



FINAL

FORMER MARINE CORPS AIR STATION (MCAS) TUSTIN

84th Restoration Advisory Board (RAB) Meeting Minutes

Meeting Location: Tustin Senior Center, Tustin, California

Meeting Date/Time: 11 February 2009/7:45pm – 9:04 pm

Minutes Prepared by: Tony Guiang, CDM

Attachment:

1. MCAS Tustin Environmental Program Status
2. Presentation Slides: "Interim Remedial Action Completion Report (I-RACR) for Operable Unit (OU) -1A and -1B"

WELCOME/INTRODUCTIONS/AGENDA REVIEW:

Mr. Don Zweifel, RAB Community Co-Chair, welcomed everyone to the 84th RAB meeting and recognized several charter members in attendance including Ms. Susan Reynolds, Ms. Mary Lynn Norby, and Mr. Jerry Kirchgessner who have been participating in the RAB since 1994. He asked for self-introductions which followed by all those in attendance. A total of 19 attendees were present.

Ms. Debra Theroux, Interim Base Realignment and Closure (BRAC) Environmental Coordinator (BEC) and Interim Navy RAB Co-Chair, asked attendees to take note of the Sign-In Sheets being circulated around the room. She began with a brief review of the meeting agenda. Owing to the evening's Public Meeting presentation on OU-4B, the time frame for RAB has been shortened to include Installation Restoration Program (IRP) Environmental Status Update, Regulatory Update, and a presentation on the I-RACR for OU-1A and -1B. Ms. Theroux presented a series of slides to include point of contact information for key BRAC Cleanup Team members and their Agency (U.S. Environmental Protection Agency [U.S. EPA], Department of Toxic Substance Control [DTSC], and Regional Water Quality Control Board [RWQCB]) counterparts. In addition, she presented the locations, hours of operation, and point of contact for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Administrative Record (AR) File and CERCLA Information Repository (IR). Ms. Theroux presented several slides on environmental websites including a resource made available through the DTSC called EnviroStor. Ms. Theroux noted the Navy was working with their information technology (IT) group in making electronic versions of documents available through the BRAC PMO website, as requested in the last RAB meeting. Also included in the introductory slides were the proposed RAB meeting dates for 2009.

APPROVAL OF 11/19/09 RAB MEETING MINUTES

Mr. Zweifel opened the floor for discussion on any questions or corrections to the 11 November 2008 RAB meeting minutes. The following comments were made:

- Speaking on behalf of Mr. Robert Kopecky, RAB member, Mr. Zweifel asked the correct spelling of his name be incorporated in the meeting minutes. Mr. Kopecky was not present at the RAB meeting. In addition, he noted Mr. Kopecky is no longer the official representative for the South Orange County Community College District (SOCCCD). This position has been filled by Mr. Matt Suarez.
- Ms. Mary Lynn Norby, RAB member, asked that a correction be made to the street name referenced in the 1st sentence of the 2nd paragraph on Page 5. Upon further clarification from Mr. Kirchgessner, who made the comment during the last RAB meeting, the name of the street was identified as Harvard Avenue. Ms. Norby requested one slide per page be considered for the sake of clarity when presenting slides as attachments.
- Mr. Suarez, RAB member and newly appointed representative for SOCCCD, requested that the record to indicate that the college district is in disagreement with the City of Tustin's assessment, noted at the last RAB meeting, that the submitted Master Plan did not meet the requirements for a conveyance agreement.
- Ms. Theroux asked for a correction on the hours of operation for the CERCLA AR to read *"... business hours are 9am to 1pm Monday through Thursday."*
- Mr. Matt West, City of Tustin Redevelopment Agency, asked for edits to the Tustin Reuse Update as follows:
 - First sentence, 2nd paragraph, Page 4. He asked the sentence be revised to read, *"Mr. West explained that sites proposed for re-use as parks (i.e., 85 acre regional park site) would require the approval of the National Park Service, since the intended re-use of the site is to be an urban and regional park."*
 - Fourth sentence, 3rd paragraph, Page 4. He asked the sentence be revised to read, *"Mr. West stated the City and the County were going through the required mitigation process for hangars and explained the process involved preparing a written history, a video documentary, and mobile exhibit on the hangars."*
 - Fourth sentence, 1st paragraph, Page 5. He asked the sentence be revised to read, *"Mr. West and Mr. Dana Ogdon, City of Tustin, responded that the appropriate processes would be followed prior to any demolition and that a public hearing may occur if required for the proposed project."*

Mr. West requested the 11 November 2008 meeting minutes be re-submitted for further approval. The motion was seconded by Ms. Norby. Ms. Theroux concurred and noted the edited version of the minutes will be available to members prior to the next RAB meeting. In addition, she noted the request by Ms. Norby to limit slides to one per page would be considered in future handouts and mailers.

ANNOUNCEMENTS/REVIEW OF ACTION ITEMS

Ms. Theroux opened the floor for discussion on the format of RAB Meeting Minutes covered in the last RAB meeting. She asked for any feedback or comments on the new format condensing

the Minutes to include more of the highlights and inclusion of presentation slides as part of the mailers. Mr. Zweifel expressed his dislike with the new format owing to the long interval between RAB meetings and felt strongly about providing as much information and detail in the meeting minutes. He reiterated RAB members and other participants should be kept as informed as their Navy and Agency counterparts who have the advantage of being able to discuss issues and environmental projects on a day-to-day basis. With Ms. Norby's concurrence, he suggested the Minutes be included with the agenda on the day of the RAB. In addition, Ms. Norby requested Program Status Reports be available at the RAB meeting. Ms. Theroux noted previous meeting minutes and all presentation handouts will be made available at the RAB meeting as well as in the mailers; as currently being implemented.

Ms. Theroux opened the floor for discussion on a request made in previous RABs allowing more time to address the delineation of the methyl-tertiary butyl ether (MTBE) plume associated with UST Site 222. Owing to the technical nature and complexity of the subject, the Navy proposes a technical subcommittee to address the subject. Ms. Theroux stated the time frame for the proposed subcommittee meeting would be in Mid-March in the early evening dependant on time and schedule concurrence from interested parties. She asked for a show of hands of those interested in attending and requested they inform either herself, Ms. Arnold (Lead Remedial Project Manager [LRPM]), or Mr. Guiang (CDM) of their availability. Mr. Zweifel, Ms. Norby, Mr. West, Mr. Suarez, Ms. Reynolds, RAB member, Mr. Dana Ogdon, RAB member, and Ms. Patricia Hannon (RWQCB) expressed interest in attending the subcommittee meeting.

Ms. Norby asked if the subcommittee would focus on a particular topic adding that an outline in advance of the meeting would be helpful. Ms. Theroux stated the Navy would focus on the groundwater data the Navy is collecting and intends to focus on questions they are receiving on the program. She also mentioned the Navy would try and prepare some reading materials in advance of the meeting. Acknowledging the broad subject proposed for discussion in the subcommittee, it is the Navy's intent to follow up with a presentation overview to be presented to the RAB as a whole. Mr. Zweifel reiterated there would be no dumbing down on these presentations.

IRP ENVIRONMENTAL STATUS UPDATE

Ms. Theroux opened the floor to discussion on the IRP Environmental Status Update and copies of the update were distributed (Attachment 1) to the RAB. She noted although there are specific dates targeted for several documents there are also tentative dates marked by asterisk on the handout. The Navy will provide further explanation as to why those dates are tentative.

Ms. Theroux began her presentation with an update status on OU-1A and OU-1B which she mentioned was the subject of the evening's RAB presentation, specifically the I-RACR for both sites, which was requested by Mr. Zweifel at the last RAB meeting. Ms. Theroux provided a brief history of associated documents and summarized the next steps in the environmental program at each site.

Ms. Theroux provided an environmental update on OU-4B, which she noted, was the subject of the Public Meeting earlier in the evening. A Proposed Plan (PP) was recently issued and is currently available for public comment review until 6 March 2009. The next step for this

program is the issuance of a Draft Work Plan for Groundwater Monitoring and a Draft Work Plan for Monitoring Well Installation. The Navy is currently working with the Agencies on a date for resolving any comments once the documents are submitted. The Navy is hoping to submit these documents earlier than the 27 February 2009 tentative date to gain quicker concurrence and begin well installation.

Ms. Theroux provided a summary of the MTBE plumes at UST Site 222, the subject of the proposed subcommittee technical discussion. Ms. Theroux opened the floor to any questions of the Environmental Status Update.

Mr. Ogdon asked when the Navy plans on submitting the Final Petroleum Corrective Action Plan (PCAP) Closure Report. Ms. Arnold noted at this point no definitive date can be given as data is being evaluated in accordance with the Final PCAP Report.

Mr. George Linkletter, from Environ on behalf of the SOCCCD, thanked the Navy for providing the update on the environmental status and providing a schedule for submittal of documents.

REGULATORY AGENCY UPDATE

Ms. Theroux referred the RAB to a handout that included all regulatory agency correspondences provided to the Navy since the last RAB meeting held in November 2008.

Mr. Ram Peddada, Project Manager, DTSC

Mr. Peddada provided the following summary of documents currently being reviewed:

- Since the last meeting, the DTSC concurred with the responses to comments submitted for the Draft PP for OU-4B. The Final PP has been submitted and is currently under a 30-day public review. Upon completion of the public review period, the DTSC will prepare a draft Negative Declaration on the action for final approval.

Ms. Patricia Hannon, Project Manager, RWQCB

Ms. Hannon provided the following summary of documents reviewed since the last RAB meeting:

- The RWQCB has conducted and finished the review on the Draft OU-4B PP.
- The RWQCB finished reviewing the 2007 Annual PCAP Summary Report and submitted comments to Navy. Additional information and clarification was requested.
- The RWQCB is currently reviewing the Groundwater Monitoring Reports for OU-1A and -1B and UST Site 222 PCAP.

Mr. Zweifel asked Ms. Hannon if she would like to share any of her concerns with the RAB. Ms. Hannon referred the RAB to the GeoTracker website and stated agency letters are available for viewing. Mr. Zweifel requested the Agency letters be made available for the RAB meetings. Ms. Theroux noted a few copies of the Agency letters were available on the table upon entering

the meeting room. Mr. Peddada noted Mr. Zweifel was on the mailing list to receive all the Agency letters from the DTSC. Mr. Zweifel added however, that not all the RAB members were privileged to this information and therefore it is important these letters be made available for everyone attending the meeting. Ms. Cristina Fu, DTSC Public Participation Specialist, made a suggestion to start an email chain for those interested in receiving technical and public documents on project milestones. Mr. Zweifel applauded Ms. Fu's suggestion. Ms. Norby asked to be included in this email listing. Ms. Theroux stated the Navy will take this suggestion under consideration.

INTERIM REMEDIAL ACTION COMPLETION REPORT (I-RACR) FOR OPERABLE UNIT (OU)-1A AND OU-1B

Mr. Cardinale, Navy RPM, provided his presentation slides titled "Interim Remedial Action Completion Report (I-RACR) for Operable Unit (OU)-1A and -1B" (Attachment 2) to the RAB. His presentation provided an overview of the site closeout documents, the purpose and contents of the I-RACR, Remedial Action Objectives (RAOs), Containment and Treatment System figures, and upcoming milestones. In addition, the presentation covered the chemicals of concern (COCs), associated cleanup remediation goals, and selected remedies for the site, specifically hydraulic containment with hot spot removal and institutional control (ICs). The I-RACR is a component of the site close out document process that demonstrates the remedy for the sites has been constructed.

Mr. Cardinale provided a summary of the site closeout documents for OU-1A and OU-1B and showed a timeline for the documents. The documents include two separate Records of Decision (RODs) for each site (OU-1A and OU-1B) issued October 2004, Remedial Design/Remedial Action Work Plan issued in June 2007, and the Final I-RACR issued in December 2009. A Draft Operating Properly and Successfully (OPS) Report is proposed for March 2009.

Mr. Cardinale explained the largest portion of the I-RACR was the section discussing remedial actions. This section discusses the remedial actions performed from preconstruction to post-construction phases including monitoring, observation and extraction wells, pumps, conveyance piping, and all treatment systems.

The selected remedy for OU-1A and OU-1B entails a series of extraction wells (EWs) (nine EWs at OU-1A, four at OU-1B North, and eight at OU-1B South). In addition, ICs are implemented to prohibit the use of the groundwater at the site.

Mr. Cardinale showed a series of slides with Figures outlining the location of the plumes and treatment systems in addition to the locations of the EWs at all the sites which are categorized as either "hot-spot" wells (located in area of the plume where concentrations are highest) or "hydraulic control wells" (located down gradient of the plume for the purpose of stabilizing, containing and/or capturing the contaminant). He added the conveyance systems were constructed of single-wall (OU-1B North) and double-wall high density polyethylene (HDPE) piping (OU-1A and OU-1B South). Double-wall piping was used in the source areas where influent concentrations were expected to exceed 300 micrograms per liter ($\mu\text{g}/\text{L}$).

Mr. Zweifel asked where the educational Carve-Out parcels were located in relation to the plumes. Mr. Ogdon replied the carve-outs are to the west of most of the plumes. Only a small portion of the UST Site 222 is affected by the Carve-Out.

Ms. Norby asked Mr. Cardinale to clarify the differences in the plumes depicted on the slide versus the ones depicted on the poster board. Mr. Cardinale stated the plumes presented on the slides reflect the most current shape of the plume based on the most current (quarterly) groundwater data.

Mr. Cardinale showed the RAB cross-section details of a typical extraction well and conveyance trench which in addition to many as-built drawings would be included as part of the Appendices of the I-RACR.

Mr. Zweifel asked whether down-time was experienced during system operation. Mr. Cardinale noted the systems were operating close to 95% efficiency and the only down-time experienced was during the first months of operation. However, the overall the system is running very efficiently. ECS is the current contractor who performs operation and maintenance (O & M) activities.

Mr. Cardinale finished his presentation and opened the floor for any questions or comments. Mr. Suarez asked what type of concentrations could be expected in the areas immediately outside the perimeter of the 1,2,3-trichloropropane (TCP) plume. In addition, he questioned the precision of the outer limits of the plume and asked if there is a +/-10 error factor considered when they are depicted on a map. Mr. Cardinale noted the perimeter of the plume was defined by the cleanup goal or remediation goal for TCP of 0.5 µg/L. Mr. Cardinale referred the question to Mr. Callian who further explained the perimeter of the plume is derived by applying an equation which takes into account the distance between two monitoring wells and the logarithmic distribution of contaminants in groundwater in those wells. The equation allows one to calculate where the contour lies between the two monitoring wells both inside and outside the plume using interpolation and extrapolation techniques. Mr. Cardinale noted that in the best case scenario, low concentrations would be detected within the plume and non-detect results outside the plume allowing for interpretation of the plume perimeter. Mr. Callian added this is why the shape of plumes change and minor variations are observed quarterly.

Ms. Theroux added the nature of this discussion will be the type addressed in the proposed subcommittee technical meeting tentatively scheduled for mid-March.

Ms. Norby asked what dates the plumes shown on the poster board represent. Ms. Arnold explained although the poster board has a May 2008 date, the plumes may reflect the last results from groundwater monitoring data available at that time or last quarterly report. She further added, that Mr. Cardinale's presentation and the plumes from the figures shown in the slide presentation reflect the latest quarterly groundwater sampling. Ms. Norby noted the plume maps were very helpful in showing the current conditions.

Ms. Theroux asked if there were any more questions on the presentation. In reference to slide 10, Ms. Norby asked why the remedy for OU-1A and OU-1B was hydraulic containment with hot spot removal and ICs when the primary components appear to be "pump-and-treat". Mr. Cardinale explained part of the optimization process involved with the hydraulic containment

remedy chosen for the site is to decrease and minimize flow rates to achieve stabilization as the plumes are contained and migration down gradient is halted. A pump-and-treat system requires a higher volume to remove the mass as quickly as possible.

Mr. Callian provided further clarification stating the hydraulic containment remedy involves the use of EWs which serve two purposes at the sites. They provide hydraulic containment of the downgradient extent of the plume and provide a pump-and-treat function for mass removal in the upgradient hot-spot areas. When the EWs used for pump-and-treat are no longer needed for mass removal, the wells will be turned off and the system will rely solely on hydraulic containment. The reason why the sites operate under a hydraulic containment system is based on the nature of the contaminants and the soil matrix; in this case, 1,2,3-TCP partitions more into the soil than into groundwater. 1,2,3-TCP, diffuses into the groundwater at a constant (slow) rate therefore regardless of the pumping rate, the contaminant can only be extracted at the rate it diffuses into the groundwater. In contrast, Mr. Callian used MTBE as a contaminant which partitions more readily to groundwater. He noted the rate to which MTBE can be extracted is dependent on how fast the contaminant is pumped out of the aquifer. Ms. Arnold noted it would be helpful to review the remedial action objectives (RAOs), which state the primary objective is achieving plume stabilization and prevention of contaminant migration which are consistent with hydraulic containment.

In reference to the RAOs, Ms. Norby asked for further clarification on the first bullet item. She asked if volatile organic compound (VOC) concentrations do not meet remediation goals, will the plume stabilization alone be enough to say the objectives have been met. Ms. Arnold explained at this point continued monitoring of the plume, to include potentially turning off the wells at the toe of the plume, would take place to make sure RAOs have been met meaning the plume has stabilized. Mr. Callian added the monitoring process would continue until all concentrations within the plume were reduced to below remediation goals. He noted concentrations would be reduced by natural processes including dispersion, diffusion, and biological activities. Ms. Norby argued her point that the first RAO listed in Slide 9 should be separated by "and" rather than "or" and asked whether an assumption is being made that plume stabilization implies remediation goals have been met. Mr. Callian explained remediation goals define the edge or outline of the plume and at some point it comes into equilibrium with the natural degradation processes which result in the dispersion and dissipation of the plume. The plume stabilizes at some point without any pumping at all. Mr. Callian noted the take home message from this discussion was that after all the EWs (both containment and hot-spot wells) have been shut down, continued monitoring will take place to insure all concentrations are below remediation goals.

Mr. Cardinale added there are a series of flow charts in the RA Work Plan included in the O&M Plan that outlines the processes involved in optimization of the systems. These include criteria for optimization of the EWs.

Ms. Norby asked what type of activities were going on above ground in this area at this time and whether re-use will be put on hold until remediation goals have been reached. Ms. Arnold explained that the area is part of a Carve-Out parcel. She added transfer of any kind will undergo a formal process and before the OU-1A and -1B property can be transferred, an Operating Properly and Successfully (OPS) determination has to be made which states the

remedy is in-place and is operating properly as proposed in the ROD or RD. One major criterion in determining whether a remedy is OPS is by determining whether that at some point in time, the remedy will meet the RAOs. After this OPS determination, another chain of documents will be issued. Ms. Norby received confirmation from Ms. Arnold that until that time, the property is still under Navy control.

Mr. Zweifel noted that in 1994, Best Conventional Technologies (BCT) such as pump-and-treat were first introduced as the best technology for that time followed by Best Available Technologies (BAT) and the current Best Practicable Technologies (BPT) which implements different cleanup technologies. He applauded the Navy on the innovative technology currently being implemented at MCAS Tustin sites.

FUTURE TOPICS/SCHEDULE NEXT RAB AND SUBCOMITTEE MEETINGS/MEETING EVALUATION AND CLOSING

Ms. Theroux provided a summary of Action Items from the RAB meeting and asked the RAB for their thoughts or comments on the meeting room layout. Ms. Norby requested having tables available for all the RAB members and appreciated being close to the screen and podium. Ms. Arnold thanked Mr. West for helping facilitate the Tustin Senior Center for the Public Meeting and RAB meeting. Ms. Theroux announced the next RAB meeting is scheduled for 13 May 2009 and mailers will be issued to all participants well in advance.

Ms. Theroux opened the floor up for any future topics.

Assuming the subcommittee technical meeting would take place well in advance of the next RAB meeting, the Navy will consider providing a summary of the technical discussion and next groundwater monitoring report prior to the RAB meeting.

Mr. Zweifel requested an update from the City of Tustin with regard to reuse. He expressed interest in knowing what impact the economy has had on the Tustin Legacy. Ms. Theroux reiterated the purpose of the RAB meeting was to focus on the Navy's on-going environmental remediation effort and she welcomed discussion of reuse after the scheduled RAB. Mr. Zweifel argued that the ultimate driver for remediation and restoration of these sites is reuse. Ms. Hannon disagreed and noted the purpose of the RAB is to discuss impact to resources, specifically groundwater and the Navy's responsibility to clean it up. She noted this is the primary reason or driver and not reuse. Ms. Arnold concurred with Ms. Hannon's assessment and reiterated the function of the RAB is to focus on the cleanup.

In closing, Ms Theroux thanked everyone for attending and the meeting was adjourned.

LIST OF HANDOUTS PROVIDED AT THE MEETING

- February 11, 2009 Former MCAS Tustin RAB Meeting Agenda
- RAB Meeting Schedule
- Former MCAS Tustin - Where to Get More Information
- Environmental Websites
- MCAS Tustin Environmental Program Status

- Presentation Slides: "Interim Remedial Action Completion report (I-RACR) for Operable Unit (OU)-1A and -1B "
- Former MCAS Tustin RAB Mission Statement
- Former MCAS Tustin RAB Fact Sheet/Membership Application
- Former MCAS Tustin Mailing List Coupon

Copies of the meeting minutes and handouts provided at the 11 February 2009 RAB meeting are available at the CERCLA IR for former MCAS Tustin located at the University of California, Irvine, Main Library, Government Publications Section. Library hours are 8am to 7pm Monday through Thursday; 8am to 5pm Friday and Saturday; and 1pm to 5pm on Sunday. It is recommended that people call the library for confirmation of these hours as they may be modified during final exam and holiday periods. The Government Publications Section may be reached at (949) 824-7362. In addition, copies of the meeting minutes and handouts are also available at the CERCLA AR File maintained at Building 307 at former MCAS El Toro by Ms. Rawal. Documents can be viewed by appointment (call Ms. Rawal at [949] 726-5398) between 9am and 1pm Monday through Thursday.

Final minutes from previous RAB meetings can be found on the internet at the Navy BRAC 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/>

For Tustin RAB information:

http://www.bracpmo.navy.mil/bracbases/california/tustin/rab_information.aspx

Department of Defense - Environmental Cleanup Home Page Web Site:

<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

Link to Envirostor via U.S. EPA: www.epa.gov/region09/EnviroStor.html

Cal/EPA:

Homepage: www.calepa.ca.gov

Department of Toxic Substances Control: www.dtsc.ca.gov

Department of Toxic Substances Control: www.envirostor.dtsc.ca.gov/public

Department of Health Services, reorganized into the Department of Health Care Services and the Department of Public Health: www.dhs.ca.gov

Santa Ana Regional Water Quality Control Board: www.waterboards.ca.gov/santaana

Environmental data for regulated facilities in California: www.geotracker.waterboards.ca.gov

MCAS TUSTIN ENVIRONMENTAL PROGRAM STATUS

Operable Unit 1A (Site 13South – 1,2,3-TCP plume)

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 of contaminated groundwater;
 - Construction, operation, and maintenance of hydraulic containment system;
 - Hot-spot soil removal to enhance groundwater remedy and;
 - Implementation of institutional controls.
- 2007: Final Remedial Design and Remedial Action Implementation.
- December 2007: North treatment system operational.
- July 2008: Issued 1st Quarter Groundwater Progress Monitoring Report.
- July 2008: Issued Draft Interim-Remedial Action Completion Report (I-RACR). The main purpose of the I-RACR is to document that the remedy has been constructed.
- October 2008: Issued 2nd Quarter Groundwater Progress Monitoring Report.
- December 2008: Issued Final Interim-Remedial Action Completion Report (I-RACR).
- January 2009: 3rd Quarter Groundwater Progress Monitoring Report.

Next steps:

- On-going operation and maintenance activities.
 - Biweekly, monthly and quarterly inspections;
 - Quarterly effluent sampling for compliance with Orange County Sanitation District discharge requirements; and
 - Quarterly groundwater monitoring.
 - Data used to track system performance and optimize system.
- **March 6, 2009**: Issue Draft Long Term Operation and Maintenance Plan (OMP).
- **May 7, 2009**: Issue Draft 2008 Annual OU-1A and OU-1B Annual Performance Evaluation Report.
- **May 27, 2009**: Issue Draft Operating Properly and Successfully (OPS) Report.
- **July 7, 2009**: Issue Draft Final Long Term OMP.
- **September 30, 2009**: Issue Draft Final OPS Report.

Operable Unit 1B (Sites 3 and 12 --TCE plumes)

Carve-Outs: CO-5 and CO-6

Brief Project History:

- 2004: Final Record of Decision (ROD): Selected remedy includes:
 - Hydraulic containment of contaminated groundwater;
 - Construction, operation, and maintenance of a hydraulic containment system;
 - Hot-spot soil removal to enhance groundwater remedy and;
 - Implementation of institutional controls.
- 2007: Final Remedial Design and Remedial Action Implementation.
- December 2007: North treatment system operational.
- July 2008: Issued 1st Quarter Groundwater Progress Monitoring Report.
- July 2008: Issued Draft Interim-Remedial Action Completion Report (I-RACR). The main purpose of the I-RACR is to document that the remedy has been constructed.
- October 2008: Issued 2nd Quarter Groundwater Progress Monitoring Report.
- December 2008: Issued Final Interim-Remedial Action Completion Report (I-RACR).
- January 2009: 3rd Quarter Groundwater Progress Monitoring Report.

MCAS TUSTIN ENVIRONMENTAL PROGRAM STATUS

Operable Unit 1B (Sites 3 and 12 --TCE plumes) Continued:

Next steps:

- On-going operation and maintenance activities.
 - Biweekly, monthly, and quarterly inspections;
 - Quarterly effluent sampling for compliance with Orange County Sanitation District discharge requirements; and
 - Quarterly groundwater monitoring.
 - Data used to track system performance and optimize system.
- **March 6, 2009**: Issue Draft Long Term Operation and Maintenance Plan (OMP).
- **May 7, 2009**: Issue Draft 2008 Annual OU-1A and OU-1B Annual Performance Evaluation Report.
- **May 27, 2009**: Issue Draft Operating Properly and Successfully (OPS) Report.
- **July 7, 2009**: Issue Draft Final Long Term OMP.
- **September 30, 2009**: Issue Draft Final OPS Report.

Operable Unit 4B (IRP-5S[a], IRP-6, IRP-11, IRP-13W, MMS-04, and Mingled Plumes Area [MPA])

Carve-Outs: CO-5 and CO-6

Brief Project History:

- 2000: Draft OU-4 Focused Feasibility Study (FS).
- 2003: OU-4 Shallow Groundwater Investigation.
- 2004: OU-4 Technical Memorandum presents results of shallow groundwater investigation.
- 2005-2006: Groundwater Monitoring.
- 2007: IRP-6 and MPA Supplemental Investigation.
- September 2008: Final Technical Memorandum Supplemental Investigation at IRP-6 and MPA.
- October 2008: Final FS Report.
- February 2009: Proposed Plan. Public comment period: February 04 – March 06, 2009

Next steps:

- **February 27, 2009***: Issue Draft Work Plan for Installation of Groundwater Monitoring Wells at OU-4B (MPA, MMS-04, IRP-11, and IRP-13W)
- **February 27, 2009***: Issue Draft Work Plan for Groundwater Monitoring OU-4B
- **June 15, 2009**: Issue Draft ROD.
- **October 19, 2009**: Issue Draft Final ROD.

* Tentative dates

MCAS TUSTIN ENVIRONMENTAL PROGRAM STATUS

MTBE Plume (UST Site 222)

Carve-Outs: 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 shut down for rebound monitoring per the Final PCAP requirements.
- December 2008 – Issue 1st and 2nd Quarter Groundwater Progress Monitoring Report

MTBE Plume (UST Site 222) Continued:

Next steps:

- On-going operation and maintenance activities.
 - Quarterly groundwater monitoring.
 - Data used to track system performance, optimize system, and support Final PCAP Closure Report.
- Quarterly effluent sampling for compliance with Orange County Sanitation District discharge permit requirements.
- **March 16, 2009** – Issue 3rd Quarter Groundwater Progress Monitoring Report.
- **July 15, 2009** – Issue Annual 2008 PCAP Progress Report.

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 areas 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 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

MCAS TUSTIN ENVIRONMENTAL PROGRAM STATUS

Acronyms					
AST	Aboveground Storage Tank	MNA	Monitored Natural Attenuation	PS	Public Sale Parcel
AOC	Area of Concern	MPA	Mingled Plumes Area	RCRA	Resource Conservation and Recovery Act
BCT	BRAC Cleanup Team (Navy, EPA, Cal EPA)	MMS	Miscellaneous Major Spill	ROD	Record of Decision
CO	Carve-Out area	NFA	No Further Action	TCE	Trichloroethene
EE/CA	Engineering Evaluation/ Cost Analysis	OMP	Operations and Maintenance Plan	TCP	1,2,3-Trichloropropane
FOSL	Finding of Suitability to Lease	OPS	Operating Properly and Successfully	ug/L	Micrograms per liter
FOST	Finding of Suitability to Transfer	OU	Operable Unit	UST	Underground Storage Tank
FS	Feasibility Study	PCAP	Petroleum Corrective Action Program	WBZ	Water-Bearing Zone
		MTBE	Methyl tert butyl ether		



Interim Remedial Action Completion Report (I-RACR) for Operable Unit (OU) -1A and -1B

**Former Marine Corps Air Station Tustin
Restoration Advisory Board Meeting
11 February 2009**

Louie Cardinale, P.E.
Navy BRAC Remedial Project Manager



Presentation Overview



- **Site Closeout Documents**
- **Purpose and Contents of the I-RACR**
- **OU-1A and OU-1B Remedy and Remedial Action Objectives (RAOs)**
- **OU-1A and OU-1B Contaminant and Treatment System Figures**
- **Upcoming Activities and Milestones**



Site Closeout Documents



Record of Decision (ROD)

Document that describes the selected remedy at OU-1A and 1B and reasons for the selection based on the nine criteria in the NCP.

Remedial Design (RD) /Remedial Action Work Plan (RAWP)

Document that provides the actual design of the remedy (RD) at OU-1A and -1B and plans for how the remedy will be staged and implemented (RAWP).

Interim Remedial Action Completion Report (I-RACR)

Document that demonstrates that the remedy for OU-1A and -1B has been constructed.

Operating Properly and Successfully (OPS) Report

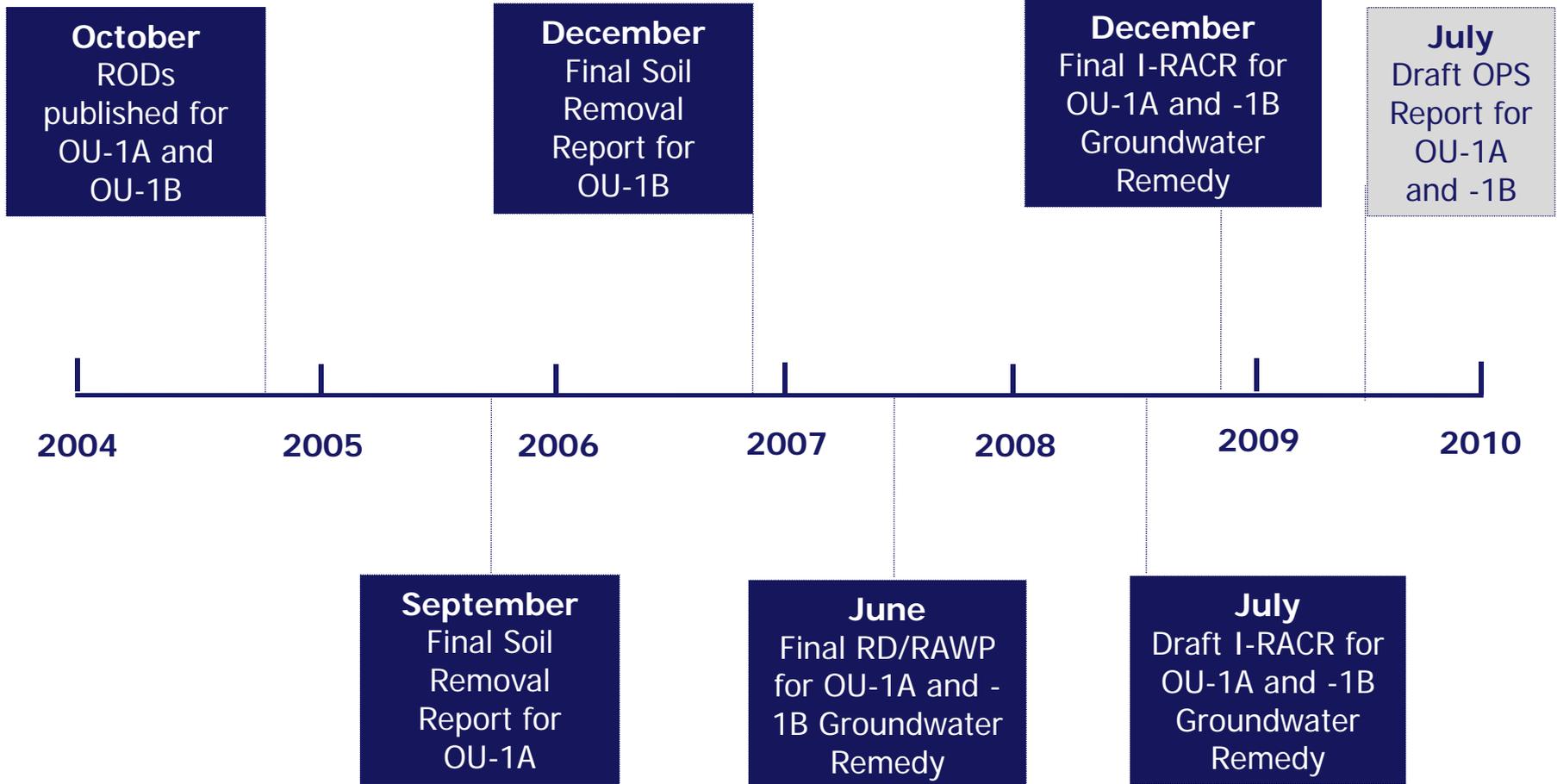
Document that demonstrates that the remedy for OU-1A and -1B is in place and operating properly and successfully.

Remedial Action Completion Report (RACR)

Document that demonstrates that the remedial action objectives have been met for the site and remedies have been completed.



Site Closure Documents for OU-1A and OU-1B





Purpose of I-RACR



- **Component of the site close-out document process for the completion of the final Comprehensive Environmental Response Compensation and Liability Act (CERCLA) remedial action.**
- **Summarizes remedial action implemented in accordance with the Final RODs and Final RD/RAWP.**
- **Demonstrates the successful installation, startup, and operation of the extraction and treatment systems.**



I-RACR Contents



- **Project Overview (site description and history)**
- **Remedial Action Objectives**
- **Remedial Action (discusses actions performed)**
- **Demonstration of Completion (site inspection and testing results)**
- **Ongoing Activities (operation, maintenance, and monitoring)**
- **Community Involvement**
- **Certification Statement**



OU-1A and OU-1B Remedies



The final remedies are documented in the:

- Final ROD/Remedial Action Plan (RAP), Operable Unit 1A (2004).
- Final ROD/RAP for OU-1B (2004)

Remedy Components:

- Construction, operation, and maintenance of a groundwater extraction, treatment, and monitoring system
- Soil removal to optimize the groundwater remedy
- Institutional Controls to prevent extraction and use of shallow contaminated groundwater



OU-1A and OU-1B Chemicals of Concern



Primary Chemicals of Concern (COC's)

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:

- 1,2,3-TCP remediation goal = 0.5 micrograms per liters ($\mu\text{g/L}$)
- TCE remediation goal = 5 $\mu\text{g/L}$



OU-1A and OU-1B Remedial Action Objectives



- Reduce concentrations of volatile organic compounds (VOCs) in groundwater to levels consistent with remediation goals, 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 remediation goals 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 remediation goals.
- Implement appropriate remedial actions as necessary to facilitate the transfer and reuse of the properties.



OU-1A and OU-1B Remedy



Selected remedy for OU-1A and OU-1B:

- **Hydraulic Containment with Hot Spot Removal**
- **Institutional Controls**

Three primary components:

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



Remedial Action



- **Total of 21 extraction wells (EWs)**
 - **9 EWs at OU-1A System**
 - **4 EWs at OU-1B North System**
 - **8 EWs at OU-1B South System**
- **Extraction well vaults constructed below ground surface**
 - **Each vault contains mechanical and electrical components which control pump operation**



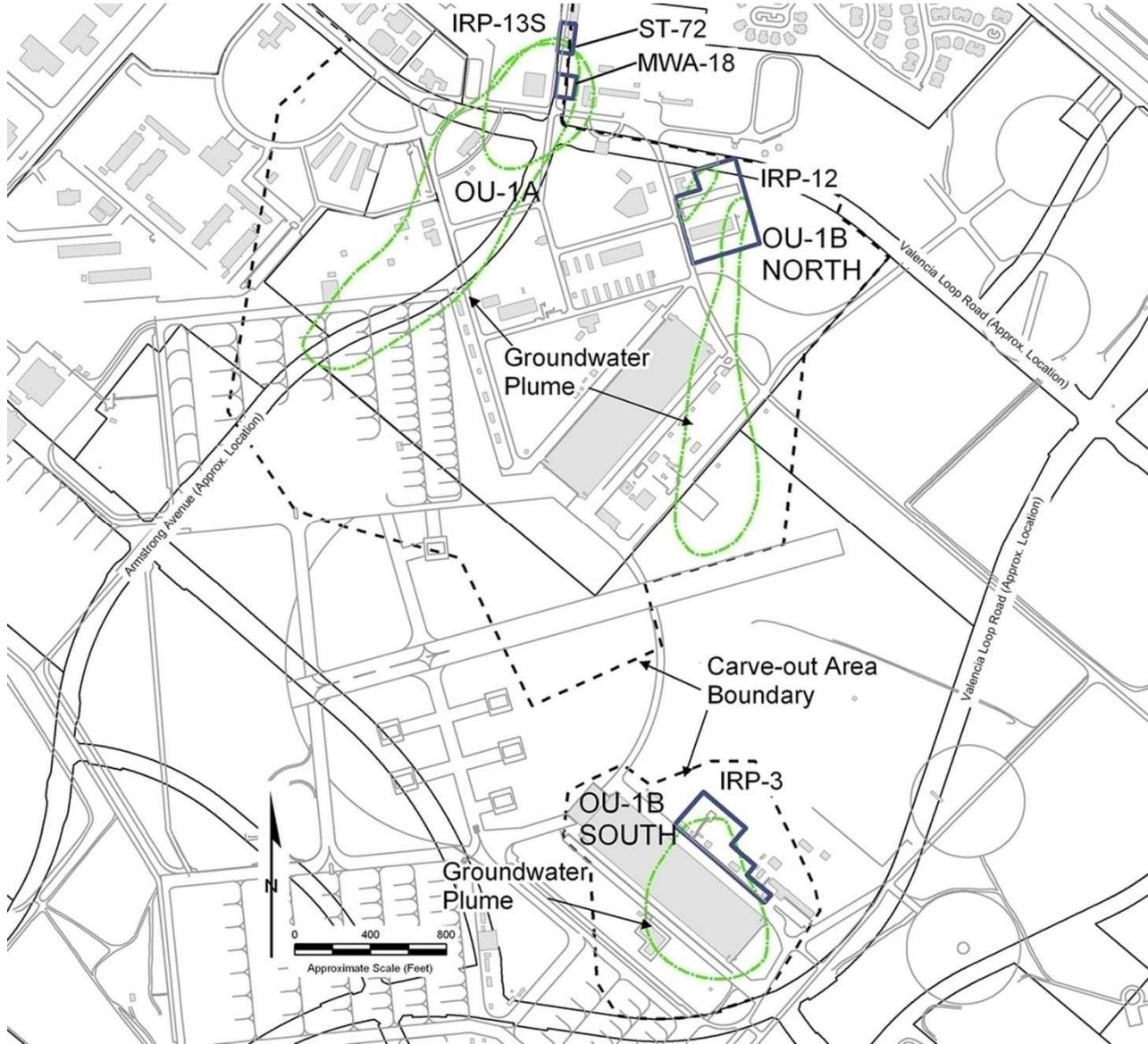
Remedial Action (continued)



- **Conveyance System**
 - **High density polyethylene piping and underground junction boxes**
- **Treatment systems**
 - **Process equipment: holding tank, feed pump, 3 granulated activated carbon (GAC) vessels**
 - **Control equipment: level sensors, pressure gauges, master control panel, and communication system**

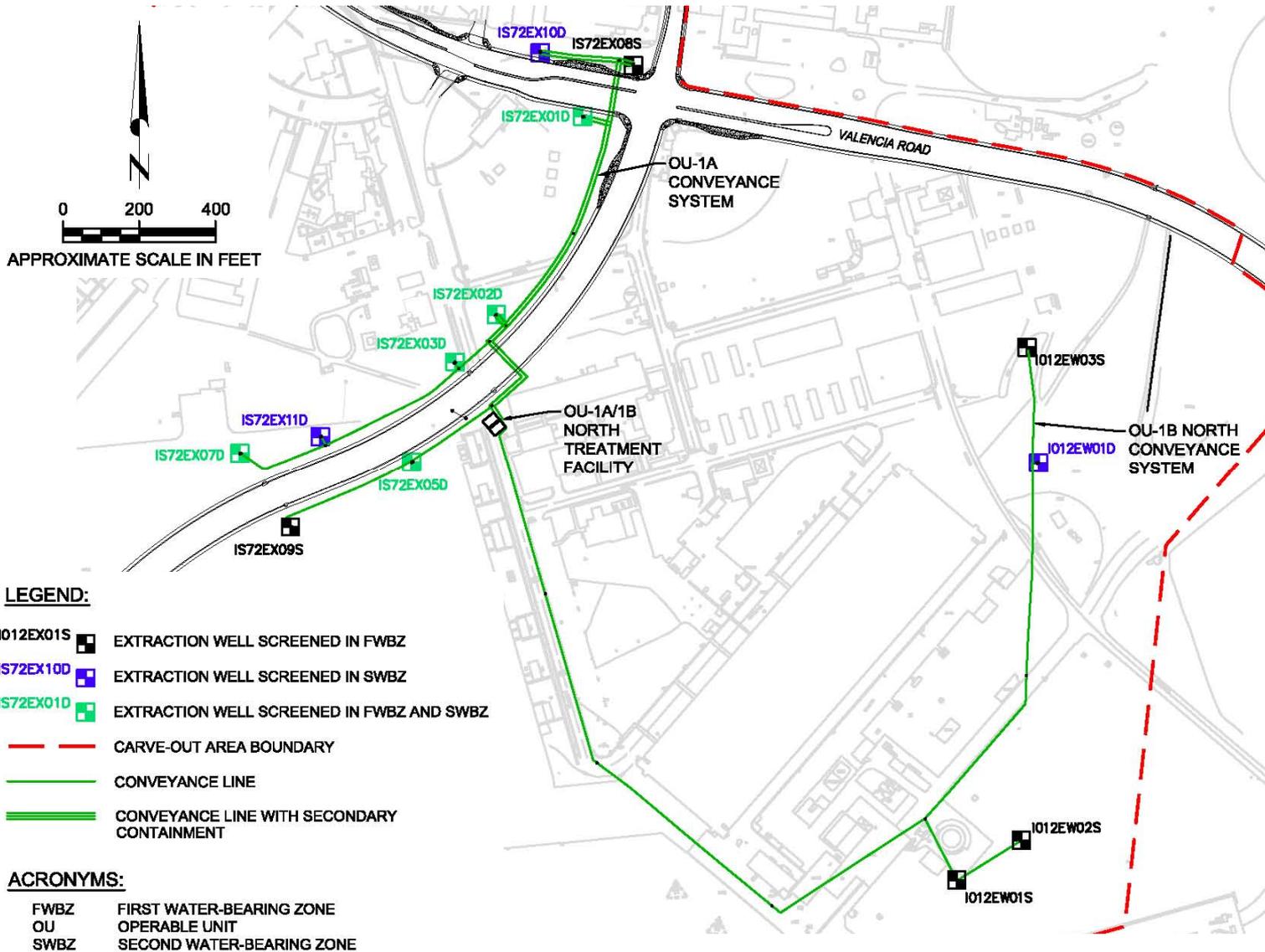


Groundwater Plumes at OU-1A and OU-1B





OU-1A and OU-1B North System





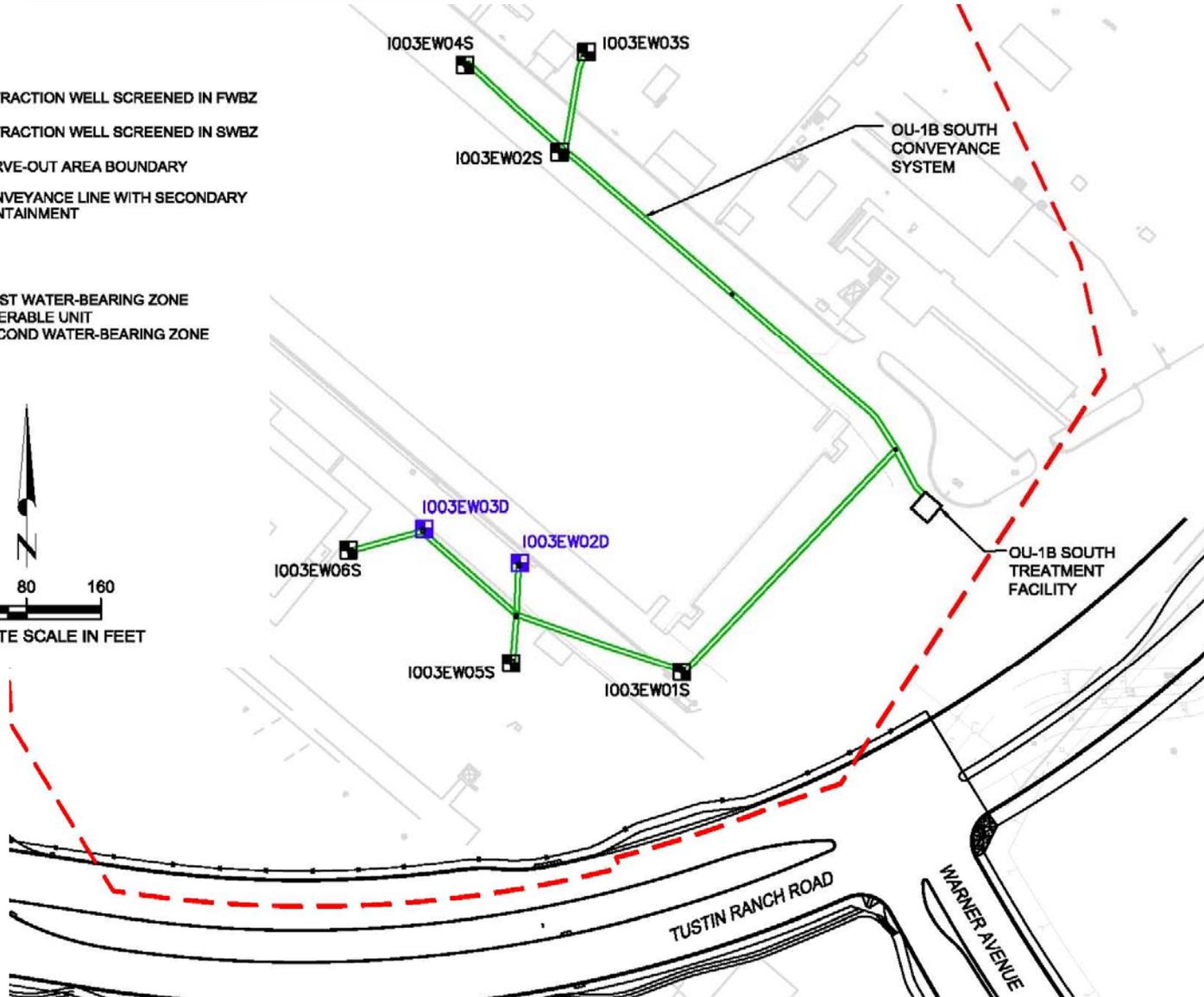
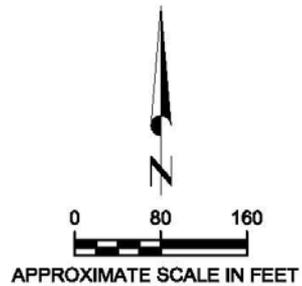
OU-1B South System

LEGEND:

- 1003EW06S ■ EXTRACTION WELL SCREENED IN FWBZ
- 1003EW03D ■ EXTRACTION WELL SCREENED IN SWBZ
- - - CARVE-OUT AREA BOUNDARY
- CONVEYANCE LINE WITH SECONDARY CONTAINMENT

ACRONYMS:

- FWBZ FIRST WATER-BEARING ZONE
- OU OPERABLE UNIT
- SWBZ SECOND WATER-BEARING ZONE





Treatment System Buildings



Treatment Building at OU-1A and OU-1B North



Treatment Building at OU-1B South



Treatment Building Interior



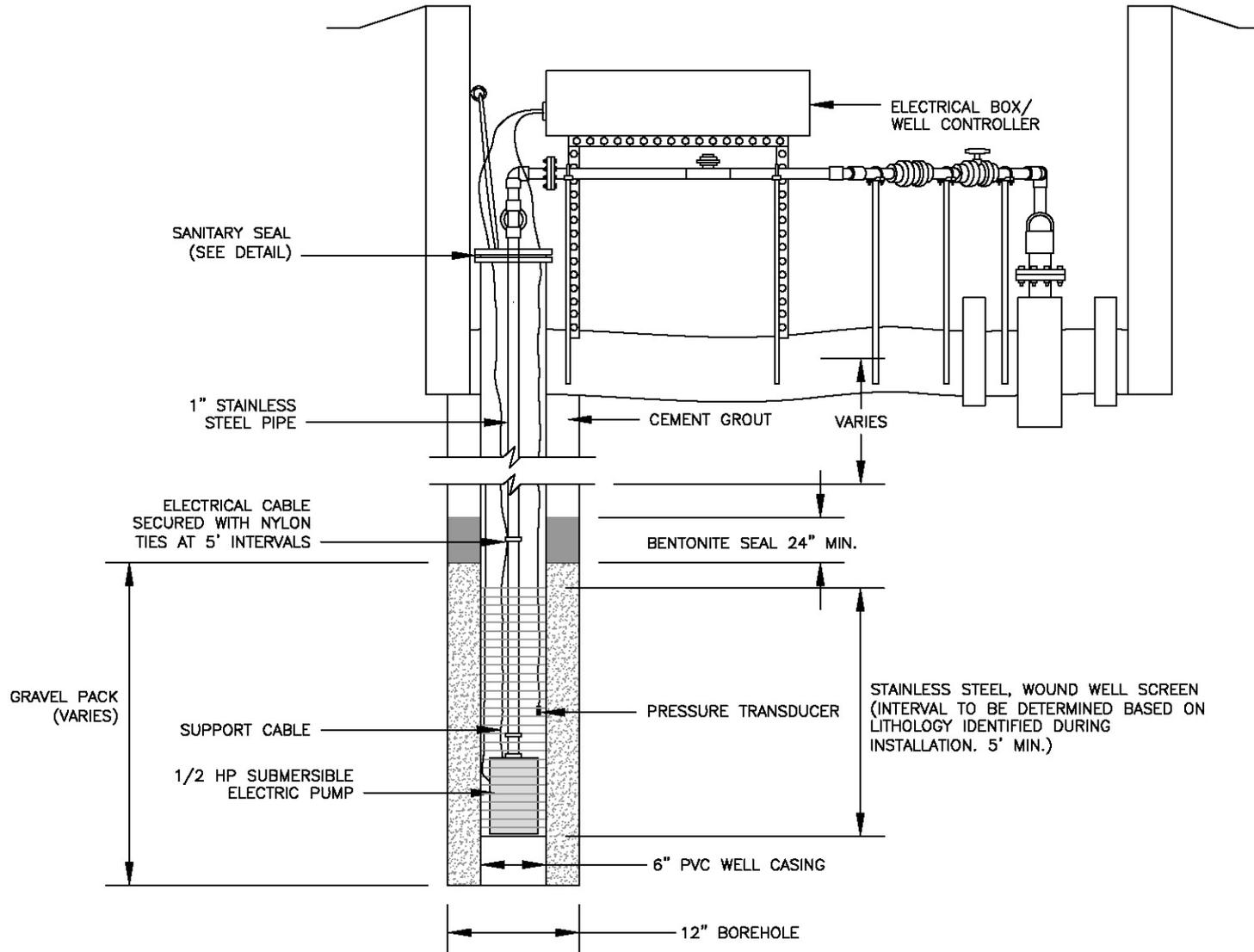
Carbon Filter Units and Manifold



Electrical and Control System Panels

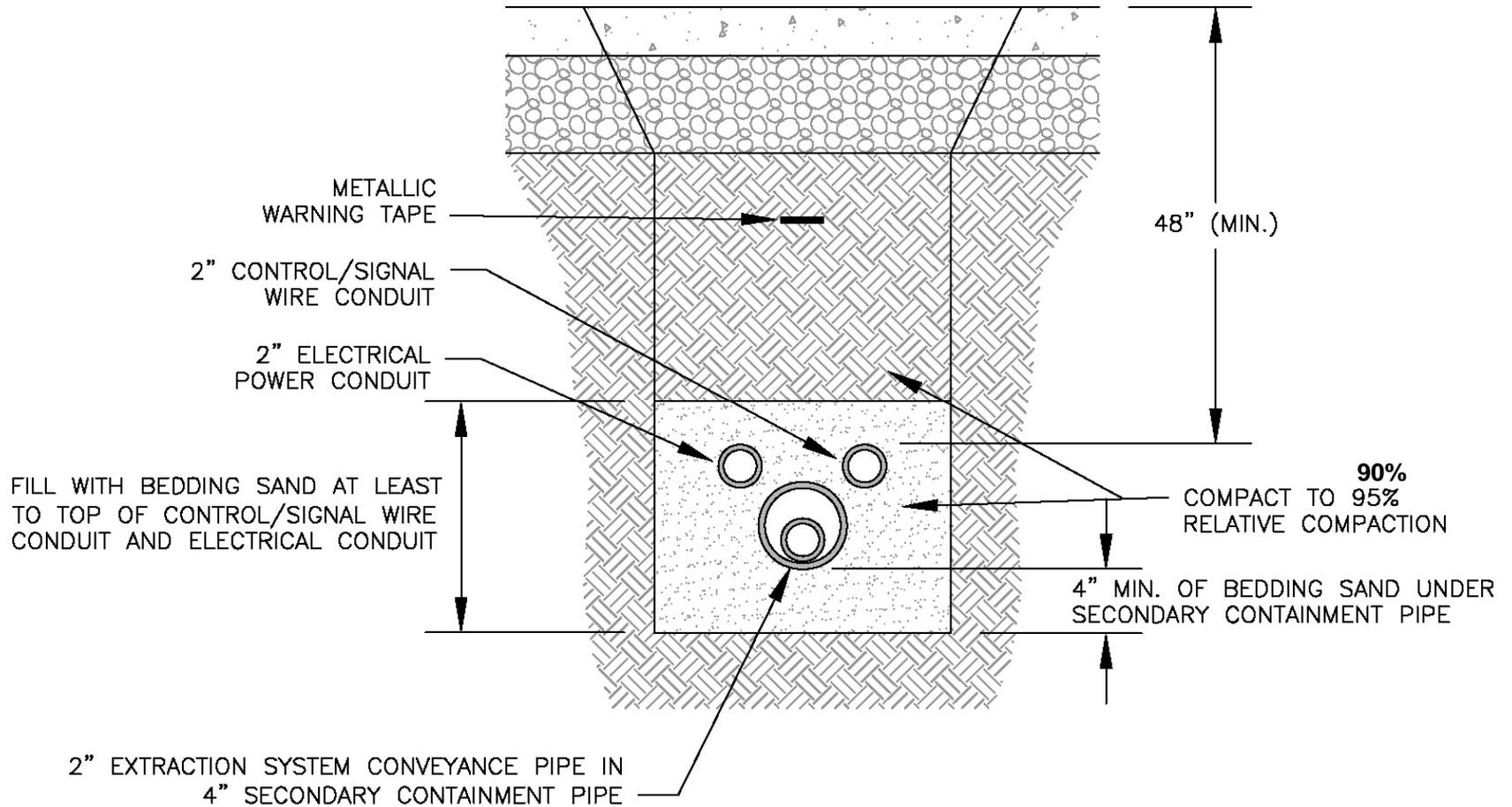


Extraction Well Detail





Conveyance Trench Detail





Demonstration of Completion



Remedial action implemented between June and December 2007

- **OU-1A/-1B North treatment system was started on November 16, 2007.**
- **OU-1B South treatment system was started on December 26, 2007.**

Testing and inspections verified that remedial action was completed in accordance with Remedial Design

- **Test results and inspection reports are provided in I-RACR appendices.**



Ongoing Activities



Regular Inspections and Maintenance:

- **Biweekly inspections (treatment plants)**
- **Monthly inspections and maintenance (treatment plants); sampling to verify effectiveness of GAC treatment.**
- **Quarterly inspections and maintenance (treatment plants and extraction wells); sampling of effluent to comply with Orange County Sanitation District discharge requirements.**



Ongoing Activities (continued)



Quarterly Groundwater Monitoring

- Water level measurements (130 wells) to evaluate groundwater flow directions.
- Groundwater sampling (50 wells) to delineate the plume.
- Groundwater sampling at 21 EWs to evaluate system performance.

All of the above information is used to optimize the extraction systems.



Upcoming Milestones



Draft Operation and Maintenance (O&M) Plan (March 2009)

- **Outline long-term O&M, monitoring, and optimization procedures**

Draft 2008 Annual Groundwater Remedy Status Report (May 2009)

- **Present results from O&M monitoring, including conclusions and recommendations based on the data.**

Draft Operating Properly and Successfully (OPS) Report (July 2009)

- **Determination that systems are OPS in accordance with USEPA guidelines.**



List of Acronyms



COC	chemical of concern
EW	extraction well
GAC	granulated activated carbon
I-RACR	interim remedial action completion report
IRP	Installation Restoration Program
O&M	operation and maintenance
OCSD	Orange County Sanitation District
OPS	operating properly and successfully
OU	operable unit
RAWP	remedial action work plan
RD	remedial design
ROD	record of decision
TCE	trichloroethene
TCP	trichloropropane
µg/L	micrograms per liter
VOC	volatile organic compound



Questions?

