of airflow to the sampling port and to restrict the infiltration of fines.
- 1.5. A minimum six-inch thick hydrated bentonite surface seal should be installed around each probe. Particular attention should be paid to probes installed in coarse soil or those that do not achieve a full five feet of penetration. The seal should be emplaced in thin layers and each layer should be hydrated for a minimum of 15 minutes prior to sampling. For additional protection, GSU staff suggests the use of a tracer gas [such as isopropyl alcohol or propane (do not use acetone)] released at the surface immediately adjacent to the probe/soil interface and at the top of the probe to determine if ambient air has broken through and diluted the soil gas sample. The tracer gas must be added to the list of analytes reported by the laboratory.
- 1.6. For sites where Volatile Organic Compounds (VOCs) are suspected, samples should be collected and analyzed to achieve the detection limits established in the "TO 14A" Performance Standards. A minimum of ten percent of the samples (no less than 4 samples) should attain a detection limit of approximately 10-nanograms per liter [specific detection limits to be determined by the DTSC Human Ecological Risk Division (HERD) staff]. Analytical equipment calibration should be in accordance with the CRWQCB Guidelines (either on-site or off-site analysis). These detection limits are not suitable for flux chamber analyses.
- 1.7. If Methane is suspected, the analytical program should include the analysis for Methane by USEPA 8015B (Modified).
- 1.8. The Laboratory must maintain and comply with a Quality Assurance/Quality Control (QA/QC) plan. DTSC staff may inspect the field and/or laboratory QA/QC procedures. Copies of the QA/QC plan and laboratory calibration data must be presented to the DTSC staff upon request. DTSC Hazardous Materials Laboratory (HML) staff reserve the right to audit the laboratory.
- 1.9. If the soil gas analysis results will be used in a risk assessment, testing for the following soil matrix parameters should be performed in association with the soil

gas survey, so the results may be used in USEPA recognized indoor air exposure models:

- Soil description performed and presented in accordance with the Unified Soil Classification System (USCS),
- Bulk density,
- Organic carbon content of the soil (by the Walkee Black Method),
- Soil moisture,
- Effective permeability,
- Porosity and
- Grain size distribution analysis (curve) and evaluation of fine-grained soil content (by wet sieve analysis) to determine the percent clay, silt and sand. The grain size distribution analysis will be used to classify the soil in accordance with the U. S. Soil Conservation Service (SCS) soil type (which is the same as the U. S. Dept. of Agriculture soil type).

1.10. For soil gas probes that will be deeper than 20 feet BGS, the soil parameters (listed above) should be measured in each distinct lithology located beneath the site. When possible, the sampling port should be located near the lithologic interface to obtain the maximum concentrations of the analyte (at the top or bottom of the interface depending upon the analyte). If distinct lithologic changes are not present, then the soil parameters should be measured at a minimum depth interval of every 10 feet from the surface to a depth of 40 feet BGS and every 20 feet BGS below a depth of 40 feet until the capillary fringe is encountered. The last soil gas sample should be collected from five feet above the capillary fringe.

2. Soil matrix samples for VOC analysis must be collected in accordance with USEPA method 5035. The contractor should estimate the anticipated VOC concentrations in soil matrix and determine the appropriate sampling and extraction procedure.

Sample collection must be performed to minimize liberation of VOC vapors. Soil matrix samples collected in brass or stainless steel sleeves must be capped immediately upon removal from the sampling tool to minimize the volatilization of chemicals of concern.

If the direct push method is used and the samples are collected in acetate sleeves, the acetate sleeves must have the same inside diameter as the shoe of the sampling device. Under no condition should the inside diameter of the shoe be smaller than the inside diameter of the acetate sleeve (or other material), allowing the soil to expand or allowing off-gassing to occur.

Sampling should include using en-core® type samplers, or field extraction using a water miscible organic solvent such as methanol or sodium bisulfate. Purging will be performed by method 5030 and analysis by USEPA method 8260 or 8021B.

Specific Comments

TAA-165

1. Paragraph 3.5.1, Decision Rule for TAA-165 states:

"If any stained or potential storage or spill areas are identified in the VSI at TAA-165, then the activities associated with this area will be determined and likely target analytes will be selected from the method groups presented in the QAPP. Analytes known or suspected to be present will be included, if not already in the method group list.

If the potentially identified impacted area is believed to be contaminated by VOCs, then soil gas or soil samples will be collected and analyzed."

GSU notes that the history of TAA-165 is well established as a temporary accumulation area for hazardous and flammable materials. No visual confirmation is required before performing an investigation that includes soil vapor sampling and/or soil matrix sampling at a site with this kind of history. The Contractor should propose to perform soil vapor sampling and/or soil matrix sampling at this location regardless of the results of visual inspection. Appropriate samples should be analyzed for the list of associated contaminants listed in Table 2-1 for TAA locations.

PCB-T129, T130, and T131

2. GSU recommends that the study boundaries be extended to evaluate any floor drain or utility sink that may have received the previously observed oily fluid discharge, or that may have received water that came in contact with the discharge (for example, water used in building maintenance or cleanup).

RFA-747

3. Since aviation gasoline may have been used at MCAS EI Toro, GSU recommends including total lead or organic lead in the sampling and analysis protocols for this location.

Railroad

4. The contaminant of concern has been limited to PAH in the proposed Workplan. GSU notes that railroads commonly handle a wide range of hazardous and flammable materials. Releases of these materials may occur during handling, or from leaks in tank cars, leaking containers in freight cars or modular shipping containers, and from the fuels, coolants, and lubricants used in locomotives and rolling stock. The Contractor should propose to evaluate the railroad for a suitable range of contaminants of concern, or show how these contaminants have been ruled out by previous investigation.

Building 435

The proposed investigation appears to be appropriate, based on the available information.

Phase I EBS-Identified LOCs

GSU requests that we be informed of the existence of newly discovered LOCs, and that

Triss Chesney

May 22, 2002

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we be included in the planning of the resulting investigations at each location.

Minutes of the El Toro Technical Review Committee
January 30, 2002

The meeting was called to order by Marcia Rudolph. All attendees introduced themselves. (List Appended). Minutes were reviewed from the September 19 and November 29, 2001 meetings. The Minutes were approved as submitted.

Marcia reviewed the status of various documents received during the period since our last meeting. The committee reviewed various topics that needed to be brought to the attention of the full RAB committee. A list of subjects was developed and consisted of the following items:

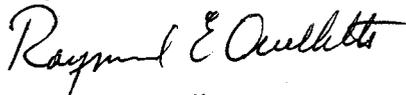
- The Orange County Register carried an article regarding Brownfield Landfills and How the US EPA was going to enable the PRPs to haul out the contents and re-fill the old landfills with clean dirt. Question: Why was this process not good for the NAVY but is now acceptable for Brownfield cleanups?
- The 60% landfill report was given to Agencies to review on January 17. The Navy is considering the monitoring of Soil Moisture in the Cover.
- What is the EPA status on new Perchlorate standards?
- Where did the 1,2-DCA come from at Site 16?
- Has the Navy issued a letter on the investigation of Building 307?
- What is the history of the Storm Water Permit for the Base? Has a new permit been developed incorporating the new TMDL requirements?
- The LRA issued a Final Report on the Environmental Assessment of El Toro. Could the Navy and Orange County LRA make a presentation at the next RAB meeting?
- Request that the Executive Summary of the LRA report be included with the minutes of the RAB meeting.

It was learned that Mr. Greg Hurley resigned his position as co-chair of the RAB. Mr. Hurley was requested to continue his association with the RAB. He was also thanked for his efforts in promoting the RAB.

The next Technical Review Committee meeting will take place at 5:00 p.m. in the Irvine City Hall before the next RAB Meeting that is scheduled for 27 March 2002.

There being no further business, the meeting was adjourned.

Respectfully Submitted,



Raymond E. Ouellette
Secretary

Minutes of the El Toro Technical Review Committee
March 27, 2002

The meeting was called to order by Marcia Rudolph. All attendees introduced themselves. (List Appended). Minutes were reviewed from the January 30, 2002 meeting. The Minutes were approved as submitted.

Marcia reviewed the status of various documents received during the period since our last meeting.

Triss Chesney and Kim Foreman with the DTSC attended the meeting. Triss reviewed the agency's procedures in reviewing documents. She also indicated that she has been submitting an email of documents received to the Technical Committee for distribution to the entire Technical Committee membership. This has apparently been working well. She indicated that she would like to see a similar system established for DTSC letters in response to the NAVY's requests. The Technical Committee indicated that such a system would be fine but it must also be available for the general public to access.

Ms. Chesney was asked to provide comments on the status of various issues that the Technical Committee is currently interested in. Following her comments, the Technical Committee thanked her for participating and welcomed her to attend future meetings as well.

Marcia then reviewed a list of items to be brought to the full RAB committee's attention. They consisted of the following:

- ROD for Site 18 and 24 concerning Woodbridge
- Status of NAVY's EIS
- The status of the County's Phase I Report
- The status of the perchlorate plume and the RI at Site 1
- Anomalies in Area 3 – specifically IRP Site 3
- A response from the NAVY concerning the studies done at Bldg 307
- The status of the NAVY's NPDES permit for Storm Water Discharges

The next Technical Review Committee meeting will take place at 5:00 p.m. in the Irvine City Hall before the next RAB Meeting that is scheduled for 30 May 2002.

There being no further business, the meeting was adjourned.

Respectfully Submitted,



Raymond E. Ouellette
Secretary

