



**Former MCAS Tustin
Restoration Advisory Board (RAB) Email Update
March 23, 2012**

This is the third Email Update for Former Marine Corps Air Station (MCAS) Tustin, California; Restoration Advisory Board (RAB) meetings. This Update focuses primarily on ongoing long-term groundwater remediation and monitoring at Installation Restoration Program (IRP) sites and on the closure of Underground Storage Tank (UST) Site 222. You will find brief summaries of these items below.

Attached you will also find an updated Environmental Program Status for all ongoing groundwater remediation and monitoring activities at MCAS Tustin, including brief project histories, a listing of upcoming documents, and next steps for each of the sites. You will recognize this as the Environmental Program Status that has been presented at previous RAB meetings.

NEW BUSINESS

Closure of UST Site 222

Underground Storage Tank (UST) Site 222 was closed with the issuance of the Final Petroleum Corrective Action Program (PCAP) Closure Report on March 21, 2012. This Site served as a gasoline station at MCAS Tustin until 1998. Methyl tert-butyl ether (MTBE) was the primary contaminant found in soil and groundwater at the Site. Approximately 66,500 tons of petroleum-impacted soil was excavated from the Site in four phases. The Navy began conducting groundwater remediation at UST Site 222 in 2001, including installing and operating a groundwater extraction and treatment system (called a pump-and-treat system), which was expanded and optimized over time; and an air-sparge and soil vapor extraction (AS/SVE) system, which removed MTBE from the Source Area. After more than 10 years of operation, and with the concurrence of the California Regional Water Quality Control Board, Santa Ana Region (RWQCB), the groundwater extraction and treatment system was shut down on November 23, 2011. Since start-up, a total of approximately 267 million gallons of groundwater have been extracted, treated, and discharged.

The RWQCB regulates all cleanup activities at UST Site 222, oversees the final corrective action, and has the authority to grant regulatory Site Closure. The RWQCB previously approved closure for the vadose zone soil (unsaturated soil above the groundwater) at the Site in 2006. The RWQCB approved no further action for groundwater and Site Closure on January 25, 2012. All soil and groundwater remediation and groundwater monitoring activities were coordinated by the Navy with the BRAC Cleanup Team (BCT), which includes the RWQCB, the California Environmental Protection Agency Department of Toxic Substances Control (DTSC), the United States Environmental Protection Agency (U.S. EPA).

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

Since the last Email Update in early January 2012, the Navy has been actively conducting O&M and LTM activities for the groundwater remedies, hydraulic containment and institutional controls (ICs), installed at Installation Restoration Program (IRP) Sites 13S, 3, and 12. As you are aware, these Sites are characterized as having volatile organic compounds (VOCs) in groundwater at concentrations exceeding



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specified remediation goals. These activities include inspections and effluent sampling and groundwater monitoring. We expect to issue the Draft 2011 Annual Groundwater Performance Evaluation Report to the Agencies in June 2012.

For IRP Site 1, Former Moffett Trenches Landfill, the Navy submitted the Draft 2011 Annual Groundwater Monitoring Report to the agencies in March 2012. The remedy for this Site, which is located under Jamboree Road, is Containment and ICs. Results presented in this report indicate that the remedy continues to be effective in restricting human exposure to landfill contents and is preventing contaminants from entering into surface water in Peters Canyon Cannel and from migrating downward into deeper water bearing zones at the Site.

For the five IRP Sites included under Operable Unit (OU)-4B, the Navy submitted the Third and Fourth Quarter 2011 Groundwater Monitoring Data Summary Report to the agencies in March 2012.

OU-4B Moderate Concentration Sites – Remedial Design/Remedial Action Work Plan

The Navy is responding to regulatory agency comments on the Draft Remedial Design/Remedial Action (RD/RA) Work Plan for three OU-4B moderate concentration sites, IRP-5S(a), IRP-6, and the Mingled Plumes Area (MPA), which was issued to the agencies for review in October 2011. The remedy for these three Sites is in situ bioremediation, monitored natural attenuation (MNA), and ICs. The Final RD/RA Work Plan is anticipated to be issued in May 2012, and be in the field to initiate this remedial action in Spring 2012.

OU-4B Low Concentration Sites – Land-Use Control Remedial Design and Long-Term Monitoring/Operation & Maintenance Plan

The Navy is responding to regulatory agency comments on the Draft Land-Use Control Remedial Design (LUC RD) & Long-Term Monitoring (LTM)/Operation and Maintenance Plan, which was issued to the Agencies for review in August 2011. The remedy for these two low concentration Sites, IRP-11 and IRP-13W is ICs which prohibit or restrict groundwater use or other activities that could result in unacceptable exposure to VOCs as well as periodic groundwater monitoring to ensure the protectiveness of the remedy and to assess whether ICs are still necessary at the Sites. It is anticipated that the Final LUC RD & LTM Plan will be issued in April 2012.



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Summary

The Navy appreciates your input on our environmental restoration program. Please plan to attend our next RAB meeting on May 23, 2012. 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 listed below.

Sincerely,
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NEXT RAB MEETING:

All Former MCAS Tustin RAB meetings are open to the public.
Time: 7:00 – 8:20 p.m.
Wednesday, May 23, 2012
Tustin Senior Center
200 South "C" Street, Tustin
(Margarete Thompson Boardroom)

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**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 Monitoring Data Summary (MDS)
- October 2008: 2nd Quarter 2008 Groundwater MDS
- 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 MDS
- July 2009: 1st Quarter 2009 Groundwater MDS
- September 2009: Final Long-Term Operation and Maintenance Plan (OMP)
- October 2009: 2nd Quarter 2009 Groundwater MDS
- December 2009: 3rd Quarter 2009 Groundwater MDS
- February 2010: Final 2008 Annual OU-1A/-1B Performance Evaluation Report (PER)
- February 2010: Final Operating Properly and Successfully (OPS) Report
 - Obtained U.S. EPA OPS determination in December 2009
- July 2010: 1st Quarter 2010 Groundwater MDS
- September 2010: 2nd Quarter 2010 Groundwater MDS
- November 2010: Final 2009 Annual OU-1A and -1B PER
- December 2010: 3rd Quarter 2010 Groundwater MDS
- June 2011: Draft 2010 Annual PER
- September 2011: 2011 Semiannual Groundwater MDS
- November 2011: Final 2010 Annual PER

Next steps:

- **On-going operation and maintenance (O&M) activities:**
 - Biweekly, monthly, and quarterly inspections and effluent sampling
 - Quarterly groundwater monitoring and semiannual reporting; data used to track system performance and (annually) evaluate and optimize the system
 - Annual system optimization evaluation included in the 2011 Annual PER
- **June 2012: Issue Draft 2011 Annual PER**



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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
 - ICs.Hot-spot soil excavation also conducted to enhance groundwater remedy
- 2007: Began implementing Final RD/RA
- January 2008: Treatment system became operational
- July 2008: 1st Quarter 2008 Groundwater MDS
- October 2008: 2nd Quarter 2008 Groundwater MDS
- December 2008: Final I-RACR.
- December 2008: 3rd Quarter 2008 Groundwater MDS
- July 2009: 1st Quarter 2009 Groundwater MDS
- September 2009: Final Long-Term OMP
- October 2009: 2nd Quarter 2009 Groundwater MDS
- December 2009: 3rd Quarter 2009 Groundwater MDS
- February 2010: Final 2008 Annual OU-1A/-1B PER
- February 2010: Final OPS Report
 - Obtained U.S. EPA OPS designation in December 2009
- July 2010: 1st Quarter 2010 Groundwater MDS
- September 2010: 2nd Quarter 2010 Groundwater MDS
- November 2010: Final 2009 Annual OU-1A/-1B PER
- December 2010: 3rd Quarter 2010 Groundwater MDS
- June 2011: Draft 2010 Annual PER
- September 2011: 2011 Semiannual Groundwater MDS
- November 2011: Final 2010 Annual PER

Next steps:

- **Same as for OU-1A above**



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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 designation in March 2004
- October 2006: Final First Five-Year Review
- On-going O&M activities
- January 2010: Final 2008 Annual Groundwater Monitoring Report
- February 2011: Final 2009 Annual Long-Term Monitoring Report
- July 2011: Final 2010 Annual Long-Term Monitoring Report
- March 2012: Draft 2011 Annual Long-Term Monitoring Report

Next steps:

- **Continue O&M activities**

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:

- 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 Feasibility Study 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 June 2009 Final Work Plan
- January 2010: 3rd Quarter 2009 Data Summary Report
- January 2010: Final ROD
- April 2010: Replacement Pages for the Final ROD, including signature sheet
- July 2010: Final Pre-Design Pilot Study Work Plan
- July to October 2010: Implemented Pre-RD Pilot Study
- October 2010: Final 2009 Annual Groundwater Monitoring Report
- October 2010: Final 1st Quarter 2010 Data Summary Report
- November 2010: Final 2nd Quarter 2010 Data Summary Report
- May 2011: Final Pre-RD Pilot Study Report
- May 2011: Final 2010 Annual Groundwater Monitoring Report
- June 2011: Issue Final RACR for MMS-04
- August 2011: Draft LUC RD & Long-Term OMP (Low Conc. Sites: IRP-11 & -13W)
- September 2011: Final 1st and 2nd Quarter Data Summary Report



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- October 2011: Draft RD/RA Work Plan for Moderate (Mod.) Conc. Sites
- October 2011: Draft Fact Sheet, OU-4B
- March 2012: Final 3rd and 4th Quarter 2011 Data Summary Report

Next steps:

- **April 2012: Issue Final LUC RD & Long-Term OMP for Low Conc. Sites**
- **May 2012: Issue Final RD/RA Work Plan for Mod Conc. Sites**
- **May 2012: Issue Final Fact Sheet, OU-4B**

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 MDS
- April 2009: 3rd Quarter 2008 Groundwater MDS
- May 2009: Draft Final Annual 2007 PCAP Progress Report
- July 2009: Draft Annual 2008 PCAP Annual Report
- August 2009: 1st Quarter 2009 Groundwater MDS
- September 2009: 2nd Quarter 2009 Groundwater MDS
- 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 MDS
- June 2010: Draft 2009 PCAP Annual Report
- August 2010: 1st Quarter 2010 Groundwater MDS
- October 2010: 2nd Quarter 2010 Groundwater MDS
- November 2010: Final 2009 PCAP Annual Report
- December 2010: 3rd Quarter 2010 Groundwater MDS
- June 2011: Draft 2010 PCAP Annual Report
- September 2011: 2011 1st and 2nd Quarter Groundwater Monitoring Data Package
- November 2011: [Final 2010 PCAP Annual Report](#)
- November 2011: Shutdown PCAP Extraction Wells and Treatment Facility in preparation for Site Closure
- December 2011: Issue Draft PCAP Closure Report
- March 2012: Issue Final PCAP Closure Report

Next steps:

NONE!



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Final 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

Final FOSL Summary

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

Acronyms/Abbreviations

AS/SVE – Air Sparge/Soil Vapor Extraction AST – Aboveground Storage Tank AOC – Area of Concern BCT – BRAC Cleanup Team (Navy, U.S. EPA, DTSC, and RWQCB) Cal/EPA – California Environmental Protection Agency CO – Carve-Out area Conc. - Concentration DCE - Dichloroethene FOSL – Finding of Suitability to Lease FOST – Finding of Suitability to Transfer ICs – Institutional Controls I-RACR – Interim Remedial Action Complete Report IRP – Installation Restoration Program LTM – Long-Term Monitoring LUC – Land use control MDS – Monitoring Data Summary 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 PS – Public Sale Parcel RA – Remedial Action RAP – Remedial Action Plan RCRA - Resource Conservation and Recovery Act RD – Remedial Design ROD – Record of Decision RWQCB – California Regional Water Quality Control Board, Santa Ana Region TCE – Trichloroethene TCP – Trichloropropane Ug/L – micrograms per liter U.S. EPA – United States Environmental Protection Agency UST – Underground Storage Tank VOC – Volatile Organic Compound WBZ – Water Bearing Zone
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