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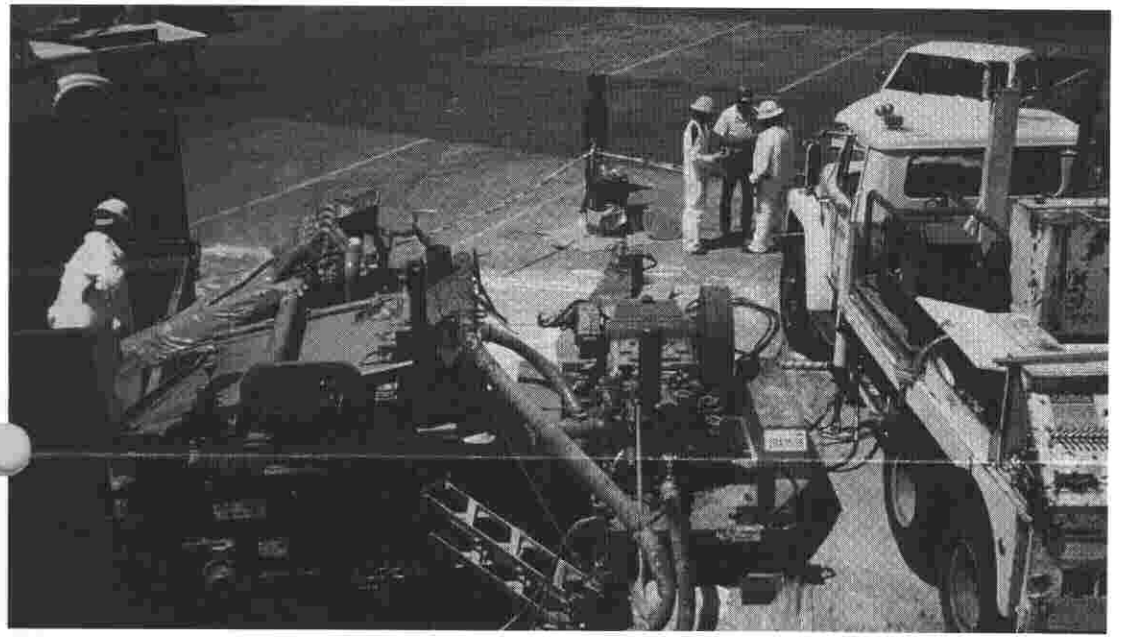
UPDATE OF THE ENVIRONMENTAL INVESTIGATION AT MARINE CORPS AIR STATION EL TORO

Fact Sheet No. 2

December 1993



This fact sheet describes the investigation of possible hazardous substance contamination at Marine Corps Air Station El Toro. The investigation is being conducted under the Department of Defense's Installation Restoration Program. This is the second in a series of fact sheets that will be issued throughout the investigation and remediation process. Future fact sheets will provide updates on the progress and inform you of opportunities for public involvement.

RESULTS OF THE PHASE I REMEDIAL INVESTIGATION ANNOUNCED

Marine Corps Air Station (MCAS) El Toro has completed Phase I of the Remedial Investigation (RI) of 25 potential hazardous waste sites at MCAS El Toro (Station). The purpose of the RI is to locate the source(s) and characterize the extent of contamination at these sites. This fact sheet describes the important findings presented in the Phase I RI Technical Memorandum, which is available for public review at the information repositories listed on page 6 of this fact sheet.

MCAS El Toro is located in Orange County, California and currently serves as the center for Marine Aviation operations on the Pacific Coast. The facility occupies 4,700 acres comprised of hangars, flight-line areas, maintenance areas, fueling facilities, a medical clinic, a golf course, housing areas, and community services. MCAS El Toro lies within the Irvine Groundwater Basin, a subbasin of the Los Angeles Groundwater Basin.

THE REMEDIAL INVESTIGATION

The objectives of the RI were to: 1) obtain initial samples of surface and subsurface soil, sediment, and surface water to assess the presence of contamination, 2) assess if detected contamination presents a risk to human health or the environment, 3) characterize the source and pathways for Volatile Organic Compound (VOC) groundwater contamination, 4) gather preliminary data to establish viable remedial action alternatives, and 5) evaluate whether emergency removal actions are necessary. These goals were achieved by conducting comprehensive field investigations of the surface and subsurface soils, sediments, surface water, and groundwater. Groundwater monitoring wells were installed and sampled to

vide data on the quality of groundwater. Soils were also collected and analyzed to obtain information about contaminants in the surface and subsurface soil and the geology of the contaminated areas. This information was used by MCAS El Toro to determine the extent of contamination and refine the geology and hydro-geology beneath the Station.

From May 1992 to January 1993, ninety-five monitoring wells were installed. The locations of the wells are shown on Figure 1. The wells range in depth from 60 to over 1,000 feet below ground surface (bgs). Over 1,500 samples of surface water, soils, sediments, and groundwater were collected and analyzed. Data from existing monitoring wells was used to provide current and historical water quality data.

Twenty-two sites, including Site 18, the regional groundwater investigation, are included under the RI. These sites are grouped into three Operable Units (OUs). OU-1 comprises the regional VOC groundwater investigation, conducted both on- and off-Station. OU-2 includes the sites considered to be potential source areas for regional groundwater VOC contamination including the four landfill sites (Sites 2, 3, 5, and 17) and the Petroleum Disposal Area, Site 10. The remaining 16 sites are grouped together as OU-3. The primary concerns at OU-3 sites involve potential soil and sediment contamination.

REMEDIAL INVESTIGATION RESULTS

Geology and Hydrogeology

Understanding the geology (the soils and rocks beneath the Station) and hydrogeology (how water moves through the ground) is necessary to calculate how the contamination is moving in the Irvine Groundwater Basin and how it can be contained and remediated. The information from soil borings, monitoring wells, and other studies indicates that the aquifer zones in the Irvine Groundwater Basin are composed primarily of discontinuous layers of clay, silty sands, and fine gravels.

Three general aquifer zones have been identified near the Station: a shallow perched zone, a middle zone or principal zone, and an underlying zone of lower permeability. The shallow aquifer occurs to a depth of about 200 feet bgs. The middle or principal aquifer zone occurs between 200 and 750 feet bgs. This aquifer system is the main water production zone for the Irvine area. The depth to the lower permeability zone ranges from 50 feet in the foothills to over 1,100 feet in the center of Irvine Groundwater Basin. Figure 2 shows the subsurface geology beneath MCAS El Toro.

Groundwater generally flows northwest along the southwest boundary of the Station. However, groundwater flow patterns are influenced by groundwater pumping for agricultural water supply. The direction of flow near these agricultural wells can change seasonally because the supply wells typically are pumped most heavily during the summer months

Nature and Extent of Contamination

MCAS El Toro sampled and analyzed the groundwater, soils, and sediments for VOCs, semi-volatile organic compounds, metals, petroleum hydrocarbons, polychlorinated biphenyls (PCBs), pesticides, and herbicides. Results from the groundwater analyses were compared against federal and state drinking water standards called Maximum Contaminant Levels (MCLs). The groundwater samples from the investigation at OU-1 (Site 18) contained twenty-four VOCs, of which tricholoethylene (TCE) was the most common. Other VOCs detected are tetrachloroethylene PCE, 1,1-dichlorethylene (1,1-DCE), 1,2-dichloroethene (1,2-DCE), benzene, and carbon tetrachloride.

TCE and PCE were detected primarily in the eastern portion of the Station near the Magazine Road Landfill and in the southwestern portion of the Station below Sites 7, 8, 9, 10, and 22 (see Figure 1). On-Station, this contamination also appears to be confined to the uppermost zones of the groundwater aquifer.

The highest concentration of TCE was found at the Crash Crew Pit No.1 (Site 9), where a groundwater sample contained 2,000 parts per billion (ppb). Five nearby groundwater samples collected from wells between Site 7 and Site 10 had more than 100 ppb of TCE; these wells are located between the Drop Tank Drainage Area No. 2 (Site 7) and the Petroleum Disposal Area (Site 10).

Although the TCE concentrations in the groundwater are high enough to suggest the presence of a nearby source, the limited data on TCE detected in soil does not pinpoint the exact location of the source of the regional groundwater TCE contamination. Neither historical records nor the Phase I RI sampling data suggest a particular site as the source. The TCE source may be the areas downgradient from the Drop Tank Drainage Area No. 2 (Site 7) and upgradient from the Crash Crew Pit No. 1 (Site 9) and the Petroleum Disposal Area (Site 10), where TCE was found in wells. This is consistent with the past usage of this area for industrial maintenance and repair.

Fate and Transport

Once contaminants reach the groundwater, their migration throughout the Irvine Groundwater Basin is controlled primarily by groundwater flow. Groundwater flows in complex patterns around the solid particles underground, although the overall flow may be in a single direction. The flow pattern can result in the spreading (dispersion) of contaminants carried with the groundwater. Physical and chemical reactions between some contaminants and the soil particles retard their rate of movement.

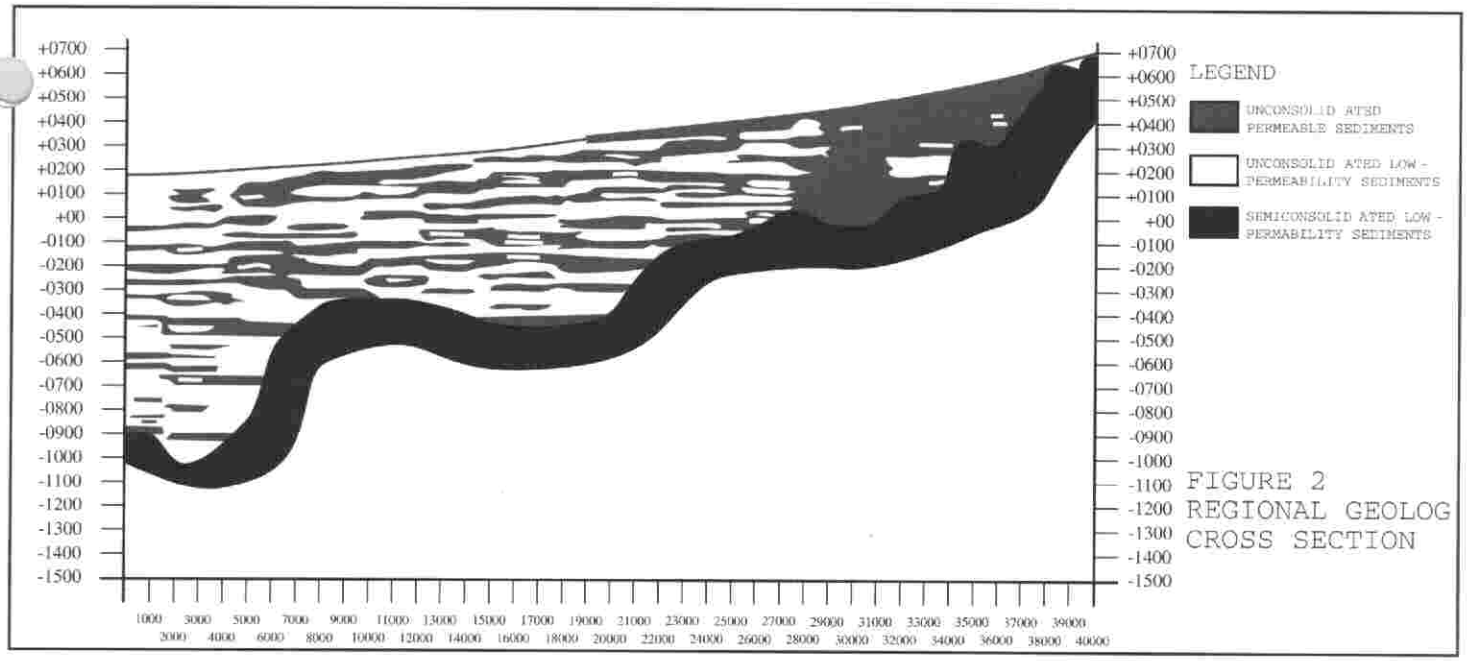
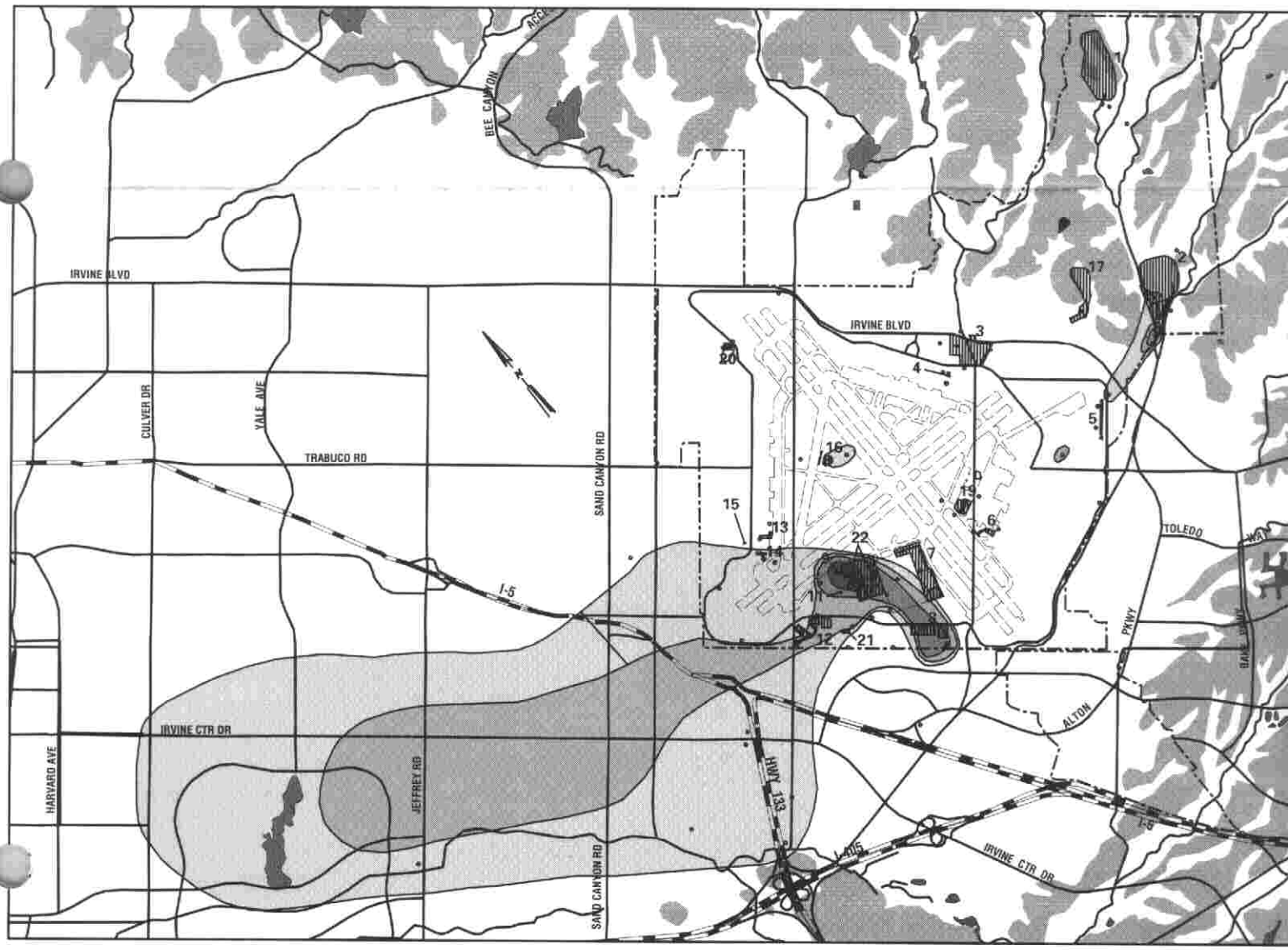


FIGURE 2
REGIONAL GEOLOG
CROSS SECTION



The RI estimated the average rates of TCE migration from the estimated groundwater flow velocity and the estimated effects of physical retardation (entrapment on soil particles). Retardation may slow the average TCE migration to velocities approximately one half to one third the velocity of groundwater.

The average groundwater velocity is estimated to be at 620 feet per year (1.7 feet per day) and TCE migration at about ten inches per day. Local pumping conditions accelerate the horizontal and vertical movement of groundwater and the transport of contaminants.

POTENTIAL RISK TO HUMAN HEALTH AND THE ENVIRONMENT

A health risk assessment was done to determine if contamination could pose significant human health risks based on current conditions and on potential future land uses.

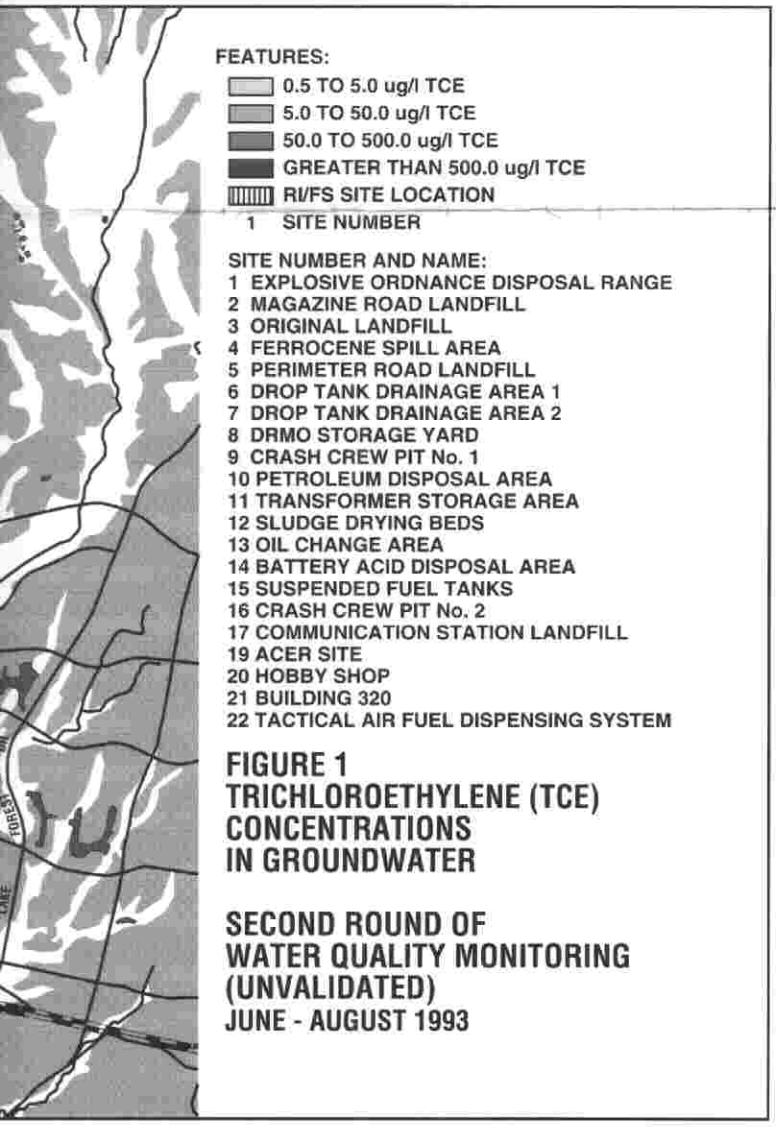


FIGURE 1
TRICHLOROETHYLENE (TCE) CONCENTRATIONS IN GROUNDWATER

SECOND ROUND OF WATER QUALITY MONITORING (UNVALIDATED) JUNE - AUGUST 1993

Results indicated that present conditions do not pose any significant health threats to nearby residents or on-site workers.

If the site were not remediated and residential homes were present on the site, inhalation of soil vapor emissions could pose a slight health threat to residents in the vicinity of the burn pits. The contaminated groundwater would be harmful only in the unlikely event that it was used as a drinking water supply.

FUTURE STUDIES

MCAS El Toro is currently using the results of the Phase I RI to perform a Feasibility Study (FS) to address VOC contamination in both the groundwater and soil in and around the Station. As part of the Phase II RI/FS, MCAS El Toro began a second round of groundwater sampling in June 1993. Samples are being collected from Phase I RI wells and selected Orange County Water District (OCWD) wells. MCAS El Toro has begun to review FS remedial alternatives for OUs-1,-2, and-3. The RI Phase II Work Plan is currently in draft form and is available in the information repositories for public review. Comments on the Work Plan should be submitted by January 13, 1994 to the contacts listed on page 6 of this fact sheet.

MCAS El Toro is negotiating with the OCWD to participate in the Irvine Desalter Project. The Desalter Project was originally designed to remove total dissolved solids, nitrate, and selenium from groundwater in the eastern Irvine Groundwater Basin. The project also has the potential to capture groundwater contamination from MCAS El Toro and to remove VOCs from the pumped groundwater.

BASE CLOSURE

In September 1993, Marine Corps Air Station (MCAS) El Toro was selected by Congress for closure under Round III of the Base Closure and Realignment Act of 1988. Base closure will not impede the progress of the Installation Restoration Program. The environmental studies will continue until the completion of the program.

THE COMMUNITY RELATIONS PROGRAM

The community relations program at MCAS El Toro is designed to inform the community about the environmental remediation process, provide the community with opportunities to participate in the decision-making process, and voice its concerns. Community meetings and public comment periods will be held at critical decision points in the process. During public comment periods, concerns voiced by the community will be considered and responded to in a separate report called the Responsiveness Summary. Public notices

proabout upcoming public comment periods and meetings will be published in the *Orange County Register, Los Angeles Times - Orange County Edition,* and the Station newspaper, *The Flight Jacket.* Fact Sheets will also be issued periodically about the progress of remediation activities.

A Technical Review Committee (TRC) has been established to review and comment on proposed actions for remediation of MCAS El Toro. The TRC includes representatives from U.S. Marine Corps; local and Station communities; the City of Irvine; and local, state, and federal regulatory agencies. The TRC meets as needed to discuss project progress, review reports, and comment on environmental activities. After each TRC meeting, summaries of the meetings are placed in the information repository.

On July 2, 1993, President Clinton announced a five-part program to speed the economic recovery at communities where military bases are slated to close. The Department of Defence (DoD), on September 9, 1993, issued guidance entitled "Fast Track Cleanup at Closing Installations," to implement the President's plan to expedite the cleanup and reuse of these closing military bases.

A key element of the DoD guidance deals with improving public involvement opportunities in the base cleanup program, including the establishment of a Restoration Advisory Board (RAB) at each closing base. The existing Technical Review Committee (TRC) at MCAS El Toro will be converted to a RAB. The RAB will include community members who reflect the diverse interest of the local community. For information on the RAB, please contact:

Christa Mitchell
AC/S Environmental (IAU)
MCAS El Toro
P.O. Box 95001
Santa Ana, CA 92709-5001
714/726-6607

BACKGROUND

From 1985 to 1986, an investigation was conducted under the Navy Assessment and Control of Installation Pollution Program to locate sites potentially contaminated with hazardous materials from past operations. Seventeen sites were identified based on the results of record searches and employee interviews. While this study was being conducted, the OCWD discovered VOCs in groundwater from an agricultural well about 3,000 feet west of MCAS El Toro. VOCs are solvents that readily evaporate at room temperature and are commonly used in dry cleaning, metal plating, and metal degreasing. OCWD launched its own investigation to determine the source and extent of VOC contamination.

In 1987, the California Regional Water Quality Control Board (RWQCB), Santa Ana Region required the U.S. Marine Corps to conduct a Perimeter Study to investigate the possibility of VOC contamination along the southwestern boundary of MCAS El Toro. Results from the Perimeter Study indicated that VOCs were present in the shallow groundwater near the Station boundary. As a consequence of the findings, an interim groundwater pump and treatment system was installed at the southwestern boundary of the Station. In June 1989, the treatment system began operation.

In June 1988, the U.S. Environmental Protection Agency (U.S. EPA) recommended that MCAS El Toro be placed on the National Priorities List (NPL). The NPL is a list of the top-priority sites in the country contaminated with hazardous substances. MCAS El Toro was recommended for placement on the NPL due to the presence of two VOCs, TCE and PCE, in groundwater at the Station boundary and in agricultural wells to the west of the Station. **Drinking water supply wells have not been affected by VOCs.** TCE and PCE, known cancer-causing compounds, are a concern when found in drinking water supplies because of the potential for frequent exposure through drinking and bathing. MCAS El Toro was included on the NPL on February 22, 1990.

In October 1990, the Navy signed a Federal Facilities Agreement (FFA) with the U.S. EPA, and the RWQCB, and Regional Water Quality Board, the California Department of Toxic Substances control (formerly a program within the California Department of Health Services). The FFA includes specific schedules and milestones in the clean-up process.

TECHNICAL ASSISTANCE GRANTS

The TAG Program provides funds for community groups to hire a technical advisor to assist in understanding technical information. Under this program, one eligible community group at each Superfund site may obtain a grant of up to $50,000.

To be eligible, a group must be incorporated, meet a 20 percent matching funds requirement (in-kind contributions such as donated goods and services are permissible), meet financial and administrative requirements, and prepare a plan for how the TAG will be used based on U.S. EPA's technical work schedule. For more information on the TAG Program, contact:

Dorothy Wilson,
Community Relations Coordinator

U.S. Environmental Protection Agency
75 Hawthorne Street (H-1-1)
San Francisco, CA 94105
1/800/231-3075

MAILING LIST COUPON

If you would like to be on the permanent mailing list to receive future information about environmental remediation activities at MCAS El Toro, please fill out the coupon below and mail it to Chrisa Mitchell, MCAS El Toro, AC/S Environmental 1AU, Santa Ana, CA 92709-5001.

Name _____

Address _____

Telephone number _____

Organization/Affiliation _____

WHERE CAN YOU GET MORE INFORMATION

Copies of all documents and correspondence relating to the environmental remediation are on file and can be reviewed at the following information repositories listed below. The Administrative Record is on file at the Heritage Park Regional Library.

Heritage Park Regional Library
14361 Yale Avenue
Irvine, California 92714
714/551-7151

MCAS El Toro
Library
Building 280
Santa Ana, California 92709-5001
714/726-2569

If you have any questions or comments, would like to be put on the mailing list to receive fact sheets and other information, or would like someone to make a presentation to your group, please contact:

Chrisa Mitchell
AC/S Environmental 1AU
MCAS El Toro
Santa Ana, California 92709-5001
714/726-6607

Dorothy Wilson
Community Relations Coordinator
U.S. Environmental Protection Agency
75 Hawthorne Street (H-1-1)
San Francisco, CA 94105
1/800/231-3075

Claire Best
Public Participation Specialist
Cal-EPA
(Department of Toxic Substances Control)
245 W. Broadway, Suite 350
Long Beach, CA 90802
310/590-4949

Commanding General
ATTN: Chrisa Mitchell
AC/S Environmental 1AU
MCAS El Toro
P.O. Box 95001
Santa Ana, CA 92709-5001

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INSIDE:

UPDATE ON THE ENVIRONMENTAL INVESTIGATION AT MCAS EL TORO

TITLE: FACT SHEET "UPDATE OF THE ENVIRONMENTAL INVESTIGATIONS AT MCAS EL TORO"

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MCAS EL TORO
RESTORATION ADVISORY BOARD
MEMBERSHIP NOTICE

On July 2, 1993, President Clinton announced a five-part program to speed the economic recovery at communities where military bases are slated to close. The Department of Defense (DOD), on September 9, 1993, issued guidance entitled "Fast Track Cleanup at Closing Installations," to implement the President's plan to expedite the cleanup and reuse of these closing military bases.

In September 1993, Congress approved the Base Realignment and Closure (BRAC) Commission's recommendation to include MCAS El Toro in the second round of military base closures.

A key element of the DOD guidance deals with improving public involvement opportunities in the base clean-up program, including the establishment of a Restoration Advisory Board (RAB) at each closing or realigning base where property will be available for transfer to the community. The RAB will replace the existing Technical Review Committees (TRC).

What is a RAB?

The RAB is an advisory body designed to act as a focal point for the exchange of information between MCAS El Toro and the local community. The RAB is intended to bring together community members who reflect the diverse interests within the local community, enabling the early and continued two-way flow of information, concerns, values, and needs between the affected community and the BRAC Cleanup Team (BCT). The RAB will work in partnership with the BCT on clean-up issues and related matters throughout each facility's cleanup and transition of civilian reuse.

RAB members will be asked to meet regularly and review and comment on technical documents and plans relating to the ongoing environmental studies and clean-up activities at MCAS El Toro. Members will be expected to serve as a

RAB MEMBERSHIP REQUIREMENTS

Term—2 Years

Availability to Community—Members should be willing to communicate with local community members and interest groups concerned with specific base clean-up issues. Members will serve as a direct and reliable conduit for information flow to and from the community.

Document Review—Members will be expected to comment on documents available for public review.

Attendance—Members are expected to attend all RAB meetings or send an alternate. If a member fails to attend or send an alternate to two consecutive meetings, the RAB co-chairs may ask the member to relinquish their membership.

Resignation/Removal—Members unable to continue to fully participate shall submit their resignation in writing to either of the RAB co-chairs. Resigning members may nominate new members to replace them.

Residency—To be a RAB member, individual community members or organizations must reside in the vicinity of MCAS El Toro.

liaison with the community and be available to meet with community members and groups. Members will be expected to serve a two-year term. All RAB meeting will be open to the public. Technical support staff will be available to provide informational support and explanation to RAB members.

To ensure opinions about environmental restoration reflect diverse interests within the local community, RAB membership should include—but is not limited to:

- ✓ former TRC members
- ✓ local reuse committees
- ✓ local official/agencies
- ✓ business community
- ✓ school districts
- ✓ residents/community members
- ✓ base employees/residents
- ✓ local environmental groups
- ✓ civic/public interest groups
- ✓ religious community
- ✓ other regulatory agencies
- ✓ labor organizations
- ✓ local homeowners organizations

How to Become a RAB Member?

Community members interested in finding out more about the RAB are invited and encouraged to attend a community meeting MCAS El Toro will conduct on January 13, 1994, beginning at 7:00 p.m. At the meeting, you will learn about the purpose of the RAB, membership opportunities and member expectations, and hear an update on the status of base clean-up activities and future plans. RAB membership applications will be available at the community meeting. The community meeting will be held at the following address:

Irvine City Hall
1 Civic Center
Irvine, California

If you have questions about the RAB or are interested in applying for RAB membership, applications can also be obtained by contacting:

Chrisa Mitchell
AC/S Environment (1AU)
MCAS El Toro
P.O. Box 95001
Santa Ana, CA 92709-5001
714/726-6607

All membership applications must be received by February 14, 1994. Applications will be reviewed and approved by members of MCAS El Toro, U.S. Environmental Protection Agency, and California Environmental Protection Agency Department of Toxic Substances Control.

MEMBERSHIP APPLICATION

MARINE CORPS AIR STATION EL TORO
RESTORATION ADVISORY BOARD

Conditions for Membership:

Restoration Advisory Board (RAB) members are expected to serve a two-year term and attend all RAB meetings or designate an alternate. The alternate must be jointly approved by the Department of Defense and Community Co-Chairpersons. Members who miss two or more consecutive meetings may be asked to resign. Duties and responsibilities will include reviewing and commenting on technical documents and activities associated with the environmental restoration at **MARINE CORPS AIR STATION EL TORO**. Members will be expected to be available to community members and groups to facilitate the exchange of information and/or concerns between the community and the RAB.

RAB membership priority will be given to local residents that are impacted/affected by the closure of the installation. The number of RAB members is limited.

* *

Name: _____

Address: _____
Street Apt. # City Zip

Phone: ( )_____ ( )_____ Fax: ( )_____
Daytime Home

Group Affiliation: _____

1. Briefly state why you would like to be considered for membership on the Restoration Advisory Board (RAB).

_____

_____

_____

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 box below:

☐ Yes, I would like to be considered.

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

☐ Yes, I am willing to serve for 2 years.

5. By submitting this signed application, you are aware of the time commitment which 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:

Chrisa Mitchell
AC/S Environmental (1AU)
MCAS El Toro
P.O. Box 95001
Santa Ana, CA 92709-5001
714/726-6607