



FORMER MARINE CORPS AIR STATION (MCAS) TUSTIN

Restoration Advisory Board (RAB) Email Update

March 3, 2011

Dear Restoration Advisory Board (RAB) Members:

This is the first Email Update for Marine Corps Air Station (MCAS) Tustin RAB meetings. This Update focuses primarily on ongoing long-term groundwater remediation at Installation Restoration Program (IRP) sites and the pilot study for in-situ bioremediation (ISB) at Operable Unit (OU)-4B. You will find a brief summary of these items below. Attached you will find an updated Environmental Program Status for all ongoing remediation activities at MCAS Tustin, including brief project histories, a listing of all upcoming documents, and next steps for each of the sites. You will recognize this as the Environmental Program Status that has been presented at past RAB meetings. You will also find information below on upcoming RAB meetings scheduled for 2011, key contact information, environmental document review locations, and environmental websites.

ANNOUNCEMENTS/NEW BUSINESS

5-Year Review

The Navy is formally notifying the RAB of the initiation of the 5-year review process for former MCAS Tustin. The Navy will be conducting its second 5-year review for MCAS Tustin, the first 5-year review, completed in 2006, included only IRP-1. This second 5-year review will include an evaluation of the continued protectiveness of human health and the environment for the remedies installed at IRP-1, -3, -12, and -13S. As part of this 5-year review, the Navy is soliciting input from those who have relevant information on the remedies. If you would like to participate in an interview or have any comments to submit, please contact me at your earliest convenience. This second 5-year will be a discussion topic at our next regularly scheduled RAB meeting on May 18, 2011.

RAB Community Co-Chair Election

It's time again for RAB Community Co-Chair elections! We will be soliciting your nominations and will be holding elections for this position during our next regularly scheduled meeting on May 18, 2011. The Navy appreciates Mr. Zweifel's efforts as he has served in this position as the RAB Community Co-Chair since 2003!

Operation and Maintenance (O&M) and Long Term Monitoring (LTM)

Since our last in-person RAB meeting on December 01, 2010; the Navy continues O&M and LTM activities for the groundwater remedies installed at several IRP sites, including IRP-3, -12, and -13S. As you are aware, these sites are characterized as having volatile organic compounds (VOCs) in groundwater at concentrations exceeding cleanup goals. The remedies installed at these Sites include hydraulic containment and institutional controls (ICs). The Navy submitted a Third Quarter 2010 Groundwater Performance Monitoring Report for IRP-3, -12, and -13S to the agencies and Mr. Zweifel (the RAB Community Co-Chair) in December 2010.

For IRP-1, Moffett Trenches Landfill, the Navy submitted the Final 2009 Annual Long-Term Groundwater Monitoring (LTM) Report to the agencies and RAB Community Co-Chair in February 2011; the Navy anticipates submitting the Draft 2010 Annual LTM Report in March

2011. As you will recall, the remedy installed at this Site includes a containment wall along Peters Canyon Channel.

OU-4B Moderate Concentration Sites -- Pre-Remedial Design Pilot Study Report

The remedy for the OU-4B moderate concentration sites, IRP-5S(a), -6, and the Mingled Plumes Area (MPA), is in-situ bioremediation (ISB), monitored natural attenuation, and ICs. In summary, fieldwork for this Pilot Study for ISB was completed with the third monthly post-injection monitoring round in October 2010. At the May and December 2010 RAB meetings, detailed presentations were provided on the OU-4B Pilot Study. You will recall that, to stimulate bacteria to more effectively lower concentrations of contaminants, the subsurface was injected with lactate or emulsified vegetable oil (EVO); at some locations, additional bacteria were also added (called bioaugmentation). Results from the Pilot Study will be used to provide design parameters for full-scale remediation. Below are a few of the results of this study.

- 1) The radii of influence of the injections generally ranged from about 5 to 30 feet.
- 2) The areal extents of the plumes were refined at each of these three sites.
- 3) In general, bioremediation will work successfully at these sites.

The next step in this project is to finalize the Pre-Remedial Design Pilot Study Report and issue the Draft Remedial Design/Remedial Action Work Plan.

OU-4B Low Concentration Sites

The Draft Remedial Design/Remedial Action Work Plan for two OU-4B low concentration sites, IRP-11 and -13W will be issued to the agencies and RAB Community Co-Chair in May 2011. The remedy for these sites is monitoring and ICs.

The third OU-4B low concentration site, Miscellaneous Major Spill (MMS)-04, will be recommended for closure in a Remedial Action Complete Report (RACR), which will be submitted in March 2011. The purpose of the RACR is to document that the remedy selected for MMS-04 has been completed and that all remedial action objectives have been met. As discussed at previous RAB meetings, more than one year of groundwater monitoring at the one well at this site indicates that trichloroethene (TCE) is well below the cleanup goal.

Summary

The Navy appreciates your input on our environmental program. Please plan to attend our next RAB meeting on May 18, 2011. Should you have any questions on any information presented in this Email Update, or on any site in our environmental program, please do not hesitate to contact me or any of the regulatory agency personnel.

Sincerely,
James Callian PG, CEG, CHG
Navy RAB Co-Chair
BRAC Environmental Coordinator
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NEXT RAB MEETINGS:

**Wednesday, May 18, 2011 and
Wednesday, September 21, 2011.**

All Former MCAS Tustin RAB meetings are open to the public.

Time: 7:00 – 8:20 p.m.

**Tustin Senior Center
200 South “C” Street, Tustin
(Margarete Thompson Boardroom)**

KEY CONTACT INFORMATION

<p><i>Mr. James Ricks</i> Remedial Project Manager U.S. EPA Region IX 75 Hawthorne St. (SFD-H-8) San Francisco, CA 94105 (415) 972-3023 ricks.james@epamail.epa.gov</p>	<p><i>Mr. John Broderick</i> Remedial Project Manager Cal/EPA, Regional Water Quality Control Board, Santa Ana Region 3737 Main Street, Suite 500 Riverside, CA 92501-3348 (951) 782-4498 jbroderick@waterbords.ca.gov</p>
<p><i>Mr. Anantaramam (Ram) Peddada</i> Remedial Project Manager Cal/EPA, Department of Toxic Substances Control 5796 Corporate Avenue Cypress, CA 90630 (714) 484-5418 apeddada@dtsc.ca.gov</p>	<p><i>Mr. Don Zweifel</i> RAB Community Co-Chair (714) 203-4576 dzweifel@sbcglobal.net</p>

ENVIRONMENTAL DOCUMENT REVIEW

Copies of key documents including Remedial Investigation and Feasibility Study Reports and other information related to environmental cleanup activities at former MCAS Tustin are available for public review at the following locations

<p><u>Administrative Record File</u> Former MCAS El Toro BRAC Office Bldg. 307 Call for an appointment – Sue Rawal (949) 859-6014 Monday – Thursday: 9 am – 1 pm</p>	<p><u>Information Repository</u> University of California, Irvine Main Library Government Publications Dept. (949) 824-7362 or (949) 824-6836 Monday – Thursday: 10 am – 8 pm Friday: 10 am – 5 pm Saturday and Sunday: 1 pm – 5 pm</p>
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ENVIRONMENTAL WEBSITES

U.S. Navy Websites	http://www.bracpmo.navy.mil Base Realignment and Closure (BRAC) PMO Web Page http://www.dtic.mil/envirodod Department of Defense - Environmental Web Page:
U.S. EPA Websites	www.epa.gov (Homepage) www.epa.gov/superfund/ (Superfund) www.epa.gov/ncea (National Center for Environmental Assessment) www.epa.gov/federalregister (Federal Register Environmental Documents) www.epa.gov/region09/EnviroStor.html (link to State's EnviroStor website)
Cal/EPA Websites	www.calepa.ca.gov (homepage for RWQCB and DTSC) www.dtsc.ca.gov (DTSC) www.envirostor.dtsc.ca.gov/public (DTSC EnviroStor website) www.dhcs.ca.gov (California Department of Health Care Services) www.waterboards.ca.gov/santaana (RWQCB) http://geotracker.waterboards.ca.gov/ (RWQCB)

**ENVIRONMENTAL PROGRAM STATUS
FORMER MARINE CORPS AIR STATION TUSTIN**

**Operable Unit 1A (Installation Restoration Program [IRP] Site 13 South –
1,2,3-Trichloropropane [TCP] in groundwater)**

Carve-Out: CO-5

Brief Project History:

- 2002: Time Critical Removal Action (hydraulic containment)
- 2004: Final Record of Decision (ROD): Selected remedy includes:
 - Hydraulic containment for 1,2,3-TCP-impacted groundwater;
 - Construction, operation, and maintenance of groundwater extraction and treatment system; and
 - Institutional controls (ICs).
 - Hot-spot soil excavation was also conducted to enhance groundwater remedy.
- 2007: Began Final Remedial Design (RD) and Remedial Action (RA)
- December 2007: Treatment system operational
- July 2008: 1st Quarter 2008 Groundwater Progress Monitoring Report (PMR)
- October 2008: 2nd Quarter 2008 Groundwater PMR
- December 2008: Final Interim-Remedial Action Completion Report (I-RACR); the main purpose of the I-RACR is to document that the remedy is constructed per the Final RD
- December 2008: 3rd Quarter 2008 Groundwater PMR
- July 2009: 1st Quarter 2009 Groundwater Monitoring Data Summary
- September 2009: Final Long-Term Operation and Maintenance Plan (OMP)
- October 2009: 2nd Quarter 2009 Groundwater Monitoring Data Summary
- December 2009: 3rd Quarter 2009 Groundwater Monitoring Data Summary
- February 2010: Final 2008 Annual OU-1A and -1B Performance Evaluation Report (PER)
- February 2010: Final Operating Properly and Successfully (OPS) Report
 - Obtained U.S. EPA OPS determination in December 2009
- June 2010: Draft 2009 Annual OU-1A and -1B PER
- July 2010: 1st Quarter 2010 Groundwater PMR
- September 2010: 2nd Quarter 2010 Groundwater PMR
- November 2010: Final 2009 Annual OU-1A and -1B PER
- **December 2010: 3rd Quarter 2010 Groundwater PMR**

Next steps:

- On-going operation and maintenance (O&M) activities:
 - Biweekly, monthly, and quarterly inspections;
 - Quarterly effluent sampling for Orange County Sanitation District (OCSD) discharge permit requirements; and
 - Quarterly groundwater monitoring and reporting; data used to track system performance and (annually) evaluate and optimize the system
 - Annual system optimization evaluation to be included in the 2010 Annual PER
- **June 2011: Issue Draft 2010 Annual PER**
- **June 2011: Issue Draft 5-Year Report**

ENVIRONMENTAL PROGRAM STATUS FORMER MARINE CORPS AIR STATION TUSTIN

Operable Unit 1B (IRP Sites 3 and 12 – Trichloroethene [TCE] in groundwater)

Carve-Outs: CO-5 and CO-6

Brief Project History:

- 2004: Final ROD: Selected remedy includes:
 - Hydraulic containment of TCE-impacted groundwater;
 - Construction, operation, and maintenance of groundwater extraction and treatment systems; and
 - Institutional Controls.
 Hot-spot soil excavation also conducted to enhance groundwater remedy
- 2007: Began Final Remedial Design and Remedial Action Implementation
- January 2008: Treatment system became operational
- July 2008: 1st Quarter 2008 Groundwater PMR
- October 2008: 2nd Quarter 2008 Groundwater PMR
- December 2008: Final I-RACR.
- December 2008: 3rd Quarter 2008 Groundwater PMR
- July 2009: 1st Quarter 2009 Groundwater PMR
- September 2009: Final Long-Term OMP
- October 2009: 2nd Quarter 2009 Groundwater PMR
- December 2009: 3rd Quarter 2009 Groundwater PMR
- February 2010: Final 2008 Annual OU-1A and -1B PER
- February 2010: Final OPS Report
 - Obtained U.S. EPA OPS determination in December 2009
- June 2010: Draft 2009 Annual OU-1A and -1B PER
- July 2010: 1st Quarter 2010 Groundwater PMR
- September 2010: 2nd Quarter 2010 Groundwater PMR
- November 2010: Final 2009 Annual OU-1A and -1B PER
- **December 2010: 3rd Quarter 2010 Groundwater PMR**

Next steps:

- On-going operation and maintenance (O&M) activities:
 - Biweekly, monthly, and quarterly inspections;
 - Quarterly effluent sampling for Orange County Sanitation District (OCSD) discharge permit requirements; and
 - Quarterly groundwater monitoring and reporting; data used to track system performance and (annually) evaluate and optimize the system
 - Annual system optimization evaluation to be included in the 2010 Annual PER
- **June 2011: Issue Draft 2010 Annual PER**
- **June 2011: Issue Draft 5-Year Report**

Operable Unit 3 (IRP Site 1– Moffett Trenches Landfill)

Carve-Out: CO-10 – PARCEL TRANSFERRED IN 2006

Brief Project History:

- December 2001: Final ROD
- May 2003: Final OMP
- November 2003: Final OPS Report
 - Obtained U.S. EPA OPS determination in March 2004
- October 2006: Final First Five-Year Review

**ENVIRONMENTAL PROGRAM STATUS
FORMER MARINE CORPS AIR STATION TUSTIN**

- On-going O&M activities
- January 2010: Final 2008 Annual Groundwater Monitoring Report
- June 2010: Draft 2009 Annual Groundwater Monitoring Report
- **December 2010: Draft Final 2009 Annual Long-Term Monitoring Report**
- **February 2011: Final 2009 Annual Long-Term Monitoring Report**

Next steps:

- Continue O&M activities
- **March 2011: Issue Draft 2010 Annual Long-Term Monitoring Report**
- **June 2011: Issue Draft 5-Year Report**

Operable Unit 4B

Moderate Concentration Sites (IRP-5S[a], IRP-6, and the Mingled Plumes Area [MPA]) and Low Concentration Sites (IRP-11, IRP-13W, and Miscellaneous Major Spill [MMS-04])

Carve-Outs: CO-2, CO-5, and CO-9

Brief Project History:

- 2000: Draft OU-4 Focused Feasibility Study (FS) Report
- 2004: Final OU-4 Tech Memo for 2003 shallow groundwater investigation
- 2005-2006: Groundwater Monitoring
- 2007: IRP-6 and MPA Supplemental Investigation field activities
- September 2008: Final Tech Memo Supplemental Investigation at IRP-6 and MPA
- October 2008: Final FS Report
- February 2009: Proposed Plan. Public comment period: February 04-March 06, 2009
- May 2009: Final Work Plan for Groundwater Monitoring at OU-4B Sites
- August 2009: Installed additional wells at the MPA, MMS-04, IRP-11, and IRP-13W in accordance with the Final June 2009 Work Plan
- January 2010: 3rd Quarter 2009 Data Summary Report
- January 2010: Final ROD
- April 2010: Replacement Pages for the Final ROD, including final signature sheet
- July 2010: Final Pre-Design Pilot Study Work Plan
- July to October 2010: Pre-Design Pilot Study Implementation
- October 2010: Final 2009 Annual Groundwater Monitoring Report
- October 2010: Final First Quarter 2010 Data Summary Report
- November 2010: Final Second Quarter 2010 Data Summary Report
- **January 2011: Draft 2010 Annual Groundwater Monitoring Report**
- **February 2011: Draft Pre-Remedial Design Pilot Study Report**

Next steps:

- **March 2011: Issue Draft RACR for MMS-04**
 - **April 2011: Issue Final Pre-Remedial Design Pilot Study Report**
 - **May 2011: Issue Draft Remedial Design/Remedial Action Work Plan (Low Concentration Sites IRP-11 & -13W)**
 - **May 2011: Issue Draft Long Term O&M Plan (Low Concentration Sites IRP-11 & -13W)**
 - **May 2011: Issue Final 2010 Annual Groundwater Monitoring Report**
 - **June 2011: Issue Draft Remedial Design/Remedial Action Work Plan (Moderate Concentration sites IRP-5S(a), IRP-6, and the MPA)***
- *Tentative Date

**ENVIRONMENTAL PROGRAM STATUS
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MTBE Plume (UST Site 222)

Carve-Out: CO-5

Brief Project History:

- 2001: Interim Petroleum Corrective Action Program (PCAP) plan implemented
- 2006: Final Soil Closure Report
- 2006: Interim PCAP Addendum No. 2 – Revised Cleanup Goals: 1st WBZ: 300 micrograms per liter (ug/L), 2nd WBZ: 44 ug/L, and 3rd WBZ: 13 ug/L.
- 2007: Final PCAP
- 2007/2008: Implement Final PCAP; Additional monitoring and extraction wells installed. Air Sparging/Soil Vapor Extraction (AS/SVE) initiated in March 2008.
- September 2008: AS/SVE system shutdown for rebound monitoring per Final PCAP requirements
- December 2008: 1st and 2nd Quarter 2008 Groundwater PMR
- April 2009: 3rd Quarter 2008 Groundwater PMR
- May 2009: Draft Final Annual 2007 PCAP Progress Report
- July 2009: Draft Annual 2008 PCAP Annual Report
- August 2009: 1st Quarter 2009 Groundwater Monitoring Data Summary
- September 2009: 2nd Quarter 2009 Groundwater Monitoring Data Summary
- September 2009: Final Annual 2007 PCAP Annual Report
- October 2009: Final/Replacement Pages for the Annual 2008 PCAP Annual Report
- January 2010: 3rd Quarter 2009 Groundwater Monitoring Data Summary
- June 2010: Draft 2009 PCAP Annual Report
- August 2010: 1st Quarter 2010 Groundwater Monitoring Data Summary
- October 2010: 2nd Quarter 2010 Groundwater Monitoring Data Summary
- November 2010: Final 2009 PCAP Annual Report
→ Includes Annual system optimization evaluation
- **December 2010: 3rd Quarter 2010 Groundwater Monitoring Data Summary**

Next steps:

- On-going O&M activities:
 - Quarterly groundwater monitoring and reporting
 - Data used to track and optimize system performance, and to support Final PCAP Closure Report
- Quarterly effluent sampling for OCSD permit requirements
- **April 2011: Issue Draft 2010 PCAP Annual Report**

**ENVIRONMENTAL PROGRAM STATUS
FORMER MARINE CORPS AIR STATION TUSTIN**

FOST Summary

FOST #1 signed August 29, 2001	Parcels 3, 21, 38, 39 and portions of 40
FOST #2 signed September 28, 2001	Parcels 4-8, 10-12, 14, 25, 26, 30-33, 37, 42 and portions of 40 and 41
FOST #3 signed April 22, 2002	Parcels 23, 29, 34, 35 and 36, and portions of 1, 16, 17, 24, 27, 28, 40 and 41
FOST #4 signed September 26, 2002	Portions of 24 (PS clean area in CO-5)
FOST #5 signed December 17, 2002	COs 8 and 11
FOST #6 signed September 29, 2004	CO-10 and a portion of CO-5
FOST #7 signed May 20, 2005	COs 3 and 7 and a portion of CO-5
FOST #8 signed February 2006	COs 1 and 4

FOSL Summary

FOSL #2 signed February 28, 2002	COs 1 thru 4
FOSL #3 signed April 26, 2002	COs 5 thru 11

Acronyms/Abbreviations

<p>AS/SVE – Air Sparge/Soil Vapor Extraction AST – Aboveground Storage Tank AOC – Area of Concern BCT – BRAC Cleanup Team (Navy, U.S. EPA, Cal/EPA) CO – Carve-Out area DCE - Dichloroethene FOSL – Finding of Suitability to Lease FOST – Finding of Suitability to Transfer IC – Institutional Controls I-RACR – Interim Remedial Action Complete Report IRP – Installation Restoration Program MMS – Miscellaneous Major Spill MNA – Monitored Natural Attenuation MPA – Mingled Plumes Area MTBE – Methyl tert-butyl ether O&M – Operation and Maintenance OCSD – Orange County Sanitation District OMP – Operation and Maintenance Plan OPS – Operating Properly and Successfully OU – Operable Unit PCAP – Petroleum Corrective Action Plan PER – Performance Evaluation Report PMR – Performance Monitoring Report PS – Public Sale Parcel RA – Remedial Action RAP – Remedial Action Plan RCRA - Resource Conservation and Recovery Act RD – Remedial Design</p>	<p>ROD – Record of Decision TCE – Trichloroethene TCP – Trichloropropane Ug/L – micrograms per liter UST – Underground Storage Tank WBZ – Water Bearing Zone</p>
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