



Final FORMER MARINE CORPS AIR STATION (MCAS) Tustin 95th Restoration Advisory Board (RAB) Meeting Minutes



Meeting Location: Tustin Senior Center, 200 South C Street, Tustin, California

Meeting Date/Time: 26 September 2012/ 7:00 PM to 8:15 PM

Minutes Prepared by: Erika Marx, Accord MACTEC 8A Joint Venture (AM8AJV)

Attachments:

Presentation Slides:

- Environmental Program Status, Former Marine Corps Air Station Tustin
- Operable Unit (OU)-1A and -1B Groundwater Remediation Status Update, Former MCAS Tustin, California

Attendees: Sixteen people attended the RAB meeting:

Navy: Jim Callian, Base Realignment and Closure (BRAC) Environmental Coordinator (BEC) and RAB Co-chair; Content Arnold, Navy Lead Remedial Project Manager (RPM); Louie Cardinale, Navy RPM; Lindsey White, Navy RPM Intern.

Regulatory Agencies: Ram Peddada, RPM, California Department of Toxic Substances Control (DTSC) and John Broderick, RPM, California Regional Water Quality Control Board, Santa Ana Region (RWQCB).

RAB Members: Matt West, City of Tustin; Chris Crompton, Orange County Public Works; and Susan Reynolds.

Other Attendees: Jake Dunk, AMEC; Erika Marx, Accord Engineering, Inc.; Todd Schmieder, Tait & Associates; Mike Wolff, ECS, Inc.; Dhananjay Rawal, ECS, Inc.; Desire Chandler, E2 Manage Tech, Inc.; Kaleena Johnson, Environ.

WELCOME/INTRODUCTIONS/AGENDA REVIEW:

Mr. Jim Callian, BEC and Navy RAB Co-Chair, welcomed everyone to this Former MCAS Tustin 95th RAB meeting and thanked everyone for attending.

ANNOUNCEMENTS/ REVIEW OF ACTION ITEMS:

Mr. Callian began the meeting with the following announcements and discussion:

- Mr. Callian presented the meeting agenda for new business (including the Installation Restoration Program [IRP] Environmental Status updates and regulatory agency status updates).
- Mr. Callian announced that tonight's presentation would discuss the status of OU-1A and OU-1B by Mr. Louie Cardinale, Navy RPM.

- Mr. Callian stated that RAB Community Co-chair elections would not be held tonight because there are not enough RAB members present at the meeting and Mr. Don Zweifel was also not present. The election will be postponed and put on the agenda for the next meeting.
- Mr. Callian initiated self-introductions.
- Mr. Callian presented contact information for himself and the other key project representatives, including the project managers from the DTSC and RWQCB.
- Mr. Callian presented slides for the Administrative Record File located in San Diego and the Information Repository located at the University of California (UC) Irvine campus library. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Administrative Record File located at Former MCAS El Toro Building 307 has been relocated to the main Administrative Record File in San Diego. Any future correspondence to the Navy should be redirected to Mr. Callian's San Diego address. Mr. Callian also discussed environmental and reuse/redevelopment websites. He mentioned that the BRAC website is maintained by the Navy and is a very useful tool for viewing RAB documents; the DTSC and RWQCB post key documents and reports to their respective websites as well.
- Mr. Callian stated that the next semiannual RAB meeting will be held on Wednesday, May 22, 2013 at this location. He will provide an e-mail update in November or December announcing the dates of future RAB meetings.

NEW BUSINESS:

- Mr. Callian stated that a survey went out with the latest RAB mailer. The survey aims to identify those people who are still interested in receiving information regarding the RAB meetings. People currently on the mailing list may choose to remain on the mailing list, switch to receiving e-mails only, or be taken off the contact list completely and use the BRAC website instead. This will ultimately reduce the amount of printed material. Mr. Callian requested that survey responses be turned in by October 12, 2012. Mr. Callian mentioned that this same process worked very well at Former MCAS El Toro. Future mailers would include the agenda and public notice for the upcoming meeting and final meeting minutes from the prior RAB meeting. The latest RAB mailer also included the final meeting minutes from the September 21, 2011 meeting.
- Mr. Callian summarized the new procedure for reviewing RAB meeting minutes, which will expedite the process in getting Final Meeting Minutes published. The new procedure involves sending the draft RAB meeting minutes out to the RAB members for their review and comment within approximately 45 days after a RAB meeting is held. RAB members have 14 days to provide comments to the Community Co-chair, who will then submit the comments to the Navy. The meeting minutes will be finalized and posted on the BRAC website within 21 days after submittal to the Navy.
- Mr. Todd Schmieder stated that he was accidentally removed from the mailing list and would like to be added again for future mailers.

ENVIRONMENTAL STATUS UPDATE:

Mr. Callian presented a slideshow of the Environmental Program Status at Former MCAS Tustin. He stated that most sites are now in the long-term monitoring (LTM) phase, and there is one remaining OU, OU-4B, that has ongoing remedies.

Slide 1 – For OU-1A (Installation Restoration Program [IRP] 13 South), the primary chemical of concern (COC) in the groundwater is 1, 2, 3-trichloropropane (TCP). The slide outlines a brief OU-1A project history. Mr. Callian noted the following achievements for OU-1A: in August 2012, the Draft 2011 Annual Performance Evaluation Report was prepared and issued, and in September 2012, the Final 2012 Semiannual Groundwater Monitoring Data Summary (MDS) was issued. The Semiannual Groundwater MDS is a condensed report that includes tables and figures. The Annual Groundwater MDS will summarize all data collected over 2012 and provide conclusions and recommendations. Mr. Callian reiterated that the RAB presentation tonight would include updates for OU-1A and -1B. These sites are mentioned together because they are on the same schedule and have the similar remedies hydraulic containment with hot spot removal. The next steps for the on-going operation and maintenance (O&M) activities include biweekly, monthly, and quarterly inspections and effluent sampling; quarterly groundwater monitoring and semiannual reporting; and an annual system optimization evaluation. The 2011 Annual Performance Evaluation Report (PER) is anticipated to be finalized by December 2012.

Slide 2 – For OU-1B (IRP Sites 3 and 12), the single COC in groundwater is trichloroethene (TCE). The slide outlines a brief OU-1B project history. The next steps for on-going O&M activities are identical to those at OU-1A.

Slide 3 – The slide outlines a project history of OU-3 (IRP Site 1 – Moffett Trenches Landfill). OU-3 is in the LTM phase. Mr. Callian noted that since the last RAB meeting, the Final 2011 Annual LTM Report was submitted. The next steps for OU-3 include continued LTM and O&M activities.

Ms. Content Arnold stated that the Final 2011 LTM Report has not yet been issued, but will be soon.

Slide 4 – OU-4B includes 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]). The main COC identified in groundwater for the Low Concentration Sites is TCE. The remedy for these Sites is institutional controls (ICs). The remedy for MMS-04 was completed in 2011 and this Site requires no further action. TCE is the COC at all the Moderate Concentration Sites and 1, 1-dichloroethene (DCE) is also at COC at IRP-6. These contaminants are volatile organic compounds (VOCs) that were used primarily as degreasers for cleaning aircraft parts at the base. Within the next few months, the Remedial Design/Remedial Action Work Plan will be finalized, and a public fact sheet will be issued prior to going into the field. The remedy is in-situ bioremediation, which involves the installation of picket-fence-like permeable reactive biobarriers and the injection of substrates and bacteria into the ground; the remedy also includes monitored natural attenuation and ICs.

Mr. Schmieder commented that the Remedial Action Work Plan was scheduled for approval 5 months ago and asked if there is a reason for the holdup. Mr. Callian responded that there are a couple of reasons, including issues regarding how the ICs would be implemented on a property that the Navy does not own.

Mr. Chris Crompton (RAB Member) asked why the number of monitoring wells is very limited compared to what it used to be, and why they are primarily focused around plumes. Mr. Callian responded that the Navy is always looking to efficiency of remedies (optimizing them) by reducing the number of wells and/or sampling frequencies based on data collected over the years. For OU-1A and OU-1B, these Sites appear to be fairly stable; therefore, the number of wells being monitored has been reduced.

Mr. Crompton asked whether Mr. Callian would address the issue during the meeting of why the number of wells has been reduced and whether monitoring data would be available. Mr. Callian confirmed that this issue would be discussed later on in the meeting.

Ms. Arnold asked Mr. Crompton if he was referring to OU-4B or the OU-1A and OU-1B Annual Report. Mr. Crompton responded that he is trying to understand the process of eliminating monitoring wells. He mentioned that he used to get reports about how many wells were present and where they were located, but has not received any lately. Mr. Callian responded that the Navy has ongoing evaluations in consultation with regulatory agencies regarding this issue. For example, UST Site 222 was closed. The Navy is looking to incorporate some of those wells from UST Site 222 into the OU-1A monitoring well network.

Mr. Crompton commented that he has not been receiving the monitoring well data reports that used to be sent out and asked how he could get copies. Ms. Arnold responded that the Community Co-chair receives copies of these reports. All final IRP documents can also be found at the Information Repository at the UC Irvine campus library. Electronic copies are available as well on some of the regulatory agency websites that Mr. Callian mentioned at the beginning of the meeting.

Slide 5 – Presents dates for final Finding of Suitability to Transfer (FOST) and Finding of Suitability to Lease (FOSL) summaries, and acronyms/abbreviations.

REGULATORY AGENCY UPDATE:

Mr. John Broderick (RWQCB)

Mr. Broderick stated that he has been receiving and reviewing the annual and semiannual reports that come in, but there are not as many as there used to be. Mr. Broderick asked whether anyone had any questions.

Ms. Kaleena Johnson asked Mr. Broderick whether he has seen the Addendum for the Five-Year Review Report. Mr. Broderick responded that he has seen the draft and that he has no comments on it.

Mr. Ram Peddada stated that comments on the Five-Year Review Report were due at the end of October 2012, but DTSC was going to ask for a one-month extension.

Ms. Johnson asked whether the Addendum would be out by October 31, 2012 and Mr. Peddada responded that it would be later than October 31, 2012.

Ms. Susan Reynolds (RAB Member) asked what the Addendum addresses. Mr. Callian responded that it addresses potential vapor intrusion risk. The Five-Year Review Report was finalized in October of 2011. The toxicity criteria changed for TCE; one month prior at the end of September, but the changes could not be incorporated into the original report; this is primarily why the Addendum was created. DTSC also asked the Navy to make protectiveness determinations for the OU-4B Low Concentration Sites as well.

Mr. Matt West (RAB Member) asked whether the DTSC has requested an extension for the Five-Year Review Report Addendum to the end of November 2012. Mr. Callian responded that the statutory requirements were for the original Five-Year Review Report, and that he has not heard of a request for an extended deadline for the Addendum. However, the Navy will work cooperatively with DTSC to expedite the review process.

PRESENTATIONS:

OU-1A and OU-1B Groundwater Remedy Status Update

Mr. Louie Cardinale began with a presentation overview (Slide 2).

Slide 1 – Title slide.

Slide 2 – Presents an overview of the presentation.

Slide 3 – Presents the Remedial Action Objectives (RAOs) for the Sites. The objectives are to reduce concentrations of VOCs in groundwater to levels consistent with remediation goals (RGs) or until the plumes have stabilized, and prevent or limit VOC migration beyond the current plume boundaries; to protect human health by preventing extraction of VOC-impacted shallow groundwater for domestic use until RGs are achieved; to protect ecological receptors in Peters Canyon Channel and Barranca Channel by preventing the off-station migration of groundwater that contains VOCs at concentrations exceeding site RGs; and to implement appropriate remedial actions as necessary to facilitate transfer and reuse of the property.

Slide 4 – Presents the primary COCs. The primary COCs for OU-1A are 1,2,3-TCP and TCE; for OU-1B North and South, the primary COC is TCE. The RGs are 0.5 micrograms per liter ($\mu\text{g}/\text{L}$) for 1,2,3-TCP and 5 $\mu\text{g}/\text{L}$ for TCE.

Slide 5 – Presents the selected remedies. The remedies (hydraulic containment with hot-spot removal, ICs, and five-year reviews) were finalized in two records of decision (RODs) in 2004; one for OU-1A and one for OU-1B. Each remedy includes construction and O&M of a groundwater extraction, treatment, and performance monitoring system; limited soil removal; and ICs to protect equipment and unauthorized use of impacted groundwater.

Slide 6 – Presents the three primary components of each remedy: an extraction system (wells, pumps, controls and subsurface vaults), a conveyance system (subsurface pipes), and a treatment system (building and equipment).

Slide 7 – Presents details regarding the remedy components. The systems include a total of 21 extraction wells with 16 in operation. Of the nine extraction wells at OU-1A, seven are

operating; of the four wells at OU-1B North, three are operating; and of the eight extraction wells at OU-1B South, six are operating. Certain wells are recommended to be placed on standby in the Draft Annual Report. After the Report is finalized, and with regulatory agency concurrence, the wells will be placed on standby.

Slide 8 – OU-1A and OU-1B North: Presents a figure of the approximate extent of the 1st Water Bearing Zone (WBZ) 1, 2, 3 TCP and TCE plumes and the associated remedy components.

Slide 9 – OU-1B South: Presents a figure of the approximate extent of the 1st WBZ TCE plume and the associated remedy components.

Mr. Crompton asked whether Valencia Road is shown on the figure, and Mr. Cardinale confirmed it was.

Slide 10 – Gives descriptions of the conveyance systems, treatment systems, and control equipment. Conveyance systems include high-density polyethylene piping and underground junction boxes; the treatment systems each include process equipment such as a holding tank, feed pump, bag filters, and granulated activated carbon (GAC) vessels; and the control equipment includes level sensors, pressure gauges, a master control and alarm panel, and communication system.

Slide 11 – Presents pictures of the treatment buildings at OU-1A/-1B North and OU-1B South.

Slide 12 – Presents pictures of the GAC vessels and manifolds, and the electrical and control system panels.

Slide 13 – Presents the O&M activities. This includes biweekly inspections, monthly inspections and maintenance, and quarterly inspections and maintenance. Effluent sampling is also performed to verify the effectiveness of GAC treatment and compliance with the Orange County Sanitation District (OCSD) disposal permit.

Slide 14 – Continuation of the O&M. Groundwater monitoring is presently performed quarterly. This includes water level measurements to track groundwater flow directions, groundwater sampling to track plumes, and sampling at the extraction wells to track system performance. These data will be used to evaluate plume capture and optimize the extraction systems and monitoring well networks.

Mr. Cardinale addressed Mr. Crompton's concern regarding the number of wells monitored at the Sites. Mr. Cardinale stated that previously, a number of wells farther out from plume are monitored to ensure that the plumes are not migrating. Some of the wells that have been non-detect for a long period of time and are not useful to the monitoring well network are no longer sampled.

Mr. Mike Wolff took over the remainder of the presentation for Mr. Cardinale.

Slide 15 – Presents a figure of the plume capture analysis for OU-1B South (1st WBZ). The map shows the footprint of the plume as well as the various monitoring and extraction wells that are present at the Site. Surfer® (computer software) takes data points and maps them into a continuous 3-dimensional surface (in this case, the water table is the 3-dimensional surface). The contour lines, along with the gradient vectors on the figure illustrate the direction of groundwater flow. Selective pumping of strategically located extraction wells allows the control of groundwater flow and hydraulic containment.

Slide 16 – Presents a second figure of the plume capture analysis for OU-1B South. This figure shows the 2011 capture calculation results and is used to compliment the Surfer® results. The dimensions of the capture zones of individual extraction wells are calculated by using hydraulic parameters to determine the extent of the capture zones. The capture zones are represented by blue parabolas. Mr. Wolff mentioned that optimization, as Mr. Cardinale alluded to earlier in the presentation, is an ongoing process. One of the optimization goals is to minimize the unnecessary pumping of clean groundwater. Thus, the Navy is continually looking at how to reduce the extraction rates of individual wells to optimize the locations of the capture zones while meeting the RAOs. In addition, the Navy looks for trends in data and especially a decline in concentrations, which also indicates that the plume is being captured, stabilized, or reduced, and these are factors that are presented in the annual performance evaluation.

Slide 17 – Presents the 2011 Draft Annual Report conclusions and recommendations. Conclusions are: all plumes continue to be stable and contained; ICs continue to be successful with systems operating at nearly 100 percent of the time; there have been no violations of OCSD discharge requirements; the remedies continue to protect human health and the environment; and hot spots at OU-1A have been eliminated. Hot spots are defined by statistical parameters based on their relative concentrations (to those throughout the remainder of the plume). Hot spots have been reduced at OU-1A in both the 1st and 2nd WBZs, as well as the 2nd WBZ at OU-1B South, to below the statistical definition of a hot spot (i.e., hot spots have been eliminated). This indicates that the remedy has been very effective in these areas.

Slide 18 – Conclusions and recommendations continued. The first recommendation is to optimize the extraction well systems, monitoring well networks, and sampling frequencies. Mr. Wolff discussed optimization of the monitoring well network at OU-1A by taking advantage of monitoring wells from UST Site 222 and utilizing them in the OU-1A network. A second recommendation is to reduce the reporting frequencies, as appropriate. Several years of data show the concentration trends of the plumes, so quarterly data is no longer necessary. Finally, a recommendation was made to place OU-1A hot spot extraction wells that are no longer needed on standby while monitoring continues. If necessary, these extraction wells could be turned back on.

Mr. Callian commented that the remedies were anticipated to progress on a step-wise process. One of the RAOs was to maintain the plumes within their current boundaries. The goal is to eventually reach a point where all of the extraction wells can be turned off to allow natural attenuation processes to degrade the remaining contaminants (without pumping), and eventually only monitoring would be necessary. Mr. Callian mentioned that the extraction wells have been pumping since 2007.

Mr. Wolff stated that these remedies were anticipated to be approximately 30 years in duration. The fact that improvements (reductions in concentrations) have been made so soon is good cause for optimism.

Slide 19 – Presents the schedule. On August 9, 2012, the Draft 2011 Annual Groundwater Monitoring Report was issued. On October 8, 2012, agency comments on the report will be due, and in December 2012, the Report will be finalized.

Slide 20 – Presents a list of acronyms.

Mr. Wolff asked whether there were any questions.

Mr. Todd Schmieder asked whether there are hot spots present in OU-1B North. Mr. Wolff responded that the site does have a hot spot. In a particular plume, if you take the geometrical mean of the concentration of all of the wells within the plume and add two standard deviations, this gives you threshold for a hot spot. Any well in the plume that exceeds this threshold is defined as a hot spot. As the concentrations in the plume decline, the concentrations in the most contaminated wells decline relatively faster. While there may still be contamination in a well that was previously in a hot spot, if it drops below the statistical threshold, it is no longer considered a hot spot. Mr. Cardinale added that extraction wells were strategically placed around the hot spots. Extraction wells have been placed around a fairly small area, which is why great improvement has been shown.

The Navy is always looking to optimize and make the system more efficient. Every gallon of water pumped must go through a treatment system; this is a driver for optimization.

Ms. Desire Chandler asked Mr. Broderick whether a pump-and-treat system has been successful at other sites.

Mr. Broderick responded that the most effective pump-and-treat system on a military site was at Norton Air Force Base. The remedy was projected to take 10 years, but was completed in 5 years. In the right environment for moving water without absorbing and desorbing to clay particles, a pump-and-treat system will work and also limits liability in that it will keep a plume off someone else's property. However, the conditions at the former MCAS Tustin are not conducive for a straight pump-and-treat system because of clays in the soil. Clay particles are small but have large surface areas and are constantly absorbing and desorbing simultaneously, thus reducing the effectiveness of removing solvents from water.

Mr. Callian added that an example of an effective pump-and-treat system at the former MCAS Tustin was at UST 222. The contaminant at the site, MTBE, flows with the water. In general, there is a distinct difference in subsurface lithologies between this and the immediately adjacent IRP-13S Site. The difference being fine-grained clayey particles coarser grained pebbles and conglomerates are present at UST Site 222. The pump-and-treat system was therefore set up to remove MTBE in the coarse-grained lithology and a hydraulic containment system was set up to control 1,2,3-TCP at the clay-rich IRP-13S site. Mr. Callian added that although hydraulic containment is a relatively expensive remedy, it is comparable to the costs and potential effectiveness of other remedies. A cost analysis was performed during the feasibility study and eventually the hydraulic containment system was selected.

Mr. Crompton stated that Mr. Wolff did not address the issue of what the concentrations were at the hot spot and what amount of contaminants were removed from the site. Mr. Wolff responded that all of those details are in the Report, but for example, the OU-1A/OU-1B North system treated 69.3 million gallons of water to date and has removed 3.9 pounds of 1,2,3-TCP and 7.4 pounds of TCE. At OU-1B South, concentrations are greater. That system has treated 30.4 million gallons of water to date and has removed approximately 114 pounds of TCE. Concentrations in the source area for OU-1B South in the 1st WBZ has the highest concentrations of TCE of any of the sites and is in the range of several thousand $\mu\text{g}/\text{L}$ and currently below 10,000 $\mu\text{g}/\text{L}$. The 2nd WBZ no longer qualifies as a hot spot as a result of the decline in concentrations. At OU-1A, the concentrations are primarily in the tens to hundreds of $\mu\text{g}/\text{L}$.

Mr. Crompton asked Mr. Wolff whether the pump system draws from both the 1st and 2nd WBZs, and whether there are three WBZs in the area. Mr. Wolff responded that the system does

draw from both the 1st and 2nd WBZs. The third WBZ is only being monitored because there are no concentrations present exceeding remedial goals. Mr. Broderick added that the only site impacting the 3rd WBZ was UST Site 222, and that site was quickly remediated to remove any threat to the 3rd WBZ. All three of the zones are above any of the drinking water zones.

Mr. Wolff stated that one of the plans for optimization is to take one of the wells, which happens to draw from both the first and second WBZs, and put a packer in between the zones to focus extraction on the more contaminated zone. The well will be monitored and studied to see how the contaminant removal process can be accelerated.

Mr. Cardinale added that the process of using packers in wells was used successfully at UST Site 222.

Mr. Callian stated that this step (focusing extraction in one of two WBZs) was anticipated in the original design of the extraction wells. The extraction wells were designed to incorporate a blank section of casing between the 1st and 2nd WBZs. Aquitard material is placed around the blank well casing next to the formation. A packer is inserted and inflated at the blank location, and then groundwater can be extracted from either the 1st or 2nd WBZ.

OPEN QUESTIONS AND COMMENTS:

Mr. Callian opened the meeting for general questions and comments; there were none.

MEETING EVALUATION AND CLOSING:

Mr. Callian reminded everyone that Community Co-chair elections would not be held tonight because Mr. Don Zweifel was not present. In addition, Mr. Callian received a letter from Mr. Randy Peebles requesting to become a RAB Member. After reading Mr. Peebles' letter, Mr. Crompton asked whether there was any reason to preclude Mr. Peebles from becoming a RAB Member. Mr. Callian said no, unless there were any RAB members present who were not in favor. All were in favor, and Mr. Peebles was granted the position.

Mr. Callian asked anyone who would like either to be nominated or to nominate someone else for Community Co-chair to let him know at the next RAB meeting on May 22, 2013. An e-mail reminder about the next meeting will be sent out by Mr. Callian in November or December 2012.

Mr. Callian asked for suggestions for topics for the next meeting. Mr. West asked to receive status updates and progress reports for OU-4B at the next meeting, and Mr. Callian agreed.

Ms. Chandler asked whether there would be a tour for the site at the next meeting, and Mr. Broderick stated that there is no reason for a tour as there is not much to see at the site.

Ms. Johnson asked whether it is accurate to say that FOST 9 is on the back-burner until the Addendum is issued. Mr. Callian affirmed this but said that he would not characterize FOST 9 as being on the "back-burner." The Navy is investing a large effort into getting the Addendum out as soon as possible.

The RAB meeting adjourned at 8:15 PM.

LIST OF HANDOUTS PROVIDED AT THE MEETING:

- 26 September 2012 Former MCAS Tustin RAB Meeting Agenda
- Public Notice for the 26 September 2012 RAB Meeting
- Final RAB Meeting Minutes from the 23 May 2012 meeting for RAB review
- Sign-In Sheet from the 23 May 2012 Former MCAS Tustin RAB Meeting
- Final RAB Meeting Minutes from the 21 September 2011 meeting
- Two maps of sites OU-1A and OU-1B North, and OU-1B South
- Presentation Slides: "Environmental Program Status, Former Marine Corps Air Station Tustin," and "Operable Unit (OU)-1A and -1B Groundwater Remedy Status Update, Former MCAS Tustin, California"
- Environmental Websites
- Points-of-Contact
- Former MCAS Tustin RAB Mission Statement and Operating Procedures
- Former MCAS Tustin RAB Fact Sheet/Membership Application
- Former MCAS Tustin Mailing List Coupon

Copies of the meeting minutes and handouts are available at the IR for former MCAS Tustin located in the Government Publication Section of the University of California, Irvine Main Library in Irvine, California. Library hours are 10:00 AM to 8:00 PM Monday through Thursday; 10:00 AM to 5:00 PM Friday; and 1:00 PM to 5:00 PM on Saturday and Sunday. The library phone number is (949) 824-7362 or (949) 824-6836. Copies of the meeting minutes and handouts are also available at the CERCLA AR File.

Final minutes from previous RAB meetings can be found on the internet at the Navy BRAC Program Management Office (PMO) website: www.bracpmo.navy.mil.

INTERNET SITES:

Navy and Marine Corps Internet Access:

BRAC PMO Web Site (includes RAB meeting minutes): <http://www.bracpmo.navy.mil/>

Department of Defense - Environmental Cleanup Home Page Web Site:

Homepage: <http://www.dtic.mil/envirodod/>

U.S. EPA:

Homepage: www.epa.gov

Superfund information: www.epa.gov/superfund

National Center for Environmental Assessment: www.epa.gov/ncea

Federal Register Environmental Documents: www.epa.gov/federalregister

California Agencies:

California Environmental Protection Agency Homepage: www.calepa.ca.gov

DTSC: www.dtsc.ca.gov

Department of Health Services: www.cdph.ca.gov

Santa Ana RWQCB: www.waterboards.ca.gov/santaana

Additional Websites: Reuse and Redevelopment

Orange County Great Park: www.ocgp.org

Great Park Conservancy: www.orangecountygreatpark.org

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September 2012

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 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 Monitoring Data Summary
- December 2009: 3rd Quarter 2009 Groundwater Monitoring Data Summary
- 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: Issue Draft 2010 Annual PER
- September 2011: 2011 Semiannual Groundwater MDS
- November 2011: Final 2010 Annual PER
- December 2011: 3rd Quarter 2011 Groundwater MDS
- April 2012: 1st Quarter 2012 Groundwater MDS
- [August 2012: Draft 2011 Annual PER](#)
- [September 2012: Final 2012 Semiannual Groundwater MDS](#)

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
- [December 2012: Final 2011 Annual PER](#)



September 2012
**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 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: Issue Draft 2010 Annual PER
- September 2011: 2011 Semiannual Groundwater MDS
- November 2011: Final 2010 Annual PER
- December 2011: 3rd Quarter 2011 Groundwater MDS
- April 2012: 1st Quarter 2012 Groundwater MDS
- [August 2012: Draft 2011 Annual PER](#)
- [September 2012: Final 2012 Semiannual Groundwater MDS](#)

Next steps:

- [Same as for OU-1A above](#)



September 2012
**ENVIRONMENTAL PROGRAM STATUS
FORMER MARINE CORPS AIR STATION TUSTIN**



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
- [September 2012: Final 2011 Annual Long-Term Monitoring Report](#)

Next steps:

- [**Continue Long-Term Monitoring and O&M activities**](#)



September 2012

ENVIRONMENTAL PROGRAM STATUS FORMER MARINE CORPS AIR STATION TUSTIN



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 Concentration Sites: IRP-11 & -13W)
- September 2011: Final 1st and 2nd Quarter Data Summary Report
- 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:

● Moderate Concentration Sites:

- Finalize RD/RA Work Plan
- Issue Public Fact Sheet
- Implement Remedial Action

● Low Concentration Sites:

- Finalize LUC RD and LTM/OMP
- Issue Public Fact Sheet
- Implement Remedial Action



September 2012
ENVIRONMENTAL PROGRAM STATUS
FORMER MARINE CORPS AIR STATION TUSTIN



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 portion of CO-5
FOST #7 signed May 20, 2005	COs 3 and 7 and 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

<p>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 O&M – Operation and Maintenance</p>	<p>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 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</p>
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Operable Unit (OU)-1A and -1B Groundwater Remedy Status Update

Former MCAS Tustin, California
RAB Meeting

September 26, 2012

Louie Cardinale, P.E. - Navy Remedial Project Manager
Mike Wolff, P.G., C.E.G – Enviro Compliance Solutions



Presentation Overview

- Remedial Action Objectives (RAOs)
- Primary Chemicals of Concern (COCs)
- Selected Remedy
- Remedy Components
- Operation and Maintenance (O&M)
- Plume Capture Analysis
- 2011 Draft Annual Report Conclusions & Recommendations
- Schedule
- Acronyms

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Remedial Action Objectives (RAOs)

- Reduce concentrations of volatile organic compounds (VOCs) in groundwater to levels consistent with remediation goals (RGs), or until the plumes have stabilized, and prevent or limit VOC migration beyond the current plume boundaries.
- Protect human health by preventing extraction of VOC-impacted shallow groundwater for domestic use until RGs are achieved.
- Protect ecological receptors in Peters Canyon Channel and Barranca Channel by preventing the off-station migration of groundwater that contains VOCs at concentrations exceeding site RGs.
- Implement appropriate remedial actions as necessary to facilitate the transfer and reuse of the properties.

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Primary Chemicals of Concern

- OU-1A (IRP-13S)
 - 1,2,3-Trichloropropane (TCP)
 - Trichloroethene (TCE)
- OU-1B North (IRP-12)
 - TCE
- OU-1B South (IRP-3)
 - TCE

Remediation Goals (RGs):

- 1,2,3-TCP = 0.5 micrograms per liter (µg/L)
- TCE = 5 µg/L

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Selected Remedy



- Final Records of Decision – 2004
 - Hydraulic Containment with Hot-Spot Removal
 - Institutional Controls (ICs) to protect equipment and prevent unauthorized extraction or use of shallow impacted groundwater
 - Five-Year Reviews

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Remedy Components



Three primary components:

- Extraction System (wells, pumps, controls, and subsurface vaults)
- Conveyance System (subsurface piping)
- Treatment System (building and equipment)

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Remedy Components (cont)



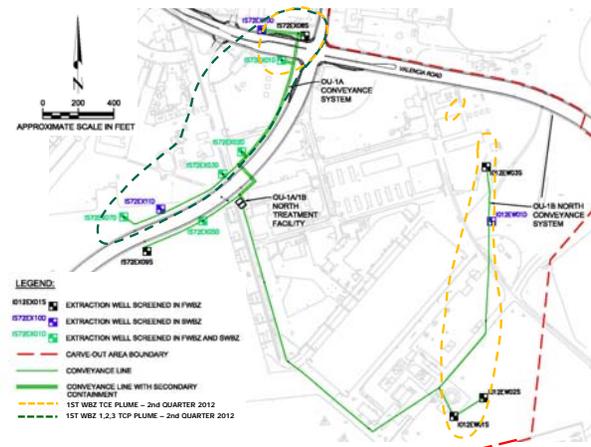
Extraction Systems

- Total of 21 extraction wells (EWs) (16 operating)
 - 9 @ OU-1A (7 operating)
 - 4 @ OU-1B North (3 operating)
 - 8 @ OU-1B South (6 operating)
- Well vaults constructed below ground surface
 - Vaults contain mechanical and electrical components that control pump operation

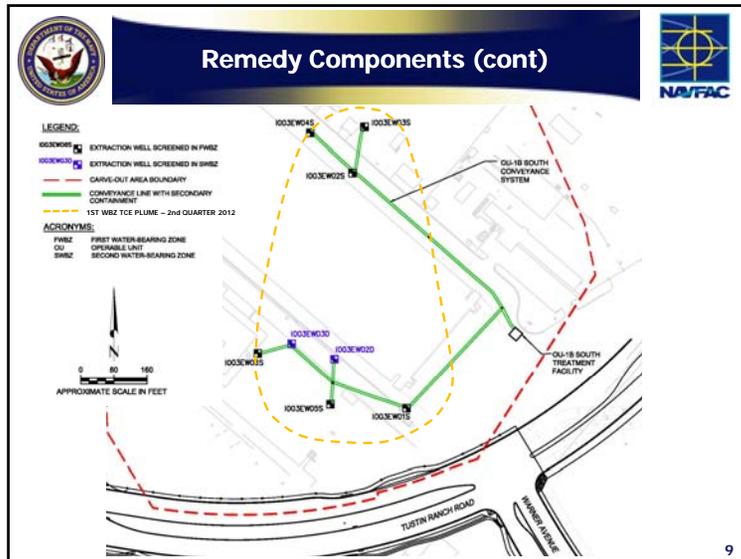
7



Remedy Components (cont)



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- ### Remedy Components (cont)
- **Conveyance Systems**
 - High-density polyethylene piping and underground junction boxes
 - **Treatment systems**
 - Process equipment: holding tank, feed pump, bag filters, and granulated activated carbon (GAC) vessels
 - Control equipment: level sensors, pressure gauges, master control and alarm panel, and communication system
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Operation and Maintenance (O&M)

Regular Inspections and Maintenance of Treatment Plants:

- Biweekly inspections
- Monthly inspections and maintenance
- Quarterly inspections and maintenance;
 - Effluent sampling to verify effectiveness of GAC treatment and compliance with Orange County Sanitation District (OCSD) discharge requirements

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O&M (cont)

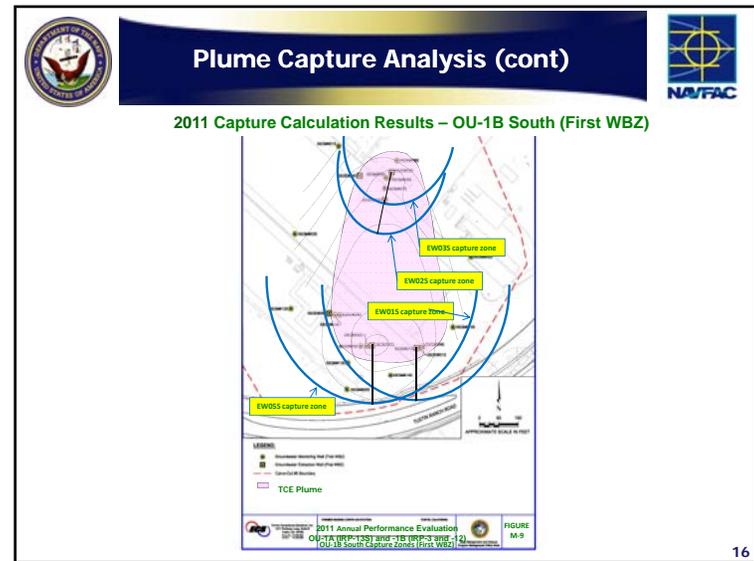
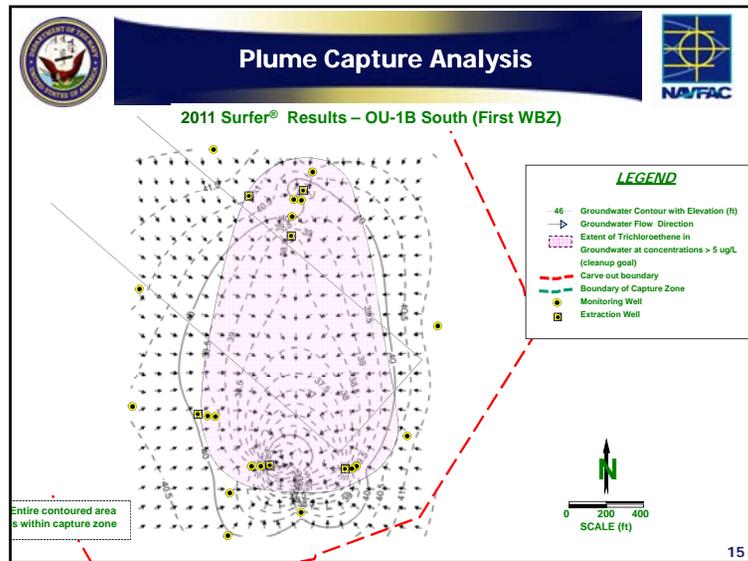
Quarterly Groundwater Monitoring:

- Water level measurements (130 wells) to track groundwater flow directions
- Groundwater sampling (50 wells) to track plumes
- Groundwater sampling at 21 EWs to track system performance

Data are used to:

- Evaluate plume capture
- Optimize the extraction systems and monitoring well network

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2011 Draft Annual Report Conclusions & Recommendations



Conclusions:

- All Plumes Continue to be Stable and Contained
- ICs Continue to be Successful
- Systems Operating at Nearly 100%
- No Violations of OCSD Discharge Requirements
- Remedy Continues to be Protective of Human Health and the Environment
- OU-1A Hot Spots Have Been Eliminated

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2011 Draft Annual Report Conclusions & Recommendations



Recommendations:

- Optimize Extraction Well Systems and Monitoring Well Networks and Sampling Frequencies
- Reduce Reporting Frequencies, as Appropriate
- Put OU-1A Hot Spot EWs on Standby

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Schedule



- August 9, 2012: Issued Draft 2011 Annual Groundwater Monitoring Report
- October 8, 2012: Agency Comments Due
- December 2012: Issue Final Report

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Acronyms



COC	chemical of concern
EW	extraction well
GAC	granulated activated carbon
IRP	Installation Restoration Program
O&M	operation and maintenance
OCSD	Orange County Sanitation District
OMP	Operation and Maintenance Plan
OPS	operating properly and successfully
OU	operable unit
RAWP	remedial action work plan
RAOs	remedial action objectives
RD	remedial design
RG	remedial goal
ROD	record of decision
TCE	trichloroethene
UST	underground storage tank
1,2,3 TCP	1,2,3 trichloropropane
µg/L	micrograms per liter
VOC	volatile organic compound
WBZ	water bearing zone

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