



FACT SHEET

Former Marine Corps Air Station Tustin Tustin, California

Remedial Action Status Update - Operable Unit 4B

December 2012



Navy Proceeds with Remedial Action at Operable Unit-4B

The purpose of this Fact Sheet is to update the community on remedial actions at former Marine Corps Air Station (MCAS) Tustin, Operable Unit (OU)-4B. The Selected Remedy for the OU-4B Low Concentration Sites (Installation Restoration Program [IRP]-11, IRP-13W, and Miscellaneous Major Spill [MMS]-04) is Institutional Controls (ICs); the Selected Remedy for the OU-4B Moderate Concentration Sites (IRP-5S[a], IRP-6, and the Mingled Plumes Area [MPA]) is In-Situ Bioremediation (ISB), Monitored Natural Attenuation (MNA), and ICs. The Selected Remedies, as concurred upon by the regulatory agencies, are documented in the January 2010 Final Record of Decision (ROD) / Remedial Action Plan (RAP). No further action is required for soil at all OU-4B Sites. In 2010, initial field work was conducted to provide additional data for full-scale remedy implementation.

SITE DESCRIPTION AND BACKGROUND

MCAS Tustin was closed under the Base Realignment and Closure Act in 1999. OU-4B consists of six IRP sites located at former MCAS Tustin (Figure 1). OU-4B was separated into two groups, Low Concentration Sites (IRP-11, IRP-13W, and MMS-04) and Moderate Concentration Sites (IRP-5S[a], IRP-6, and the MPA), to take advantage of common site characteristics, allowing for a more efficient alternatives-screening process and detailed analysis and comparison of alternatives that are best suited and applicable to each group. The Moderate Concentration Sites include sites with chemicals of concern (COCs) in groundwater at concentrations exceeding 20 micrograms per liter ($\mu\text{g/L}$) and generally ranging from 21 to 220 $\mu\text{g/L}$. Low Concentration Sites include sites with COCs in groundwater at concentrations less than 12 $\mu\text{g/L}$.

REGULATORY AGENCIES CONCUR ON FINAL REMEDIES FOR OU-4B SITES

The U.S. Environmental Protection Agency (U.S. EPA), Department of Toxic Substances Control (DTSC), and the Regional Water Quality Control Board (RWQCB) concurred that the Selected Remedies presented in the Final ROD/RAP are the most appropriate and effective remedies for the OU-4B Sites. Concurrence was based in part on the Feasibility Study (FS) that was conducted to develop and evaluate alternatives for site cleanup and on community input on the Proposed Plan received during the public comment period. The Final ROD/RAP, selecting the final remedies, was issued in January 2010.

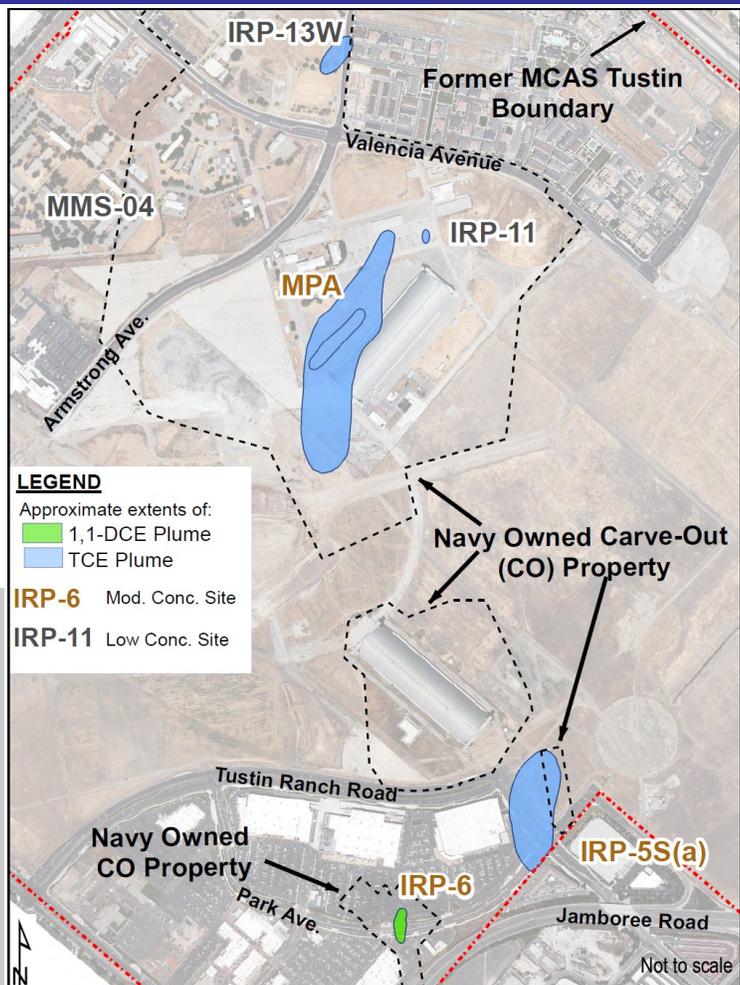


Figure 1. OU-4B Site Location and Plume Map

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REMEDIAL ACTION OBJECTIVES

The remedial action objectives (RAOs) documented in the Final ROD/RAP are:

- ◆ Protect human health by limiting the use of shallow groundwater containing COCs at concentrations exceeding health-protective levels, and
- ◆ Reduce concentrations of COCs in shallow groundwater at areas of attainment for OU-4B Sites to health-protective levels.

Trichloroethene (TCE) is a COC at all six of the Low and Moderate Concentration Sites and 1,1-dichloroethene (DCE) is a COC at IRP-6. Remedial goals (RGs) for these COCs were set at the State and Federal maximum contaminant level (MCL) of 5 µg/L for TCE and at the State MCL of 6 µg/L for 1,1-DCE.

SELECTED REMEDIES

The FS Report developed and evaluated various cleanup alternatives to address the RAOs at the OU-4B Sites. A Proposed Plan was issued to the public that presented the preferred remedies. Following a public review and comment period on the Proposed Plan; Alternative 2, ICs, was selected for the Low Concentration Sites and Alternative 4, ISB/MNA/ICs, was selected for the Moderate Concentration Sites, with concurrence from DTSC, RWQCB and U.S. EPA. The Selected Remedies include the following components:

- ◆ ICs (all 6 sites) - in the form of local permit programs, land use and/or activity restrictions to limit exposure of future users of the property to hazardous substances and to maintain the integrity of the remedies.
- ◆ ISB (IRP-5S[a], IRP-6, and the MPA) - includes injection of substrates to accelerate the anaerobic degradation of TCE and 1,1-DCE in shallow groundwater.
- ◆ MNA (IRP-5S[a], IRP-6, and the MPA) - will be used to track COC concentrations until RGs are met.

No further action is required for soil at all OU-4B Sites.

MMS-04 RACR

The remedy for Low Concentration Site MMS-04 was completed in 2011. Regulatory agencies concurred upon the Final Remedial Action Completion Report (RACR) which documents that the terms of the Final ROD/RAP were met; the RAOs and RG have been achieved, that the Site requires no further action, and the Site is protective of human health and the environment.

LAND USE CONTROL REMEDIAL DESIGN FOR IRP-11 AND IRP-13W

Regulatory agencies concurred upon the Final Land Use Control (LUC) Remedial Design (RD) and Long-Term Monitoring (LTM) / Operation and Maintenance (O&M) Plan for Low

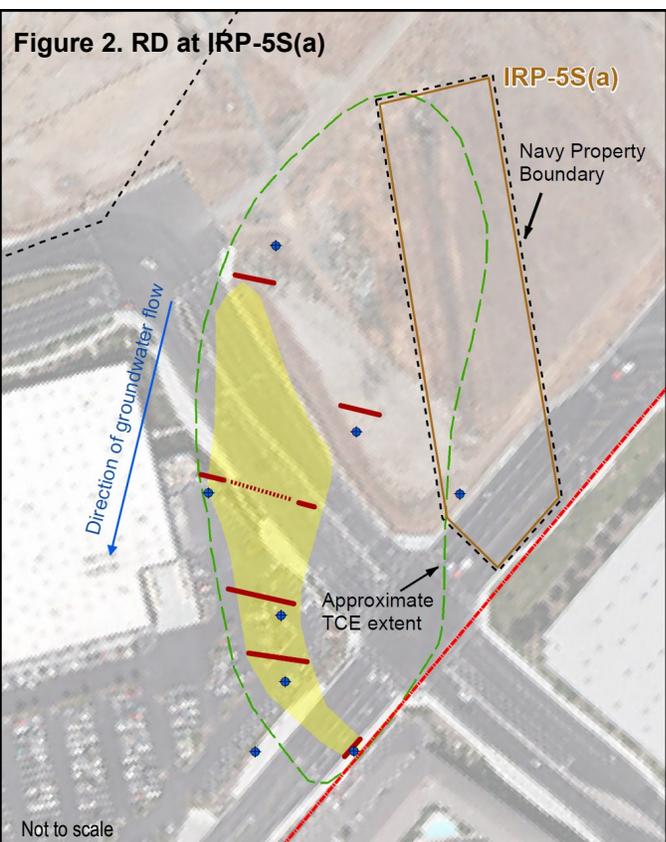
Concentration Sites IRP-11 and IRP-13W which presents the methods and procedures for implementing the selected remedy of ICs. This document also details the methods and procedures for conducting groundwater monitoring and documents the IC boundaries.

REMEDIAL DESIGN / REMEDIAL ACTION WORK PLAN FOR THE MODERATE CONCENTRATION SITES

The Remedial Design / Remedial Action Work Plan (RD/RAWP) for the Moderate Concentration Sites presents the basis of the design and the methods and procedures for implementing the Selected Remedy of ISB/MNA/ICs. A LUC RD will document the IC boundaries and methods. The Final RD/RAWP is anticipated to be issued in December 2012 and the Final LUC RD is anticipated to be issued in Spring 2013.

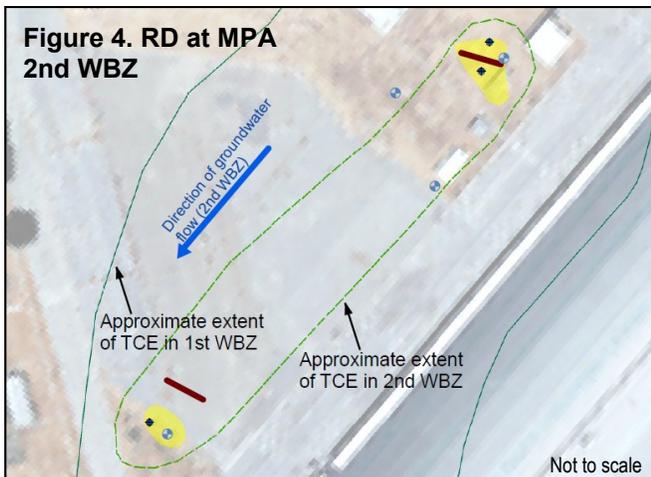
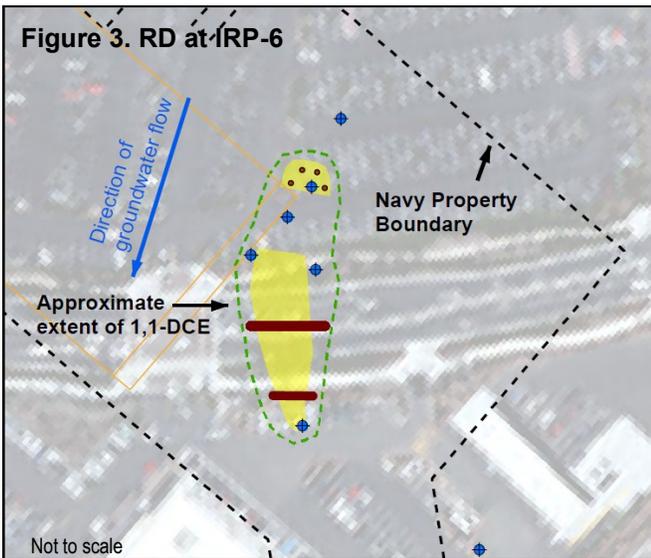
REMEDIAL DESIGN

The RD for the Moderate Concentration Sites includes identifying key target areas for ISB treatment (Figures 2 through 5). The ISB treatment will consist of emulsified vegetable oil



REMEDIAL DESIGN (CONT.)

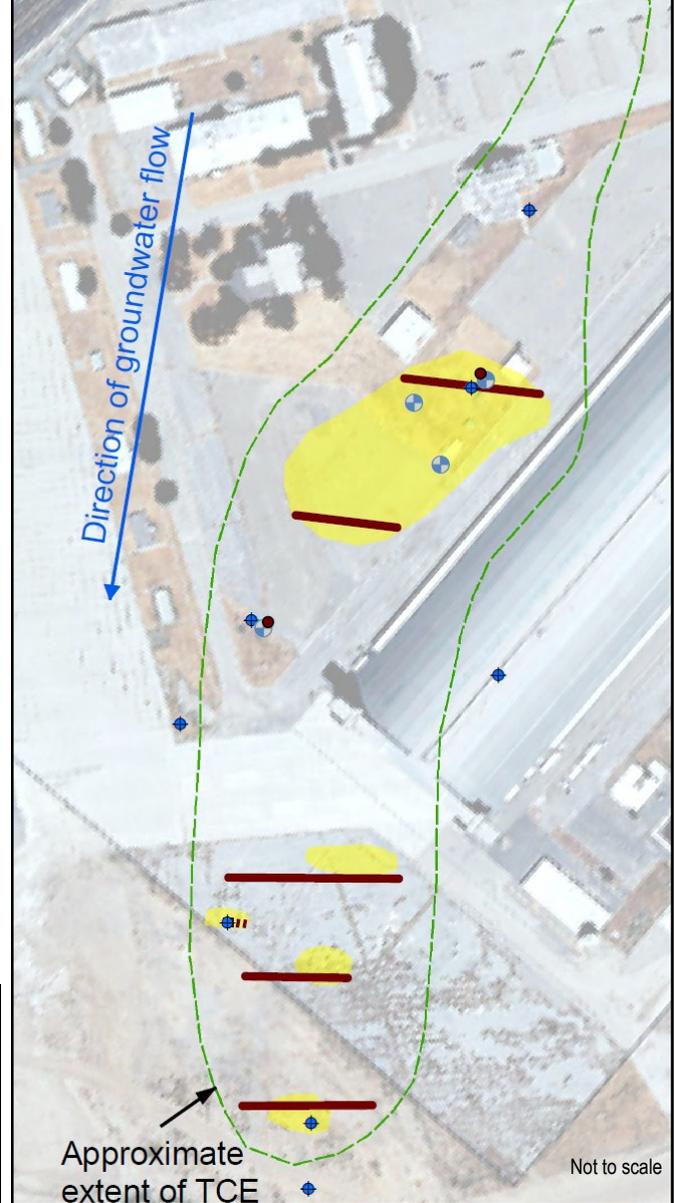
bioaugmented with *dehalococcoides* (DHC). DHC is a bacteria that naturally destroys TCE through the process of reductive dechlorination. ISB injections will be closely spaced in permeable reactive barriers (PRBBs) to treat COCs as groundwater flows through these "barriers." MNA will follow the ISB injections to track reductions in COC concentrations and plume characteristics to ensure protection of human health and the environment until the RGs are met. The groundwater monitoring program for the Moderate Concentration Sites is designed to evaluate the overall effectiveness in the reduction of TCE and 1,1-DCE concentrations to the RG.



LEGEND

- ◆ MNA Monitoring Well 1st WBZ
- ◆ MNA Monitoring Well 2nd WBZ
- Key Target Area
- PRBB
- ▬ PRBB (where possible)
- ISB Injection Point

Figure 5. RD at MPA 1st water-bearing zone (WBZ)



PROJECT SCHEDULE

- ◆ December 2012: Submit Final RD/RAWP for Mod. Conc. Sites
- ◆ Winter 2012/2013: Begin LTM at IRP-11 and IRP-13W
- ◆ January 2013: Begin Field Construction at Mod. Conc. Sites
- ◆ February 2013: Finish Field Construction at Mod. Conc. Sites
- ◆ Spring 2013: Submit Final LUC RD for Mod. Conc. Sites

Periodic updates on the OU-4B remedial action will continue to be provided at the community based Restoration Advisory Board meetings, which are open to the public and are held semi-annually. For meeting dates and location information visit: www.bracpmo.navy.mil

PROJECT CONTACTS

Mr. James T. Callian
BRAC Environmental Coordinator
BRAC Program Management Office West
1455 Frazee Road, Suite 900
San Diego, California 92108
Telephone: (619) 532-0952 Fax: (619) 532-0940
E-mail: james.callian@navy.mil

Mr. James Ricks
Remedial Project Manager
U.S. EPA, Region 9
Telephone: (415) 972-3023
E-mail: ricks.james@epa.gov

Mr. Anantaramam (Ram) Peddada
Remedial Project Manager
DTSC
Telephone: (714) 484-5418
E-mail: apeddada@dtsc.ca.gov

Mr. John Broderick
Remedial Project Manager
RWQCB
Telephone: (951) 782-4494
E-mail: jbroderick@waterboards.ca.gov

For More Information:

Final documents related to the selected remedies at OU-4B, such as the ROD/RAP, the Moderate Concentration Sites RD/RAWP, the Moderate Concentration Sites LUC RD, and the IRP Sites 11 and 13W LUC RD and LTM/O&M Plan, are available at the following location:

University of California, Irvine
Ayala Science Library (Building 520), Second Floor
Grand Reading Room
Irvine, CA
Telephone: (949) 842-7362

Internet Connection

For more information on environmental restoration activities at the former MCAS Tustin, visit the website at: www.bracpmo.navy.mil

Base Realignment and Closure
Attn: Mr. James T. Callian
BRAC Environmental Coordinator
BRAC Program Management Office West
1455 Frazee Road, Suite 900
San Diego, California 92108

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