



FINAL

FORMER MARINE CORPS AIR STATION (MCAS) El Toro

99th Restoration Advisory Board (RAB) Meeting Minutes

Meeting Location: Irvine City Hall, Conference Training Center, Irvine California

Meeting Date/Time: 28 April 2010/6:30pm - 8:06pm

Minutes Prepared by: Tony Guiang, CDM Federal Programs Corporation (CDM)

Attachment:

Presentation Slides: "The Irvine Desalter Project - Site 18 - Principal Aquifer Update" and "Installation Restoration Program (IRP) Site 24 Update."

WELCOME/INTRODUCTIONS/AGENDA REVIEW:

Mr. Jim Callian (Base Realignment and Closure [BRAC] Environmental Coordinator [BEC] and Navy RAB Co-Chair) welcomed everyone and introduced the RAB community Co-Chairman, Mr. Bob Woodings. He asked Ms. Marcia Rudolph (RAB member, Subcommittee Chair) to lead the Pledge of Allegiance. Self-introductions by all those in attendance followed. A total of 20 attendees were present.

ANNOUNCEMENTS/ REVIEW OF ACTION ITEMS

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

- Mr. Callian requested attendees to sign the sign-in sheets, noting the Navy's requirement to document community involvement and participation.
- Mr. Callian announced for the first time in 8 years, Ms. Content Arnold's (Navy Lead Remedial Project Manager [RPM]) absence from the meeting owing to personal leave and he announced Mr. Don Zweifel was in attendance at the RAB. Mr. Zweifel is the community RAB co-chairman for MCAS Tustin and El Toro RAB member.
- Mr. Callian reviewed the RAB meeting agenda; no changes to the agenda were suggested by the RAB. He announced two presentations were going to be presented at the meeting including an update on IRP Site 24 and IRP Site 18 (off-station portion).
- Mr. Woodings announced Peter Hersh has requested an excused absence. He announced both he and Ms. Marcia Rudolph had new email addresses. Mr. Wooding's new email address is bwoodings@lakeforestca.gov.
- Mr. Callian announced the next RAB meeting scheduled for 25 August 2010 will be the 100th RAB meeting and he encouraged the public and former and past RAB members to attend. He noted refreshments would be served. Mr. Zweifel asked the Navy to acknowledge RAB members with some commendation acknowledging years of service. Mr. Callian replied the Navy would take Mr. Zweifel's recommendation into consideration.

- Mr. Callian presented a series of slides listing dates and times for the upcoming quarterly RAB meetings. 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 was on environmental issues and not reuse.

Mr. Callian noted the action items from the last RAB meeting. One action item was a request from Ms. Aycock (U.S. EPA) to review the status of the Area Anomaly 3 (AA 3) Record of Decision (ROD). Mr. Callian noted he was happy to report that the Navy has resolved the last remaining comments with the Department of Toxic Substances Control (DTSC) and hopes to finalize the ROD within the next 2 weeks. The Navy expressed their appreciation to the Agencies for their due diligence in moving the ROD from a Draft to a Final document. Mr. Ouellette asked for an update on IRP Site 24 which Mr. Callian noted was the presentation topic this evening.

APPROVAL OF 27 JANUARY 2010 RAB MEETING MINUTES

Mr. Callian opened the floor for discussion, questions, or corrections to the 27 January 2010 RAB meeting minutes. Mr. Woodings noted he had read the meeting minutes and had no comments or questions. No comments, corrections, or questions were made and the 27 January 2010 meeting minutes were approved.

SUBCOMMITTEE MEETING REPORT

Ms. Rudolph began her subcommittee meeting report by thanking the regulators, and noted the DTSC was well represented. She mentioned one of the new documents for discussion since the last meeting was the Finding of Suitability to Transfer (FOST) #5 and she explained it would be appreciated if the Navy could provide a map showing where all the Carve-Outs (COs) were located. She noted there was one CO within a CO that could not be transferred at this time owing to additional remediation left at the site. Mr. Callian explained the Navy's plan to retain the small portion until they were assured the cleanup activities in the area were complete before transferring the property. Further, he added the property was being transferred to the City of Irvine or to Orange County Great Park and added the Navy has no input in redevelopment or reuse of the property once it is transferred. To augment, Mr. Woodings noted reuse was a land use decision the local governing agency was responsible for and not the Navy. He added the land use approvals and entitlement process would go through the City of Irvine before property was transferred.

During Ms. Rudolph's summary report, Mr. Zweifel asked for point of clarification with regard to FOST #5 and its relation to site reuse. In reply, Mr. Callian explained the FOST was the last report to document all the cleanup actions that have taken place prior to the transfer of the property. Further the FOST references documents that support that the site is suitable for transfer and documents all the remedies in place are operating properly and successfully. FOST does not have anything to do with reuse of the site.

Ms. Rudolph inquired about the status of Anomaly Area 3 (AA 3) regulations, and noted it was not clearly explained in the FOST which portion of IRP Site 16 was being retained by the Navy.

As a remnant from the last meeting, she discussed the remaining question she had with regard to the proper disposal of the radioactive components found at various sites on base. Further she asked the Navy whether there were more radioactive components still left on site and asked for a projection on when cleanup would be completed.

Ms. Rudolph asked for an update on the Alton Parkway Project noting although it is not directly located on the base, the development has been impacted owing to the Base activities. In closing, Ms. Rudolph reminded the RAB the next meeting would be the 100th and therefore she encouraged those in attendance to invite any former or past RAB members to the meeting. She suggested a program for the evening to include a comprehensive overview of what the RAB, in conjunction with the Navy and the agencies, have accomplished at the base. She noted the cleanup history at MCAS El Toro may not be characteristic of cleanup at other bases throughout the country. She suggested maps showing the location of the cleanup efforts, the types of cleanup, and the timeline for the cleanup may be valuable information for the community.

REGULATORY AGENCY UPDATE

Ms. Mary Aycock (U.S. EPA)

Ms. Aycock provided the following update to the RAB:

- U.S. EPA has completed their review on the ROD for AA 3 and is currently working at getting the document finalized and preparing to issue the final signature by 15 May 2010.
- Ms. Aycock introduced a new member to the MCAS El Toro team, Mr. Milovan Beljin from the U.S. EPA, Ada, Oklahoma office. She noted Mr. Beljin would be helping her team review documents having to do with hydrogeology and other documents that have to do with the current groundwater modeling at MCAS El Toro sites.
- Ms. Aycock noted she was looking forward to participating in the 100th RAB and added her agency may be able to help the Navy in supporting any special preparations to commemorate the milestone event.

Mr. Quang Than (DTSC)

Mr. Than provided the following update to the RAB:

- The DTSC has completed their review on the ROD for AA 3 and is currently working at getting the document finalized and preparing to issue the final signature by 15 May 2010.
- Mr. Than explained the DTSC and the Navy were finalizing the agreement both parties entered into called the covenant to restrict use of property (CRUP) to address the portion of IRP Site 16 where there is an on-going remedy still in place, specifically monitored natural attenuation (MNA). He explained this agreement was necessary in order to assure land use restrictions remain enforceable while the remedy is on-going. The CO within a CO at IRP Site 16, mentioned earlier by Ms. Rudolph, would be retained by the Navy until the remedy is complete. Given that MNA could conceivably take many years to complete, Mr. Zweifel asked the Navy if they could provide a time-line for how long MNA at IRP Site 16 would

remain in place. Mr. Smits replied they believed the timeline for MNA at IRP Site 16 would be around 20 years.

Mr. Than welcomed any questions or comments from the RAB. There were no comments or questions from the RAB.

IRP SITE 24 REMEDY STATUS UPDATE

Mr. Smits began his presentation with a brief introduction and noted Mr. John Hills from the Irvine Ranch Water District (IRWD) would be providing the RAB with an update of the off-site portion the groundwater plume, referred to as IRP Site 18. He explained his update would cover from September 2008 to December 2009 for IRP Site 24 owing to the recent April 2010 submittal of a Draft Annual Remedy Status Report for the site. A summary of the topics presented by Mr. Smits included:

- An overview of the topics to be covered in the RAB meeting (Slide 2) which included a systems operations update, rationale for the installation of the contingency extraction wells, photographs of the field activities showing the well construction and piping associated with connecting the wells to the existing conveyance system, and an update on the Operating Properly and Successfully (OPS) Report currently being reviewed by the regulators.
- Mr. Smits presented a site conceptual model showing the IRP Site 24 Source Area (Slide 3). He explained the source area was the location of two main hangars where maintenance activities using various solvents, particularly trichloroethene (TCE) took place. Mr. Smits explained TCE, the contaminant of concern at IRP Site 24, has impacted the Shallow Groundwater Unit at the source area and has migrated approximately 2 miles off-site from the station boundary where it has impacted the Principal Aquifer.
- Mr. Smits provided a systems operations update (Slide 4) presenting flow rates, total groundwater pumped to the IRWD system, mass removed, and maximum concentrations of TCE on site since system startup. He noted before system startup, TCE concentrations in the source area were in the 3,000 micrograms per liter ($\mu\text{g}/\text{L}$) range.
- Mr. Smits provided a summary of the four contingency extraction wells installed as recommended by the Final Capture Zone Evaluation Technical Memorandum which identified an area of incomplete capture along the station boundary (Slide 5). He noted the four wells were included in the Navy's original 100% design. To optimize the capacity of the extraction wells, Mr. Smits explained screen lengths were extended to lengths of 150 feet instead of 100 feet and pumps capable of pumping higher flow rates were placed in the wells. Later in his discussion he noted some of the wells were installed to total depths of 250 feet below ground surface (bgs) with screened intervals from 100 to 150 feet in length to the total depths of the wells.
- Mr. Smits showed a figure of the well locations (Slide 6) and cross section diagram depicting the baseline concentrations of TCE and vertical extent of TCE capture being captured by the system (Slide 7). Mr. Smits added the cross sections show that extraction wells were placed in the correct location when compared to the extent of hydraulic capture, and allows the Navy flexibility when it comes to adjusting the flow rates in these wells, as needed. For

example he explained the flow rate could be decreased in Well 24SGU-39 where baseline concentrations are only approximately 3 µg/L and increased at extraction wells where the TCE concentrations are greater. Larger versions of the figure and cross sections were provided to the RAB as supplemental handouts. Mr. Zweifel asked whether the 120 µg/L concentration at Well 24-SGU36 represented the highest concentration. Mr. Smits replied this was the highest baseline concentration in the contingency wells.

- Mr. Smits showed several photographs of well construction activities including installation (Slide 8), surging of the well to insure water being extracted is free of any formation material (Slide 9), backhoe trenching along the station boundary (Slide 10), piping installation underneath Perimeter Road using a Ditch-Witch (Slides 11, 12, 13, 14, 15), placement, backfilling, and compaction associated with the well vault (Slides 16, 17, 18), and well completion (Slides 19 and 20). He noted the depth of the trenches are typically 4 feet bgs to accommodate for the water, communication, and power lines which have to be a certain distance apart from one another when installed in the same trench below grade. He expressed his appreciation to the Orange County Great Park for their assistance in assuring the storm water pollution prevention plan (SWPPP) was in place especially since construction occurred during the rainy season.
- Mr. Smits finished his presentation by providing a chronological summary on the OPS Report and its current status (Slide 21).

Mr. Smits ended his part of the presentation and introduced Mr. Hills of IRWD to present the off-site portion of the groundwater plume IRP Site 18, the Principal Aquifer.

IRP SITE 18 PRINCIPAL AQUIFER UPDATE

Mr. Hills provided the following update of the IRP Site 18 Principal Aquifer:

- Mr. Hills began his presentation by showing a figure outlining the extent of the TCE plume found in the deep Principal Aquifer located at IRP Site 18, off-site location (Slide 1). He explained IRWD's role in reducing the TCE contamination in this deep aquifer and recycling the treated water.
- He listed the four components of the treatment system and provided a brief location for each. The four components of the Principal Aquifer are: Well IRWD-78, Well ET-1, Well ET-2, and the Principal Aquifer treatment plant (Slide 2).
- Mr. Hills provided a description of Well IRWD-78, Well ET-2, the Principal Aquifer treatment plant, and Well ET-1 which he explained was the "work horse" of the entire system. He provided the gallons of water extracted and pumped to the IRWD non-potable system from the last two quarters (01 October 2009 to 31 March 2010), current average flow rates, and TCE concentrations detected in the influent and effluent at the Principal Aquifer treatment plant (Slides 3, 5, 7).
- Mr. Hills showed a graphic representation showing the well production at Well IRWD-78, Well ET-1, and Well ET-2 from the last two quarters from October 2009 to March 2010 (Slides 4, 6, and 8). He noted the low discharge volumes depicted in January and February

2010 were a result of the system being turned off owing to the rain events and low demand for water. Mr. Hills explained there was no room in the reservoirs to accommodate any more water.

- Mr. Hills showed a graphic representation of the groundwater pumping and TCE removal from the Principal Aquifer at each well from the startup year 2006 to 2010 (Slide 9). He noted a total of 3.06 billion gallons has been pumped from the wells since startup and approximately 39.6 kilograms or 87.3 pounds of TCE has been removed. He noted the definitively smaller mass of TCE removed at IRP Site 18 in comparison to the mass of TCE removed from the IRP Site 24 extraction system and noted it was because concentrations of TCE in the Principal Aquifer are much lower than those at IRP Site 24.
- Mr. Hills closed his presentation by providing an overview of the current operations and maintenance (O&M) (Slides 10 and 11). He noted one of the more important O&M activities involves changing out (replacing) the granular activated carbon (GAC) used in the system to remove mainly TCE.

The following comments and questions were asked during and after the presentation.

Mr. Zweifel noted the high expense in changing out the GAC. Mr. Hills concurred and noted this is the reason why the GAC is closely monitored to assure they can treat as much water as possible without potential for possible release. Mr. Zweifel asked how much lime deposit is currently accumulating at the wells noting the issue with total dissolved solid buildup. Mr. Hills replied although the recent problem with lime buildup has been significant, IRWD have been proactive in addressing this problem and Mr. Callian added the buildup is similar to the type of buildup one may see in their shower head.

Ms. Rudolph asked whether the IRWD system was treating water contaminated with perchlorate or is this contaminant only present at IRP Site 1. She explained it was her understanding the Desalter managed by IRWD was capable of handling perchlorate if it were present. Mr. Hills replied, the system was not removing perchlorate and he did not know whether water has been analyzed recently for this contaminant. To augment Mr. Hill's reply, Mr. Smits explained the Navy has a requirement to analyze groundwater for every contaminant known to occur at the base and groundwater is currently being analyzed for perchlorate in both the Shallow Groundwater Unit (SGU) and Principal Aquifer. Mr. Hills explained there were SGU wells with concentrations of perchlorate. Based on guidance and approval from the Regional Water Quality Control Board (RWQCB), this water is pumped to the Los Alisos storm channel which discharges into the ocean. Discussion over the regulatory criteria for perchlorate took place. Ms. Aycock noted the maximum contaminant level (MCL) for perchlorate is 6 µg/L. Ms. Mathies (RAB member) noted this was a state level and not a federal level. She added the County of Orange has not set up any guidance on perchlorate levels. Ms. Rudolph asked the Navy and IRWD to provide an update on what contaminants from the base are being handled in off-site treatment systems; particularly before it is discharged to the Los Alisos storm channel. Mr. Hills made a note of her request and said he would be able to provide her with the information.

OPEN QUESTIONS AND COMMENTS

Mr. Callian thanked Mr. Smits and Mr. Hills for the presentation and opened the floor for questions and comments.

Mr. Woodings provided a brief update on the Alton Parkway project noting the County of Orange designed, bid and awarded the contract for construction in December 2009. The County is holding off on the notice to proceed to the contractor, but construction is scheduled to start in late summer. Mr. Woodings explained the next segment of the project being managed by the City of Lake Forest is on schedule with completion of the design by the June to July 2010 timeframe and construction scheduled for September 2010 contingent, on land acquisition.

Mr. Zweifel asked if the RWQCB provided approval for the discharge of perchlorate-impacted groundwater to the storm channels. Mr. Callian replied he is sure there are permits in place approving the discharge.

Mr. Woodings noted he appreciated the color copies of the handouts. Mr. Callian concurred and asked if the RAB had any topics they would like to consider for discussion at the next meeting. The following topics for discussion were requested:

- Ms. Rudolph requested a comprehensive review of the entire program so the community is updated on environmental cleanup at the base.
- Ms. Rudolph requested an update from either the Navy or IRWD on water discharge off-base.
- Ms. Rudolph requested an update on the perchlorate issue relative to IRP Site 1 and 2.

Mr. Callian explained that owing to the fact the next RAB was the 100th meeting, the Navy already has a full agenda; however, he would consider as many of the topics as possible. He explained the Navy was in the process of evaluating the results from the Pilot Study of In-Situ Bioremediation of perchlorate coming from IRP Site 1. Mr. Callian noted the Navy was actively looking at the study which will eventually be incorporated into the Feasibility Study and the final ROD for the site. Mr. Callian provided a brief description of the IRP Site 1 source area noting this was a former explosive ordnance disposal training range where they believe perchlorate resulted from the use of jet-assisted take off (JATO) bottles. He added the perchlorate is migrating downstream to IRP Site 2 where it is co-mingling with the existing TCE plume. Mr. Callian provided the RAB with a brief summary of the in-situ bioremediation pilot study in place at both sites to evaluate the potential of this approach at these sites.

Mr. Callian expressed his appreciation to those in the community and RAB members who have consistently supported and participated in the RAB. He explained the Navy has accomplished many good environmental cleanup milestones. Mr. Zweifel concurred and asked for a round of applause to show appreciation for the RAB and RAB members.

MEETING SUMMARY AND CLOSING

In closing, Mr. Callian asked for an overall evaluation of the evening's RAB. Mr. Woodings noted the presentations were well done and expressed his appreciation to the Navy and support staff. Mr. Callian thanked everyone for attending and the 27 January 2010 meeting adjourned at 8:06pm.

LIST OF HANDOUTS PROVIDED AT THE MEETING

- 28 April 2010 Former MCAS El Toro RAB Meeting Agenda and Upcoming RAB Meeting Schedule
- Where to Get More Information & Environmental Websites
- Presentation Slides: "The Irvine Desalter Project - Site 18 - Principal Aquifer Update" and "Installation Restoration Program (IRP) Site 24 Update."
- 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 28 April 2010 RAB meeting are available at the IR for former MCAS El Toro located in the Government Publication Section of the Heritage Park Regional Library, Irvine, California. Library hours are 10 am to 9 pm Monday through Thursday; 10 am to 5 pm Friday and Saturday; and 12 pm to 5 pm on Sunday. The library may be reached at (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 can be viewed by appointment; call Ms. Rawal at (949) 859-6014 between 9 am and 1 pm Monday through Thursday.

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

<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

Cal/EPA:

Homepage: www.calepa.ca.gov

Department of Toxic Substances Control: 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 Regional Water Quality Control Board: 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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The Irvine Desalter Project

Site 18 – Principal Aquifer
Update

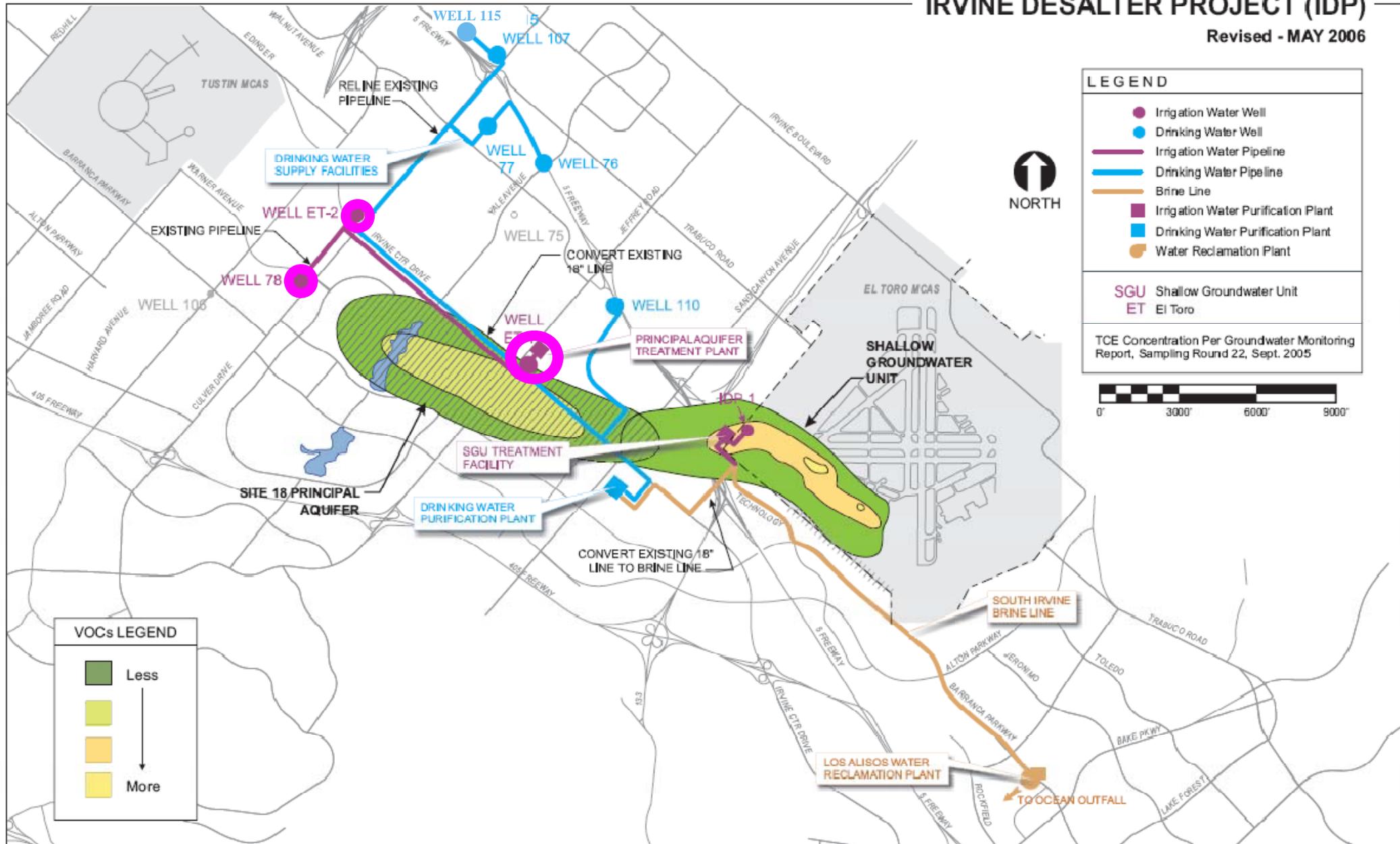
El Toro RAB
April 28, 2010



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 78**
- **Well ET-1 & Principal Aquifer Treatment Plant**
- **Well ET-2**



Well 78

- Located at Culver and Warner in Irvine
- In the last two quarters (10/1/09 to 3/31/10) pumped 72 million gallons to IRWD non-potable system

- Current average flow rate

~ 295 gallons per
minute

- Influent TCE ~1.2 ppb*

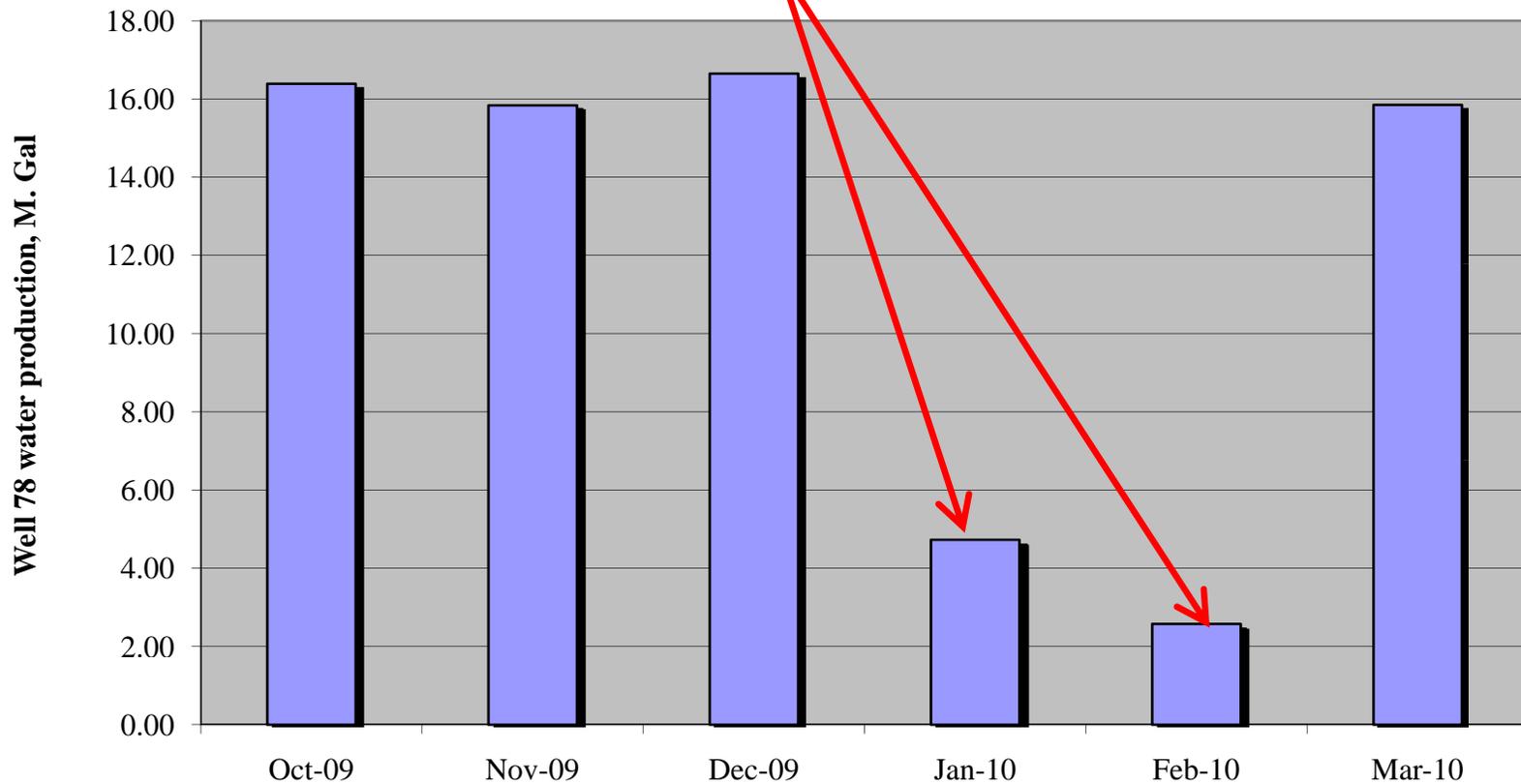
*OCWD monitoring data (11/09)





Well 78 Discharge Volume (M.Gal) from 10/1/2010 to 3/31/10

Well was turned off in part of January 2010 and most of February 2010 due to low distribution system demand





Well ET-1 & PA Treatment Plant

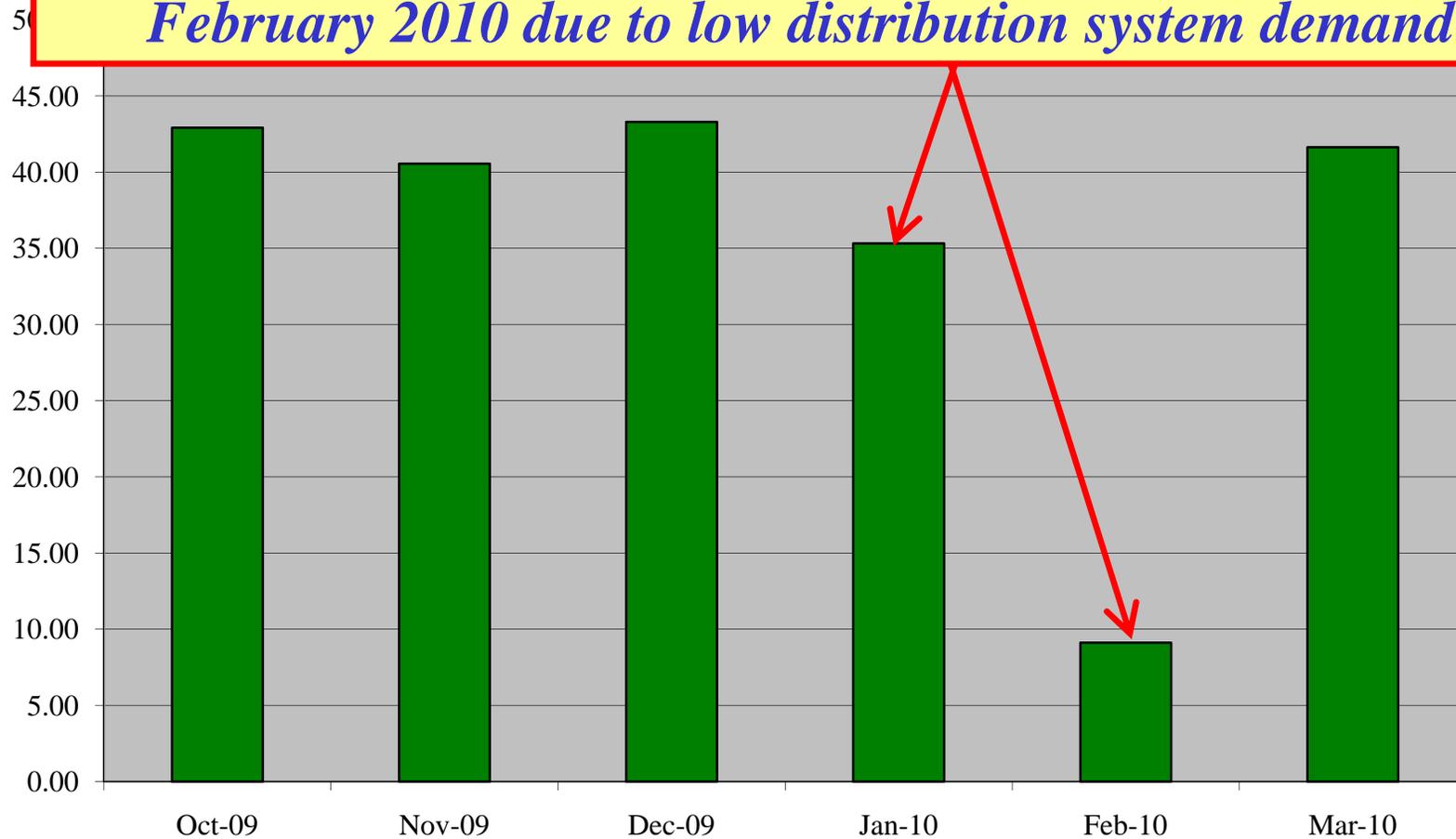
- Located at Jeffrey and Irvine Center Drive in Irvine
- In the last two quarters (10/1/2009 to 3/31 2010) PAP treated ~213 million gallons of TCE contaminated groundwater
- Pumping to IRWD non-potable system
- Average flow rate ~ 934 gallons per minute
- Influent TCE ~ 8-9 ppb
- Effluent TCE < 0.5 ppb (non-detect)





Well ET-1 (PAP) Discharge Volume (M.Gal) from 10/1/2009 to 3/31/2010

Well was turned off in part of January 2010 and most of February 2010 due to low distribution system demand





Well ET-2

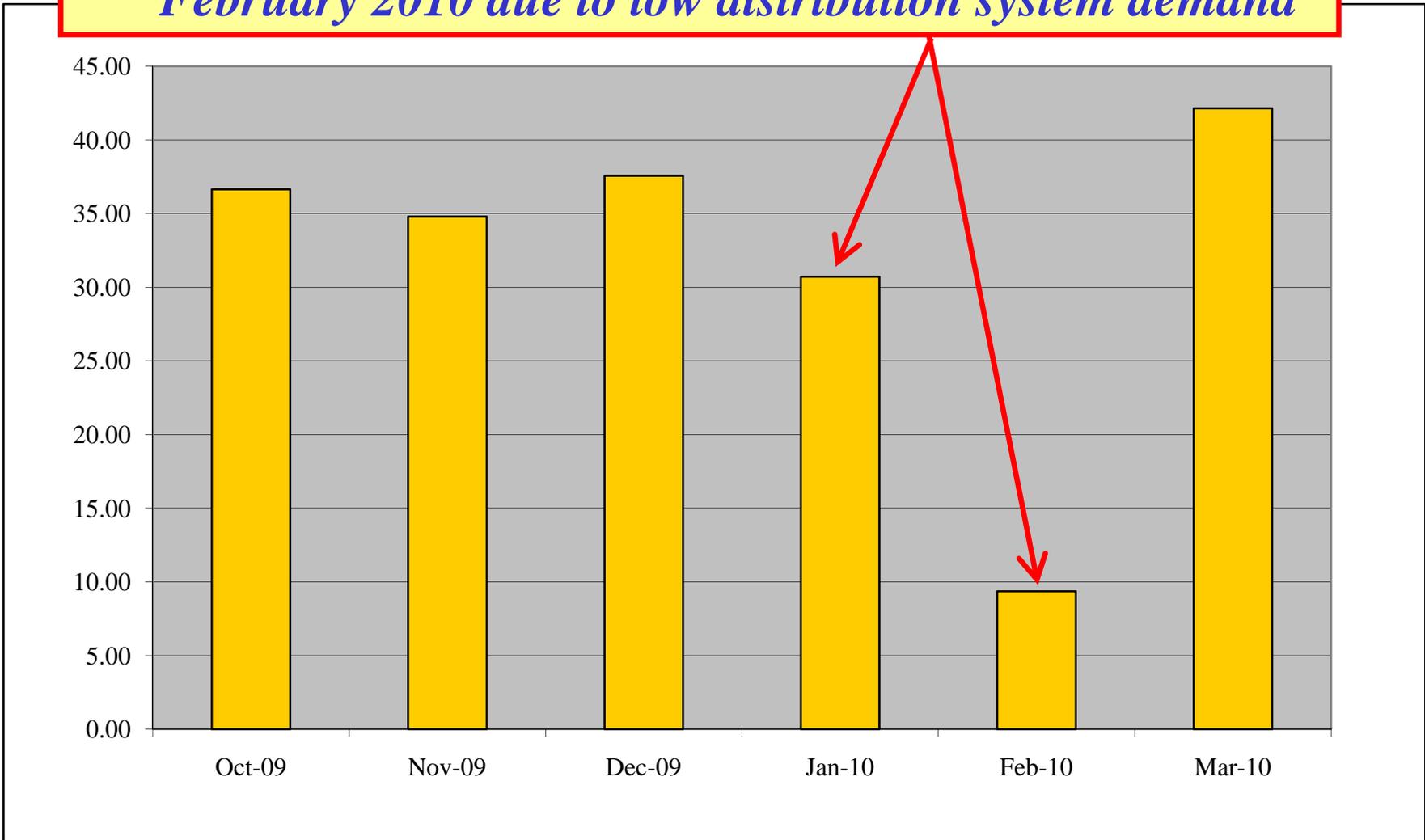
- Located at Culver and Irvine Center Drive in Irvine
- In the last two quarters (10/1/09 to 3/31/10) pumped ~ 191 million gallons to IRWD non-potable system
- Average flow rate ~ 730 gallons per minute
- Influent TCE
~ 1 ppb





Well ET-2 Discharge Volume (M. Gal) from 10/1/2009 to 3/31/2010

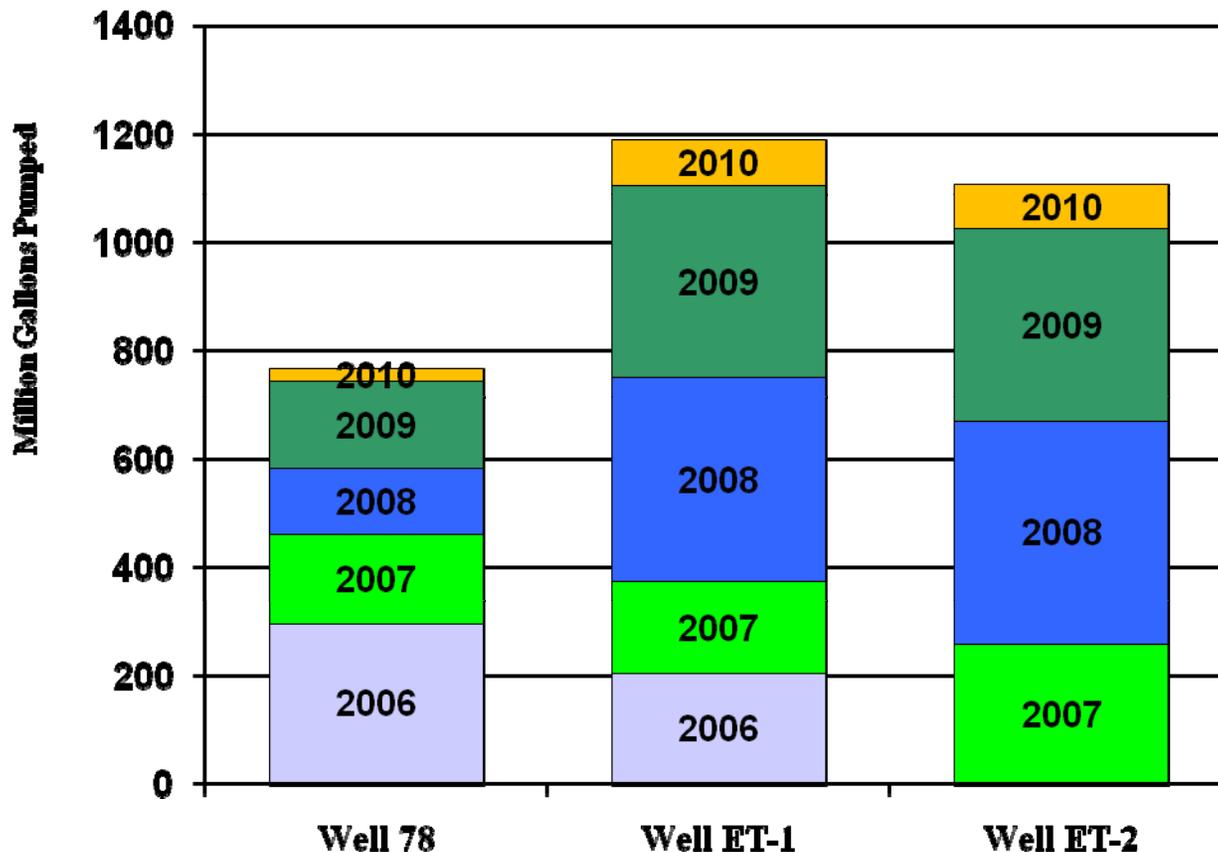
Well was turned off in part of January 2010 and most of February 2010 due to low distribution system demand





Groundwater Pumping and TCE Removal

PRINCIPAL AQUIFER PUMPING



■ Pumped 3.06 billion gallons of water from 2006 (startup) to March 2010

■ Total mass of TCE removed: ~39.6 kilograms or 87.3 pounds



Overview of Current Operations & Maintenance

- **PAP air stripping process completely removes TCE and other VOC contaminants from GW**
- **PAP preventive maintenance includes wet well pump checks, blower filter inspections and vapor adsorption GAC media changeouts**
- **Most recent GAC media change out performed on 9/15/09**



Overview of Current Operations & Maintenance (cont.)

- **PAP air stripper #1 and #2 inlet nozzles were removed in August 2009 (following manufacturer recommendations) resulting in influent flow rate increase from under 900 gpm to about 1000 gpm**
- **In October-November 2009 calcium carbonate deposits were removed from air stripper trays using mechanical and chemical cleaning processes**



Site 18 – Principal Aquifer Update

QUESTIONS/COMMENTS

???



INSTALLATION RESTORATION PROGRAM (IRP)

SITE 24

REMEDY STATUS

Presented By

Marc P. Smits, P.E.

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

April 28, 2010



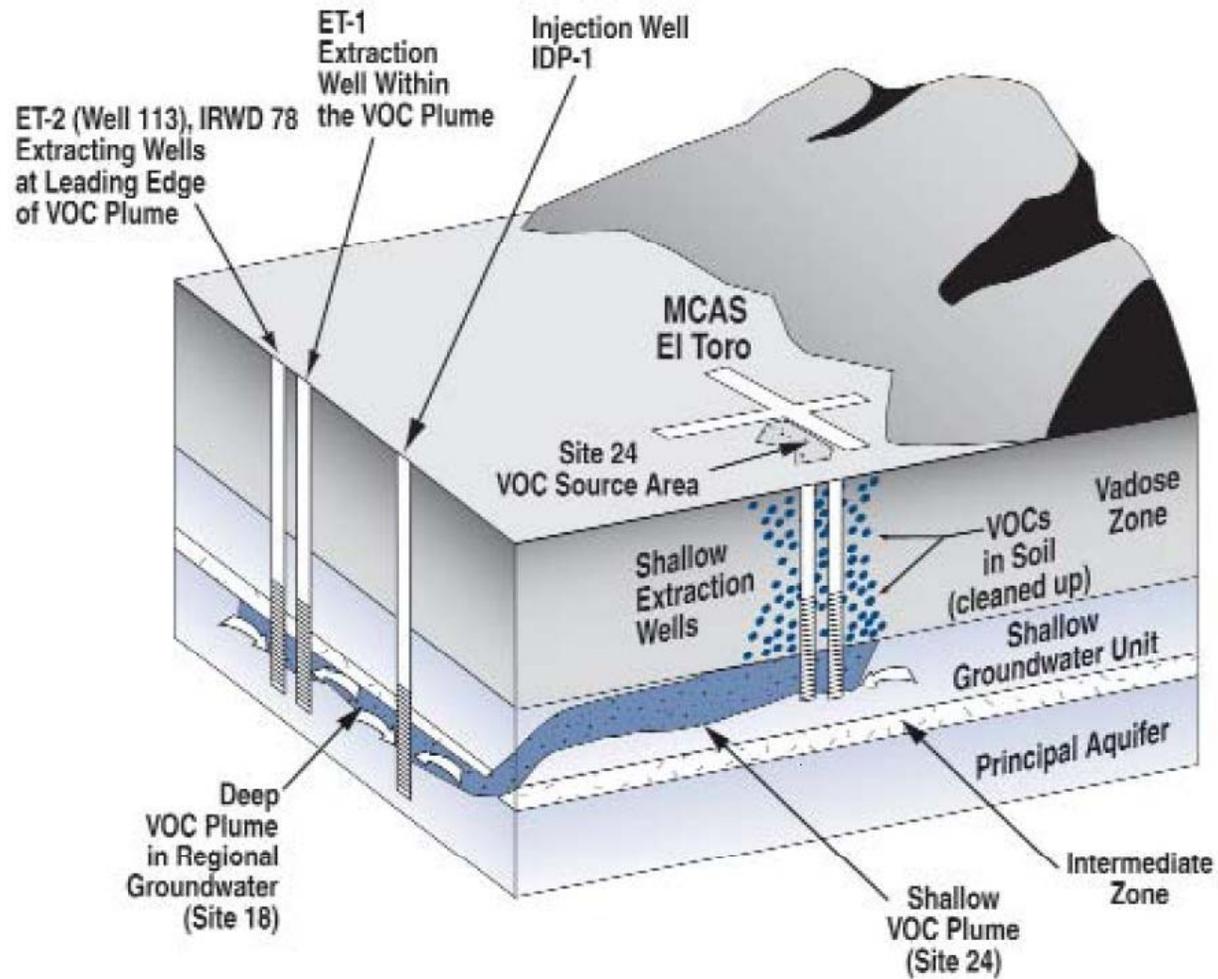
OVERVIEW



- SYSTEM OPERATIONS UPDATE
- CONTINGENCY EXTRACTION WELLS
- EXTRACTION WELL CONSTRUCTION
- OPERATING PROPERLY AND SUCCESSFULLY (OPS) REPORT



SITE CONCEPTUAL MODEL





SYSTEM OPERATION UPDATE



- System has been operating at an uptime efficiency of more than 95% from October 2008 to December 2009
- Flow rates from the combined wells averaged 391 gallons per minute between September 2008 and December 2009
- Total groundwater pumped to IRWD treatment plant as of April 23, 2010 is approximately 673 million gallons
- Approximately 990 pounds of volatile organic compounds (VOCs), mainly trichloroethylene (TCE), removed from the groundwater since startup
- Maximum concentration of TCE in groundwater in 2009 was 540 micrograms per liter (maximum concentration of TCE in groundwater at startup was 810 micrograms per liter)



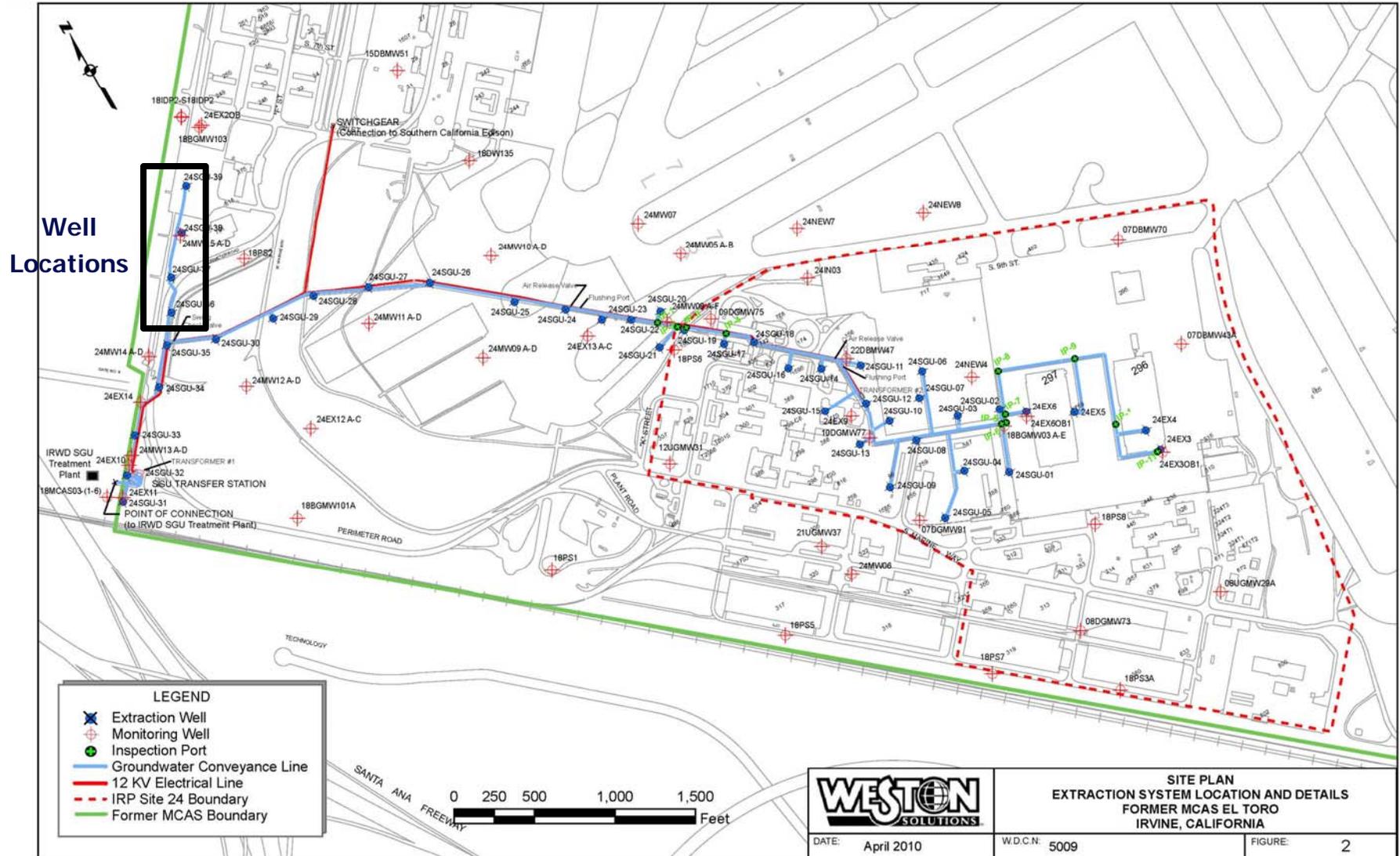
CONTINGENCY EXTRACTION WELLS



- Final Capture Zone Analysis Technical Memorandum recommended the installation of four contingency extraction wells along the station boundary to address an area of incomplete capture
- Navy prepared Final Extraction Well Implementation Plan to provide procedures for installation of the contingency extraction wells, including design specifications
- Navy installed the four extraction wells from December 17, 2009 to January 6, 2010 and installed piping to connect to the existing conveyance system
- A four-week demonstration period was conducted from March 2 through March 30, 2010, to demonstrate the extraction wells were operating as designed, thus attaining capture designed/anticipated for this area
- The construction and operation of these extraction wells is documented in an Addendum to the Interim-Remedial Action Report (I-RACR)

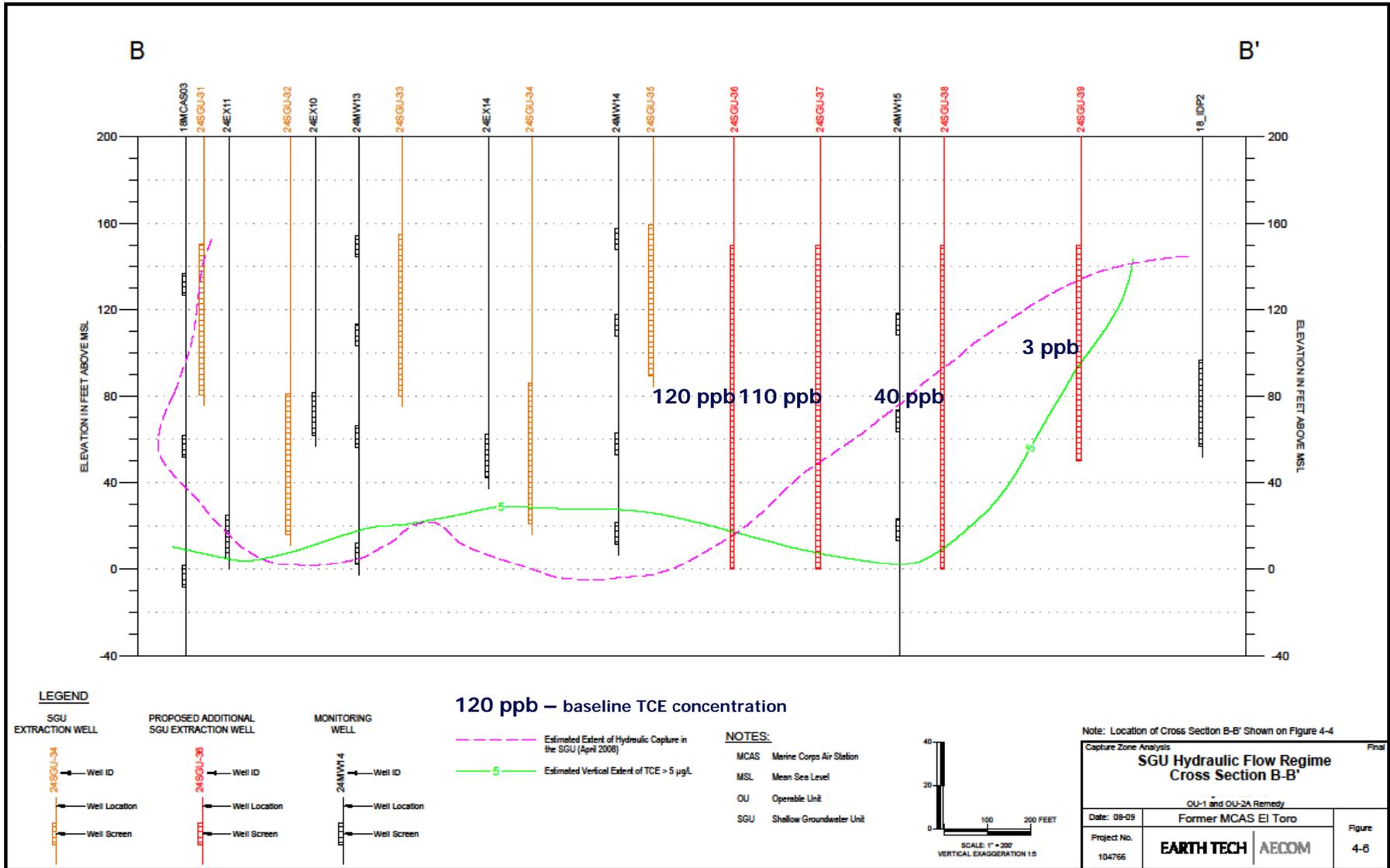


CONTINGENCY WELL LOCATIONS





CONTINGENCY WELL LOCATIONS





EXTRACTION WELL CONSTRUCTION



Well drilling set up at 24SGU-38 with a truck-mounted mud-rotary drill rig.



EXTRACTION WELL CONSTRUCTION



Well 24SGU-38 being surged during well development activities.



EXTRACTION WELL CONSTRUCTION



Backhoe trenching adjacent to Perimeter Road.



EXTRACTION WELL CONSTRUCTION



Directional boring taking place from the north to south beneath Perimeter Road.

Crew member directing a Ditch-Witch operator.



EXTRACTIONWELL CONSTRUCTION



Directional boring drill bit day-lighting on south side of Perimeter Road.



EXTRACTION WELL CONSTRUCTION



Piping being pulled through the horizontal borehole beneath Perimeter Road.



EXTRACTION WELL CONSTRUCTION



Welding HDPE pipe bored under Perimeter Road to the piping laid earlier north of Perimeter Road.



EXTRACTION WELL CONSTRUCTION



Welding HDPE conveyance piping in trench prior to backfilling.



EXTRACTION WELL CONSTRUCTION



Backhoe excavating at Well 24SGU-38 for placement of the well vault.



EXTRACTION WELL CONSTRUCTION



Backfilling trench north of Perimeter Road adjacent to well 24SGU-37.



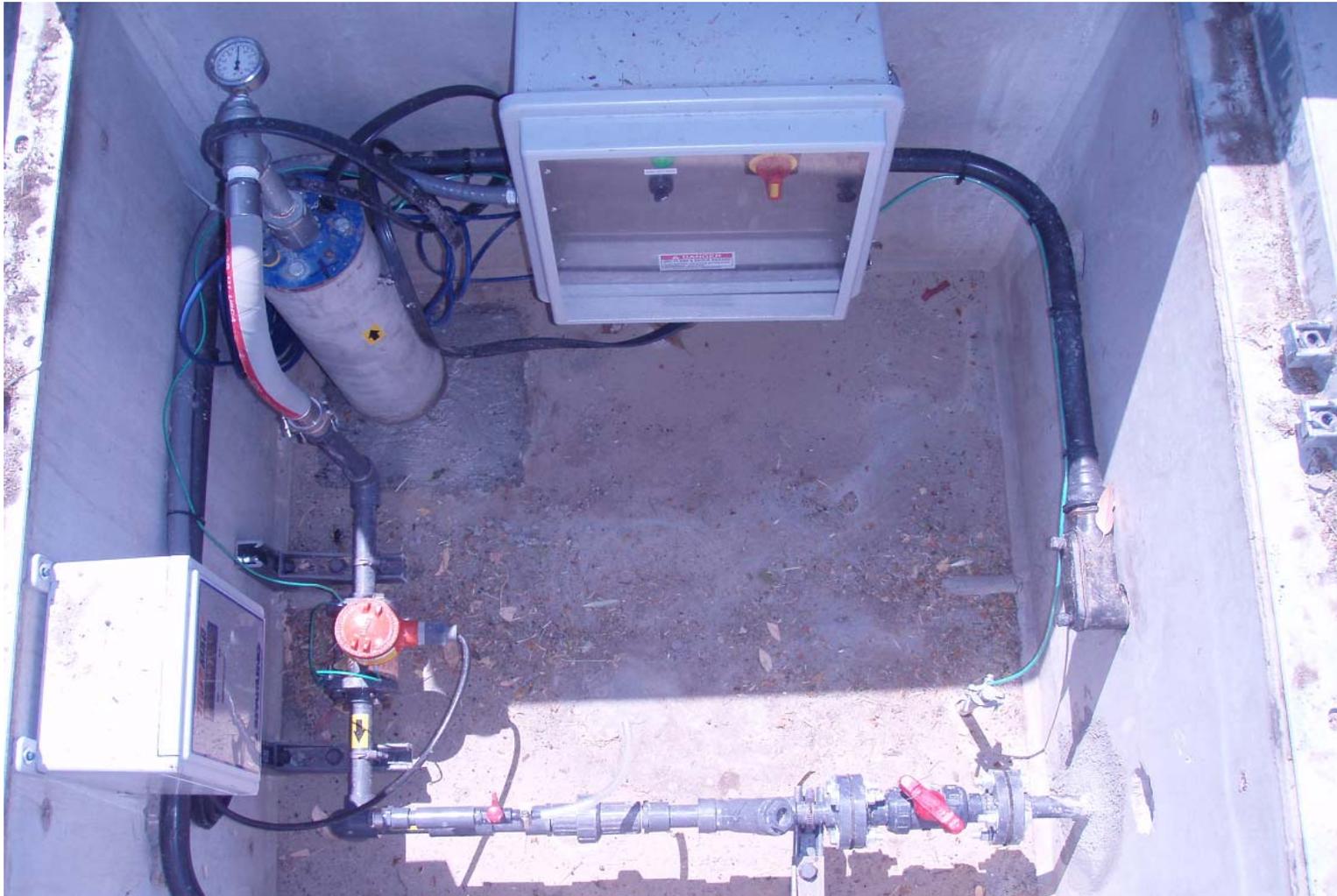
EXTRACTION WELL CONSTRUCTION



Compacting first lift of backfill soil south of Perimeter Road.



EXTRACTION WELL CONSTRUCTION



Completed well piping and electrical controls inside the well vault of 24SGU-38.



EXTRACTION WELL CONSTRUCTION



Well lid at well 24SGU-37, complete with concrete apron and stenciling.



OPS REPORT



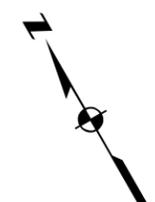
- Navy issued the Draft Operating Properly and Successfully (OPS) Report in January 2009
- Regulatory Agencies submitted comments that stated OPS designation for Site 24 would not be given until the four contingency extraction wells were installed
- As indicated earlier, these wells were installed and have been demonstrated to have attained the intended design capture in this area
- A Draft Final OPS Report was issued in April 2010 that includes: operational and monitoring data for the third year of the remedy; conclusions from the Five-Year Review for Site 24; and the Addendum to the I-RACR.
- Draft Final OPS Report is currently in review by the regulators.



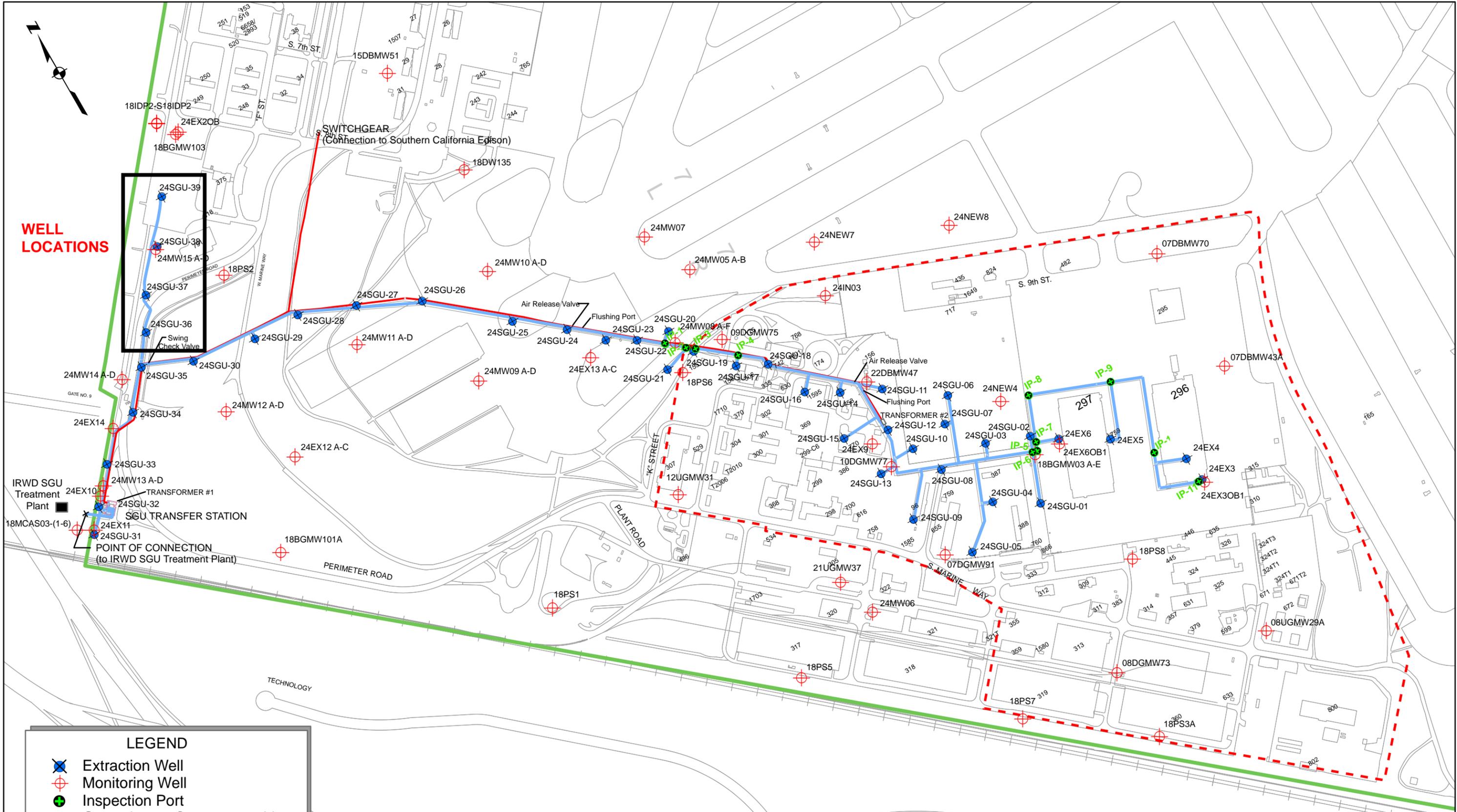
PROJECT DOCUMENTS



- Draft Annual Remedy Status Report (Sep 08 – Dec 09) April 2010
- Final Annual Remedy Status Report (Sep 08 – Dec 09) June 2010
- Draft Final Operating Properly and Successfully Report April 2010
- Final Operating Properly and Successfully Report June 2010

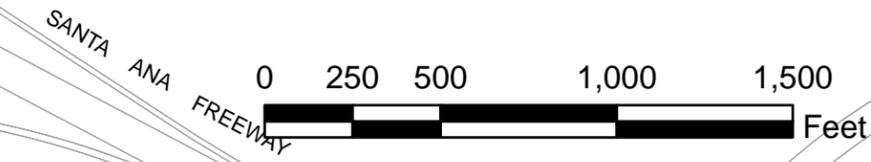


WELL LOCATIONS



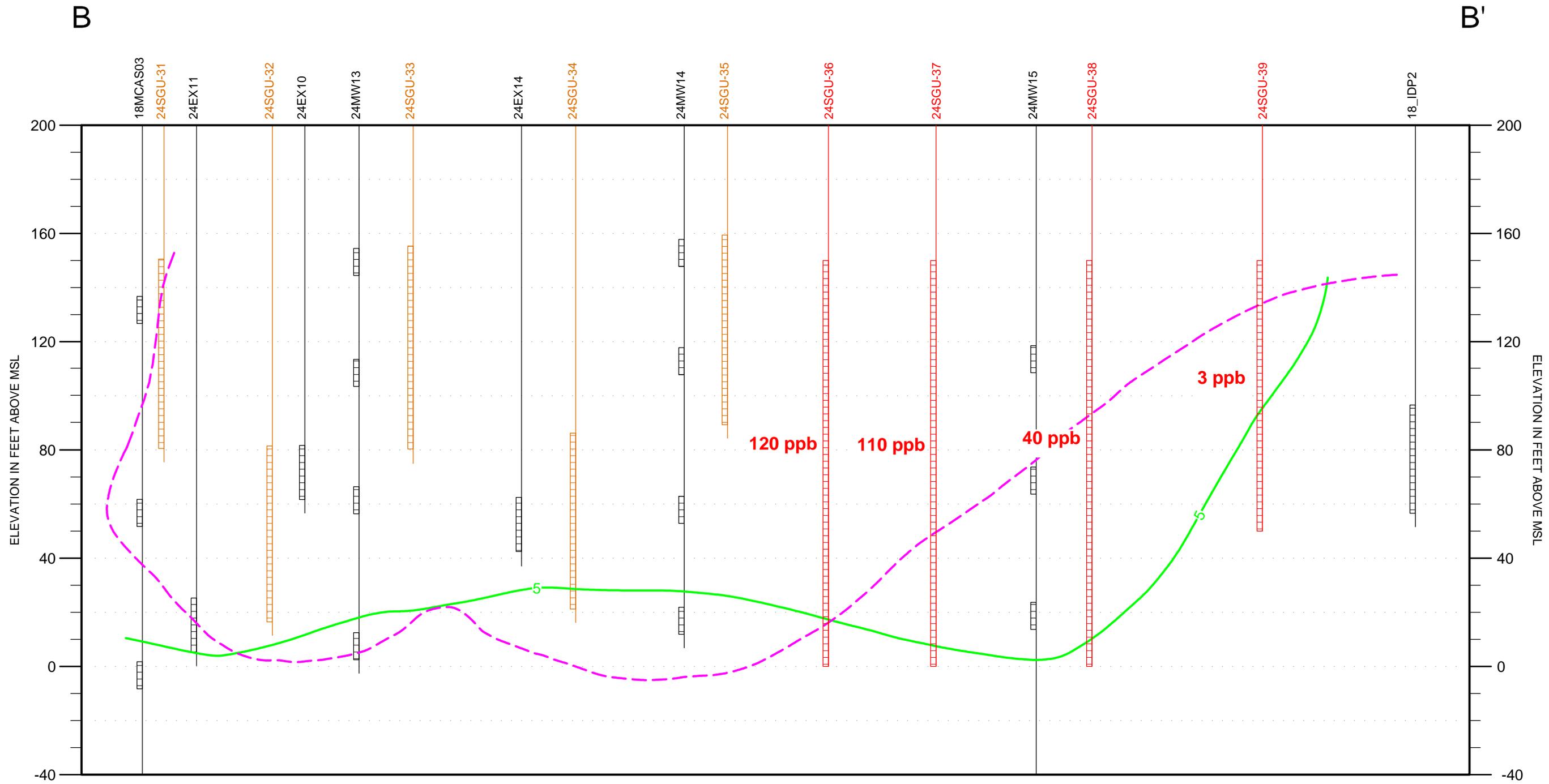
LEGEND

- Extraction Well
- Monitoring Well
- Inspection Port
- Groundwater Conveyance Line
- 12 KV Electrical Line
- IRP Site 24 Boundary
- Former MCAS Boundary

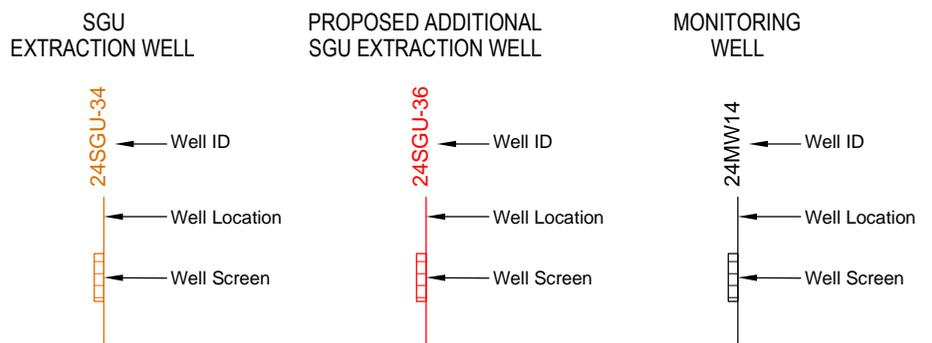


	SITE PLAN	
	EXTRACTION SYSTEM LOCATION AND DETAILS	
FORMER MCAS EL TORO		
IRVINE, CALIFORNIA		
DATE: April 2010	W.D.C.N: 5009	FIGURE: 2

File: L:\work\29307\cad\001 and OU2A Remedy\Capture Zone Analysis\Fig 4-6 SGU Hydraulic Flow Regime Cross Section B-B AECOM.dwg Date: Aug 18, 2009 Time: 11:57am



LEGEND

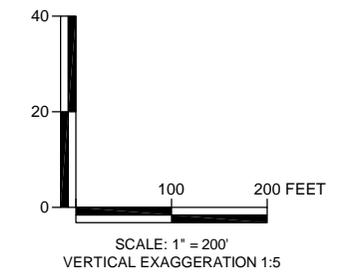


120 ppb - baseline TCE concentration

- - - Estimated Extent of Hydraulic Capture in the SGU (April 2008)
- Estimated Vertical Extent of TCE > 5 µg/L

NOTES:

- MCAS Marine Corps Air Station
- MSL Mean Sea Level
- OU Operable Unit
- SGU Shallow Groundwater Unit



Note: Location of Cross Section B-B' Shown on Figure 4-4

Capture Zone Analysis SGU Hydraulic Flow Regime Cross Section B-B'		Final
OU-1 and OU-2A Remedy		
Date: 08-09	Former MCAS EI Toro	
Project No. 104766	EARTH TECH AECOM	Figure 4-6