



Final

FORMER MARINE CORPS AIR STATION (MCAS) El Toro

103rd Restoration Advisory Board (RAB) Meeting Minutes

Meeting Location: Irvine City Hall, Conference and Training Center (CTC), Irvine California

Meeting Date/Time: 27 April 2011/ 7:45 PM to 8:45 PM

Minutes Prepared by: Michael Allen, CDM Federal Programs Corporation (CDM)

Attachments:

Presentation Slides: Installation Restoration Program (IRP) Site 24 Groundwater Remedy Update; and the Irvine Desalter Project - IRP Site 18 Principal Aquifer Update

WELCOME/INTRODUCTIONS/AGENDA REVIEW:

Mr. Jim Callian, Base Realignment and Closure (BRAC) Environmental Coordinator (BEC) and Navy RAB Co-Chair, welcomed everyone to this Former MCAS El Toro 103rd RAB meeting. Mr. Bob Woodings, RAB Community Co-Chair, noted that Mr. Peter Hirsch was granted an excused absence for tonight's RAB meeting. Mr. Callian asked Ms. Marcia Rudolph, RAB member and Subcommittee Chair, to lead the Pledge of Allegiance. Mr. Callian asked that RAB members who know they are going to be absent to please inform either Mr. Woodings or Mr. Callian, using the contact information provided on the handouts. Self-introductions proceeded; total of 23 people were in attendance.

ANNOUNCEMENTS/ REVIEW OF ACTION ITEMS:

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

- Mr. Callian referenced the meeting agenda for old business, new business, and the subcommittee report.
- Mr. Callian announced that tonight's presentations would discuss the status of the groundwater remedy at IRP Sites 18 and 24. Tonight's meeting has a later start time because it was preceded by the Public Meeting that presented the Proposed Plan for the groundwater remedies at IRP Sites 1 and 2.
- Mr. Callian reviewed the RAB meeting agenda; no changes to the agenda were suggested by the RAB.
- Mr. Callian presented a series of slides listing dates and times for the upcoming 2011 quarterly RAB meetings scheduled for 31 August 2011 and 09 November 2011. In addition, he presented slides listing key Navy and Regulatory Agency contacts, RAB points of contact, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Administrative Record (AR) File and Information Repository (IR) locations and hours, and environmental and reuse/redevelopment websites.

- Mr. Callian reiterated the RAB's focus is on environmental issues and cleanup for property transfer, and not on reuse topics.
- Mr. Callian reminded everyone to please sign-in for tonight's RAB meeting.

Mr. Callian opened the discussion of old business by noting the RAB had requested information regarding the effects of the December 2010 rainstorms on the landfills. Mr. Marc Smits, Navy Remedial Project Manager (RPM), summarized recent landfill inspections. The Navy, with Mr. John Broderick, California Regional Water Quality Control Board (RWQCB), and Mr. Quang Than, California Department of Toxic Substances Control (DTSC), completed inspections of all five landfills at IRP Sites 2, 3, 5, Anomaly Area 3 (AA 3), and IRP Site 17. Their observations were briefly discussed. Although a few small areas required surficial repairs for erosion earlier this year, the vegetation cover was well established and erosion was minimized. All areas of the five landfills were reported to be in very good condition.

Mr. Callian discussed the previous request from RAB members for site tours. Mr. Callian asked if the RAB members would like to have the 31 August 2011 RAB meeting at El Toro Building 307 and then proceed to take a landfill tour. The RAB accepted this idea and Mr. Callian requested that interested individuals provide their contact information and he would coordinate an appropriate time for the tour.

The last old business item was to provide a description of IRP sites in the cleanup process for which transfer is pending through completion of the Finding of Suitability to Transfer (FOST). These properties were color-coded on a map with the legend identifying the FOST number and the year planned for completion. A slide showing the few property parcels remaining to be transferred was discussed and Mr. Callian asked if there were general questions about the properties. The map is draft and not available for public distribution.

APPROVAL OF 26 JANUARY 2011 RAB MEETING MINUTES:

Mr. Callian opened the floor for discussion, questions, or corrections to the 26 January 2011 RAB meeting minutes. No comments, corrections, or questions were raised. Mr. Woodings expressed appreciation for the quality of the minutes and noting there were no further RAB comments or questions, he approved the 26 January 2011 meeting minutes. Minutes will be posted on the Navy's website: <http://www.bracpmo.navy.mil/>.

SUBCOMMITTEE MEETING REPORT:

Ms. Rudolph gave her subcommittee meeting report. Ms. Rudolph requested that the Navy provide a comprehensive report of the status of all FOSTs and Findings of Suitability to Lease (FOSLs). The comprehensive report could include a map similar to the one shown tonight, but would identify the individual sites and show the leased properties.

Ms. Rudolph made a specific request for an update regarding cleanup and transfer of IRP Site 1 for reuse by the Federal Bureau of Investigation (FBI). Ms. Rudolph emphasized that the cleanup, remedy selection, and the schedule for reuse were pertinent topics for the RAB. The subcommittee also discussed the type of future reuse. Subcommittee members are interested to

know more about the future of the property. The subcommittee meets in Room L-104 before each RAB meeting and others are welcome to attend.

Mr. Callian asked if there were questions or more discussion. No questions were asked and Mr. Callian thanked Ms. Rudolph for her update.

REGULATORY AGENCY UPDATE:

Ms. Mary Aycock (United States Environmental Protection Agency [U.S. EPA])

Ms. Aycock provided the following update:

- The IRP Sites 2 and 17 Explanation of Significant Differences (ESD) for property boundary reduction was signed by U.S. EPA on 15 April 2011 and will be final in May 2011.
- U.S. EPA reviewed and concurred with the groundwater Proposed Plan for IRP Site 1, the Former Explosive Ordnance Disposal Training Range and IRP Site 2, the Magazine Road Landfill. The Proposed Plan for the groundwater remedy at these two sites was presented to the public earlier tonight. The U.S. EPA supports the Navy on the remedial actions in the Proposed Plan and looks forward to implementing the remedy.
- Upcoming activities includes is the reviews of the Record of Decision (ROD) for groundwater at IRP Sites 1 and 2, and the ROD for soil at IRP Site 1. These are the last two RODs for El Toro and represent completion of major milestones. Accordingly, the RAB may consider transitioning from meetings to occasional site tours given the maturity of the environmental program.
- Ms. Aycock identified that the Navy and U.S. EPA will be working together to update the El Toro Community Relations Plan. During this process, the RAB members will be asked to provide input from the community.

Mr. Quang Than (DTSC)

Mr. Than reported that last month, DTSC completed its review of FOST #6 and the document is final. This allows for the transfer of approximately 350 acres. Because portions of the property in FOST #6 have an active remedy associated with IRP Site 24, land use restrictions are required to protect human health and the environment and the integrity of the remedy. Therefore, DTSC has an agreement with the Navy, referred to as a Covenant to Restrict Use of Property (CRUP). Upcoming activities will be related to FOST #7.

Mr. Callian thanked Mr. Than, and asked if there were questions. The RAB had no further questions.

Mr. Callian offered additional information regarding the update from the U.S. EPA. He explained that the ESD for property boundary changes is specifically for the reduction in the buffer zones for landfills at IRP Sites 2 and 17.

Mr. Callian stated that the Navy shares the opinion of the U.S. EPA regarding future RAB activity. Because many documents are completed and the majority of remedial decisions are made, the group may want to transition to a different meeting format and frequency. The primary function of the RAB is to provide information to the community and receive community input during the remedial decision process, that is, through the ROD for the sites. After the ROD is complete, the process generally transitions to long term monitoring at most sites, which requires far less input from the community over the out-years. For example, semi-annual meetings are held for the Tustin RAB. Mr. Callian asked the RAB members to consider changes in the meeting format and reduced frequency.

Mr. Callian asked for questions or discussion. A RAB member asked if the RODs discussed are the last documents or, if there are future RODs planned? Mr. Callian said that only two RODs remain to be completed. In addition, as shown on the slide, there are very few properties remaining to be transferred. Mr. Callian explained that the main function of the RAB is to solicit and receive input from the community through the remedial decision process, although there is no formal designated point at which RAB involvement terminates. After the RODs are completed, there will be very little activity and the RAB members, Navy and agency representatives should plan how to better use their resources going forward.

Mr. Callian asked for a show of hands for those who would consider the transition to a different meeting format and frequency as a good idea. Ms. Rudolph concurred, and other RAB members agreed.

Mr. Callian said if there are no other questions or concerns, the meeting will move to the next agenda item for a project update of IRP Site 18 by Mr. John Hills of the Irvine Ranch Water District (IRWD).

PRESENTATIONS:

The Irvine Desalter Project - IRP Site 18 Principal Aquifer Update, by Mr. John Hills (IRWD)

Mr. Hills began the overview by identifying the chronology of information as the six-month period from October 2010 to March 2011. The previous project update was given to the RAB a little more than six months ago. The Irvine Desalter Project involves extracting groundwater and treating it, and pumping the treated effluent water to the IRWD non-potable water distribution system where it is recycled. None of the water from this project enters the potable (drinking) water system.

The title slide identifies this project as IRP Site 18. The system addresses that portion of the contaminant plume that has migrated off the former MCAS El Toro property.

Slide 1 – is a map showing the layout of the extraction wells, water distribution pipelines, and the extent of trichloroethene (TCE) in groundwater within the Principal Aquifer.

Slide 2 – lists the three components of the Principal Aquifer treatment system: extraction well ET-1 located at the Principal Aquifer Treatment Plant (PAP); well ET-2, and well IRWD-78. Well IRWD-78 is currently being replaced; it was shut off on 16 March 2011 to facilitate its replacement.

Slide 3 – provides a photograph of the PAP tanks located at Jeffery and Irvine Center Drive, and lists the process components and treatment quantities for well ET-1 and the treatment plant. This system treated approximately 245 million gallons of water from October 2010 through March 2011, and operates at about 944 gallons per minute (gpm), with influent concentrations of TCE at approximately 8 to 9 parts per billion (ppb). After treatment, the concentration of TCE in the effluent is non-detect (less than 0.5 ppb). The clean treated effluent water is pumped to the IRWD non-potable water distribution system and is recycled for use.

Slide 4 – is the graphical presentation of well ET-1 discharge volume for six months from October 2010 through March 2011. Well ET-1 is the workhorse of the treatment system. It pumps the largest volume of water and treats water with the highest concentrations of TCE.

Slide 5 – presents facts about well ET-2 that pumped approximately 202 million gallons to the non-potable water distribution system from October 2010 through March 2011 and operates at an average rate of approximately 912 gpm. The influent concentrations of TCE are less than 1 ppb.

Slide 6– shows the graphical presentation of well ET-2 discharge volumes for six months from October 2010 through March 2011. The low discharge in February and March 2011 was related to the rain and consequent low water demand. The result was that some treated water was discharged directly to the storm drain system, because there was insufficient storage capacity and low demand. Mr. Hills expressed the IRWD's strong policy for water conservation, reuse, and recycling, but this unique situation required discharging the treated water rather than reusing it.

Slide 7 – provides a picture of the location of old well IRWD-78 at Culver Street and Warner Avenue in Irvine. The operational data listed indicated this well pumped 72 million gallons over the six-month period from October 2010 through March 2011, at an average rate of 417 gpm, with influent TCE concentrations at approximately 1.2 ppb. This well is being replaced because of its low yield.

Slide 8 - is the graphical presentation for well IRWD-78 discharge volume for six months from October 2010 through March 2011. The well was not operational in February 2011 and on 16 March 2011 the well was permanently shut down. The replacement project for this well has started.

Slide 9 – is a summary graphic for the groundwater extracted and TCE mass removed from start-up in 2006 through March 2011. During this period, the total groundwater volume extracted was 4.14 billion gallons and approximately 53.2 kilograms (117.2 pounds) of TCE was removed from groundwater in the Principal Aquifer.

Slide 10 – provides a summary overview of the current operation and maintenance data for the PAP. Well ET-1 and the PAP have an uptime efficiency that exceeds 99 percent on average. The PAP air stripping process completely removes TCE and other volatiles from the extracted groundwater. The slide lists regular on-going inspection and maintenance activities.

Slide 11 - provides a summary of the background and status of the replacement project for well IRWD-78. The well showed declining pumping capacity in 2009 because the well screen was

being plugged by iron bacterial growth. A design and bid process was completed from July through December 2010 and a construction contract issued in February 2011 for destruction of the existing well and construction of the new well. The well replacement project is currently in the destruction phase where the main activity is removing distribution piping near the old well. By March 2012, the new well should be operational.

Slide 12 – requests questions or comments for discussion.

Mr. Roy Herndon asked about the IRWD-78 well schedule. The RAB discussed the general target date for completion as March 2012. This date is based upon a fast-track schedule.

Ms. Mary Aileen Matheis asked about the function of well ET-2 for contaminant capture. Using Slide 2 with the plume map, Mr. Hills explained that well ET-2 is located along Culver Drive and has a similar function as former well IRWD-78. The function is to contain and prevent any movement of the contaminant plume past Culver Drive. Well ET-2, as well as the future replacement well IRWD-78, are intended to meet this function. Well ET-1 is the workhorse well that is pumping and extracting contaminants from within the plume.

Mr. Woodings asked about the percentage of water discharged to the non-potable system for reuse. Mr. Hills said the water recycled for reuse was essentially 100 percent, or about 4 billion gallons through 31 March 2011. The exception was a short period in February and March 2011 when a very small volume of treated effluent from ET-1 at the PAP was discharged to the storm sewer system because of limited storage capacity and low demand. Mr. Hills expressed the IRWD's strong policy for water conservation, reuse, and recycling, but this unique situation required discharge of the treated water rather than reuse.

The RAB members and Mr. Callian thanked Mr. Hills for the presentation.

IRP Site 24 Groundwater Remedy Update, by Mr. Marc Smits (Navy)

Mr. Callian introduced the next presenter for the evening as Mr. Smits, the Navy's RPM for IRP Site 24. Mr. Smits introduced the groundwater remedial project that he has managed for about eight years. The update on the status of the remedy presented tonight is based upon the Draft 2010 Annual Remedy Status Report.

Slide 1 – is the title slide identifying this project as IRP Site 24.

Slide 2 - Mr. Smits started with an overview of four presentation topics, which include: system operations, remedy status, conclusions from the Draft 2010 Annual Report, and associated reporting schedule.

Slide 3 – is a map of IRP Site 24 showing the extraction system located at the southwest corner of former MCAS El Toro. There are 43 extraction wells including the four new wells added at near base boundary in December 2009. Mr. Smits discussed the historic release of solvents that were used at two the hangars. Mr. Smits noted that the soil was cleaned up and no further action is needed for soil. Mr. Smits identified the groundwater conveyance line and that the extracted water is routed to the IRWD treatment system outside the former Base boundary, referred to as the Shallow Groundwater Unit (SGU) treatment facility.

Slide 4 – provides a listing of system operation data for 2010. The system up time efficiency exceeded 95 percent. The minor down time was related to regularly scheduled maintenance. The system’s total discharge volume to the IRWD treatment facility, from startup in September 2006 through 22 April 2011, was approximately 870 million gallons. During 2010, the system’s average flow rate was 383 gpm. The 2010 maximum concentration of TCE was 540 ppb and the system removed approximately 1,200 pounds of TCE from its start-up through 2010. Mr. Smits explained that this system removes more TCE than the system described by Mr. Hills at IRP Site 18, because the wells at IRP Site 24 extract groundwater with higher concentrations of TCE.

Slide 5 - is a summary of five key aspects of the remedy status. A very important milestone was achieved in September 2010 when the system received a designation of “operating properly and successfully.” This designation is given by the U.S. EPA when all monitoring and reporting data submitted to the U.S. EPA is sufficient for them to conclude that the remedy is operating as designed, will achieve the remedial goals, and continues to be protective of human health and the environment. With this designation, the Navy was able to transfer approximately 350 acres. Throughout the operational life of the system, the Navy continues to pursue optimization measures.

Slide 6 - presents four charts that document a downward trend in TCE concentrations as measured in four wells from 2006 through 2010. Two of the charts present data from wells within the source area. These data illustrate that the extraction and treatment system is effectively achieving the goal of significantly decreasing TCE concentrations in the source area.

Slide 7 – is a photograph showing that the extraction wells are subject to routine maintenance. Specifically, the activity depicted is resurfacing and grading to assure that surface water runoff from the adjacent street does not flow into the well vault.

Slide 8 – summarizes four concluding points: the system had minimal downtime over four years of operation; contingency wells enhance hydraulic capture at the former Base boundary; concentrations of TCE are decreasing; and the system is being optimized.

Slide 9 - presents the planned reporting milestones for the Draft 2010 Annual Remedy Status Report on 17 May 2011, the Final 2010 Annual Remedy Status Report on 03 August 2011, and the Final Semi-Annual Data Summary Report (January through June 2011) on 13 October 2011.

Slide 10 - provides the acronyms used in the presentation.

OPEN QUESTIONS AND COMMENTS:

Mr. Callian opened the meeting for general questions and comments.

Mr. Woodings stated that although Mr. Hirsch could not attend the meeting, he asked that his comments be presented. Mr. Woodings read the first comment requesting to know the status of treated water. This was answered by the presentation and nearly 100 percent of extracted and treated water is reused through the IRWD system. The second comment was regarding reuse of the water. Mr. Woodings noted that the RAB was well informed by the presentation tonight and that the water is reused. The third comment was regarding cleanup and reuse of IRP Site 1. Mr. Woodings noted that this topic was already discussed in Ms. Rudolph’s subcommittee

report. The last comment relayed from Mr. Hirsch regarded the need for an update on the FOST status and a request to have an update presentation for the RAB meeting in August 2011.

Mr. Callian noted that there were no further questions and thanked the presenters.

Mr. Callian briefly discussed the Navy's policy to consider greener approaches in remedial systems and that the efforts to optimize the remedial systems are integrating aspects of water conservation into remedy operations. The goal is to maximize the contaminant mass removal while minimizing the volume of water extracted.

There were no further questions from the RAB members. Mr. Callian asked Mr. Woodings to review the summary items from the meeting.

MEETING EVALUATION AND CLOSING:

Mr. Woodings stated that the preceding discussion identified potential topics. Mr. Callian concurred and stated that the consensus was to have the next RAB meeting on 31 August 2011. The meeting will start at the El Toro Building 307 and will consist of a landfill tour. Mr. Woodings concurred with this plan for the next RAB meeting.

In closing, Mr. Callian restated that the next RAB meeting is scheduled for 31 August 2011 and thanked all attendees for their participation in the meetings and especially for staying late.

The RAB meeting adjourned at 8:45 PM.

LIST OF HANDOUTS PROVIDED AT THE MEETING:

- 27 April 2011 Former MCAS El Toro RAB Meeting Agenda and Upcoming RAB Meeting Schedule
- Public Notice for the 27 April 2011 RAB Meeting
- Draft RAB Meeting Minutes from the 26 January 2011 meeting for RAB review
- Sign-in sheets from the 26 January 2011 RAB meeting
- Final RAB Meeting Minutes from the 10 November 2010 meeting
- Presentation Slides: "Installation Restoration Program (IRP) Site 24 Groundwater Remedy Update," and "The Irvine Desalter Project - IRP Site 18 Principal Aquifer Update"
- Where to Get More Information & Environmental Websites
- Former MCAS El Toro IRP Site Location Map
- Former MCAS El Toro RAB Mission Statement and Operating Procedures
- Former MCAS El Toro RAB Fact Sheet/Membership Application

- Former MCAS El Toro Mailing List Coupon

Copies of the meeting minutes and handouts provided at the 26 January 2011 RAB meeting are available at the IR for former MCAS El Toro located in the Government Publication Section of the Heritage Park Regional Library, in Irvine, California. Library hours are 10:00 AM to 9:00 PM Monday through Thursday; 10:00 AM to 5:00 PM Friday and Saturday; and 12:00 PM to 5:00 PM on Sunday. The library phone number is (949) 936-4040. 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. Sue Rawal. Documents may be viewed by appointment; call Ms. Rawal at (949) 859-6014 between 9:00 AM and 1:00 PM Monday through Thursday.

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, reorganized into the Department of Health Care Services and the Department of Public Health: www.dhs.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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INSTALLATION RESTORATION PROGRAM (IRP)

SITE 24

GROUNDWATER REMEDY UPDATE

Presented By

Marc P. Smits, P.E.

**Base Realignment and Closure (BRAC) Program
Management Office West**

April 27, 2011



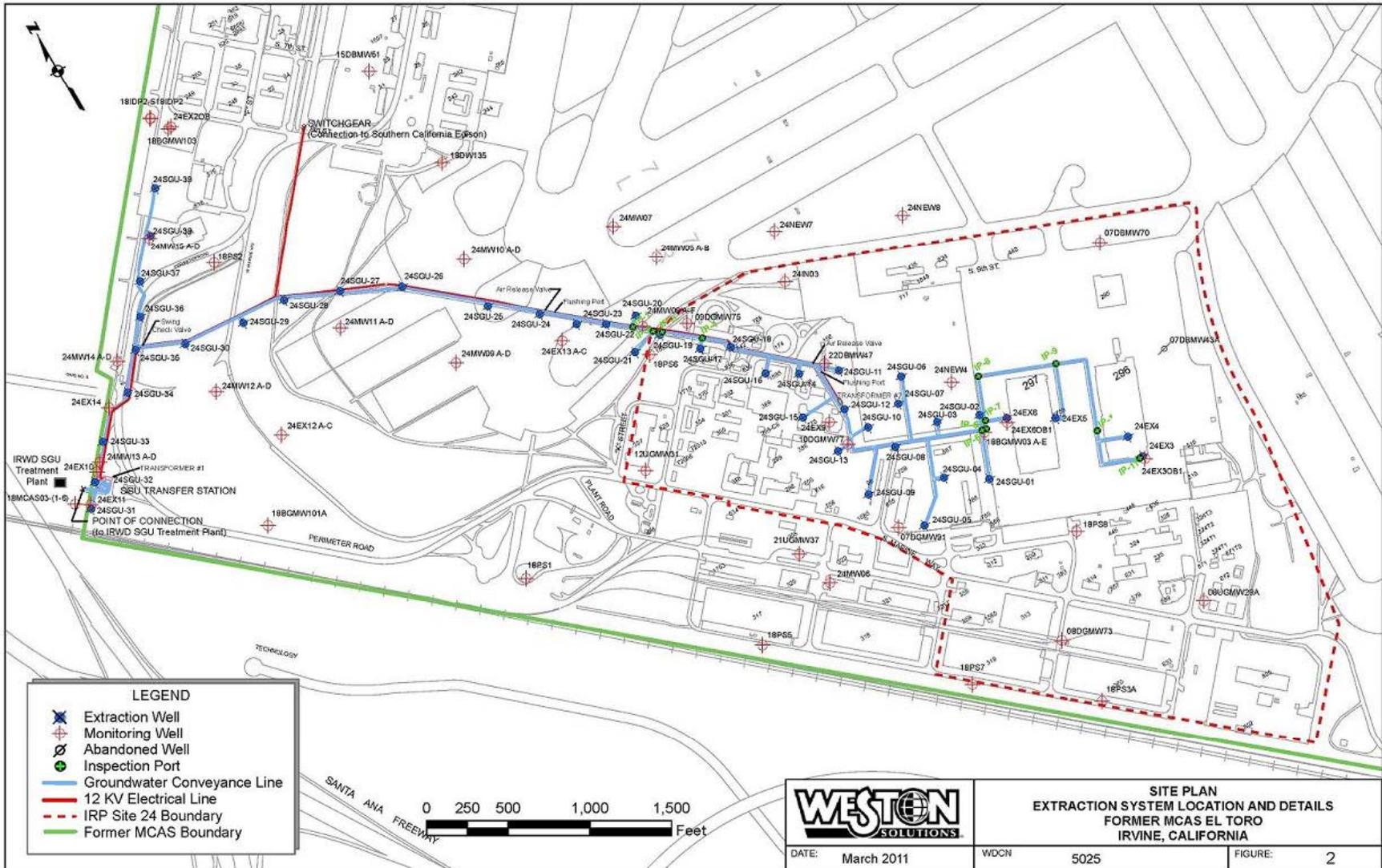
OVERVIEW



- SYSTEM OPERATIONS UPDATE
- REMEDY STATUS
- CONCLUSIONS
- SCHEDULE



EXTRACTION WELL LOCATIONS





SYSTEM OPERATION



- System operated at an uptime efficiency of more than 95% from January 2010 to December 2010
- Flow rates from the combined wells averaged 383 gallons per minute between January 2010 to December 2010
- Total groundwater pumped to Irvine Ranch Water District (IRWD) treatment plant as of April 22, 2011 is approximately 870 million gallons
- Approximately 1,200 pounds of volatile organic compounds (VOCs), mainly trichloroethene (TCE), removed from the groundwater since startup in September 2006
- Maximum concentration of TCE in groundwater in 2010 was 540 micrograms per liter (maximum concentration of TCE in groundwater at startup was 810 micrograms per liter)



REMEDY STATUS



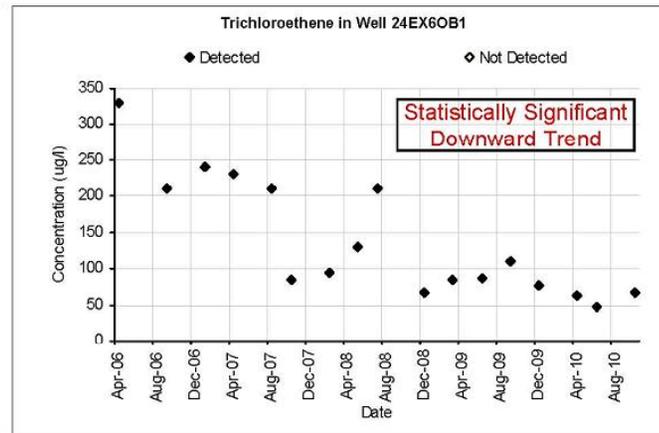
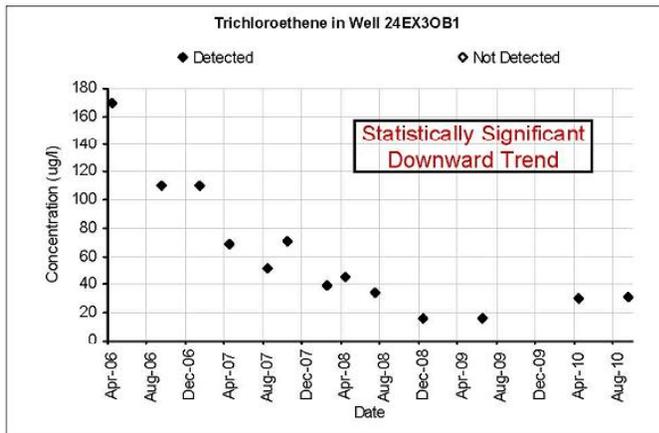
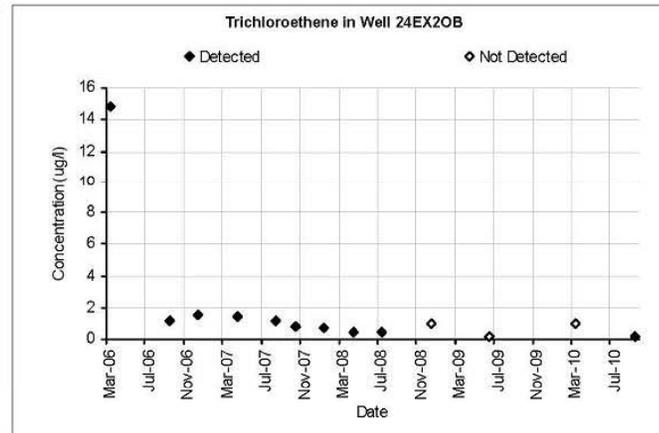
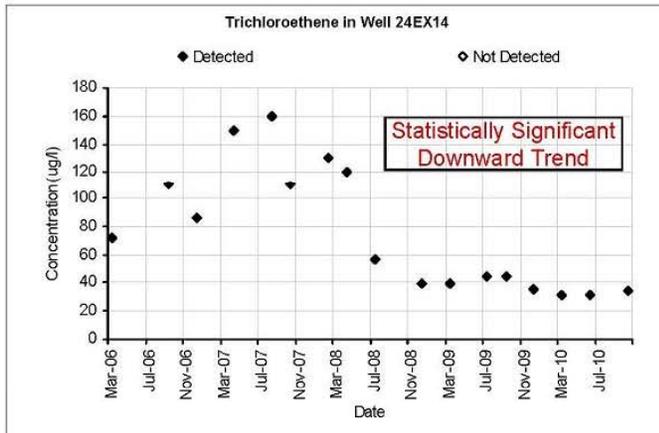
- Achieved Operating Properly and Successfully designation from the U.S. Environmental Protection Agency; other regulatory agencies concurred in September 2009 (approximately 345 acres were made available for transfer)
- TCE concentrations of the combined flow from the 43 extraction wells has decreased from a maximum of 270 micrograms per liter to 99 micrograms per liter in March 2011
- Four contingency extraction wells were installed at the former Base Boundary in December 2009 and pump at a combined rate of 100 gallons per minute
- System is being optimized to pump more from extraction wells with higher TCE concentrations
- A statistically significant downward trend is apparent in TCE concentrations from many of the monitoring wells



DOWNWARD TREND

TIME-SERIES PLOTS

Shallow Groundwater Unit Monitoring Wells, IRP Sites 18 and 24, Former MCAS El Toro, California





MAINTENANCE ACTIVITIES





CONCLUSIONS



- System has been operational for more than four years with minimal downtime
- Four contingency extraction wells enhance the hydraulic capture at the former Base Boundary
- Continue to see reductions in TCE concentrations at historical hot-spot locations
- Continue to monitor and optimize the system to ensure adequate data are collected to evaluate the progress and protectiveness of the groundwater remedy



SCHEDULE



- Draft Annual Remedy Status Report (Jan 10 – Dec 10) May 17, 2011
- Final Annual Remedy Status Report (Jan 10 – Dec 10) Aug 3, 2011
- Final Semi-Annual Data Summary Report (Jan 11 – Jun 11) Oct 13, 2011



ACRONYMS AND ABBREVIATIONS



BRAC	Base Realignment and Closure
IRP	Installation Restoration Program
IRWD	Irvine Ranch Water District
TCE	Trichloroethene
VOCs	Volatile Organic Compounds

The Irvine Desalter Project

Site 18 – Principal Aquifer
Update

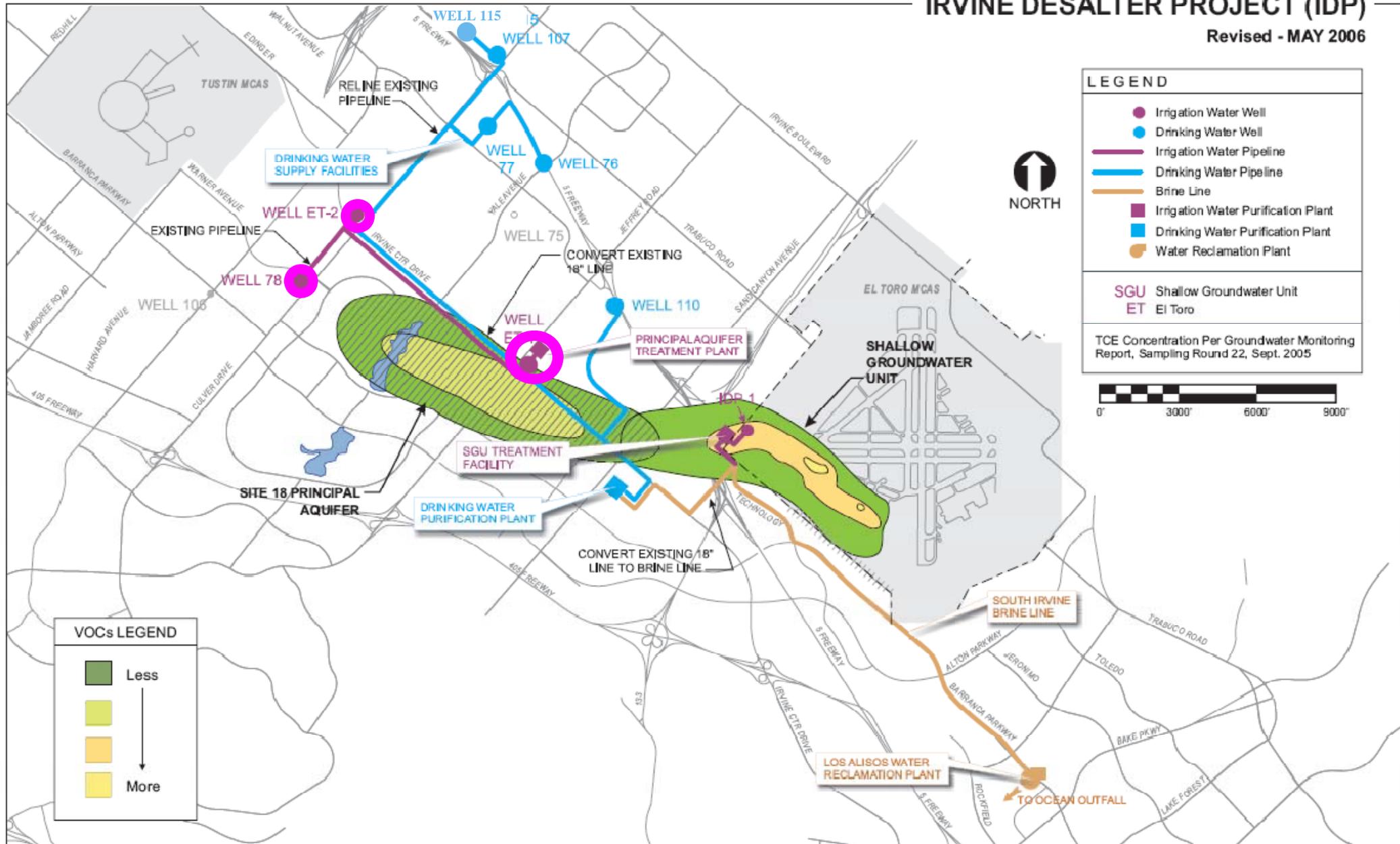
El Toro RAB
April 27, 2011



Irvine Desalter Project Facilities

IRVINE DESALTER PROJECT (IDP)

Revised - MAY 2006



LEGEND

- Irrigation Water Well
- Drinking Water Well
- Irrigation Water Pipeline
- Drinking Water Pipeline
- Brine Line
- Irrigation Water Purification Plant
- Drinking Water Purification Plant
- Water Reclamation Plant

SGU Shallow Groundwater Unit
ET El Toro

TCE Concentration Per Groundwater Monitoring Report, Sampling Round 22, Sept. 2005



VOCs LEGEND

- Less
- More



Principal Aquifer Components

- **Well ET-1 & Principal Aquifer Treatment Plant (PAP)**
- **Well ET-2**
- **Well 78 – offline since 3/16/2011; a new Well 78 is under construction**



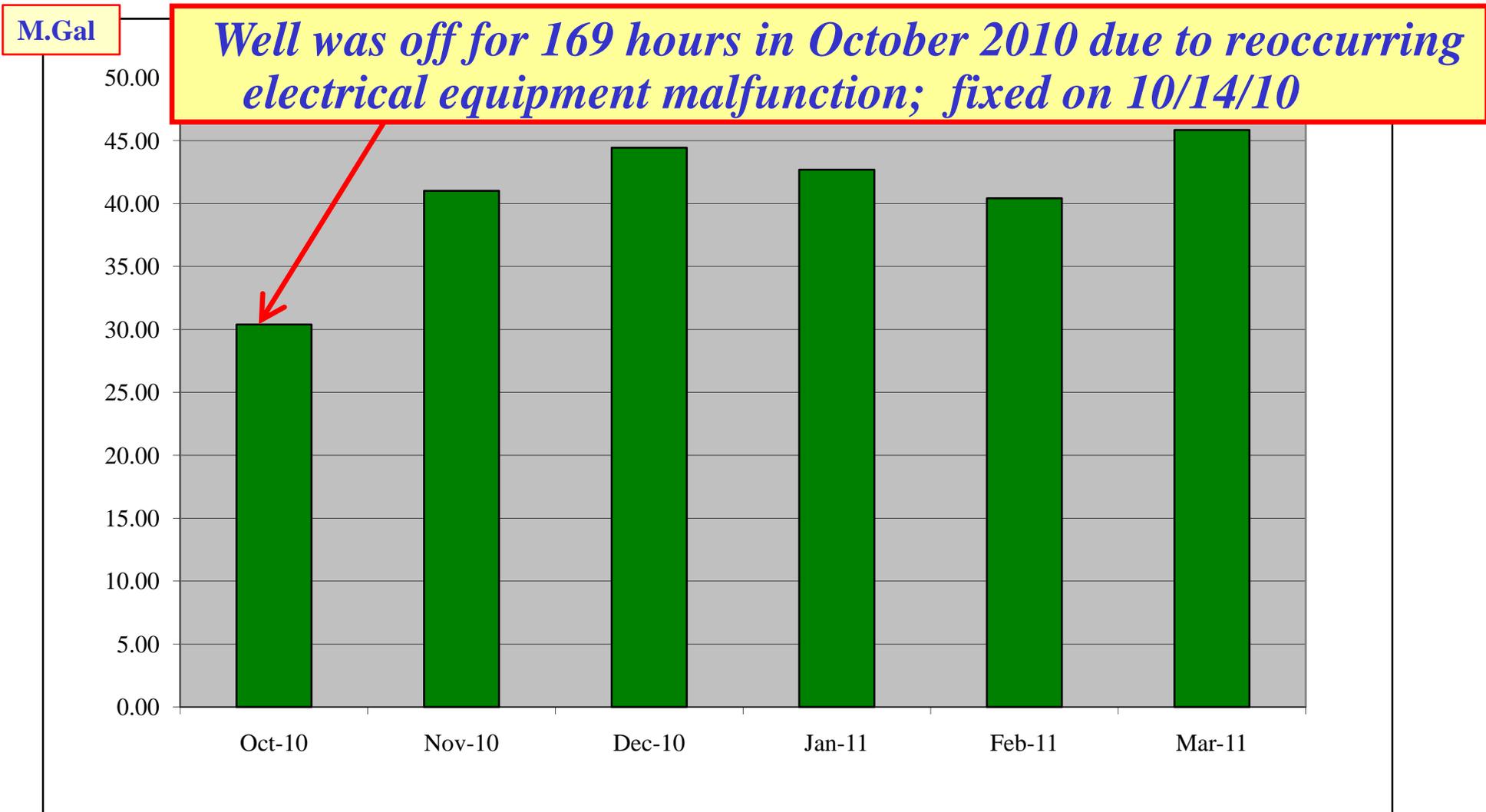
Well ET-1 & PAP

- Located at Jeffrey and Irvine Center Drive in Irvine
- In the last two quarters (10/1/2010 to 3/31/2011) PAP treated ~245 million gallons of trichloroethylene (TCE) impacted groundwater
- Pumping to IRWD non-potable distribution system
- Average operational flow rate ~ 944 gallons per minute
- Influent TCE
~ 8-9 parts per billion (ppb)
- Effluent TCE
< 0.5 ppb (non-detect)





Well ET-1 (PAP) Discharge Volume (M.Gal) from 9/1/2010 to 3/31/2011





Well ET-2

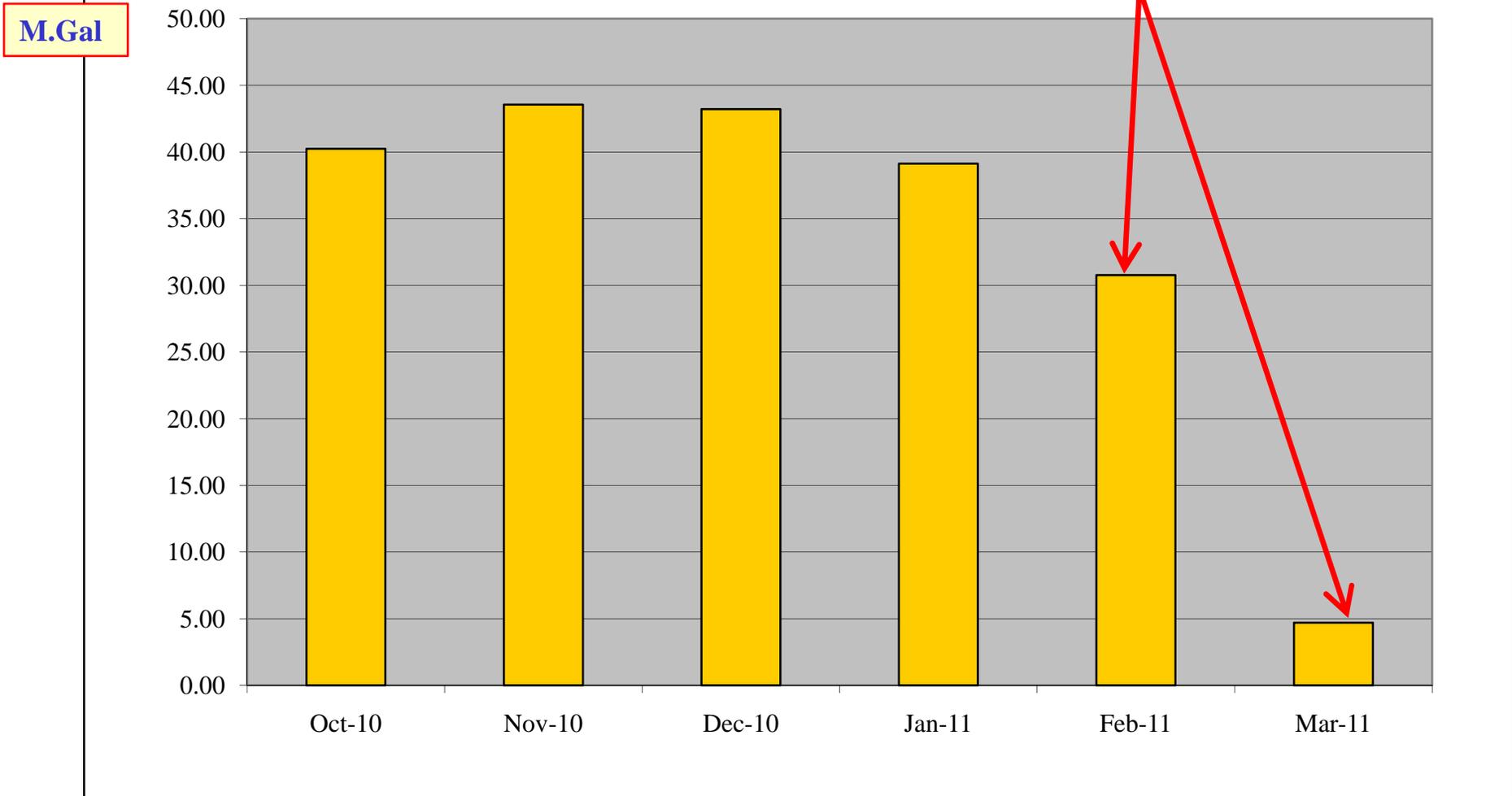
- Located at Culver and Irvine Center Drive in Irvine.
- In the last two quarters (9/1/10 to 3/31/11) pumped ~ 202 million gallons to IRWD non-potable distribution system.
- Average operational flow rate ~ 912 gallons per minute.
- Influent TCE
~ 1 ppb





Well ET-2 Discharge Volume (M. Gal) from 10/1/2011 to 3/31/2011

Well was turned off in part of February 2011 and most of March 2011 due to low distribution system demand





(Old) Well 78

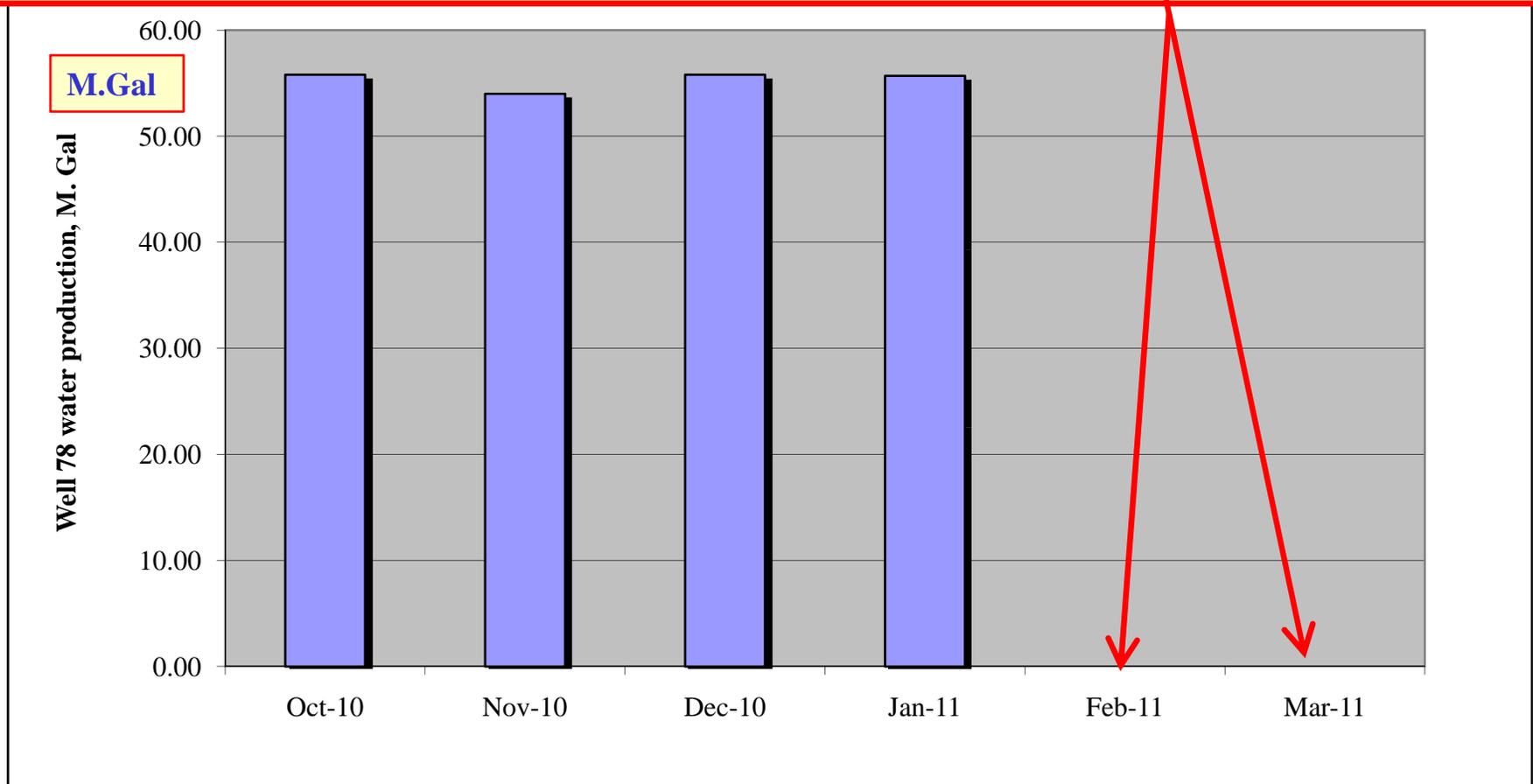
- Located at Culver and Warner in Irvine
- In the last two quarters (10/1/10 to 3/31/11) pumped 72 million gallons to IRWD non-potable distribution system
- Average operational flow rate from 10/1/10 to 3/7/11 ~ 417 gallons per minute
- Influent TCE ~1.2 ppb
- Permanently shut down on 3/16/11





Well 78 Discharge Volume (M.Gal) from 9/1/2010 to 3/7/2011

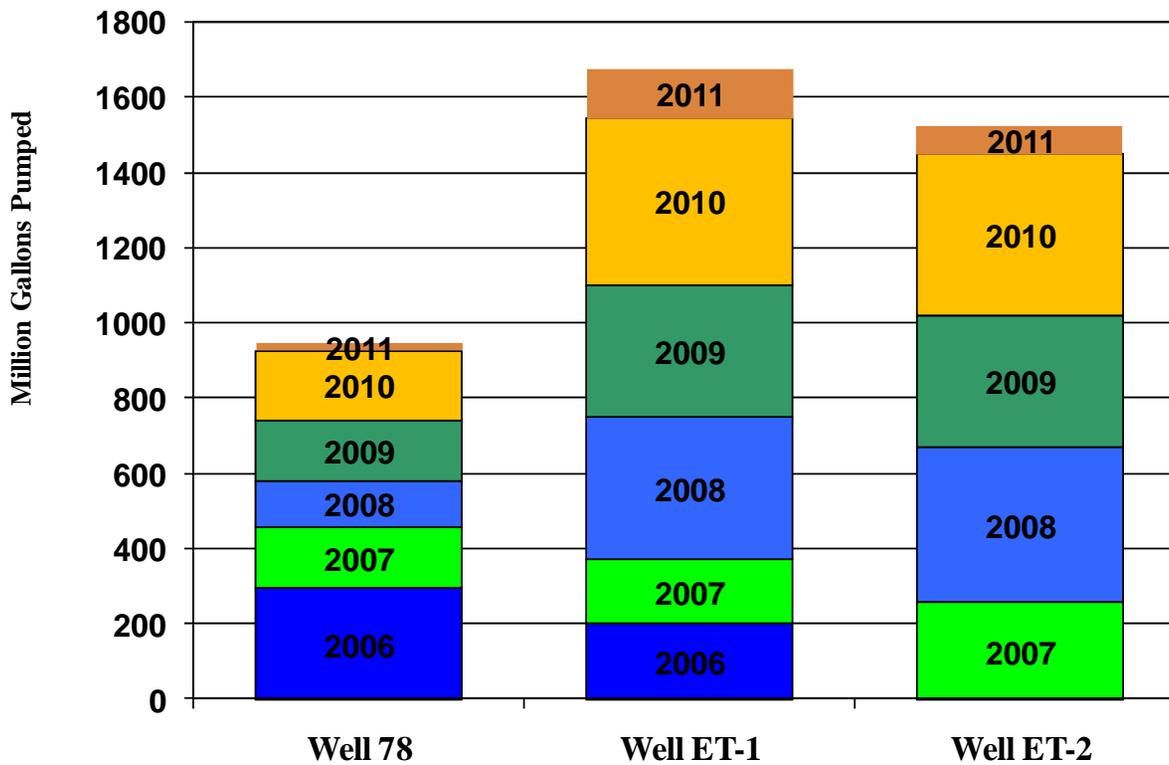
Well was out of service for most of February 2011 due to low distribution system demand. Well was destroyed in March of 2011





Groundwater Pumping and TCE Removal

PRINCIPAL AQUIFER PUMPING



■ Pumped 4.14 billion gallons of water from 2006 (startup) to March 2011

■ Total mass of TCE removed: ~53.2 kilograms or 117.2 pounds



Overview of Current Operations & Maintenance

- **ET-1 treatment plant (PAP) uptime efficiency exceeds 99% (on average)**
- **PAP air stripping process completely removes TCE and other volatile organic compounds (VOC) contaminants from groundwater**
- **PAP preventive maintenance includes wet well pump checks, blower filter inspections and vapor adsorption granular activated carbon (GAC) media changeouts**
- **Most recent GAC media change out performed on 6/9/10**



New Well 78 Construction Project Update

- During 2009-2010 Well 78 pumping capacity declined sharply because of iron bacteria growth
- In February-April 2010 IRWD and DON explored feasibility of destroying well and re-installing a new well at the site. This concept was adopted in July 2010
- In December 2010 IRWD's design consultant Tetra Tech Inc. completed the "new" Well 78 design. In February 2011 IRWD selected Gateway Pacific's bid to construct a new Well 78 at this site
- In March 2011 "old" Well 78 was destructed
- Currently new Well 78 construction is underway with scheduled completion in March 2012



Site 18 – Principal Aquifer Update

QUESTIONS/COMMENTS

???