

# FORMER MARINE CORPS AIR STATION EL TORO RESTORATION ADVISORY BOARD MEETING

**August 20, 2008**  
***MEETING MINUTES***

The 92<sup>nd</sup> Restoration Advisory Board (RAB) meeting for former Marine Corps Air Station (MCAS) El Toro was held Wednesday, August 20, 2008 at former MCAS El Toro in Building 307. The meeting began at 6:30 p.m. These minutes summarize the RAB meeting discussions.

## **WELCOME, INTRODUCTIONS, AGENDA REVIEW**

Ms. Debra Theroux, Deputy Base Closure Manager for former MCAS El Toro, welcomed everyone to the meeting. Ms. Marcia Rudolph, RAB Subcommittee Chair, led the Pledge of Allegiance. Ms. Theroux introduced herself as the Interim Base Realignment and Closure (BRAC) Environmental Coordinator (BEC) and Interim Navy RAB Co-Chair. Ms. Theroux asked for self-introductions from those in attendance.

The RAB meeting agenda was reviewed by Ms. Theroux. She said this would be a short meeting, followed by the RAB tour of three Installation Restoration Program (IRP) sites. Meeting topics included: the approval of the April 23, 2008, RAB meeting minutes; RAB Subcommittee update; regulatory agency update; and suggestions for topics and presentations at future RAB meetings. She explained that due to the tight schedule for tonight's meeting, the normal regulatory agency updates consisted of two handouts that summarize the United States Environmental Protection Agency (U.S. EPA) and Cal/EPA Department of Toxic Substances Control (DTSC) activities pertaining to the review of technical documents.

## **Review and Approval of the April 23, 2008 RAB Meeting Minutes**

Mr. Bob Woodings, RAB Community Co-Chair, asked if there were any comments or amendments to the April 23, 2008 RAB meeting minutes. No comments or changes were noted and the minutes were approved without amendment.

## **Review of Handouts**

Ms. Theroux said that normally she reviews project contact information and provides information on the various environmental websites maintained by the Navy and the regulatory agencies. This information is available as handouts on the information table. She noted that the Navy's BRAC website has been updated with a new look and is now very user friendly. The Navy plans to post photos from the RAB sites tour next week on the Navy's BRAC website. Ms. Theroux encouraged RAB members and RAB meeting attendees to contact her if anyone has questions on the environmental restoration efforts.

## **Announcements/Review of Action Items**

Ms. Theroux responded to a RAB Subcommittee request from the last RAB meeting. Interest was expressed regarding documents that address groundwater at IRP Sites 1 and 2. The Navy will be issuing a draft work plan for the pilot study test for treatment of trichloroethene (TCE) and perchlorate at IRP Sites 1 and 2. Ms. Theroux noted the RAB's interest in IRP Site 1 and said that the Navy will consider including this site in the next tour. The tour today will focus on IRP Sites 2 and 17, landfills that are similar in nature. Work at IRP Site 17 is underway and this provides a "before" look in regard to landfill capping activities. IRP Site 2 will provide an "after" perspective since efforts are essentially completed. The RAB will also visit IRP Site 24 and will be able to observe the control system. The Navy will answer questions during the tour at each of the sites.

## **MCAS El Toro RAB Subcommittee Report – Ms. Marcia Rudolph, RAB Subcommittee Chair**

Ms. Rudolph said that the Navy needs to conduct the tour of IRP Site 1 as soon as possible. She said the RAB visited the site when it was active but has not had a tour of this site in some time. She expressed that the RAB hopes this will happen soon. Secondly, the RAB Subcommittee is interested in what is planned for IRP Site 1 after remediation has taken place and questioned whether the Federal Bureau of Investigation will be using the site. She added that this is an important issue for her since IRP Site 1 is near the City of Lake Forest where new development is underway.

Mr. Peter Hersh, RAB member, echoed Ms. Rudolph's comments regarding IRP Site 1, saying a tour of IRP Site 1 was deferred once before due to bad weather and again today. He added that the RAB needs to get a better handle on this site.

Ms. Rudolph said she learned that this is the last RAB meeting for Mr. Bob Coleman of Brown and Caldwell, Navy contractor. She said he has supported former MCAS El Toro RAB meetings for the past 13 years. She thanked Mr. Coleman and led the RAB in a round of applause.

### **Regulatory Agency Comment Updates**

Ms. Theroux said that both U.S. EPA and DTSC provided written summaries of the activities and status of document reviews conducted from April to August 2008. These handouts are available on the information table.

Mr. Don Zweifel, RAB member, inquired if in DTSC's correspondence to the Navy there were any notable concerns with any of the documents listed on the handout. Mr. Than noted that DTSC was under pressure to obtain radiological release of Building 297 from the California Department of Public Health, and that release was recently granted. Further dialog between DTSC and the Navy has resolved issues regarding the former Defense Fuels Pipeline. DTSC came to a determination that the parcel where the pipeline remains in-place is suitable for transfer and this portion of the Carve-Out was included in the Finding of Suitability for Transfer (FOST) 3.

Mr. Zweifel asked if slurry was placed into the pipeline. Ms. Content Arnold, Navy Lead Project Manager, said the 100-foot section of the pipeline was not removed but was capped and closed in-place. The Navy and DTSC published a public notice that informed the community that FOST 3 was issued for two Carve-Outs at former MCAS El Toro. A portion of one of the Carve-Outs includes the 100-foot section of pipeline that is under a wash and includes land areas associated with the pipeline. The Navy and DTSC determined that there is no need to extract the remaining portion of the pipeline.

## **MEETING EVALUATION AND FUTURE PRESENTATION TOPICS**

Recommendations for topics and presentations at future RAB meetings were provided:

- Update on progress at IRP Site 1.
- A tour of IRP Site 1.
- Discussion on TCE and other soil vapor intrusion testing conducted at IRP Sites 18 and 24.
- Update on property transfer of parcel and the latest FOST. A brief presentation with a data table and map was suggested.
- Update on reuse issues that covers the activities of Lennar Corp. and the City of Irvine.
- Update on the status of the Great Park. Mr. Woodings suggested if the information being sent out by the Great Park could be shared at the RAB meetings, this would be appreciated. Mr. Hersh suggested that a 15-minute overview presentation on the status of the Great Park from the City of Irvine's perspective would be helpful. He noted that he attended a summary presentation made by Mr. Glen Worthington of the Great Park staff, and a similar presentation would be of benefit to the RAB.

## **OPEN Q&A/DISCUSSION -- ENVIRONMENTAL TOPICS**

Mr. Zweifel suggested that a tour of the Irvine Desalter Project plant would be beneficial. Ms. Mary Aileen Matheis, RAB member representing the Irvine Ranch Water District (IRWD), said that Ms. Shannon Reed, Public Information Officer for IRWD, could arrange this. Ms. Matheis suggested that the Navy send out an email to RAB members about this.

Mr. Zweifel also suggested that a tour of a pilot treatment plant that was discussed at the last RAB meeting for former MCAS Tustin would be of interest. Mr. Chris Crompton, RAB member, clarified that IRWD and the California Regional Water Quality Control Board, Santa Ana Region are working on a joint program to address selenium in regional groundwater. IRWD has constructed a demonstration treatment plant in Irvine to treat groundwater to remove selenium and the pilot phase has just been completed. Mr. Crompton said that this issue is more associated with former MCAS Tustin than former MCAS El Toro. He added he is in the process of coordinating a tour of the plant with Mr. Jim Hyde, IRWD, for those interested former MCAS Tustin RAB members. Possible dates for the tour are August 28, 2008 or September 4, 2008. Ms. Theroux said an email was sent out to Tustin RAB members about the tour, but this is separate from a Navy-sponsored RAB tour. She added that if anyone at tonight's meeting is interested in the tour of the IRWD selenium demonstration treatment plant, they are free to tag along.

Ms Rudolph noted there was a letter sent by Mr. Rick Moss, DTSC, to the Navy with some comments on the Work Plan for IRP Site 1 pertaining to the area to be assessed. The comments referred to the size of the area and the number and type of samples being collected and analyzed. The RAB would like to be informed of the Navy's response to this letter. The Navy acknowledged this request and will provide a response to the RAB prior to or at the next RAB meeting.

### **Recent and Upcoming RAB Meetings and Subcommittee Meetings**

- The most recent RAB Subcommittee meeting was held August 20, 2008, in the conference room at Building 307 at former MCAS El Toro before the full RAB meeting. The RAB Subcommittee meeting report presented in these Meeting Minutes provides an update on the latest issues discussed.
- The next full RAB and RAB Subcommittee meetings are scheduled for Wednesday, December 3, 2008. The full RAB meeting will be held at the City of Irvine, Conference and Training Center, beginning at 6:30 p.m. The RAB Subcommittee meeting will be held before the full RAB meeting on December 3<sup>rd</sup> at Irvine City Hall in Room L-104 beginning at 5 p.m.

### **RAB Meeting Adjournment – August 20, 2008 Meeting**

The 92<sup>nd</sup> meeting of the MCAS El Toro RAB was adjourned at 7 p.m. The RAB site tour followed.

### **8/20/08 RAB Meeting Attendance**

<u>TOTAL ATTENDANCE AT MEETING</u>	<u>TOTAL PEOPLE ON SIGN-IN SHEET</u>	<u>RAB MEMBERS PRESENT</u>	<u>AGENCY MEMBERS PRESENT</u>	<u>COMMUNITY MEMBERS PRESENT</u>	<u>EXCUSED ABSENCES RAB MEMBERS</u>	<u>EXCUSED ABSENCES – AGENCY RAB/ COMMUNITY RAB</u>
32	25	11 (includes 2 alternates)	6	5	0	0

## **Materials/Handouts Available at the 8/20/08 RAB Meeting Include:**

- \*RAB Meeting Agenda/Public Notice – 8/20/08 RAB Meeting – 92<sup>nd</sup> Meeting.
- \*Meeting Minutes from the 4/23/08 RAB Meeting – 91<sup>st</sup> Meeting.
- MCAS El Toro – BRAC Cleanup Team Members and Key Project Representatives and Administrative Record File and Information Repository Locations and Contacts.
- MCAS El Toro RAB – Membership Application.
- MCAS El Toro RAB – Membership Roster.
- MCAS El Toro RAB – Mailing List Coupon.
- MCAS El Toro RAB – Environmental Websites.
- MCAS El Toro RAB Meeting Schedule – December 3, 2008 to December 9, 2009.
- Fact Sheet – Installation Restoration Program, Sites 18 and 24 Groundwater Cleanup, Former MCAS El Toro, August 2008.

\* Mailed to all RAB meeting mailer recipients on 8/13/08.

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

- U.S. EPA Reviews/Concurrences at MCAS El Toro, April to August 2008.

## **Agency Comments and Letters – California Environmental Protection Agency (Cal-EPA), Department of Toxic Substances Control (DTSC)**

- DTSC Reviews, MCAS El Toro, April to August 2008.

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

- No Items Submitted.

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## **RAB Site Tour Package – August 20, 2008**

1. Map – RAB Tour
2. Map – IRP Sites, Former MCAS El Toro
3. Map – Carve-out Boundaries and Location
4. IRP Sites 2 and 17 Statistics Sheet
5. Selected Photos, IRP Sites 2 and 17
6. Coastal California Gnatcatcher and Coastal Sage Scrub (CSS) Handout
7. IRP Sites 18 and 24 Statistics Sheet
8. Timeline of IRP Sites 18 and 24
9. IRP Sites 18 and 24 August 2008 Fact Sheet

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*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) 936-4040. Library hours are Monday through Thursday, 10 a.m. to 9 p.m.; Friday and Saturday, 10 a.m. to 5 p.m.; Sunday 12 p.m. to 5 p.m.*

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## **Internet Sites**

### **Navy and Marine Corps Internet Access**

***BRAC PMO Web Site (includes RAB meeting minutes):***

Navy web site: <http://www.bracpmo.navy.mil/>

### **U.S. EPA**

[www.epa.gov](http://www.epa.gov) (this is the homepage)

[www.epa.gov/superfund](http://www.epa.gov/superfund) (site for Superfund)

[www.epa.gov/ncea](http://www.epa.gov/ncea) (site for National Center for Environmental Assessment)

[www.epa.gov/federalregister](http://www.epa.gov/federalregister) (site for Federal Register Environmental Documents)

[www.epa.gov/fedrgstr/EPA-IMPACT/2004/April/Day-27/i9203.htm](http://www.epa.gov/fedrgstr/EPA-IMPACT/2004/April/Day-27/i9203.htm) (site for Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for the Riverside fairy shrimp)

### **Cal/EPA**

[www.calepa.ca.gov](http://www.calepa.ca.gov) (this is the homepage)

[www.dtsc.ca.gov](http://www.dtsc.ca.gov) (site for Department of Toxic Substances Control)

[www.dhs.ca.gov](http://www.dhs.ca.gov) (Department of Health Services, reorganized into the Dept. of Health Care Services and the Dept. of Public Health)

[www.waterboards.ca.gov/santaana](http://www.waterboards.ca.gov/santaana) (site for California Regional Water Quality Control Board, Santa Ana Region)

[www.geotracker.waterboards.ca.gov](http://www.geotracker.waterboards.ca.gov) (Environmental data for regulated facilities in California)



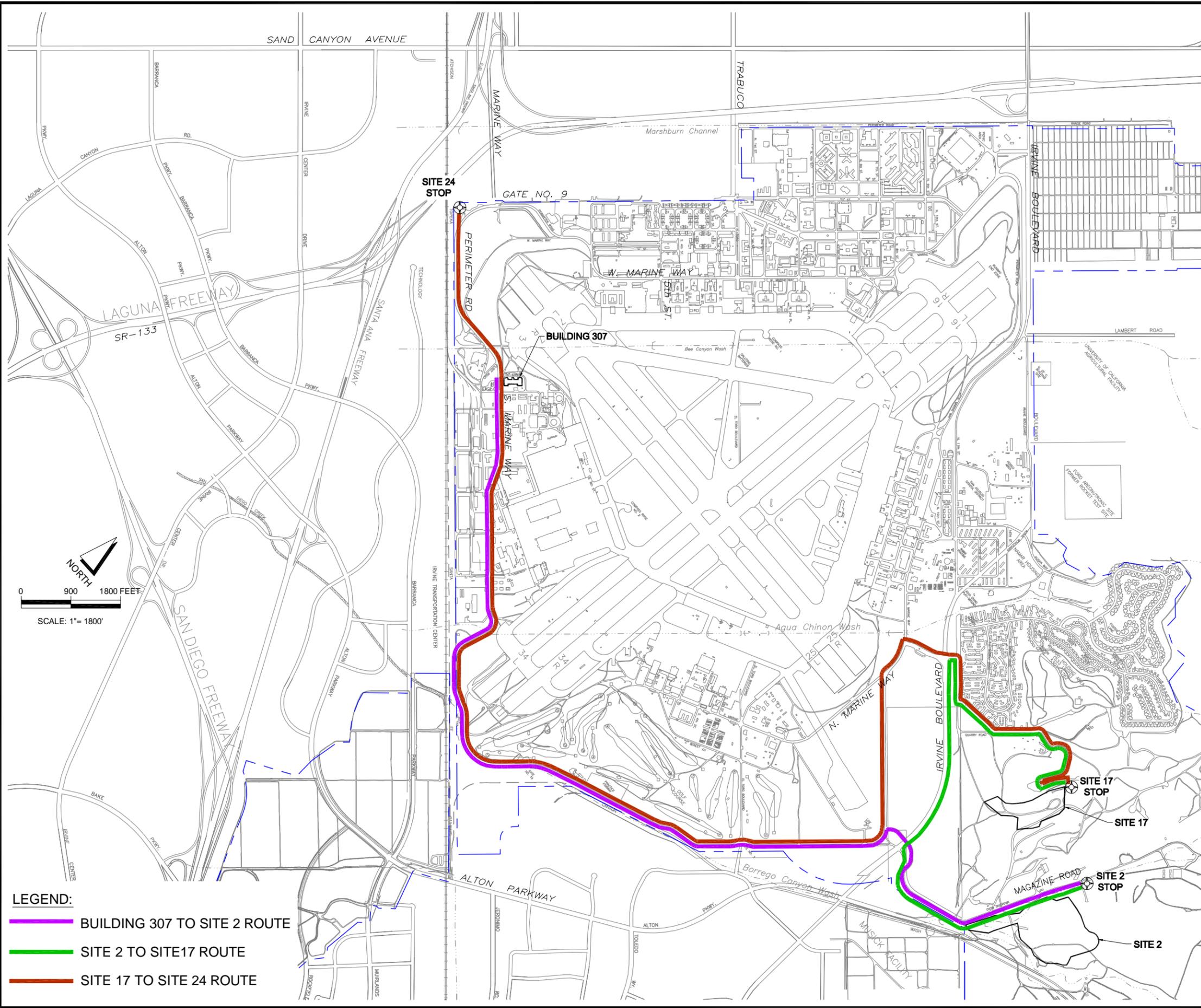
# **RAB Site Tour**

**Former Marine Corps Air Station  
El Toro, California**

**August 20, 2008**

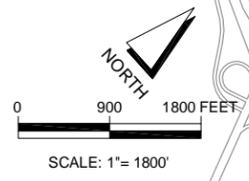
# **Table of Contents**

- 1. Map – RAB Tour**
- 2. Map – IRP Sites, Former Marine Corps Air Station, El Toro, California**
- 3. Map – Carve-out Boundaries and Location**
- 4. IRP Sites 2 and 17 Statistics Sheet**
- 5. Selected Photos, IRP Sites 2 and 17**
- 6. Coastal California Gnatcatcher and Coastal Sage Scrub (CSS) Handout**
- 7. IRP Sites 18 and 24 Statistics Sheet**
- 8. Timeline of IRP Sites 18 and 24**
- 9. IRP Sites 18 and 24 August 2008 Fact Sheet**



**ROUTE INFORMATION**

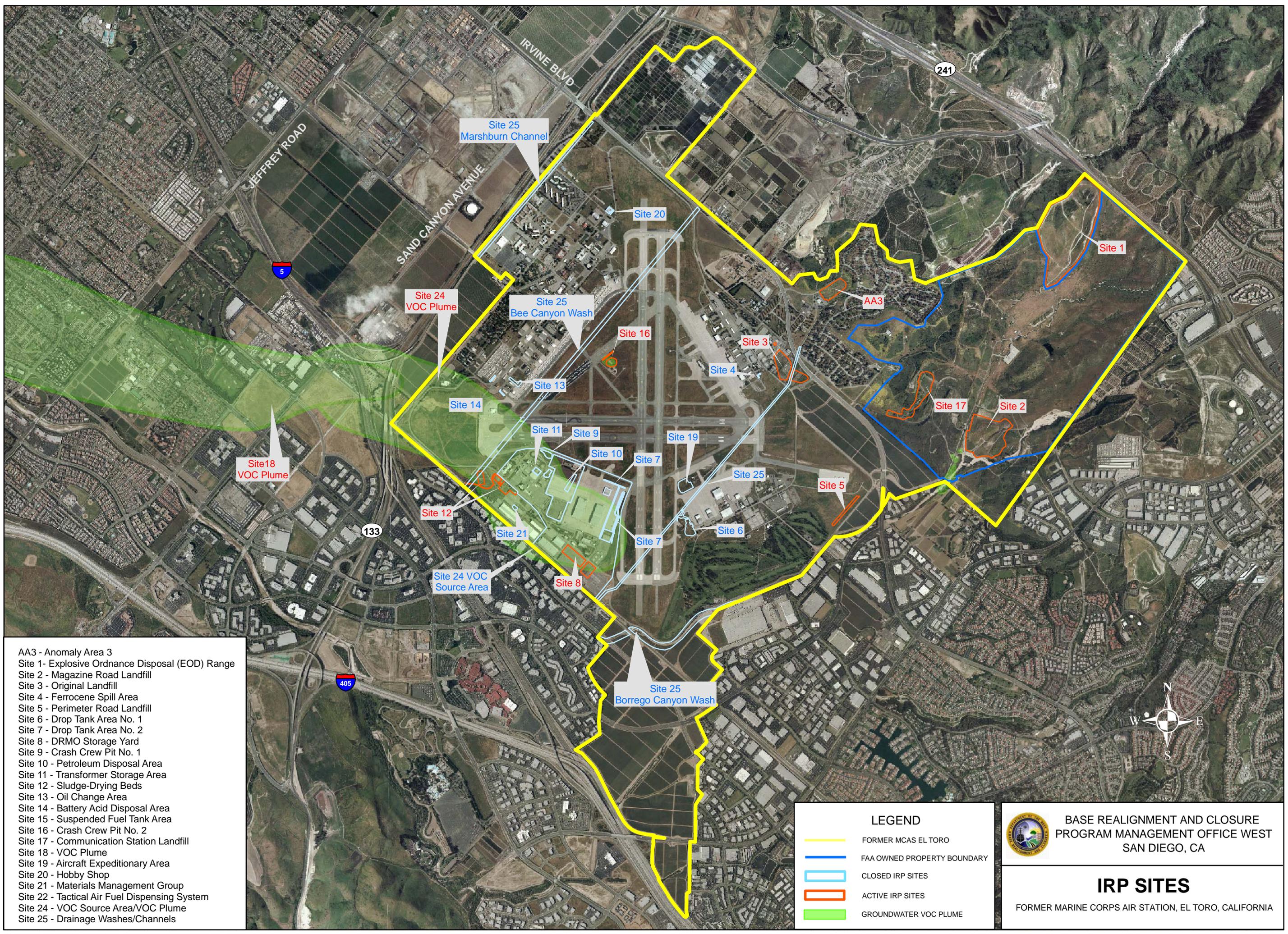
- From Building 307, turn left onto Marine Way, which later becomes Perimeter Road. Proceed on Perimeter Road until you reach the Magazine Road tunnel that goes under Irvine Blvd. Proceed up Magazine Road to the **Site 2 Stop**.
- From the Site 2 Stop, proceed down Magazine Road to the intersection with Irvine Blvd. Turn right onto Irvine Blvd. Then turn right onto Desert Storm Road. Proceed to the **Site 17 Stop**.
- From the Site 17 Stop, proceed back down Desert Storm Road to the intersection with Irvine Blvd. Cross Irvine Blvd and proceed through the gate to the intersection with Perimeter Road. Turn left onto Perimeter Road. Proceed on Perimeter Road/Marine Way to the **Site 24 Stop**.



**LEGEND:**

- BUILDING 307 TO SITE 2 ROUTE
- SITE 2 TO SITE17 ROUTE
- SITE 17 TO SITE 24 ROUTE

<b>RAB TOUR ROUTE MAP</b>		
Date: 08-08	Former MCAS El Toro	
Project No. 104766	<b>EARTH TECH</b>   <b>AECOM</b>	Figure 1



- AA3 - Anomaly Area 3
- Site 1 - Explosive Ordnance Disposal (EOD) Range
- Site 2 - Magazine Road Landfill
- Site 3 - Original Landfill
- Site 4 - Ferrocene Spill Area
- Site 5 - Perimeter Road Landfill
- Site 6 - Drop Tank Area No. 1
- Site 7 - Drop Tank Area No. 2
- Site 8 - DRMO Storage Yard
- Site 9 - Crash Crew Pit No. 1
- Site 10 - Petroleum Disposal Area
- Site 11 - Transformer Storage Area
- Site 12 - Sludge-Drying Beds
- Site 13 - Oil Change Area
- Site 14 - Battery Acid Disposal Area
- Site 15 - Suspended Fuel Tank Area
- Site 16 - Crash Crew Pit No. 2
- Site 17 - Communication Station Landfill
- Site 18 - VOC Plume
- Site 19 - Aircraft Expeditionary Area
- Site 20 - Hobby Shop
- Site 21 - Materials Management Group
- Site 22 - Tactical Air Fuel Dispensing System
- Site 24 - VOC Source Area/VOC Plume
- Site 25 - Drainage Washes/Channels

**LEGEND**

- FORMER MCAS EL TORO
- FAA OWNED PROPERTY BOUNDARY
- CLOSED IRP SITES
- ACTIVE IRP SITES
- GROUNDWATER VOC PLUME



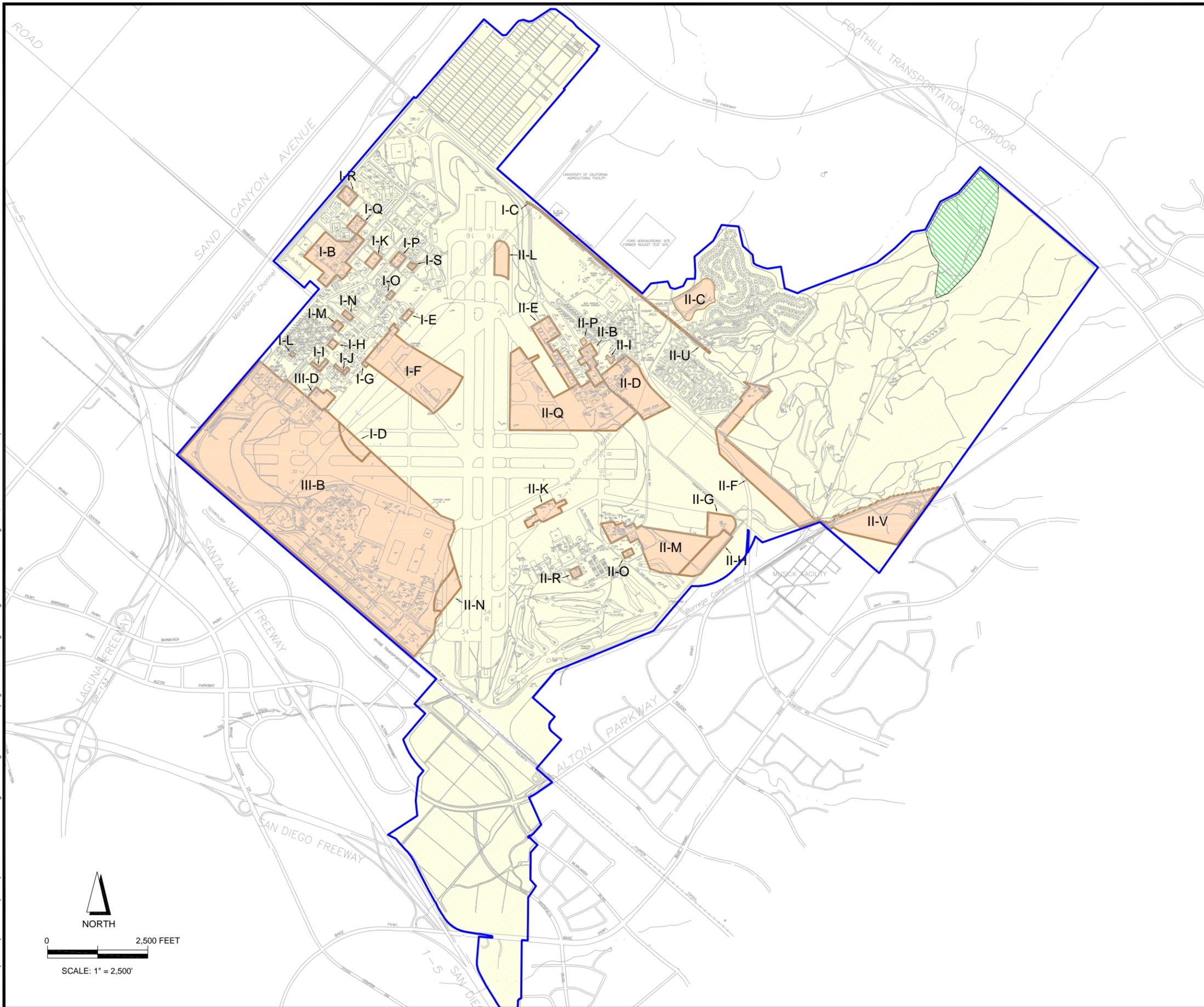
**BASE REALIGNMENT AND CLOSURE  
PROGRAM MANAGEMENT OFFICE WEST  
SAN DIEGO, CA**

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**IRP SITES**

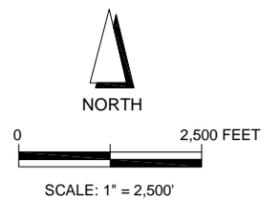
FORMER MARINE CORPS AIR STATION, EL TORO, CALIFORNIA

File: L:\work\104766\cad\RAB\_Tour\_Package - August 2008\Figure 1\_19aug08.dwg Time: Aug 20, 2008 - 12:07pm



**LEGEND:**

-  LEASED AREAS (CARVE-OUTS)
-  TRANSFERRED AREAS
-  NAVY RETAINED PROPERTY
-  PROPERTY BOUNDARY
-  II-K CARVE-OUT NUMBER



Carve-Out Boundaries and Locations		
Date: 08-08	Former MCAS EI Toro	
Project No. 104766	<b>EARTH TECH   AECOM</b>	Figure 3

**Restoration Advisory Board Site Tour  
Installation Restoration Program  
Former MCAS El Toro  
August 20, 2008**

<b>Installation Restoration Program Sites 2 and 17</b>	
<b>IRP Site 2 – Magazine Road Landfill</b>	
<b>Location</b>	<b>Between tributaries of the Borrego Canyon Wash</b>
<b>Area</b>	<b>27 acres (approximate) (includes main landfill area and former areas with surficial waste)</b>
<b>Former use</b>	<b>Station landfill from 1950s to 1980</b>
<b>Volume of waste</b>	<b>800,000 to 1,000,000 cubic yards (approximate)</b>
<b>Acreage of cap</b>	<b>24 acres (approximate)</b>
<b>Volume of soil for ET cover</b>	<b>220,000 cubic yards (approximate)</b>
<b>Groundwater monitoring wells</b>	<b>7</b>
<b>Landfill gas monitoring wells</b>	<b>5</b>
<b>Settlement monuments</b>	<b>12</b>
<b>Acreage of CSS restoration</b>	<b>32.5 acres (includes on- and off-landfill areas)</b>
<b>IRP Site 17 – Communication Station Landfill</b>	
<b>Location</b>	<b>In a small canyon west of Magazine Road Landfill</b>
<b>Area</b>	<b>11 acres (approx.) (includes main landfill area and former areas with surficial waste)</b>
<b>Former use</b>	<b>Communication Station landfill from 1970 to 1986</b>
<b>Volume of waste</b>	<b>167,000 cubic yards (approximate)</b>
<b>Acreage of cap</b>	<b>9.6 acres (approximate)</b>
<b>Volume of soil for ET cover</b>	<b>64,500 cubic yards (approximate)</b>
<b>Groundwater monitoring wells</b>	<b>3</b>
<b>Landfill gas monitoring wells</b>	<b>3</b>
<b>Settlement monuments</b>	<b>8</b>
<b>Acreage of CSS restoration</b>	<b>15 acres (includes on- and off-landfill areas)</b>

**Selected Photos  
IRP Sites 2 and 17**

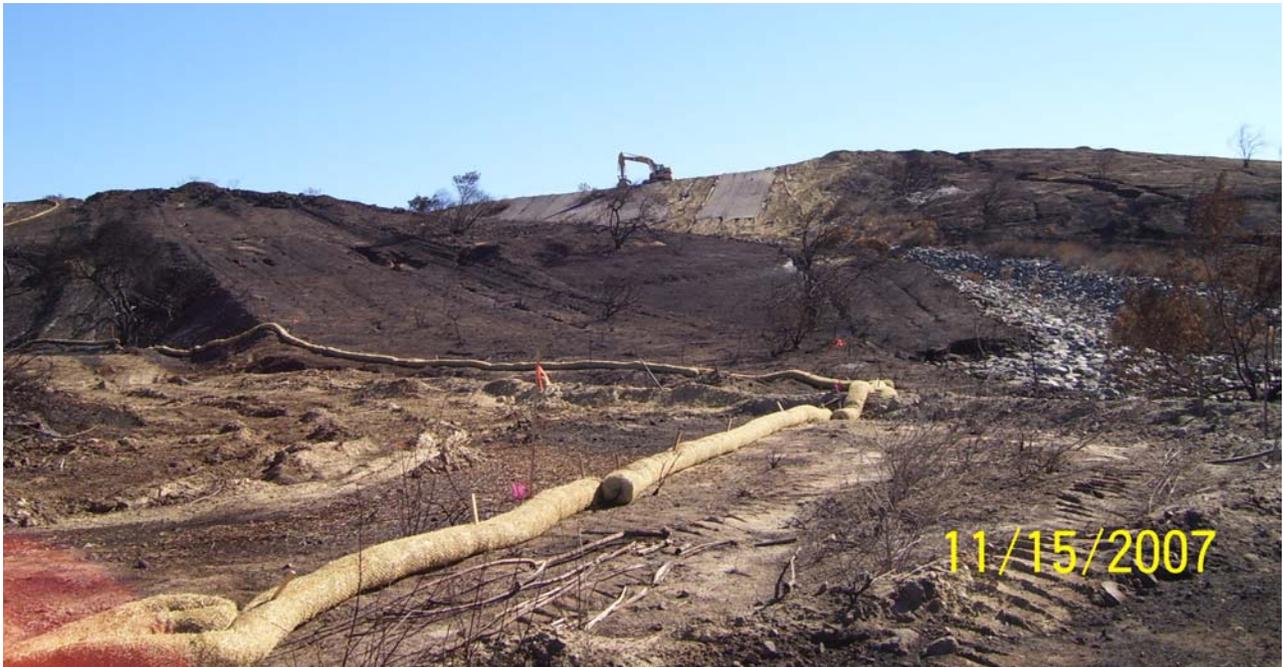
## IRP Site 17 – Construction



**West Side of Site 17**



**Site 17 Staging Area After Clearing and Grubbing**



**Erosion Control Features Installed at Site 17 Prior to Field Work**

## IRP Site 17 – Construction



**Excavating Wastes for Landfill Placement**



**Loading Wastes into Dump Trucks**



**Grading and Dust Control Activities**

## IRP Site 17 – Construction



**Placing Screened Foundation Material**



**Material Screening Process**

## IRP Site 17 – Construction



**Stockpiling Topsoil from Adjacent Hillsides**



**Compacting Lifts and Cutting Excess Material**

## IRP Site 17 – Construction



**Building Trapezoidal Channel on West Side Prior to Shotcrete Placement**



**Constructing V-ditch on East Side Prior to Shotcrete Placement**



## IRP Site 2 – Restoration



**Restoration: Cacti**



**Restoration: Coastal Sage Scrub (CSS)**

## IRP Site 2 – Restoration



**Vegetation in September 2007**



**Vegetation in April 2008**

## IRP Site 2 – Restoration



**Restoration: Coastal Sage Scrub (CSS)**



**Drainage and Fencing**



## California Gnatcatcher Status

**BRAC**  
PMO WEST

The U.S. Fish and Wildlife Service listed the California gnatcatcher as threatened on March 30, 1993.



A five-year review of the California gnatcatcher is currently being conducted to determine whether the current listing of the California gnatcatcher as a subspecies should be retained or changed.



## Coastal California Gnatcatcher

**BRAC**  
PMO WEST

The coastal California gnatcatcher is a small (length: 11 centimeters; weight: 6 grams), long-tailed member of the old-world warbler and gnatcatcher family.



The bird's plumage is dark blue-gray above and grayish-white below. The tail is mostly black above and below. The male has a distinctive black cap which is absent during the winter. Both sexes have a distinctive white eye-ring.



## Nest and Young

**BRAC**  
PMO WEST



The breeding season of the California gnatcatcher extends from mid-February through the end of August, with peak nesting activity occurring from mid-March through mid-May. The California gnatcatcher's nest is a small, cup-shaped basket usually found 1 to 3 feet above the ground in a small shrub or cactus. Clutch size ranges between 3 to 5 eggs. Juvenile birds associate with their parents for several weeks (sometimes months) after fledging.



## Life History

**BRAC**  
PMO WEST

California gnatcatchers typically live for two to three years, although ages of up to five years have been recorded for some banded birds.



Potential nest predators are numerous including snakes, raccoons, and corvids.



## Diet

**BRAC**  
PMO WEST

The gnatcatcher is primarily insectivorous, non-migratory, and exhibits strong site tenacity (Atwood 1990).



Their diet is composed predominantly of leaf- and plant-hoppers and spiders. Additionally, true bugs, wasps, bees and ants are minor components of the diet (Burger et. Al. 1999).



## California gnatcatcher habitat

**BRAC**  
PMO WEST

California Gnatcatchers typically occur in or near coastal sage scrub habitat, although they are not uniformly distributed within this structurally and floristically variable vegetation community.



*Artemisia californica*

They most frequently tend to occur within California sagebrush (*Artemisia californica*) dominated stands on mesas, gently sloping areas, and along the lower slopes.



# Coastal Sage Scrub

**BRAC**  
PMO WEST

Diegan coastal sage scrub is a low-lying, relatively open scrub with desert affinities, and is comprised of soft-woody, drought deciduous species that provide the majority of the vegetative cover.



# Fauna associated with coastal sage scrub

**BRAC**  
PMO WEST





## California gnatcatcher territory

**BRAC**  
PMO WEST



The California gnatcatcher becomes highly territorial by late February or early March each year.



In southwestern San Diego County the mean breeding season territory size ranges from 12 to 27 acres per pair and non-breeding season territory size ranges from 12-42 acres per pair.

**Restoration Advisory Board Site Tour  
Installation Restoration Program  
Former MCAS El Toro  
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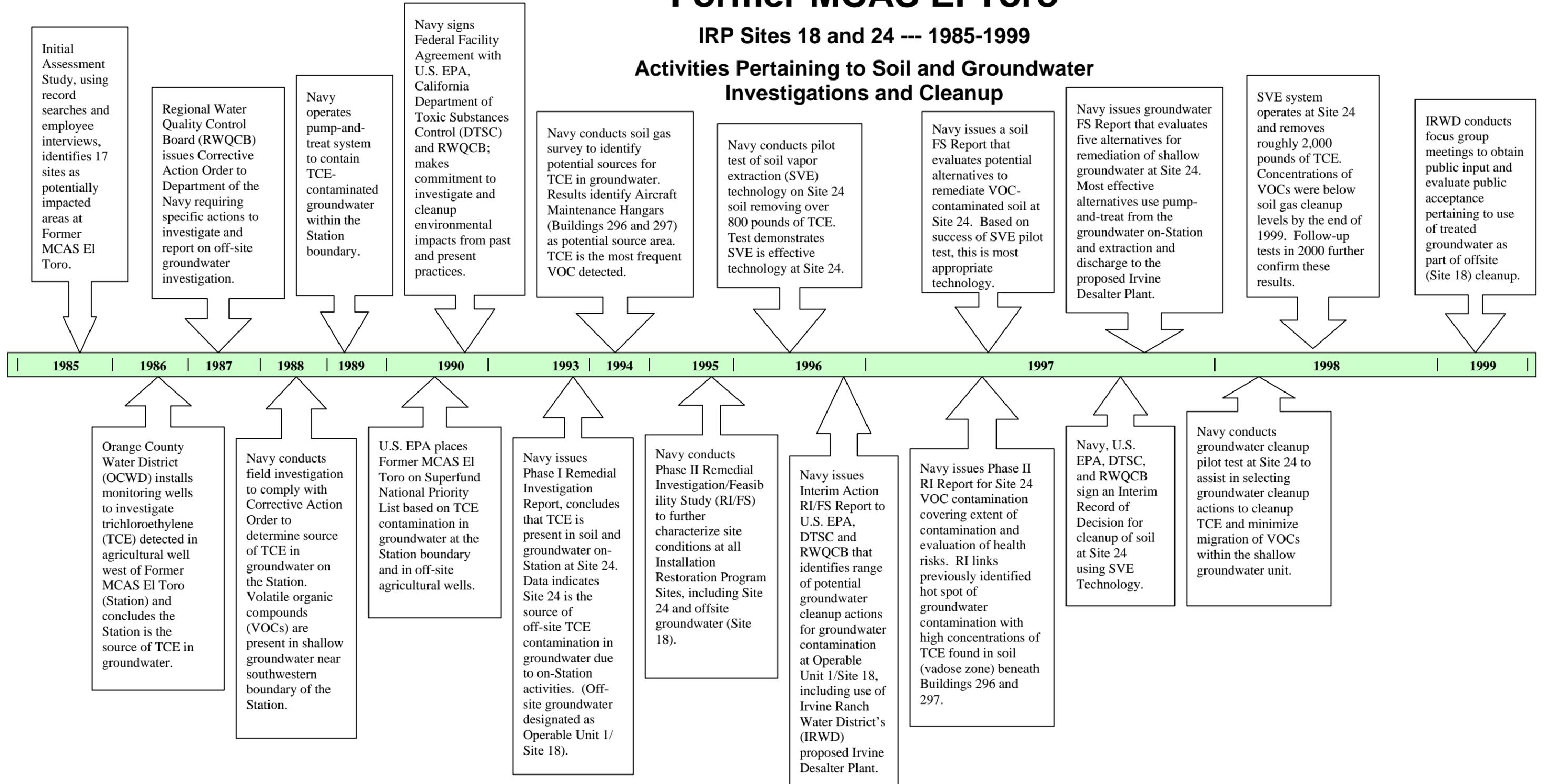
<b>Installation Restoration Program Sites 18 and 24 Background</b>	
<ul style="list-style-type: none"> <li>• <b>IRP Site 24 – Shallow Groundwater Unit (SGU)</b></li> <li>• <b>IRP Site 18 – Principle Aquifer (PA)</b></li> <li>• <b>Volatile organic compound (VOC)-impacted groundwater originates in the SGU at Site 24, migrates into the PA outside the southwestern boundary of the former Station, and extends northwest off of the former Station for approximately 3 miles.</b></li> <li>• <b>Groundwater cleanup at Sites 18 and 24 includes extracting groundwater from the SGU and the PA, and treatment at two separate treatment plants using air strippers and activated carbon filters</b></li> </ul>	
<b>IRP Sites 18 and 24 Statistics</b>	
<b>Extraction wells</b>	<b>42 (39 in SGU and 3 in PA)</b>
<b>Monitoring wells</b>	<b>149 (103 in SGU and 46 in PA)</b>
<b>Length of piping</b>	<b>13,000 linear feet of high density polyethylene</b>
<b>Extraction rate (SGU) per well</b>	<b>10 to 20 gallons per minute</b>
<b>Extraction rate (PA) per well</b>	<b>0 to 1,742 gallons per minute</b>
<b>Extraction rate (entire system)</b>	<b>446 to 513 gallons per minute</b>
<b>Trichloroethene (TCE) concentration range in monitoring wells</b>	<b>Not Detected to 730 micrograms per liter (µg/L) (April 2008 sampling round)</b>

Note: Technical data was obtained from the *Final Groundwater Monitoring and System Operations Data Summary Operations Data Summary Report, Installation Restoration Program Sites 18 and 24 April 2008, Event 8 Former Marine Corps Air Station El Toro, Irvine, California August 2008.*

# Former MCAS EI Toro

## IRP Sites 18 and 24 --- 1985-1999

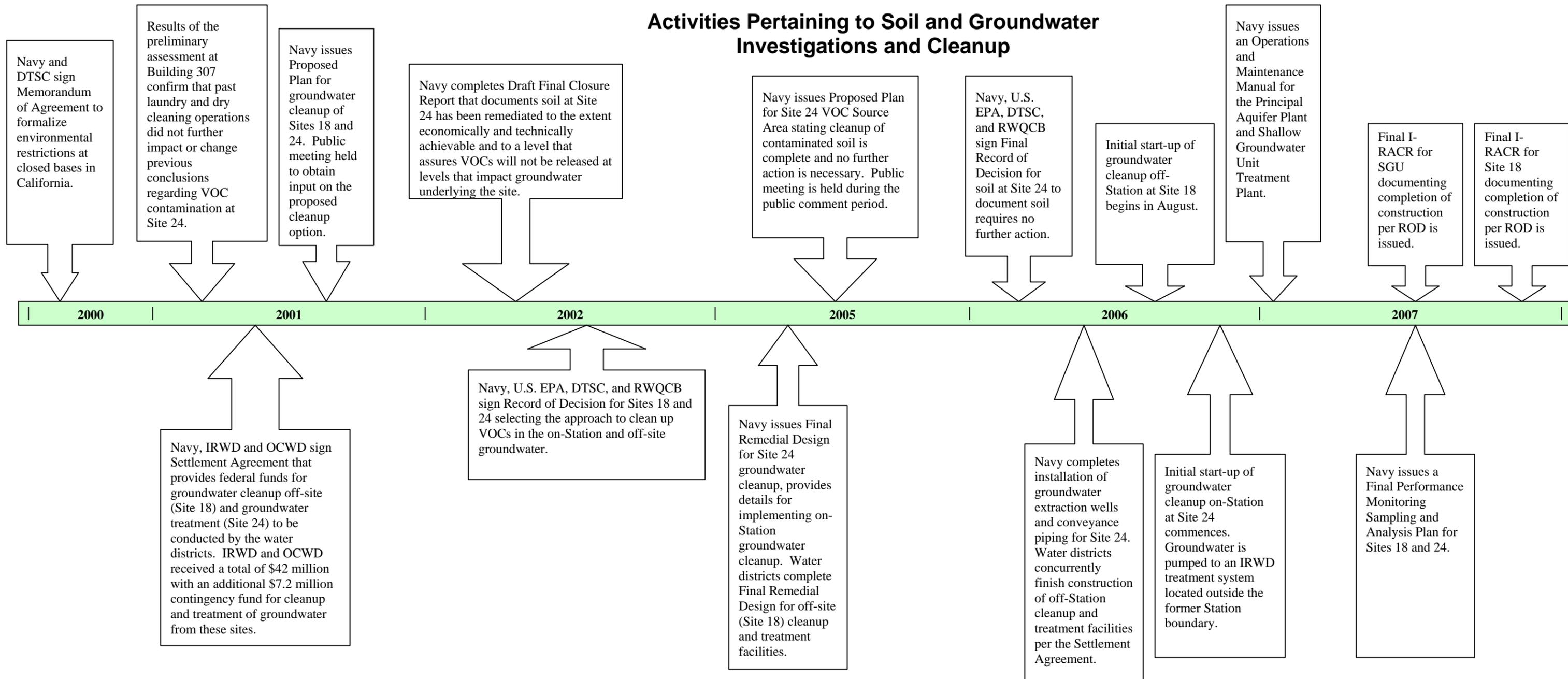
### Activities Pertaining to Soil and Groundwater Investigations and Cleanup



# Former MCAS EI Toro

## IRP Sites 18 and 24 --- 2000-2007

### Activities Pertaining to Soil and Groundwater Investigations and Cleanup





# FACT SHEET

## Installation Restoration Program Sites 18 and 24 Groundwater Cleanup Former Marine Corps Air Station El Toro August 2008



### INTRODUCTION

The purpose of this Fact Sheet is to provide the community with an update of groundwater cleanup activities at former Marine Corps Air Station (MCAS) El Toro Installation Restoration Program (IRP) Site 18, the **Principal Aquifer (PA)** and IRP Site 24, the **Shallow Groundwater Unit (SGU)**. Two previous Fact Sheets, issued in June 2005 and February 2006, provided information regarding these two sites including initial construction activities.

### GROUNDWATER CLEANUP PROGRESS

The groundwater cleanup system, which is managed by the Navy, has been operational at IRP Sites 18 and 24 since October 2006 (see location map on page 3). One component of this system includes 39 extraction wells installed in the SGU on former MCAS El Toro property (the former Station); the total flow rate from these wells is approximately 400 gallons per minute. Another component of the groundwater cleanup system includes 3 extraction wells installed in the PA located west of the former Station property; the total flow rate from these wells is approximately 2,900 gallons per minute (see Geologic Setting on page 2 for an explanation of the differences in flow rates). Groundwater extracted from the SGU and the PA is treated at two separate treatment plants using air strippers and activated carbon filters to remove **volatile organic compounds (VOCs)**, including **trichloroethene (TCE)**, with a portion of the clean treated water being pumped to an ocean outfall and the remainder used for irrigation purposes. A comprehensive performance monitoring program for IRP Sites 18 and 24 is also in-place which includes computerized monitoring of pumping rates and water levels, monthly sampling of extraction wells, and quarterly monitoring of 98 other sampling locations associated with Sites 18 and 24.



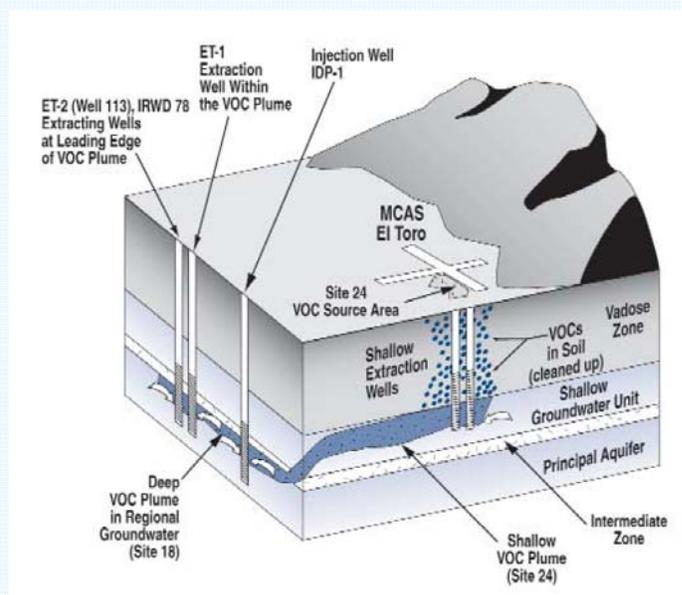
Status reports on the performance of the groundwater cleanup system are provided annually to the U.S. Environmental Protection Agency (U.S. EPA), California Department of Toxic Substances Control (DTSC), California Regional Water Quality Control Board, Santa Ana Region (RWQCB), Orange County Water District (OCWD), and Irvine Ranch Water District (IRWD). Comprehensive evaluations of the groundwater cleanup system will also be performed every 5 years to ensure it remains effective and protective of human health and the environment. Evaluation results are presented in 5-Year Review Reports, which are made available for public review and comment; the first 5-Year Review Report is scheduled for September 2009 (based on a construction start date for the cleanup system of September 2004).

## SITE DESCRIPTION

Sites 18 and 24 are closely associated, as Site 24 has been identified as the source of VOCs, primarily TCE, in groundwater at Site 18; although the precise origin, nature, use, and quantities of TCE released at Site 24 are not documented. Maintenance activities (e.g., aircraft washing, degreasing) conducted adjacent to and within buildings located at Site 24 are believed to be the source of VOC contamination. VOC-impacted groundwater (at concentrations exceeding cleanup goals) originates in the SGU at Site 24, migrates into the PA adjacent to the southwestern boundary of the former Station, and extends into the PA off of the former Station, approximately 3 miles northwest toward Culver Drive in Irvine. TCE is not present in the deeper PA below the former Station at concentrations that exceed cleanup goals due to the presence of a thick sequence of clay called the Intermediate Zone, which acts as an effective barrier to downward vertical movement of groundwater and VOCs from the SGU into the deeper PA (see cross-section below and the map on Page 3).

**GEOLOGIC SETTING:** The SGU under Site 24 consists of clay, silt, and sand layers from the surface to a depth of about 250 feet. Beneath the SGU, a 70- to 140-foot-thick clay interval named the Intermediate Zone, separates the SGU from the PA. The Intermediate Zone acts as an effective barrier to downward vertical movement of groundwater and VOCs from the SGU to the PA. The underlying PA consists of layers of sand and gravel, typically deeper than about 300 feet below the surface.

Wells screened in the shallow SGU do not produce high volumes of water, typically 10 gallons per minute, because water does not move easily through less permeable layers of clay and silt. Wells screened in the deeper PA produce high volumes of water, typically a few hundred to a thousand gallons per minute or more, as water moves more easily through more permeable layers of sand and gravel.



**WATER SUPPLY AT FORMER MCAS EL TORO:** During construction of former MCAS El Toro in 1942, six water supply wells were installed to total depths ranging from 440 to 645 feet below ground surface on the former Station property (see map on Page 3 for approximate location of former water supply wells). Monthly pumping records available from May 1943 to December 1950 indicate the maximum combined flow from these six wells was 900 gallons per minute in August 1945. These completion depths and pumping rates are consistent with current and historic water supply and irrigation wells installed in the PA in the greater Irvine Subbasin.

In the early 1950s, the Navy began construction of an 18-inch water supply pipeline from the western boundary of the former Station to a Metropolitan Water District (MWD) of Southern California feeder line located at Warner Avenue and Bristol Street. A contract for service of water between MWD and the Navy was executed in February 1951 and MWD subsequently began supplying water to the former Station (as well as former MCAS Tustin). In July 1969, the Navy signed a water supply service agreement with IRWD. The Navy also transferred title of the 18-inch pipeline to IRWD, who continues to supply water for use at the former Station.

**THE GROUNDWATER REMEDY:** The groundwater cleanup remedy was developed by the Navy in conjunction with the OCWD and the IRWD, and was integrated into a recycled water supply project named the Irvine Desalter Project. Based on an agreement between the Navy, U.S. Department of Justice, OCWD, and IRWD; VOC-impacted groundwater extracted from the Site 24 SGU on former Station property is treated by the OCWD. The OCWD and IRWD extract and treat VOC-impacted groundwater from the PA located off the former Station property. The intended reuse of the clean treated water is for non-potable (not-for-drinking) applications. The agreement was incorporated into the Navy's Record of Decision (ROD) for Sites 18 and 24, which was finalized in 2002, and concurred upon by the U.S. EPA, DTSC, and the RWQCB.

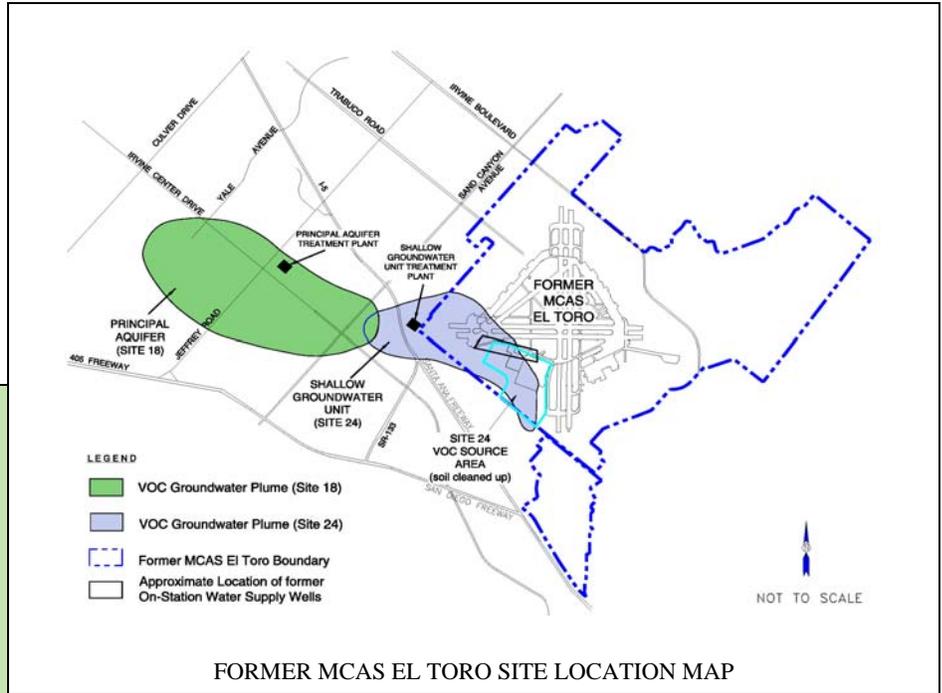
# REMEDIAL ACTION OBJECTIVES FOR GROUNDWATER

Remedial action objectives guided the development of cleanup actions being taken for groundwater. In general, they are to reduce VOC concentrations to federal or state cleanup standards, prevent further vertical and lateral migration of the plumes, and prevent the use of VOC-impacted groundwater. Numeric cleanup goals for VOCs in groundwater are designed to be protective of human health and the environment. The cleanup goal for TCE is 5 micrograms per liter, or 5 parts per billion in groundwater. A human-health risk assessment conducted in 2004 concluded that potential indoor migration of VOC vapors from groundwater would not pose unacceptable risk based on the fact that groundwater is first encountered at about 100 feet below the ground surface.

## INSTALLATION RESTORATION PROGRAM AND COMMUNITY INVOLVEMENT:

Since the late-1980s, numerous investigations have been conducted at former MCAS El Toro under the Navy's IRP. The IRP is a comprehensive environmental investigation and cleanup program that identifies, investigates, and remediates contaminated media, including soil and groundwater. The IRP complies with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and other federal and state laws that govern environmental investigations and cleanups. Activities performed under the IRP, including selection of the final remedies documented in RODs, are reviewed and concurred upon by the U.S. EPA, DTSC, and the RWQCB.

In addition to multi-agency involvement, CERCLA includes a significant public participation component. The Navy encourages the public to gain an understanding of the on-going environmental investigations and cleanups at former MCAS El Toro by visiting the information repository, reviewing the relevant records contained in the Administrative Record file, and attending Restoration Advisory Board (RAB) meetings. RAB meetings are held quarterly, typically on the third Wednesday of the month in Orange County. If you would like to be put on the mailing list to receive information about environmental restoration activities at former MCAS El Toro, please contact Ms. Randa Chichakli, CDM, 9444 Farnham Street, Suite 210, San Diego, CA 92123, (858) 268-3383. If you prefer, you can email your request to [chichaklire@cdm.com](mailto:chichaklire@cdm.com).



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**INSIDE...**

**Groundwater Cleanup Update for Installation  
Restoration Program Sites 18 and 24  
Former Marine Corps Air Station El Toro**



***For More Information:***

Documents that detail the cleanup of groundwater at Sites 18 and 24 are available at the following locations:

Heritage Park Regional Library  
MCAS El Toro Information Repository  
14361 Yale Avenue  
Irvine, CA 92604  
(949) 936-4040

MCAS El Toro Administrative Record File  
BRAC Office Building 307  
Former MCAS El Toro  
Ms. Marge Flesch  
(949) 726-5398

**Internet Connection**

For more information on former MCAS El Toro environmental restoration activities, visit the web site at: [www.bracpmo.navy.mil](http://www.bracpmo.navy.mil)

Base Realignment and Closure  
Attn: Mr. Anthony Megliola  
Base Closure Manager  
Former MCAS El Toro  
7040 Trabuco Road  
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