



FINAL

PCAP CLOSURE REPORT

UST SITE 222

Geotracker Case Number: 083002965T
**Former Marine Corps Air Station
Tustin, California**

March 2012

Prepared for:

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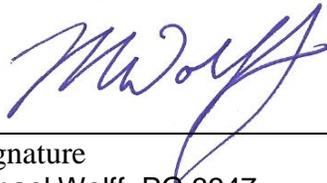
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PCAP CLOSURE REPORT

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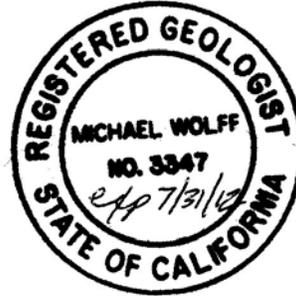
**UST Site 222
Former Marine Corps Air Station Tustin
Tustin, California**

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ACRONYMS & ABBREVIATIONS

AS	air sparge
AS/SVE	air sparge and soil vapor extraction
AST	aboveground storage tank
Battelle	Battelle Memorial Institute
BCT	BRAC Cleanup Team
bgs	below ground surface
BNI	Bechtel National, Inc.
BRAC	Base Realignment and Closure
BTEX	benzene, toluene, ethylbenzene, and xylenes
°C	degrees Celsius
CAPE	CAPE Environmental
CG	cleanup goal
CO	Carve-Out
DoN	Department of Navy
DHS	California Department of Health Services
DO	dissolved oxygen
DTSC	California Department of Toxic Substances Control
EC	electrical conductivity
ECS	Enviro Compliance Solutions, Inc.
GAC	granular activated carbon
gpm	gallons per minute
H ⁺	hydrogen ion
HiPOx™	aboveground oxidation system
hp	horsepower
IRP	Installation Restoration Program
IRWD	Irvine Ranch Water District
J	laboratory data qualifier indicating estimated value
<	less than
MCAS	Marine Corps Air Station
MCL	Maximum Contaminant Level in drinking water
µg/L	micrograms per liter
msl	mean sea level
MTBE	methyl <i>tert</i> -butyl ether
NFA	no further action
NTU	nephelometric turbidity units
OCSD	Orange County Sanitation District

O&M	operation and maintenance
OHM	OHM Remediation Services
ORP	oxidation-reduction potential
OU	operable unit
PCAP	Petroleum Corrective Action Program
pH	acidity
PMO	Program Management Office
psi	pounds per square inch
PTES	Pacific Treatment Environmental Services
QC	quality control
RWQCB	California Regional Water Quality Control Board, Santa Ana Region
Shaw	Shaw Environmental and Infrastructure, Inc.
S/m	Siemens per meter
SPDP	special purpose discharge permit
SVE	soil vapor extraction
TCRA	time-critical removal action
TCP	trichloropropane
TDS	total dissolved solids
TPH	total petroleum hydrocarbons
TTO	total toxic organics
U.S. EPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound
WBZ	water bearing zone

EXECUTIVE SUMMARY

This Closure Report was prepared by Enviro Compliance Solutions, Inc. (ECS) on behalf of the U.S. Department of Navy (DoN) Base Realignment and Closure (BRAC) Program Management Office (PMO) West under Contract No. N62473-10-C-4409 for the Petroleum Corrective Action Program (PCAP) at Underground Storage Tank (UST) Site 222 (the Site) within the former Marine Corps Air Station (MCAS), Tustin, California (Figure 1). The purpose of this Closure Report is to present the rationale and supporting data sufficient for the California Regional Water Quality Control Board, Santa Ana Region (RWQCB) to determine that no further action (NFA) is required for groundwater at UST Site 222 (Geotracker Case Number 083002965T).

UST Site 222 was a former gasoline station within Carve-Out (CO) 5 in the northwest portion of former MCAS Tustin. UST Site 222 originally included the following:

- Four 12,000-gallon gasoline, two 500-gallon motor oil, and one 500-gallon waste oil USTs;
- Several fuel-dispensing islands; and
- Building 222 which was used for vehicle maintenance and servicing.

The gasoline station was taken out of service in January 1998. All USTs, dispenser islands and piping, and Building 222 were removed later. Site assessment activities revealed soil and groundwater impacts from Site releases. The primary contaminant was methyl *tert*-butyl ether (MTBE). The RWQCB approved closure for the vadose zone soil at the Site in a letter dated February 01, 2006.

The RWQCB regulates all cleanup activities at UST Site 222, oversees the final corrective action, and has the authority to grant regulatory Site Closure (Geotracker Case Number 083002965T). Remediation activities and groundwater monitoring were coordinated by the Navy with the BRAC Cleanup Team (BCT), which also includes the California Environmental Protection Agency Department of Toxic Substances Control (DTSC), the United States Environmental Protection Agency (U.S. EPA), and the RWQCB.

The Regional Aquifer beneath the Site is considered a potable drinking water source, and is located below three shallow water bearing zones (WBZs) that are of generally poor water quality and are not used as sources for potable water. Protection of the Regional Aquifer is one of the primary objectives of the cleanup at UST Site 222. The Regional Aquifer has not been impacted by MTBE.

Based on the results of contaminant fate and transport modeling (Shaw Environmental and Infrastructure, Inc. [Shaw] 2005a), the following MTBE cleanup goals (CGs) were established for protection of the Regional Aquifer with concurrence from the RWQCB:

- First WBZ: 300 micrograms per liter ($\mu\text{g/L}$);
- Second WBZ: 44 $\mu\text{g/L}$; and
- Third WBZ: 13 $\mu\text{g/L}$.

Groundwater modeling indicated that if concentrations of MTBE in the third WBZ were maintained at or below the Maximum Contaminant Level (MCL) for drinking water (13 µg/L); the beneficial uses for groundwater in underlying Regional Aquifer would be adequately protected.

The DoN has been conducting groundwater remediation at UST Site 222 since 2001. Remedial activities included installation and operation of a groundwater extraction and treatment system in the Source Area (Area 1) and Downgradient Area (Area 2). The groundwater extraction and treatment system has been expanded and optimized over time and an air sparge and soil vapor extraction (AS/SVE) system was installed and operated to supplement the MTBE mass removal from the first WBZ in the Source Area.

With the concurrence of the RWQCB, site closure activities were initiated in November 2011¹. After more than 10 years of operation, the groundwater extraction and treatment (pump-and-treat) system was shut down on November 23, 2011.

Significant events and findings are summarized as follows:

- All seven USTs and associated piping were removed under Orange County Health Care Agency oversight in 1998.
- Approximately 66,500 tons of petroleum-impacted soil was excavated in four phases. A total of 36,700 tons of the excavated soil was treated onsite, and approximately 29,800 tons of excavated soil was transported offsite for treatment and disposal.
- A groundwater pump-and-treat system was installed in 2001 to address MTBE in the first and second WBZs. The system was expanded in 2001 and 2007.
- In 2004, approximately 146,171 gallons of impacted groundwater were pumped from the excavation, treated, and returned to the excavation to mobilize residual hydrocarbons so that they could be removed by the pump-and-treat system.
- The RWQCB granted vadose zone soil closure in 2006 (RWQCB 2006).
- Since groundwater remediation began in 2001, approximately 4,313 pounds of MTBE have been removed from the first and second WBZs; approximately 267 million gallons of groundwater from the first and second WBZs have been extracted, treated, and discharged. The annual MTBE mass recovery rate has declined from a maximum of approximately 1,377 pounds per year in 2002 to 7.6 pounds per year (annualized) in 2011 (a 99.5 percent reduction).
- An AS/SVE System was operated from 2007 until 2009 to accelerate MTBE mass removal in the first WBZ within the Source Area. MTBE concentrations in the first WBZ in the Source Area have remained below the CG since December 2009.
- The rate of MTBE mass removal has leveled off and has reached a point of diminishing returns, beyond which additional groundwater extraction will not result in significant additional MTBE mass removal.
- The MTBE plume (the areal extent of MTBE in groundwater at concentrations exceeding the CG) in the first WBZ has been eliminated. Concentrations of MTBE

¹ Letter from DoN to RWQCB, November 18, 2011.

have not exceeded the CG for more than four consecutive quarters.

- The MTBE plume in the second WBZ has been significantly reduced. As of the Third Quarter 2011, MTBE concentrations in the second WBZ exceed the CG in only two of 17 wells (222PW10D at 110 µg/L and IS72MW03D at 52 µg/L). As of the Third Quarter 2011, MTBE concentrations show a generally declining trend in these two monitoring wells (Figure 12).
- The MTBE plume in the third WBZ was eliminated in 2002 and since 2006, MTBE have not been reported at concentrations exceeding 2.0 µg/L in any third WBZ monitoring wells. MTBE was not reported in any third WBZ wells in the Third Quarter 2011, and was not reported at concentrations exceeding the laboratory reporting limit of 1.0 µg/L in 2011.

On the basis of the significant events and findings noted above, a determination that NFA is required for groundwater at UST Site 222 is warranted for the following reasons:

- The source of the MTBE groundwater contamination has been removed.
- Through November 23, 2011, approximately 267 million gallons of groundwater have been extracted from the first and second WBZs, treated, and discharged.
- MTBE mass removal has reached a point of diminishing returns, beyond which additional groundwater extraction will not result in significant additional MTBE mass removal.
- As of the third quarter 2011, MTBE concentrations are below the CG at all monitoring wells in the first WBZ.
- As of the third quarter 2011, MTBE concentrations are below the CG at all except two monitoring wells in the second WBZ.
- Since 2006, MTBE concentrations have not been reported at concentrations exceeding 2.0 µg/L in any third WBZ monitoring wells.
- The remaining mass of MTBE in the first and second WBZs is insufficient to impact the third WBZ at concentrations exceeding the CG for the third WBZ, or to migrate off-site at concentrations exceeding the CGs.

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1.0 Introduction

1.1 Purpose

This Closure Report was prepared by ECS on behalf of the DoN BRAC PMO West under Contract No. N62473-10-C-4409 for the PCAP at UST Site 222 within former MCAS, Tustin, California (Figure 1). The purpose of this Closure Report is to present the rationale and supporting data sufficient for the California Regional Water Quality Control Board, Santa Ana Region (RWQCB) to determine that no further action (NFA) is required for groundwater at UST Site 222 (Geotracker Case Number 083002965T).

1.2 Report Organization

Section 2 discusses the PCAP background, including a brief summary of Site history and the regulatory framework. Section 3 presents a summary of PCAP remedial actions that have been taken and the results of each. Section 4 presents 3rd Quarter 2011 groundwater monitoring data, provides historical PCAP performance data and presents an evaluation of system performance through the 3rd quarter 2011. Section 5 presents a discussion of the rationale and justification for site closure based on achieving the performance objective of protecting the Regional Aquifer, groundwater monitoring data and performance evaluation of the PCAP since start-up. Section 6 provides details on the planned restoration activities at UST Site 222.

This Report includes tables, figures and appendices that present PCAP historical data and provide visual representations of data interpretation and evaluation.

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2.0 Background

2.1 Site History

Former MCAS Tustin operated from 1942 to July 1999, when the facility was closed as part of the BRAC process. Approximately 1,150 acres of the installation were subsequently conveyed to the City of Tustin. Another 450 acres required additional remediation or restoration, and remain under the ownership and control of the DoN. The remaining areas are not contiguous, and are identified as CO areas.

UST Site 222 is a former gasoline station within CO-5 in the northwest portion of former MCAS Tustin (Figures 1 and 2) that originally included the following:

- Four 12,000-gallon gasoline, two 500-gallon motor oil, and one 500-gallon waste oil USTs;
- Several fuel-dispensing islands; and
- Building 222 which was used for vehicle maintenance and servicing.

The gasoline station was taken out of service in January 1998. All USTs, dispensers and piping, Building 222, and nearby Buildings 167, 189, 199 were later removed. Site assessment activities revealed soil and groundwater impacts from Site releases.

2.2 Environmental Setting

Former MCAS Tustin lies within the San Diego Creek/Newport Bay Watershed and the Irvine Groundwater Management Zone. The land surface in the UST Site 222 area lies at an elevation of approximately 67 feet above mean sea level (msl), and slopes gently to the south. The top of the Regional Aquifer that supplies public drinking and irrigation water occurs in permeable Pleistocene alluvial sands at depths of approximately 100 to 110 feet below ground surface (bgs). Three shallow lower-permeability WBZs overlie the Regional Aquifer in the Site area. These are:

- First WBZ, from approximately 10 to 40 feet bgs;
- Second WBZ, from 40 to 70 feet bgs; and
- Third WBZ, from 70 to 90 feet bgs.

Each WBZ consists of clay and clayey and silty sands with isolated sand and gravel lenses. The vadose zone from the ground surface to the top of the first WBZ consists predominantly of silt and clay.

Groundwater within the first and second WBZs is brackish to saline, with high concentrations of selenium, nitrate, sulfate, and total dissolved solids (TDS) due to agricultural use prior to 1942. Water quality analyses of samples collected from monitoring wells in the area reveal that groundwater within the first and second WBZs is locally saturated with calcium carbonate and calcium sulfate (ECS 2007a). The water quality of the first and second WBZs is unsuitable for drinking water purposes without treatment to meet California Department of Health Services (DHS) drinking water criteria.

2.3 Regulatory Framework

The DoN is the lead federal agency for planning and implementing restoration activities at former MCAS Tustin. Investigation planning and review, remediation activities, and ongoing groundwater monitoring are coordinated with the BCT. The BCT consists of representatives from the DoN, DTSC, the RWQCB, and the U.S. EPA. The RWQCB regulates all cleanup activities at UST Site 222; it oversees the final corrective action, and has the sole authority to grant regulatory Site closure.

The DHS has established a MCL for MTBE in drinking water of 13 µg/L. The Regional Aquifer, which is considered a potable drinking water source, is located below the three shallow WBZs. Protection of the Regional Aquifer is the primary objective of the cleanup at UST Site 222.

Based on the results of contaminant fate and transport modeling (Shaw 2005a), the RWQCB established the following MTBE CGs for protection of the Regional Aquifer:

- First WBZ: 300 µg/L;
- Second WBZ: 44 µg/L; and
- Third WBZ: 13 µg/L.

The modeling showed that if the third WBZ groundwater MTBE concentration was maintained at or below the MCL for drinking water (13 µg/L); the underlying Regional Aquifer would be adequately protected.

3.0 Summary of Remedial Actions

3.1 Petroleum Corrective Action Plan

The Final Petroleum Corrective Action Plan describes the history, approach, and objectives of groundwater remediation at UST Site 222 (Battelle Memorial Institute [Battelle] 2007a). As stated in the Final Petroleum Corrective Action Plan, the approach used for protection of the Regional Aquifer was to remove contaminant mass and control migration from the upper two WBZs. The technical approach to achieve this objective was as follows:

- Install and operate an in situ air sparge treatment system (with a contingency soil vapor extraction system) within the first WBZ to address the area of highest MTBE concentrations (e.g., exceeding 1,000 µg/L);
- Optimize the existing extraction well network to focus groundwater extraction in areas of the second WBZ with MTBE concentrations exceeding the cleanup goal of 44 µg/L; and
- Expand the existing extraction well network by installing additional extraction wells in the second WBZ downgradient of the existing (2007) extraction well network to reduce MTBE concentrations and hydraulically control the leading edge of the MTBE plume at UST Site 222.

3.2 Source Area Excavations

From March 1998 to September 2005, a total of 66,500 tons of gasoline-impacted soil was excavated in four phases within and near UST Site 222 to eliminate or reduce the source of total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, xylenes (BTEX), and MTBE to groundwater (Battelle 2007a). Approximately 650,000 gallons of hydrocarbon-impacted groundwater was pumped and treated during the excavation activities. In February and March 2004, a pilot study was conducted to pump a total of 146,171 gallons of hydrocarbon-impacted groundwater from the excavation. The impacted water was treated and returned to the excavation to mobilize and flush residual gasoline constituents from the soil to groundwater. The pilot study results demonstrated that residual BTEX and MTBE in soil could be flushed and captured by downgradient extraction wells (Shaw 2005a).

A draft Soil Closure report was issued in November 2005 (Shaw 2005b). In response, the RWQCB issued an NFA determination for soil at the Site on February 1, 2006 (RWQCB 2006). A copy of the February 1, 2006 RWQCB letter is included in Attachment 1. A final Soil Closure Report was issued in March 2006 (Shaw 2006).

3.3 Groundwater Remediation

3.3.1 General

UST Site 222 groundwater is divided into two areas for groundwater remediation purposes (Figure 2):

- Treatment Area 1 (Source Area): Includes the Source Area portion of the MTBE-impacted groundwater that was primarily in the first WBZ.
- Treatment Area 2 (Downgradient Area): Includes the downgradient portion of MTBE-impacted groundwater in the first and second WBZs.

MTBE-impacted groundwater from UST Site 222 commingles in Downgradient Area with the adjacent Operable Unit (OU)-1A 1,2,3-trichloropropane (1,2,3-TCP)-impacted groundwater. The DoN initiated a time-critical removal action (TCRA) at OU-1A in March 2001 to mitigate potential further migration of 1,2,3-TCP in groundwater. The TCRA System began operation in January 2002 treating groundwater extracted from seven wells installed along the primary axis of the 1,2,3-TCP plume. Portions of the TCRA system were subsequently incorporated into the final OU-1A groundwater remedy, which is ongoing.

3.3.2 Groundwater Extraction and Treatment

3.3.2.1 Extraction System

Nine groundwater extraction wells were installed within the Source and Downgradient Areas in three phases:

- Phase I: Two first WBZ extraction wells (222EW03SC and 222EW03SD) were installed in the Source Area in early 2001.
- Phase II: Four extraction wells screened across both the first and second WBZs (222EW05, 222EW09, 222EW10, and 222EW11) were installed in the Downgradient Area in late 2001; approximately 300 to 1,000 feet downgradient of the Source Area.
- Phase III: Three additional extraction wells (222EW12, 222EW13 and 222EW14) were installed in the Downgradient Area in 2007; approximately 1,120 to 1,500 feet downgradient of the Source Area. Well 222EW13 is screened across both the first and second WBZs, and wells 222EW12 and 222EW14 are screened exclusively in the second WBZ.

Extraction well 222EW11 was shut down in May 2005 due to the small amount of MTBE mass being recovered, and was properly destroyed in the first quarter of 2006 prior to construction of the new Valencia Road alignment through the area. Extraction wells 222EW03SC and 222EW03SD were shut down on January 13, 2010. The remaining six extraction wells were shut down in preparation for Site closure on November 23, 2011.

Extraction well completion data are provided in Table 1, and well locations are shown on Figure 2.

3.3.2.2 Treatment System

In August 2001, an aboveground oxidation system (HiPOx™) was installed at UST Site 222 to remove MTBE from extracted groundwater. This system removed approximately 4,000 pounds of MTBE, until it was replaced by the Interim PCAP treatment system in June 2006. The Interim PCAP System used granular activated carbon (GAC) to remove MTBE from the extracted groundwater.

The Interim PCAP System was replaced by the Final PCAP Treatment System in 2007. The Final PCAP System was constructed at a new location, adjacent to the OU-1A/-1B North Treatment System (see Figure 2). The Final PCAP Treatment System was brought on-line on September 26, 2007 and operated during daytime hours until October 12, 2007 when construction of a security fence was completed, allowing full-time operation. The Final PCAP System operated continuously since that time, except during scheduled maintenance shutdowns or shutdowns requested by Orange County Sanitation District (OCSD) during significant rain events.

Extracted water from six operating extraction wells (222EW05, 222EW09, 222EW10, 222EW12, 222EW13, and 222EW14) was conveyed to a 5,000-gallon aboveground storage tank (AST) equipped with high- and low-level switches. Stored groundwater from the AST was then pumped through a series of four 25-micron bag filters to remove suspended solids, and then through two 10,000-pound liquid-phase GAC vessels with a flow-through capacity of up to 110 gallons per minute (gpm).

3.3.2.3 Treated Effluent Discharge

Treated effluent from the PCAP System is combined with treated effluent from the adjoining OU-1A/1B North system, and the combined effluent flows through an OCSD-approved and calibrated flow totalizer. The treated effluent is discharged to an Irvine Ranch Water District (IRWD) sanitary sewer lateral under OCSD Special Purpose Discharge Permit (SPDP) No. 57-256. A copy of SPDP No. 57-256 is provided in Appendix A. The IRWD lateral runs beneath Armstrong Avenue and leads to an OCSD sewer main.

OCSD has established a limit of 580 µg/L for total toxic organics (TTOs) for effluent discharged to the IRWD sewer laterals under SPDP No. 57-256.

3.3.3 Air Sparging in Source Area

In the fall of 2007, an air sparging (AS) System was installed in the Source Area to accelerate MTBE removal from the first WBZ. 40 AS wells (222AS-01 to 222AS-40), four soil vapor extraction (SVE) wells (222SVE-01 to 222SVE-04), and six soil gas monitoring points (222MP-01, 222MP-02, and 222SG-01 through 222SG-04) were installed within the Source Area (Battelle 2007b). The AS/SVE System began operating on March 10, 2008. AS/SVE well locations are shown on Figure 3.

The AS/SVE System operated from March 10, 2008 to August 25, 2008. By August 25, first WBZ MTBE concentrations had declined to below the CG (300 µg/L) and operation of the system was suspended. Monitoring was conducted to evaluate potential MTBE concentration rebound. First WBZ MTBE concentrations remained below the CG throughout the remainder of 2008 and into 2009. First WBZ MTBE concentrations gradually increased to levels exceeding the CG, and the AS System was re-started on September 14, 2009. Groundwater MTBE concentrations rapidly declined again to below the CG, and system operation was again suspended for rebound monitoring on December 22, 2009. First WBZ MTBE concentrations have remained well below the CG through the Third Quarter 2011.

3.3.4 Performance Monitoring

Groundwater monitoring wells were installed in phases from 2000 through 2007 by OHM Remediation Services (OHM), Battelle, and ECS. Historic groundwater monitoring data collected within UST Site 222 from 2000 through 2006 were summarized previously in reports prepared by Bechtel National, Inc. (BNI 2000, 2001, and 2003) and Pacific Treatment Environmental Services (PTES 2003 and 2004). Cape Environmental (CAPE) continued quarterly monitoring from 2004 through 2007 (CAPE 2004, 2005, 2006, and 2007). ECS began quarterly monitoring in 2008. Results were summarized in previous reports (ECS 2009, 2010a, 2011). Combined OU-1A and PCAP groundwater monitoring are also reported in annual reports for OU-1A/1B (e.g. ECS 2010b). Monitoring well completion data are provided in Table 1, and well locations are shown on Figure 2.

3.3.5 Reporting

The BCT receives quarterly data summary reports, and is provided the opportunity to review and comment on draft annual reports before final publishing. The contents of quarterly and annual reports are summarized below.

Quarterly Data Summary Reports include the following:

- Groundwater monitoring results;
- Groundwater levels and elevation contours; and
- A summary of any operation and maintenance (O&M) or optimization activities completed.

Annual Reports include:

- Quarterly groundwater monitoring activities and data;
- Summary of operation, maintenance, monitoring, and optimization activities completed during the year;
- Evaluation of treatment system performance;
- Discussion of sustainable remediation practices incorporated in the system and potential opportunities to enhance sustainability;
- Progress of groundwater remediation;
- Future planned activities; and
- Conclusions and recommendations.

OCSD SPDP reporting requirements include:

- Monthly monitoring and reporting of the volume of treated effluent discharge;
- Quarterly monitoring and reporting of the quality of the treated effluent; and
- Annual calibration of the effluent flow totalizer.

4.0 2011 PCAP Performance

4.1 Third Quarter 2011 Groundwater Monitoring

Quarterly groundwater monitoring activities for the Third Quarter 2011 in the UST Site 222 area was performed concurrently at wells associated with the volatile organic compound (VOC) plumes at OU-1A/-1B North. Water levels were measured and groundwater samples were collected concurrently to provide data comparability.

Third Quarter 2011 groundwater levels in the UST Site 222, OU-1A, and OU-1B North areas were measured on July 25, 2011, and groundwater samples were collected from August 1 through August 11, 2011. PCAP groundwater monitoring activities were conducted in accordance with the approved Work Plan (Battelle 2007a) and Health and Safety Plan (ECS 2007b). Details of the OU-1A/-1B North sampling activities are provided in the OU-1A/-1B reports.

4.1.1 Monitoring Activities

4.1.1.1 Groundwater Level Measurements

Groundwater levels were measured in monitoring wells using a Solinst® water level meter. Monitoring well completion data are provided in Table 1, and water level measurements for the Third Quarter 2011 are provided in Table 2². Historic water level measurements are provided in Appendix B.

4.1.1.2 Groundwater Sampling

Groundwater samples were collected from extraction and monitoring wells. Grab samples from operating extraction wells were collected directly from sampling ports at the well head.

All monitoring wells were sampled using a bladder pump. Extraction wells with packers (222EW05, 222EW10, and 222EW13) were sampled using a peristaltic pump (due to limited [<0.5 -inch] annular space between the well casing and packer riser pipe) to collect samples from the first WBZ. All purged wells (except active pumping extraction wells) were sampled in accordance with the U.S. EPA guidance for low-flow sampling (U.S. EPA 1996).

Dedicated Teflon®-lined tubing was used at each well to convey pumped water out of the well during purging and sampling. During purging, field parameters including the acidity(pH), electrical conductivity (EC), temperature (in degrees Celsius [$^{\circ}$ C]), dissolved oxygen (DO), and oxidation-reduction potential (ORP) were monitored with a flow-through cell, and recorded on groundwater sampling logs. Turbidity measured in nephelometric turbidity units (NTU) was measured with a LaMotte 2020e instrument. Groundwater samples were collected after field parameters stabilized. The instrument electronically records the field parameters and signals the field technician when field parameter measurements have stabilized and groundwater samples are ready to be collected.

Quality Control (QC) samples collected during the sampling activities included field duplicates and trip blanks. Sufficient sample volume was also collected for laboratory-

² ECS also operated the OU-1A/-1B remediation system and completed quarterly monitoring associated with that system. Some OU-1A monitoring data are combined with PCAP monitoring data to prepare groundwater elevation contour and MTBE plume maps.

prepared matrix spike/matrix spike duplicate analyses. Field parameter measurements for the Third Quarter 2011 are summarized in Table 3, and groundwater sampling logs for the Third Quarter 2011 are provided in Appendix C. A summary of the historical field parameter measurements in the vicinity of UST Site 222 are provided in Appendix B.

4.1.1.3 Laboratory Analyses

Groundwater samples were stored in coolers with ice, delivered with chain of custody documentation to a DoN-approved and California state-certified laboratory, and analyzed for VOCs by U.S. EPA Method 8260B. Groundwater samples were sent to EMAX Laboratory Inc. Laboratory results for groundwater samples collected from extraction and monitoring wells during the Third Quarter 2011 are summarized in Table 4. Certified analytical reports and chain-of-custody documentation for groundwater samples collected from extraction and monitoring wells for the Third Quarter 2011 are provided in Appendix D.

4.1.1.4 Quality Assurance

Laboratory Data Consultants, Inc., an independent analytical data validation company, performed a Level III QC review for up to 90 percent and Level IV QC review for at least 10 percent of the groundwater data. Based on the third party validation, the data were deemed acceptable, but some of the data required qualifiers. The results of the data validation and the data qualifiers used are provided in the Data Validation reports in Appendix D.

4.1.2 Monitoring Results

4.1.2.1 Groundwater Elevations

Groundwater elevation contour maps for the Third Quarter 2011 for the first, second, and third WBZs are provided in Figures 4 through 6, respectively. Based on the elevation contours, operating extraction wells for both the PCAP (222EW05, 222EW09, 222EW10 and 222EW12 through 222EW14) and OU-1A (IS72EX01D, IS72EX02D, IS72EX03D, IS72EX05D, IS72EX07D, IS72EX08S and IS72EX11D) systems have established groundwater flow directions toward the extraction wells.

Third Quarter 2011 monitoring well groundwater data are summarized below (ranges are noted when variable):

	First WBZ	Second WBZ	Third WBZ
Water Level Elevation (feet msl)	45.39 – 53.48	45.38 – 53.49	47.98 – 52.43
Horizontal Hydraulic Gradient (foot / foot)	0.003 – 0.025	0.003 – 0.007	0.003
Regional Flow Direction	Southwest	Southwest	Southwest

4.1.2.2 Field Parameters

Third Quarter 2011 field parameters recorded during purging, prior to collecting groundwater samples, are presented in Table 3 and are summarized below.

- Recorded pH measurements were between 6.11 and 7.19. Historical pH data generally range from approximately 5 to 8. No significant observations or deviations from historical data were observed.

- Recorded EC measurements were between 0.179 and 1.97 Siemens per meter (S/m), and are consistent with previously collected measurements. Results reported as S/m can be converted to micromhos per centimeter by multiplying the result by a factor of 10,000.
- Recorded water temperature measurements were between 20.47 and 25.66°C, and are consistent with historical temperature ranges.
- ORP measurements were between 2.45 and 326 milli-volts, which indicate low to moderate aerobic (oxidizing) conditions, typical for groundwater (Garrels and Christ 1965).
- DO measurements were between 0.28 and 5.84 milligrams per liter, which are typical for shallow groundwater (Hem 1970). The DO measurements are consistent with historical ranges.
- Turbidity measurements were between 0.81 and 1,280 NTU, and increase with the amount of particulates in the water sample.

Based on the field parameters recorded, the groundwater samples are considered representative of groundwater in the vicinity of the wells sampled.

4.1.2.3 MTBE Concentrations

Reported MTBE concentrations in groundwater samples are presented on Figures 7 and 8 for the first and second WBZs, respectively.

First WBZ

Source Area : MTBE was not reported in groundwater samples collected from first WBZ monitoring wells at concentrations exceeding the first WBZ CG (300 µg/L). MTBE was reported at concentrations ranging from an estimated 0.33J µg/L to 20 µg/L. These reported concentrations are significantly below the first WBZ CG; and confirm the success of the AS/SVE treatment in the Source Area.

Downgradient Area : MTBE was reported in groundwater samples from the first WBZ monitoring wells at concentrations ranging from an estimated 0.72J µg/L to 50 µg/L; these concentrations are well below the CG (Figure 7).

Second WBZ

Source Area : MTBE was reported at a concentration of 39 µg/L in the groundwater sample collected from sole second WBZ monitoring well, 222MW03D; this concentration does not exceed the CG (44 µg/L).

Downgradient Area : MTBE was reported in groundwater samples collected from 10 of 14 second WBZ monitoring wells at concentrations ranging from 1.1 µg/L to 110 µg/L. Reported MTBE concentrations in the second WBZ at continued a declining MTBE concentration trend with only two monitoring wells (222PW10D and IS72MW03D) exceeding the CG of 44 µg/L (Figures 8 and 12).

It should also be noted that there are two second WBZ OU-1A monitoring wells (IS72MW12D and IS72MW15D) located directly downgradient from the leading edge of the previously delineated second WBZ MTBE plume. These wells have been functioning as

sentinel wells for monitoring potential cross gradient migration of MTBE. The groundwater sample collected from well IS72MW12D had a reported MTBE concentration of 35 µg/L in the third quarter 2011; reported concentrations of MTBE have been below the CG (44 µg/L) for two successive quarters. MTBE was not reported in the groundwater sample collected from well IS72MW15D in the third quarter 2011; concentrations of MTBE have been below the CG for two successive quarters.

Third WBZ

MTBE was not reported in groundwater samples collected from all four monitoring wells of third WBZ during the Third Quarter 2011. The maximum reported MTBE concentration was from monitoring well 222MW03D2 during 2011 at an estimated 0.34J µg/L.

4.2 System O&M and Optimization

The following system optimization measures were implemented in 2011 to maximize MTBE removal:

- Extraction well 222EW14 was redeveloped to increase well yield;
- The ¾-horsepower (hp) pump in 222EW14 was replaced with a smaller ½-hp pump to more closely match the recharge rate of the well and provide a more continuous rate of extraction; and
- The temporary packers installed in extraction wells 222EW05, 222EW10, and 222EW13 continued to focus extraction of groundwater and optimize MTBE mass removal from the second WBZ.

4.3 PCAP System Performance

The performance of the PCAP treatment system, progress of groundwater remediation, and compliance with OCSD discharge limitations are discussed in the following Sections.

4.3.1 Groundwater Extraction

In 2011, MTBE-impacted groundwater was recovered using two extraction wells screened exclusively across the first WBZ (222EW03SC and 222EW03SD), two extraction wells screened exclusively across the second WBZ (222EW12 and 222EW14), and four extraction wells screened across both the first and second WBZs (222EW05, 222EW09, 222EW10, and 222EW13). Since June 2009, extraction wells 222EW05, 222EW10 and 222EW13 have had packers installed to focus groundwater extraction from the second WBZ by isolating the first WBZ in these wells. As part of the MTBE rebound monitoring in the first WBZ, extraction wells 222EW03SC and 222EW03SD were turned off on January 13, 2010; as recommended in the 2008 Annual Report (ECS 2009).

Groundwater extraction was continuous at all other extraction wells with the exception of scheduled shutdowns for O&M.

The volume of groundwater extracted and pump discharge pressures were recorded at least once each week from a wellhead cumulative flow meter and pressure gauge. These data are provided in Appendix E.

4.3.2 Treatment System

Impacted groundwater was treated by the PCAP System using two in-series 10,000-pound liquid-phase GAC vessels, then discharged to the IRWD sanitary sewer lateral beneath Armstrong Avenue. The following PCAP System O&M and monitoring data were routinely recorded in 2011:

- Volume of groundwater influent treated, and total volume of treated groundwater discharged to the OCSD sewer;
- Back-pressure in pounds per square inch (psi) at bag filters, and upstream of each GAC vessel;
- Power usage (kilowatt-hour); and
- Bag filter usage and GAC vessel replacement, if any.

The total volume of groundwater treated by the PCAP System and discharged to the sewer on a monthly basis is summarized in Table 5. The total volume of groundwater extracted and treated by the PCAP treatment system as of November 11, 2011, was approximately 266 million gallons. PCAP System O&M and monitoring data are provided in Appendix E.

The following water quality samples were collected from the PCAP treatment system in 2011:

- Monthly samples collected from influent, between GAC vessels, and effluent for analysis of VOCs by U.S. EPA Method 8260B; and
- Quarterly samples of treated groundwater discharged to the sewer for analysis of TDS by Method SM2540C, total and dissolved selenium by U. S. EPA Method 200.8, and VOCs by U.S. EPA Method 8260B.

Water samples were stored in coolers with ice, delivered with chain of custody documentation to a DoN-approved and California state-certified laboratory. Laboratory results for influent, between GAC vessels, and effluent are summarized in Table 6, and laboratory results for treated groundwater discharged to the OCSD sewer are summarized in Table 7. Laboratory Certified Analytical Reports were included in previously submitted OCSD Self-Monitoring quarterly reports.

4.3.3 System Reliability

System reliability is the percent of time that the PCAP System operates, and accounts for times that the system is shut down for maintenance, equipment change out, and major precipitation events. The PCAP System operated 99 percent of the time from January 1, 2011 through November 23, 2011 (Table 5). This high reliability rate indicates that O&M procedures were effectively implemented and monitored to allow almost continuous operation of the PCAP System in 2011.

4.4 Groundwater Remediation

4.4.1 MTBE Removal

Concentrations of MTBE in combined influent from extraction wells have declined from 17,000 µg/L at the beginning of Phase 2 of remediation in 2002, to 19 µg/L in October 2011. The annual rate of MTBE mass removal has declined substantially from a maximum of approximately 1,377 pounds in 2002, to approximately 7.6 pounds through November 23,

2011, due to the substantial decline of MTBE mass remaining in groundwater during this period. Collectively, a total of approximately 4,312.9 pounds of MTBE have been recovered by the Interim and Final PCAP Systems since remediation began in 2001. The life-of-project MTBE mass recovery is summarized in Table 8. MTBE mass recovery data and a graph illustrating cumulative mass of MTBE recovered versus time are provided in Figure 9 and in Appendix F. During the first three quarters of 2011, the PCAP System extracted, treated, and discharged approximately 25 million gallons of groundwater and removed approximately 7.6 pounds of MTBE.

These data indicate that the PCAP System has passed the point of diminishing returns with respect to additional removal of MTBE mass from groundwater, and has reached a low level of economic and technical efficiency as described in the Final Petroleum Corrective Action Plan (Battelle 2007a). To determine whether the rate of mass removal has reached asymptotic conditions, the cumulative mass removal curve shown in Figure 9 was evaluated mathematically by fitting regression lines to the flattening tail portion of the curve and comparing their corresponding slopes through various time increments. The equation of a straight line is given by:

$$y = mx + b$$

where x and y are coordinate values at individual points on the xy graph, m is the slope of the line, and b is the y axis intercept. For various time periods, the corresponding slopes of the best-fit least-squares regression lines were:

- Last 18 months m = 0.02744
- Last 12 months m = 0.02213
- Last 6 months m = 0.01961
- Last 3 months m = 0.02179

This evaluation indicates that the slope of the curve has stabilized around a value of approximately 0.02, which represents the slope of the asymptote. This slope is nearly horizontal, providing additional evidence that further operation of the system will not remove substantial additional MTBE mass.

4.4.2 MTBE Plume Boundaries

Reported MTBE concentrations for the Third Quarter 2011 for the first and second WBZs are provided in Figures 7 and 8, respectively. MTBE was not reported in any third WBZ monitoring wells; therefore no third WBZ figure is included in this Report. Hydrographs of groundwater elevation and MTBE concentrations versus time for selected monitoring wells are provided in Appendix G.

MTBE plume boundaries have contracted dramatically over time as a result of the decline in MTBE mass remaining in groundwater at the Site. As Figures 7 and 8 illustrate, there were no reported concentrations of MTBE exceeding the CG in the first WBZ, and two monitoring wells exceeding the CG in the second WBZ, as of the Third Quarter 2011.

The removal of MTBE mass and subsequent contraction of MTBE plume boundaries over time is illustrated in Figures 10 and 11 for the first and second WBZs, respectively. MTBE has not been reported at concentrations exceeding the CG in the third WBZ since 2002.

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5.0 Rationale for Site Closure

Evaluations of historical groundwater monitoring data, AS/SVE System data, and PCAP System data obtained during the past 10 years; support the determination that NFA is required for groundwater at UST Site 222 (Geotracker Case Number 083002965T) for the following reasons:

- The source of the MTBE groundwater contamination has been removed. The RWQCB granted closure of the vadose zone soil in 2006 (RWQCB 2006).
- Through November 23, 2011, approximately 267 million gallons of MTBE-impacted groundwater have been extracted from the first and second WBZs, treated, and discharged.
- Since groundwater remediation began in 2001, approximately 4,313 pounds of MTBE have been removed from the first and second WBZs. The annual MTBE mass removal rate has declined from a maximum of approximately 1,377 pounds per year in 2002 to 7.6 pounds per year through November 23, 2011 (a 99.5 percent reduction). The rate of decline of mass removal has leveled off and reached a point of diminishing returns, beyond which additional groundwater extraction will not provide any appreciable benefit in additional MTBE mass removal.
- The AS/SVE System was operated from 2007 until 2009 to optimize MTBE mass removal in the first WBZ within the Source Area. The MTBE plume (the areal extent of MTBE in groundwater at concentrations exceeding the CG) in the first WBZ has been eliminated. First WBZ groundwater MTBE concentrations in the Source Area have remained below the CG since December 2009.
- As of the third quarter 2011, MTBE concentrations are below the CG at all monitoring wells in the first WBZ.
- As of the third quarter 2011, MTBE concentrations are below the CG at all except two monitoring wells in the second WBZ.
- Since 2006, MTBE concentrations have not been reported exceeding 2.0 µg/L in any third WBZ monitoring wells.
- The remaining mass of MTBE in the first and second WBZs is insufficient to impact the third WBZ at concentrations exceeding the CG for the third WBZ, or to migrate off-site at concentrations exceeding the CGs.

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6.0 Site Restoration

Operation of the PCAP System was shut down on November 23, 2011. This Section describes the planned system decommissioning and site restoration activities.

6.1 Well Closure

Select PCAP monitoring wells will be retained since they are included in the OU-1A monitoring network and provide water level data useful for evaluating OU-1A capture zones. An evaluation to determine the utility of PCAP monitoring wells to support the OU-1A remedial action will be completed and presented in the Draft 2011 Annual Performance Evaluation, Operable Units 1A (IRP-13S) and 1B (IRP-3 and -12), former Marine Corps Air Station Tustin; this report is scheduled to be completed in mid-2012.

All monitoring wells determined not to be needed for the OU-1A remedial action will be properly destroyed in accordance with California Department of Water Resources Well Standards Bulletin 74-90 and the Orange County Health Care Agency well destruction permit. These documents are available online at:

http://www.dpla.water.ca.gov/sd/groundwater/california_well_standards/well_standards_content.html

6.2 Electrical Conduits

All buried electrical conduits will be removed or cut, capped, and abandoned in-place. Any subgrade junction boxes will be excavated and removed, and the excavations will be backfilled with properly compacted clean fill soil. The ground surface will be restored to match surrounding grades and surface conditions.

6.3 PCAP Treatment System

All residual water in the PCAP System will be treated and discharged to the sewer. The electrical supply will be disconnected at the Southern California Edison interface. The PCAP System effluent discharge line will be disconnected and capped within the building housing the OU-1A/-1B North System. The GAC vessels will be emptied, the GAC will be properly transported off-site and regenerated by the carbon vendor. All other vendor-owned equipment will be dismantled and removed.

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7.0 Regulatory Communications

The RWQCB issued an NFA determination letter to the DoN on January 25, 2012 confirming the completion of site investigation, remedial action, and groundwater monitoring for UST Site 222 (Geotracker ID: T0605902029). The DTSC provided a no-comment letter on February 14, 2012 and U.S. EPA concurred with the NFA determination and Site closure for UST 222 in a letter dated February 16, 2012.

The RWQCB, DTSC, and U.S. EPA letters are included in Appendix H of this Report.

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TABLES

**TABLE 1
WELL COMPLETION DATA**

OU-1A and PCAP Wells
Former MCAS Tustin, California

SITE	WELL INSTALLATION										COMPLETION DATA														Dedicated Sample Pump Depth (ft) ^a	STATUS			
	Well Number	Water Bearing			Date Completed	By	Location*		Elevation*		Hole Diam (in)	Casing Diam (in)	Screen		Depth (ft bgs)						Elevation (ft msl)								
		1st	2nd	3rd			Northing	Easting	Grd	TOC			Slot (in)	Length (ft)	Sand Pack		Slotted		Total Depth		Sand Pack		Slotted				Total Depth		
															Top	Bottom	Top	Bottom	Casing	Hole	Top	Bottom	Casing	Hole					
						(ft)		(ft msl)																					
PCAP	222EW03SC	x	-	-	5/31/2001	OHM	2,207,426.6	6,081,779.5	67.40	66.39	14	8	0.020	10	18	33	20	30	32	37.5	49	34	47	37	34	30	-	Extract	
PCAP	222EW03SD	x	-	-	7/9/2001	OHM	2,207,332.3	6,081,752.6	67.10	65.97	14	8	0.020	10	16.5	33.5	20	30	32	33.5	51	34	47	37	34	34	-	Extract	
PCAP	222EW05	x	-	-	6/1/2001	OHM	2,207,023.76	6,081,689.24	65.60	65.01	14	8	0.010	5	22	32	26.5	31.5	-	-	44	34	39	34	-	-	-	Extract	
PCAP	222EW05	-	x	-	6/1/2001	OHM	2,207,023.76	6,081,689.24	65.60	65.01	14	8	0.020	10	47	66	50	60	50	66	19	0	16	6	15	0	-	Extract	
PCAP	222EW09	x	-	-	10/16/2001	OHM	2,206,616.2	6,081,641.3	63.70	62.77	14	8	0.030	10	19	31.5	21	31	-	-	45	32	43	33	-	-	-	Extract	
PCAP	222EW09	-	x	-	10/16/2001	OHM	2,206,616.2	6,081,641.3	63.70	62.77	14	8	0.030	10	42	66	54	64	66	66	22	-2	10	0	-3	-2	-	Extract	
PCAP	222EW10	x	-	-	10/17/2001	OHM	2,206,829.3	6,081,641.0	64.80	63.85	14	8	0.030	5	19	29.5	22	27	-	-	46	35	43	38	-	-	-	Extract	
PCAP	222EW10	-	x	-	10/17/2001	OHM	2,206,829.3	6,081,641.0	64.80	63.85	14	8	0.030	15	42.5	63.3	45	60	61.75	63.3	22	2	20	5	2	2	-	Extract	
PCAP	222EW11(I)	x	-	-	10/19/2001	OHM	2,207,201.2	6,081,725.4	66.40	65.38	14	8	0.030	5	20	28.5	22.5	27.5	-	-	46	38	44	39	-	-	-	Destroyed	
PCAP	222EW11(I)	-	x	-	10/19/2001	OHM	2,207,201.2	6,081,725.4	66.40	65.38	14	8	0.010	10	50	65	53	63	65	65	16	1	13	3	0	1	-	Destroyed	
PCAP	222EW12	-	x	-	10/1/2007	Battelle	2,206,483.69	6,081,441.57	63.63	63.10	15	8	0.020	10	47	65	50	60	62	65	19	1	16	6	1	-1	-	Extract	
PCAP	222EW13	x	-	-	3/22/2007	ECS	2,206,348.19	6,081,270.65	63.61	62.96	14	8	0.020	5	20	29	22	27	-	-	44	35	42	37	-	-	-	Extract	
PCAP	222EW13	-	x	-	3/22/2007	ECS	2,206,348.19	6,081,270.65	63.61	62.96	14	8	0.020	10	40	55	42	52	54.5	54.5	24	9	22	12	8	9	-	Extract	
PCAP	222EW14	-	x	-	10/2/2007	Battelle	2,206,190.24	6,081,101.96	62.34	62.02	15	8	0.020	10	47	65	50	60	62	65	19	1	16	6	0	-3	-	Extract	
PCAP	222MW01S ¹	x	-	-	5/18/2000	OHM	2,207,899.13	6,081,915.65	69.7	69.65	8	4	0.010	10	18	32.5	20	30	30	32.5	52	37	50	40	40	37	-	Monitor	
PCAP	222MW01D ¹	-	x	-	5/30/2000	OHM	2,207,888.41	6,081,927.13	69.6	69.51	10/8	4	0.010	10	45	57	46.5	56.5	56.5	57	25	13	23	13	13	-	Monitor		
PCAP	222MW01D2(I)	-	-	x	5/31/2000	OHM	2,207,880.34	6,081,937.28	69.5	69.40	12/10/8	4	0.010	5	83	90.5	85	90	90	98	-14	-21	-16	-21	-21	-29	-	Destroyed	
PCAP	222MW02S	x	-	-	5/17/2000	OHM	2,207,582.9	6,081,283.5	-	69.04	8	4	0.010	5	24	31	25	30	30	35	45	38	44	39	39	34	-	Monitor	
PCAP	222MW02D	-	x	-	5/23/2000	OHM	2,207,593.6	6,081,270.5	-	69.06	10 & 8	4	0.010	10	39.5	56	44	54	54	66	30	13	25	15	15	3	-	Monitor	
PCAP	222MW02D2(I)	-	-	x	5/25/2000	OHM	2,207,608.3	6,081,253.6	-	69.12	12/10/8	4	0.010	5	68	77	70	75	75	96	1	-8	-1	-6	-6	-27	-	Destroyed	
PCAP	222MW03S	x	-	-	5/19/2000	OHM	2,207,465.2	6,081,765.6	-	67.42	8	4	0.010	10	18	32	20	30	30	32	49	35	47	37	37	35	-	Monitor	
PCAP	222MW03D	-	x	-	6/7/2000	OHM	2,207,454.5	6,081,779.3	-	67.11	10/8	4	0.010	10	48	61	50	60	60	63	19	6	17	7	7	4	-	Monitor	
PCAP	222MW03D2	-	-	x	6/12/2000	OHM	2,207,443.9	6,081,792.5	-	66.92	12/10/8	4	0.010	10	78	91	80	90	90	93	-11	-24	-13	-23	-23	-26	-	Monitor	
PCAP	222MW03D3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCAP	222MW04S	x	-	-	5/19/2000	OHM	2,207,242.4	6,082,073.0	-	65.49	6	4	0.010	10	17	31	19	29	29	31	48	34	46	36	36	34	23.5	Monitor	
PCAP	222MW04D	-	x	-	6/3/2000	OHM	2,207,239.5	6,082,087.5	-	65.34	8/6	4	0.010	10	47	61	49.5	59.5	60	61	18	4	16	6	5	4	53.5	Monitor	
PCAP	222MW04D2(I)	-	-	x	6/5/2000	OHM	2,207,237.0	6,082,104.0	-	65.54	10/8/6	4	0.010	10	80	93	82	92	92	97	-14	-27	-16	-26	-26	-31	-	Destroyed	
PCAP	222MW05S	x	-	-	6/15/2000	OHM	2,206,914.1	6,081,818.9	-	66.59	8	4	0.010	10	18	33	20	30	30	33	49	34	47	37	34	26.0	Monitor		
PCAP	222MW05D	-	x	-	6/16/2000	OHM	2,206,898.6	6,081,808.5	-	66.56	10/8	4	0.010	10	45	58	47	57	57	60	22	9	20	10	10	7	53.0	Monitor	
PCAP	222MW06S	x	-	-	6/29/2000	OHM	2,206,538.2	6,081,342.3	-	63.39	8	4	0.010	10	15.00	28.00	17.00	27.00	27.00	28.00	48	35	46	36	36	35	-	Monitor	
PCAP	222MW06D	-	x	-	6/29/2000	OHM	2,206,523.4	6,081,335.1	-	63.16	10/8	4	0.010	10	44.00	57.00	46.50	56.50	56.50	68.00	19	6	17	7	7	-5	-	Monitor	
PCAP	222MW06D2(I)	-	-	x	7/7/2000	OHM	2,206,506.7	6,081,327.8	-	62.81	12/10/8	4	0.010	5	65	73	65.5	70.5	70.5	78	-2	-10	-3	-8	-8	-15	-	Destroyed	
PCAP	222MW07D	-	x	-	6/21/2000	OHM	2,206,761.3	6,080,730.3	-	65.05	8	4	0.010	5	38	47	41	46	46	64	27	18	24	19	19	1	-	Monitor	
PCAP	222MW07D2(I)	-	-	x	6/22/2000	OHM	2,206,752.2	6,080,741.0	-	64.79	10/8	4	0.010	5	58	66	60	65	65	103	7	-1	5	0	0	-38	-	Destroyed	
PCAP	222MW07D3(I)	-	-	x	6/26/2000	OHM	2,206,740.9	6,080,753.1	-	64.59	12/10/8	4	0.010	5	70	79	72.5	77.5	77.5	88	-5	-14	-8	-13	-13	-23	-	Destroyed	
PCAP	222MW08D	-	x	-	7/11/2000	OHM	2,206,281.3	6,081,159.1	-	62.69	10/8	4	0.010	10	40.00	53.00	42.00	52.00	52.00	58.00	23	10	21	11	11	5	-	Monitor	
PCAP	222MW08D2	-	-	-	7/13/2000	OHM	2,206,281.4	6,081,144.7	-	62.75	10/8	4	0.010	5	64.50	72.00	66.00	71.00	71.00	78.00	-2	-9	-3	-8	-8	-15	-	Monitor	
PCAP	222MW09(D)	-	x	-	10/12/2007	Battelle	2,206,458.33	6,080,842.29	65.10	64.56	8	4	0.020	10	47	62	50	60	60	62	-	-	-	-	-	-	-	Monitor	
PCAP	222MW10(D)	-	x	-	10/12/2007	Battelle	2,206,108.85	6,081,045.37	61.97	61.65	8	4	0.020	10	47	62	50	60	60	62	-	-	-	-	-	-	-	Monitor	
PCAP	222PW03SA	x	-	-	4/23/2001	OHM	2,207,426.80	6,081,798.80	-	67.14	8	2	0.010	5	23	30	25	30	30	30	44	37	42	37	37	37	-	Monitor	
PCAP	222PW03SB	x	-	-	4/23/2001	OHM	2,207,395.00	6,081,839.30	-	66.71	8	2	0.010	5	22	30	24	29	29	30	45	37	43	38	38	37	-	Monitor	
PCAP	222PW03SC	x	-	-	4/23/2001	OHM	2,207,426.60	6,081,779.50	-	66.39	8	2	0.010	5	23	30	25	30	30	30	43	36	41	36	36	36	-	Monitor	
PCAP	222PW03SD	x	-	-	4/23/2001	OHM	2,207,296.30	6,081,796.80	-	66.61	8	2	0.010	5	22	30	25	30	30	30	45	37	42	37	37	37	-	Monitor	
PCAP	222PW09S	x	-	-	-	-	2,206,628.80	6,081,597.10	-	63.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Monitor	
PCAP	222PW09D	-	x	-	-	-	2,206,635.30	6,081,618.00	-	63.73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Monitor	
PCAP	222PW10S	x	-	-	-	-	2,206,819.90	6,081,644.50	-	64.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Monitor	
PCAP	222PW10D	-	x	-	-	-	2,206,838.90	6,081,639.90	-	64.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Monitor	
PCAP	222PW11S(I)	x	-	-	-	-	2,207,199.40	6,081,713.30	-	66.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Destroyed	
PCAP	222PW11D(I)	-	x	-	-	-	2,207,195.90	6,081,735.60	-	65.69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Destroyed	
PCAP	222MW11D	-	x	-	3/20/2007	ECS	2,206,137.05	6,081,537.11	62.19	61.64	10	4	0.010	10	41	56	44	54	56.0	56.0	21	6	18	8	6	6	-	Monitor	
PCAP	222PW13S	x	-	-	3/20/2007	ECS	2,206,379.08	6,081,509.58	63.02	62.36	8	2	0.010	10	14	29	17	27	29.0	29.0	48	33	45	35	33	33			

TABLE 1
WELL COMPLETION DATA
OU-1A and PCAP Wells
Former MCAS Tustin, California

SITE	WELL INSTALLATION						COMPLETION DATA																	Dedicated Sample Pump Depth (ft) ^a	STATUS			
	Well Number	Water Bearing			Date Completed	By	Location*		Elevation*		Hole Diam (in)	Casing Diam (in)	Screen		Depth (ft bgs)						Elevation (ft msl)							
		Northing		Easting			Grd	TOC	Slot	Length			Sand Pack		Slotted		Total Depth		Sand Pack		Slotted		Total Depth					
		(ft)		(ft)			(ft msl)		(in)	(ft)			Top	Bottom	Top	Bottom	Casing	Hole	Top	Bottom	Top	Bottom	Casing			Hole		
1st	2nd	3rd																										
PCAP	222AS01	x	-	-	8/28/2007	Battelle	2207468.94	6081760.81	67.52	67.37	2.9	1	0.020	1	27.5	30.5	29	30	30	30.5	40	37	39	38	38	37	-	Air Sparge
PCAP	222AS02	x	-	-	8/28/2007	Battelle	2207472.97	6081785.95	67.59	67.36	2.9	1	0.020	1	25	28	26.5	27.5	27.5	28	43	40	41	40	40	40	-	Air Sparge
PCAP	222AS03	x	-	-	10/31/2007	Battelle	2207450.60	6081740.62	66.76	66.49	2.9	1	0.020	1	24	27	25.5	26.5	26.5	27	43	40	41	40	40	40	-	Air Sparge
PCAP	222AS04	x	-	-	10/31/2007	Battelle	2207449.89	6081761.39	67.04	66.57	2.9	1	0.020	1	23	25.5	24	25	25	25.5	44	42	43	42	42	42	-	Air Sparge
PCAP	222AS05	x	-	-	11/8/2007	Battelle	2207449.14	6081782.95	67.36	67.07	2.9	1	0.020	1	24	26.5	25	26	26	26.5	43	41	42	41	41	41	-	Air Sparge
PCAP	222AS06	x	-	-	11/8/2007	Battelle	2207449.72	6081802.11	67.43	67.15	2.9	1	0.020	1	24	26.5	25	26	26	26.5	43	41	42	41	41	41	-	Air Sparge
PCAP	222AS07	x	-	-	10/29/2007	Battelle	2207429.23	6081727.21	66.39	65.76	2.9	1	0.020	1	24	26.5	25	26	26	26.5	42	40	41	40	40	40	-	Air Sparge
PCAP	222AS08	x	-	-	10/31/2007	Battelle	2207429.95	6081745.19	66.32	65.97	2.9	1	0.020	1	25	27.5	26	27	27	27.5	41	39	40	39	39	39	-	Air Sparge
PCAP	222AS09	x	-	-	10/31/2007	Battelle	2207429.15	6081765.21	66.63	66.44	2.9	1	0.020	1	23.5	26	26	27	27	26	43	41	41	40	40	41	-	Air Sparge
PCAP	222AS10	x	-	-	11/8/2007	Battelle	2207430.01	6081785.44	67.22	66.98	2.9	1	0.020	1	24	26.5	25	26	26	26.5	43	41	42	41	41	41	-	Air Sparge
PCAP	222AS11	x	-	-	11/8/2007	Battelle	2207431.10	6081805.89	67.01	66.74	2.9	1	0.020	1	24	26.5	25	26	26	26.5	43	41	42	41	41	41	-	Air Sparge
PCAP	222AS12	x	-	-	11/7/2007	Battelle	2207430.78	6081825.88	66.93	66.61	2.9	1	0.020	1	24	26.5	25	26	26	26.5	43	40	42	41	41	40	-	Air Sparge
PCAP	222AS13	x	-	-	11/7/2007	Battelle	2207407.42	6081724.68	66.41	66.08	2.9	1	0.020	1	24	27	25.5	26.5	26.5	27	42	39	41	40	40	39	-	Air Sparge
PCAP	222AS14	x	-	-	10/31/2007	Battelle	2207407.70	6081746.20	66.32	65.92	2.9	1	0.020	1	25	27.5	26	27	27	27.5	41	39	40	39	39	39	-	Air Sparge
PCAP	222AS15	x	-	-	11/1/2007	Battelle	2207408.41	6081766.64	66.50	66.19	2.9	1	0.020	1	24	26.5	25	26	26	26.5	43	40	42	41	41	40	-	Air Sparge
PCAP	222AS16	x	-	-	11/1/2007	Battelle	2207409.50	6081787.61	67.12	66.75	2.9	1	0.020	1	24	26.5	25	26	26	26.5	43	41	42	41	41	41	-	Air Sparge
PCAP	222AS17	x	-	-	11/7/2007	Battelle	2207409.69	6081809.01	66.89	66.59	2.9	1	0.020	1	23	25.5	24	25	25	25.5	44	41	43	42	42	41	-	Air Sparge
PCAP	222AS18	x	-	-	11/7/2007	Battelle	2207410.59	6081827.70	66.80	66.51	2.9	1	0.020	1	24	26.5	25	26	26	26.5	43	40	42	41	41	40	-	Air Sparge
PCAP	222AS19	x	-	-	10/29/2007	Battelle	2207387.24	6081725.97	66.09	65.83	2.9	1	0.020	1	24	26.5	25	26	26	26.5	42	40	41	40	40	40	-	Air Sparge
PCAP	222AS20	x	-	-	10/30/2007	Battelle	2207387.27	6081747.68	66.46	66.16	2.9	1	0.020	1	24	26.5	25	26	26	26.5	42	40	41	40	40	40	-	Air Sparge
PCAP	222AS21	x	-	-	10/30/2007	Battelle	2207388.29	6081768.29	66.33	65.95	2.9	1	0.020	1	24	26.5	25	26	26	26.5	42	40	41	40	40	40	-	Air Sparge
PCAP	222AS22	x	-	-	11/1/2007	Battelle	2207388.93	6081788.95	66.70	66.46	2.9	1	0.020	1	24	26.5	25	26	26	26.5	43	40	42	41	41	40	-	Air Sparge
PCAP	222AS23	x	-	-	11/7/2007	Battelle	2207389.07	6081810.83	66.68	66.40	2.9	1	0.020	1	24	26.5	25	26	26	26.5	43	40	42	41	41	40	-	Air Sparge
PCAP	222AS24	x	-	-	11/7/2007	Battelle	2207389.92	6081835.51	66.79	66.54	2.9	1	0.020	1	25	27.5	26	27	27	27.5	42	39	41	40	40	39	-	Air Sparge
PCAP	222AS25	x	-	-	10/30/2007	Battelle	2207364.89	6081734.10	66.39	66.07	2.9	1	0.020	1	25	27.5	26	27	27	27.5	41	39	40	39	39	39	-	Air Sparge
PCAP	222AS26	x	-	-	10/30/2007	Battelle	2207365.26	6081755.96	66.65	66.34	2.9	1	0.020	1	24	26.5	25	26	26	26.5	43	40	42	41	41	40	-	Air Sparge
PCAP	222AS27	x	-	-	11/1/2007	Battelle	2207369.15	6081774.75	66.93	66.50	2.9	1	0.020	1	25	27.5	26	27	27	27.5	42	39	41	40	40	39	-	Air Sparge
PCAP	222AS28	x	-	-	11/6/2007	Battelle	2207367.25	6081802.70	66.74	66.60	2.9	1	0.020	1	24	26.5	25	26	26	26.5	43	40	42	41	41	40	-	Air Sparge
PCAP	222AS29	x	-	-	11/7/2007	Battelle	2207368.20	6081831.15	66.58	66.31	2.9	1	0.020	1	25	27.5	26	27	27	27.5	42	39	41	40	40	39	-	Air Sparge
PCAP	222AS30	x	-	-	10/30/2007	Battelle	2207347.59	6081742.91	66.57	66.29	2.9	1	0.020	1	25	27.5	26	27	27	27.5	42	39	41	40	40	39	-	Air Sparge
PCAP	222AS31	x	-	-	11/2/2007	Battelle	2207347.70	6081758.22	66.67	66.37	2.9	1	0.020	1	25	27.5	26	27	27	27.5	42	39	41	40	40	39	-	Air Sparge
PCAP	222AS32	x	-	-	11/5/2007	Battelle	2207347.16	6081780.60	66.78	66.46	2.9	1	0.020	1	24	26.5	25	26	26	26.5	43	40	42	41	41	40	-	Air Sparge
PCAP	222AS33	x	-	-	11/6/2007	Battelle	2207348.02	6081802.73	66.70	66.59	2.9	1	0.020	1	25	27.5	26	27	27	27.5	42	39	41	40	40	39	-	Air Sparge
PCAP	222AS34	x	-	-	11/6/2007	Battelle	2207351.60	6081828.12	66.68	66.39	2.9	1	0.020	1	25	27.5	26	27	27	27.5	42	39	41	40	40	39	-	Air Sparge
PCAP	222AS35	x	-	-	11/2/2007	Battelle	2207324.48	6081751.26	66.93	66.69	2.9	1	0.020	1	23	25.5	24	25	25	25.5	44	41	43	42	42	41	-	Air Sparge
PCAP	222AS36	x	-	-	11/5/2007	Battelle	2207328.62	6081772.38	66.57	66.47	2.9	1	0.020	1	25	27.5	26	27	27	27.5	42	39	41	40	40	39	-	Air Sparge
PCAP	222AS37	x	-	-	11/5/2007	Battelle	2207328.86	6081793.07	66.53	66.27	2.9	1	0.020	1	24	26.5	25	26	26	26.5	43	40	42	41	41	40	-	Air Sparge
PCAP	222AS38	x	-	-	11/6/2007	Battelle	2207328.79	6081811.65	66.46	66.46	2.9	1	0.020	1	25	27.5	26	27	27	27.5	41	39	40	39	39	39	-	Air Sparge
PCAP	222AS39	x	-	-	11/5/2007	Battelle	2207311.52	6081772.78	66.73	66.49	2.9	1	0.020	1	26	28.5	27	28	28	28.5	41	38	40	39	39	38	-	Air Sparge
PCAP	222AS40	x	-	-	11/5/2007	Battelle	2207312.30	6081794.35	66.38	66.29	2.9	1	0.020	1	24	26.5	25	26	26	26.5	42	40	41	40	40	40	-	Air Sparge
PCAP	222MP01	x	-	-	8/29/2007	Battelle	2207475.64	6081753.15	67.30	66.49	6.0	0.25	-	1	13.5	15.5	14.5	15.5	15.5	15.5	54	52	53	52	52	52	-	Air Sparge Monitor
PCAP	222MP02	x	-	-	8/29/2007	Battelle	2207482.50	6081745.58	66.99	66.44	6.0	0.25	-	1	13.5	15.5	14.5	15.5	15.5	15.5	53	51	52	51	51	51	-	Air Sparge Monitor
PCAP	222SG01R	x	-	-	9/27/2007	Battelle	2207486.06	6081748.43	66.92	66.58	6.0	0.25	-	1	8.5	10.5	9.5	10.5	10.5	10.5	58	56	57	56	56	56	-	Air Sparge Monitor
PCAP	222SG02R	x	-	-	9/27/2007	Battelle	2207479.35	6081756.99	67.23	66.39	6.0	0.25	-	1	8.5	10.5	9.5	10.5	10.5	10.5	59	57	58	57	57	57	-	Air Sparge Monitor
PCAP	222SG03	x	-	-	9/27/2007	Battelle	2207383.62	6081677.74	66.08	65.48	6.0	0.25	-	1	8.5	10.5	9.5	10.5	10.5	10.5	58	56	57	56	56	56	-	Air Sparge Monitor
PCAP	222SG04	x	-	-	9/27/2007	Battelle	2207353.23	6081873.30	66.75	66.55	6.0	0.25	-	1	8.5	10.5	9.5	10.5	10.5	10.5	58	56	57	56	56	56	-	Air Sparge Monitor
PCAP	222SVE01	x	-	-	8/29/2007	Battelle	2207451.52	6081748.95	67.19	66.93	6.0	2	0.020	5	8	15.5	10	15	15	15.5	59	52	57	52	52	-	SVE	
PCAP	222SVE02	x	-	-	9/27/2007	Battelle	2207418.45	6081735.24	66.34	66.10	6	2	0.020	5	5.5	12.5	7	12	12	12.5	61	54	59	54	54	53.84	-	SVE
PCAP	222SVE03	x	-	-	9/27/2007	Battelle	2207398.45																					

**TABLE 1
WELL COMPLETION DATA**

OU-1A and PCAP Wells
Former MCAS Tustin, California

SITE	WELL INSTALLATION							COMPLETION DATA																	Dedicated Sample Pump Depth (ft) ^a	STATUS		
	Well Number	Water Bearing			Date Completed	By	Location*		Elevation*		Hole Diam (in)	Casing Diam (in)	Screen		Depth (ft bgs)						Elevation (ft msl)							
		Northing		Easting			Grd	TOC	Slot (in)	Length (ft)			Sand Pack		Slotted		Total Depth		Sand Pack		Slotted		Total Depth					
		(ft)		(ft)			(ft msl)						Top	Bottom	Top	Bottom	Casing	Hole	Top	Bottom	Top	Bottom	Casing	Hole				
OU-1A	IS72EX07D ¹	x	-	-	09/19/01	Bechtel	2,206,071.13	6,081,242.58	62.0	60.20	15	6	0.020	15	21.0	38.5	23.0	38.0	63.5	66.5	41	24	39	24	-2	-5	-	Extract.
OU-1A	IS72EX07D ¹	-	x	-	09/19/01	Bechtel	2,206,071.13	6,081,242.58	62.0	60.20	15	6	0.020	20	42.0	63.5	43.0	63.0	63.5	66.5	20	-2	19	-1	-2	-5	-	Extract.
OU-1A	IS72EX08S	x	-	-	07/10/07	ERRG	2,207,105.85	6,082,279.02	-	63.88	-	6	0.020	10	17.0	28.0	18.0	28.0	28.0	28.0	47	36	46	36	36	36	-	Extract.
OU-1A	IS72EX09S	x	-	-	07/09/07	ERRG	2,205,872.90	6,081,376.42	-	60.75	-	6	0.020	10	20.0	31.0	21.0	31.0	31.0	31.0	41	30	40	30	30	30	-	Extract.
OU-1A	IS72EX10D	-	x	-	07/10/07	ERRG	2,207,139.64	6,082,032.47	-	64.50	-	6	0.020	10	45.0	56.0	46.0	56.0	56.0	56.0	20	9	19	9	9	9	-	Extract.
OU-1A	IS72EX11D	-	x	-	07/10/07	ERRG	2,206,116.02	6,081,454.91	-	59.84	-	6	0.020	10	43.0	54.0	44.0	54.0	54.0	54.0	17	6	16	6	6	6	-	Extract.
OU-1A	IS72MW01D	-	x	-	01/21/97	Bechtel	2,207,486.60	6,082,451.00	66.89	66.43	9.75	4	0.010	5	46.0	56.0	49.5	54.5	55.0	56.0	21	11	17	12	12	11	-	Monitor
OU-1A	IS72MW01S	x	-	-	01/23/97	Bechtel	2,207,512.80	6,082,453.80	67.19	66.85	10.0	4	0.020	5	23.5	30.5	24.0	29.0	30.5	30.5	44	37	43	38	37	37	28.0	Monitor
OU-1A	IS72MW01SR ¹	x	-	-	07/31/09	ECS	2,207,548.72	6,082,471.44	66.20	65.87	10.0	4	0.020	10	17	30	19.0	29.0	29	30	49	36	47	37	37	36	24.1	Monitor
OU-1A	IS72MW02D	-	x	-	01/20/97	Bechtel	2,206,510.42	6,081,875.15	62.92	62.51	9.75	4	0.020	10	47.5	61.0	50.0	60.0	61.0	61.0	15	2	13	3	2	2	54.9	Monitor
OU-1A	IS72MW02D2	-	-	x	01/17/97	Bechtel	2,206,503.10	6,081,864.30	62.92	62.44	9.75	4	0.010	10	74.0	87.0	76.0	86.0	87.0	87.0	-11	-24	-13	-23	-24	-24	80.5	Monitor
OU-1A	IS72MW02S	x	-	-	01/22/97	Bechtel	2,206,513.60	6,081,895.30	62.97	62.62	10.0	4	0.020	10	17.5	30.5	19.0	29.0	30.5	30.5	45	32	44	34	32	32	22.4	Monitor
OU-1A	IS72MW03D	-	x	-	01/24/97	Bechtel	2,206,935.40	6,081,717.50	65.08	64.63	9.75	4	0.010	10	45.0	57.0	46.0	56.0	57.0	57.0	20	8	19	9	8	8	51.0	Monitor
OU-1A	IS72MW03D2	-	-	x	-	Bechtel	2,206,972.9	6,081,727.9	-	65.00	10/8	4	0.010	10	76	89	78	88	88	93	-11	-24	-13	-23	-23	-28	-	Monitor
OU-1A	IS72MW03S	x	-	-	01/21/97	Bechtel	2,206,953.90	6,081,723.80	65.21	64.92	9.75	4	0.010	5	24.5	34	27.0	32.0	33.0	34.0	41	31	38	33	32	31	-	Monitor
OU-1A	IS72MW04D	-	x	-	01/27/97	Bechtel	2,206,570.40	6,082,316.80	62.18	61.69	9.75	4	0.010	5	47.0	55.0	49.0	54.0	55.0	55.0	15	7	13	8	7	7	51.4	Monitor
OU-1A	IS72MW04S	x	-	-	01/23/97	Bechtel	2,206,588.70	6,082,311.90	62.24	61.76	10.0	4	0.010	10	14.5	30.0	18.0	28.0	29.5	30.0	48	32	44	34	33	32	22.5	Monitor
OU-1A	IS72MW05D	-	x	-	01/16/97	Bechtel	2,205,619.40	6,081,215.00	60.99	60.66	9.75	4	0.010	10	51.5	65.0	54.0	64.0	65.0	65.0	9	-4	7	-3	-4	-4	57.9	Monitor
OU-1A	IS72MW05S	x	-	-	01/15/97	Bechtel	2,205,625.10	6,081,218.00	61.02	60.55	9.75	4	0.010	5	23.2	33.0	26.0	31.0	32.0	33.0	38	28	35	30	29	28	27.6	Monitor
OU-1A	IS72MW06D	-	x	-	01/23/97	Bechtel	-	-	62.06	61.63	9.75	4	0.010	10	47.0	60.0	49.0	59.0	60.0	70.0	15.1	2.1	13.1	3.1	2.1	-7.9	-	Monitor
OU-1A	IS72MW07D2 ¹	-	-	x	08/31/98	Bechtel	2,206,363.82	6,081,790.45	63.0	62.68	9.8	4	0.010	10	68.0	94.0	72.5	82.5	84.5	94.0	-5	-31	-10	-20	-22	-31	79.5	Monitor
OU-1A	IS72MW08D2 ¹	-	-	x	08/31/98	Bechtel	2,206,567.56	6,081,741.04	64.0	63.64	9.8	4	0.010	10	80.5	100.0	88.0	98.0	100.0	100.0	-17	-36	-24	-34	-36	-36	-	Monitor
OU-1A	IS72MW09D2 ¹ (/)	-	-	x	09/01/98	Bechtel	2,206,459.20	6,081,613.87	63.0	62.71	9.8	4	0.010	10	81.0	100.0	84.0	94.0	96.0	100.0	-18	-37	-21	-31	-33	-37	-	Destroyed
OU-1A	IS72MW10D	-	x	-	09/11/01	Bechtel	2,205,691.48	6,081,732.30	61.09	60.80	12	4	0.020	10	45.0	58.0	47.5	57.5	57.9	76.5	16	3	14	4	3	-15	52.6	Monitor
OU-1A	IS72MW10S	x	-	-	09/07/01	Bechtel	2,205,690.39	6,081,722.43	61.07	60.85	12	4	0.020	10	16.0	29.0	18.2	28.2	28.6	31.5	45	32	43	33	32	30	22.6	Monitor
OU-1A	IS72MW11D	-	x	-	08/29/01	Bechtel	2,205,896.44	6,081,532.05	62.52	62.31	12	4	0.020	10	46.0	59.0	48.0	58.0	58.3	64.0	17	4	15	5	4	-1	-	Monitor
OU-1A	IS72MW11S	x	-	-	09/04/01	Bechtel	2,205,895.49	6,081,522.21	62.53	62.25	12	4	0.020	10	17.5	31.0	19.5	29.5	29.9	34.0	45	32	43	33	33	29	-	Monitor
OU-1A	IS72MW12D	-	x	-	09/13/01	Bechtel	2,205,887.09	6,081,070.91	62.72	62.37	12	4	0.020	10	45.5	59.9	48.1	58.1	58.5	64.0	17	3	15	5	4	-1	52.5	Monitor
OU-1A	IS72MW12S	x	-	-	09/14/01	Bechtel	2,205,886.06	6,081,061.38	62.77	62.35	12	4	0.020	10	24.1	38.0	26.5	36.5	36.9	38.0	39	25	36	26	26	25	31.0	Monitor
OU-1A	IS72MW13D	-	x	-	09/05/01	Bechtel	2,205,883.10	6,082,105.80	61.31	61.30	12	4	0.020	10	46	59	48	58	58.40	61.5	15	2	13	3	3	0	52.6	Monitor
OU-1A	IS72MW13S	x	-	-	09/06/01	Bechtel	2,205,879.90	6,082,095.80	60.76	60.99	12	4	0.020	10	16.0	29.0	18.1	28.1	28.5	31.5	45	32	43	33	32	29	22.8	Monitor
OU-1A	IS72MW14D	-	x	-	08/29/01	Bechtel	2,206,943.50	6,082,130.60	66.37	66.14	12	4	0.020	10	51.0	64.0	53.0	63.0	63.40	66.5	15	2	13	3	3	0	-	Monitor
OU-1A	IS72MW14S	x	-	-	09/05/01	Bechtel	2,206,935.90	6,082,138.00	66.43	66.54	12	4	0.020	10	22.0	34.0	22.0	32.0	32.4	36.5	44	32	44	34	34	30	-	Monitor
OU-1A	IS72MW15D ¹	x	x	-	07/15/04	CDM	2,205,875.08	6,080,923.79	62.8	62.22	-	4	0.020	15	33.0	51.0	36.0	51.0	51.0	51.0	30	12	27	12	12	12	42.3	Monitor
OU-1A	IS72MW15S ¹	x	-	-	07/15/04	CDM	2,205,874.10	6,080,913.39	62.8	62.54	-	4	0.020	15	10.0	28.0	13.0	28.0	28.0	28.0	53	35	50	35	35	35	-	Monitor
OU-1A	IS72MW16D ¹	x	x	-	07/14/04	CDM	2,206,181.02	6,080,867.36	63.3	65.23	-	4	0.020	15	33.0	50.0	35.0	50.0	50.0	50.0	30	13	28	13	13	13	44.6	Monitor
OU-1A	IS72MW17D ¹	-	x	-	07/15/04	CDM	2,207,180.04	6,082,348.05	65.1	64.18	-	4	0.020	15	40.0	58.0	43.0	58.0	58.00	58.0	25	7	22	7	7	7	-	Monitor
OU-1A	IS72MW17S ¹	x	-	-	07/15/04	CDM	2,207,186.66	6,082,349.78	65.2	64.30	-	4	0.020	15	10.0	28.0	13.0	28.0	28.0	28.0	55	37	52	37	37	37	19.3	Monitor
OU-1A	IS72MW18S ¹	x	-	-	07/16/04	CDM	2,206,101.36	6,080,878.78	61.8	63.96	-	4	0.020	15	16.0	33.0	18.0	33.0	33.0	33.0	46	29	44	29	29	29	27.1	Monitor
OU-1A	IS72OW01D	-	x	-	07/10/07	ERRG	2,206,323.80	6,081,787.20	-	62.64	-	2	0.020	15	48.0	65.0	50.0	65.0	65.0	65.0	15	-2	13	-2	-2	-2	-	Observe
OU-1A	IS72OW01S	x	-	-	07/10/07	ERRG	2,206,324.10	6,081,787.00	-	62.65	-	2	0.020	10	17.0	46.0	18.0	28.0	28.0	46.0	46	17	45	35	35	17	-	Observe
OU-1A	IS72OW02D	-	x	-	07/11/07	ERRG	2,206,338.60	6,081,771.90	-	62.73	-	2	0.020	20	43.0	64.0	44.0	64.0	64.0	64.0	20	-1	19	-1	-1	-1	-	Observe
OU-1A	IS72OW02S	x	-	-	07/11/07	ERRG	2,206,339.00	6,081,771.90	-	62.71	-	2	0.020	10	19.0	41.0	20.0	30.0	30.0	41.0	44	22	43	33	33	22	-	Observe
OU-1A	IS72OW03D	-	x	-	07/10/07	ERRG	2,206,019.20	6,081,703.40	-	62.32	-	2	0.020	10	44.0	55.0	45.0	55.0	55.0	55.0	18	7	17	7	7	7	-	Observe
OU-1A	IS72OW03S	x	-	-	07/10/07	ERRG	2,206,019.60	6,081,703.30	-	62.30	-	2	0.020	10	19.0	42.0	20.0	30.0	30.0	55.0	43	20	42	32	32	7	-	Observe
OU-1A	IS72OW04D	-	x	-	07/10/07	ERRG	2,206,005.20	6,081,721.90	-	62.38	-	2	0.020	10	45.0	56.0	46.0	56.0	56.0	56.0	17	6	16	6	6	6	-	Observe
OU-1A	IS72OW04S	x	-	-	07/10/07	ERRG	2,206,005.40	6,081,721.60	-	62.35	-	2	0.020	10	18.0	43.0	19.0	29.0										

TABLE 1
WELL COMPLETION DATA
OU-1A and PCAP Wells
Former MCAS Tustin, California

SITE	WELL INSTALLATION							COMPLETION DATA														Dedicated Sample Pump Depth (ft) [^]	STATUS		
	Well Number	Water Bearing			Date Completed	By	Location*		Elevation*		Hole Diam (in)	Casing Diam (in)	Screen		Depth (ft bgs)				Elevation (ft msl)						
		Northing	Easting	Grd			TOC	Slot	Length	Sand Pack			Slotted		Total Depth		Sand Pack		Slotted		Total Depth				
		(ft)		ft (msl)			(in)	(ft)	Top	Bottom			Top	Bottom	Casing	Hole	Top	Bottom	Top	Bottom	Casing			Hole	

Abbreviations:

bgs = below ground surface
Diam. = diameter
ft = feet
in = inches
Grd = ground
msl = mean sea level
OU = operable unit
PCAP = Petroleum Corrective Action Program
TOC = Top of Casing

Installed By:

Battelle = Battelle
Bechtel = Bechtel National, Inc.
CDM = Camp Dresser and McKee
ECS = Enviro Compliance Solutions, Inc., Tustin, CA
ERRG = Engineering Resources and Remediation Group
N&N = Ninyo & Moore
OHM = OHM Remediation Services Corp.
Twg = Twining Laboratories, Inc.

Symbols:

- = Not applicable or available
* = Surveyed to: Horizontal: North American Datum of 1983, (NAD '83), CCS83, Zone VI, (1991.35 epoch), Vertical: North American Vertical Datum of 1988, (NAVD '88), Orange County Surveyor 1995 adjustment
** = Altered by construction - resurvey
¹ = Wells were resurveyed by Evans Land Surveying on August 10, 2009
[^] = Depth of bladder pump intake below TOC
(I) = Abandoned or destroyed
(I) = Denotes infiltration monitoring well

Reference

ECS, February 2007, Infiltration Pilot Test, Technical Memorandum, UST 222 Area, Former Marine Corps Air Station, Tustin, California: Enviro Compliance Solutions, Tustin CA

TABLE 2
SUMMARY OF GROUNDWATER LEVELS

OU-1A and PCAP Wells
Former MCAS Tustin, California

Location	Well ID	Water Bearing Zone			Date of Measurement	Measured by	Top of Casing Elevation (ft msl)	Depth to Water (ft btoc)	Water Level Elevation (ft msl)
		1	2	3					
PCAP	222EW03SC	x	-	-	07/25/11	ECS	66.39	15.03	51.36
PCAP	222EW03SD	x	-	-	07/25/11	ECS	65.97	15.08	50.89
PCAP	222EW05-WBZ 1	x	-	-	07/25/11	ECS	65.01	21.97	43.04
PCAP	222EW05-WBZ 2	-	x	-	07/25/11	ECS	65.01	38.22	26.79
PCAP	222EW09	x	x	-	07/25/11	ECS	62.77	19.07	43.70
PCAP	222EW10-WBZ 1	x	-	-	07/25/11	ECS	63.85	20.34	43.51
PCAP	222EW10-WBZ 2	-	x	-	07/25/11	ECS	63.85	21.36	42.49
PCAP	222EW12	-	x	-	07/25/11	ECS	63.10	39.48	23.62
PCAP	222EW13-WBZ 1	x	-	-	07/25/11	ECS	62.96	20.15	42.81
PCAP	222EW13-WBZ 2	-	x	-	07/25/11	ECS	62.96	42.16	20.80
PCAP	222EW14	-	x	-	07/25/11	ECS	62.02	47.87	14.15
OU-1A	IS72EX01D	x	x	-	07/25/11	ECS	65.04 *	14.82	50.22
OU-1A	IS72EX02D	x	x	-	07/25/11	ECS	61.33 *	13.70	47.63
OU-1A	IS72EX03D	x	x	-	07/25/11	ECS	60.82 *	13.67	47.15
OU-1A	IS72EX05D	x	x	-	07/25/11	ECS	60.81 *	14.63	46.18
OU-1A	IS72EX07D	x	x	-	07/25/11	ECS	60.20 *	25.42	34.47
OU-1A	IS72EX08S	x	-	-	07/25/11	ECS	63.88	12.98	50.90
OU-1A	IS72EX09S	x	-	-	07/25/11	ECS	60.75	15.98	44.77
OU-1A	IS72EX10D	-	x	-	07/25/11	ECS	64.50	18.23	46.27
OU-1A	IS72EX11D	-	x	-	07/25/11	ECS	59.84	18.18	41.66
OU-1A/PCAP	222MW01S	x	-	-	07/25/11	ECS	69.65 *	16.17	53.48
OU-1A/PCAP	222MW02S	x	-	-	07/25/11	ECS	69.04	16.98	52.06
OU-1A/PCAP	222MW03S	x	-	-	07/25/11	ECS	67.42	16.51	50.91
OU-1A/PCAP	222MW04S	x	-	-	07/25/11	ECS	65.49	14.34	51.15
OU-1A/PCAP	222MW05S	x	-	-	07/25/11	ECS	66.59	17.74	48.85
OU-1A/PCAP	222MW06S	x	-	-	07/25/11	ECS	63.39	17.07	46.32
OU-1A/PCAP	222PW03SA	x	-	-	07/25/11	ECS	67.14	15.76	51.38
OU-1A/PCAP	222PW03SB	x	-	-	07/25/11	ECS	66.71	15.32	51.39
OU-1A/PCAP	222PW03SC	x	-	-	07/25/11	ECS	66.39	15.08	51.31
OU-1A/PCAP	222PW03SD	x	-	-	07/25/11	ECS	66.61	15.85	50.76
OU-1A/PCAP	222PW09S	x	-	-	07/25/11	ECS	63.76	17.37	46.39
OU-1A/PCAP	222PW10S	x	-	-	07/25/11	ECS	64.49	17.55	46.94
OU-1A/PCAP	222PW13S	x	-	-	07/25/11	ECS	62.36	16.41	45.95
OU-1A/PCAP	A000MW42S (A000SB42S)	x	-	-	07/25/11	ECS	69.44	20.18	49.26
OU-1A/PCAP	CDS1MW01S	x	-	-	07/25/11	ECS	61.55	12.63	48.92
OU-1A/PCAP	IS72MW01U	x	-	-	07/25/11	ECS	66.87	13.86	53.01
OU-1A/PCAP	IS72MW01SR	x	-	-	07/25/11	ECS	65.87	12.58	53.29
OU-1A/PCAP	IS72MW02S	x	-	-	07/25/11	ECS	62.62	14.78	47.84
OU-1A/PCAP	IS72MW03S	x	-	-	07/25/11	ECS	64.92	16.28	48.64
OU-1A/PCAP	IS72MW04S	x	-	-	07/25/11	ECS	61.76	12.21	49.55
OU-1A/PCAP	IS72MW05S	x	-	-	07/25/11	ECS	60.55	15.17	45.38
OU-1A/PCAP	IS72MW10S	x	-	-	07/25/11	ECS	60.85	14.40	46.45
OU-1A/PCAP	IS72MW11S	x	-	-	07/25/11	ECS	62.25	16.46	45.79
OU-1A/PCAP	IS72MW12S	x	-	-	07/25/11	ECS	62.35	16.96	45.39
OU-1A/PCAP	IS72MW13S	x	-	-	07/25/11	ECS	60.99	13.47	47.52
OU-1A/PCAP	IS72MW14S	x	-	-	07/25/11	ECS	66.54	16.46	50.08
OU-1A/PCAP	IS72MW15S	x	-	-	07/25/11	ECS	62.54 *	16.87	45.67
OU-1A/PCAP	IS72MW17S	x	-	-	07/25/11	ECS	64.30 *	12.59	51.71
OU-1A/PCAP	IS72MW18S	x	-	-	07/25/11	ECS	63.96 *	17.84	46.12
OU-1A/PCAP	IS72OW01S	x	-	-	07/25/11	ECS	62.65	15.45	47.20
OU-1A/PCAP	IS72OW02S	x	-	-	07/25/11	ECS	62.71	15.57	47.14

TABLE 2
SUMMARY OF GROUNDWATER LEVELS

OU-1A and PCAP Wells
Former MCAS Tustin, California

Location	Well ID	Water Bearing Zone			Date of Measurement	Measured by	Top of Casing Elevation (ft msl)	Depth to Water (ft btoc)	Water Level Elevation (ft msl)
		1	2	3					
OU-1A/PCAP	IS72OW03S	x	-	-	07/25/11	ECS	62.30	15.80	46.50
OU-1A/PCAP	IS72OW04S	x	-	-	07/25/11	ECS	62.35	15.76	46.59
OU-1A/PCAP	IS72OW05S	x	-	-	07/25/11	ECS	63.05	15.18	47.87
OU-1A/PCAP	IS72OW06S	x	-	-	07/25/11	ECS	61.93	17.97	43.96
OU-1A/PCAP	IS72OW07S	x	-	-	07/25/11	ECS	61.85	17.44	44.41
OU-1A/PCAP	IS72OW08S	x	-	-	07/25/11	ECS	62.03	16.68	45.35
OU-1A/PCAP	IS72OW09S	x	-	-	07/25/11	ECS	61.73	16.26	45.47
OU-1A/PCAP	222MW01D	-	x	-	07/25/11	ECS	69.51 *	16.02	53.49
OU-1A/PCAP	222MW02D	-	x	-	07/25/11	ECS	69.06	17.09	51.97
OU-1A/PCAP	222MW03D	-	x	-	07/25/11	ECS	67.11	15.61	51.50
OU-1A/PCAP	222MW04D	-	x	-	07/25/11	ECS	65.34	14.25	51.09
OU-1A/PCAP	222MW05D	-	x	-	07/25/11	ECS	66.56	17.89	48.67
OU-1A/PCAP	222MW06D	-	x	-	07/25/11	ECS	63.16	17.05	46.11
OU-1A/PCAP	222MW07D	-	x	-	07/25/11	ECS	65.05	16.37	48.68
OU-1A/PCAP	222MW08D	-	x	-	07/25/11	ECS	62.69	17.02	45.67
OU-1A/PCAP	222MW09 (D)	-	x	-	07/25/11	ECS	64.56	17.29	47.27
OU-1A/PCAP	222MW10 (D)	-	x	-	07/25/11	ECS	61.65	15.93	45.72
OU-1A/PCAP	222MW11D	-	x	-	07/25/11	ECS	61.64	15.46	46.18
OU-1A/PCAP	222PW09D	-	x	-	07/25/11	ECS	63.73	16.93	46.80
OU-1A/PCAP	222PW10D	-	x	-	07/25/11	ECS	64.31	18.06	46.25
OU-1A/PCAP	222PW13D	-	x	-	07/25/11	ECS	62.26	16.35	45.91
OU-1A/PCAP	A000MW43D (A000SB43D)	-	x	-	07/25/11	ECS	68.85	19.69	49.16
OU-1A/PCAP	IS72MW01D	-	x	-	07/25/11	ECS	66.43	13.43	53.00
OU-1A/PCAP	IS72MW02D	-	x	-	07/25/11	ECS	62.51	14.73	47.78
OU-1A/PCAP	IS72MW03D	-	x	-	07/25/11	ECS	64.63	16.33	48.30
OU-1A/PCAP	IS72MW04D	-	x	-	07/25/11	ECS	61.69	12.29	49.40
OU-1A/PCAP	IS72MW05D	-	x	-	07/25/11	ECS	60.66	15.07	45.59
OU-1A/PCAP	IS72MW10D	-	x	-	07/25/11	ECS	60.80	14.31	46.49
OU-1A/PCAP	IS72MW11D	-	x	-	07/25/11	ECS	62.31	16.25	46.06
OU-1A/PCAP	IS72MW12D	-	x	-	07/25/11	ECS	62.37	16.99	45.38
OU-1A/PCAP	IS72MW13D	-	x	-	07/25/11	ECS	61.30	13.76	47.54
OU-1A/PCAP	IS72MW14D	-	x	-	07/25/11	ECS	66.14	16.02	50.12
OU-1A/PCAP	IS72MW15D	-	x	-	07/25/11	ECS	62.22 *	16.52	45.70
OU-1A/PCAP	IS72MW16D	-	x	-	07/25/11	ECS	65.23 *	18.95	46.28
OU-1A/PCAP	IS72MW17D	-	x	-	07/25/11	ECS	64.18 *	12.41	51.77
OU-1A/PCAP	IS72OW01D	-	x	-	07/25/11	ECS	62.64	15.39	47.25
OU-1A/PCAP	IS72OW02D	-	x	-	07/25/11	ECS	62.73	15.46	47.27
OU-1A/PCAP	IS72OW03D	-	x	-	07/25/11	ECS	62.32	15.71	46.61
OU-1A/PCAP	IS72OW04D	-	x	-	07/25/11	ECS	62.38	15.75	46.63
OU-1A/PCAP	IS72OW05D	-	x	-	07/25/11	ECS	63.09	15.26	47.83
OU-1A/PCAP	IS72OW06D	-	x	-	07/25/11	ECS	61.99	18.12	43.87
OU-1A/PCAP	IS72OW07D	-	x	-	07/25/11	ECS	61.98	17.51	44.47
OU-1A/PCAP	IS72OW13D	-	x	-	07/25/11	ECS	61.58	16.00	45.58
OU-1A/PCAP	IS72OW14D	-	x	-	07/25/11	ECS	61.71	16.11	45.60
OU-1A/PCAP	222MW03D2	-	-	x	07/25/11	ECS	66.92	14.49	52.43
OU-1A/PCAP	222MW08D2	-	-	x	07/25/11	ECS	62.75	14.77	47.98
OU-1A/PCAP	IS72MW02D2	-	-	x	07/25/11	ECS	62.44	12.50	49.94
OU-1A/PCAP	IS72MW03D2	-	-	x	07/25/11	ECS	65.00	13.89	51.11
OU-1A/PCAP	IS72MW07D2	-	-	x	07/25/11	ECS	62.68 *	12.99	49.69
OU-1A/PCAP	IS72MW08D2	-	-	x	07/25/11	ECS	63.64 *	13.83	49.81

TABLE 2
SUMMARY OF GROUNDWATER LEVELS

OU-1A and PCAP Wells
Former MCAS Tustin, California

Location	Well ID	Water Bearing Zone			Date of Measurement	Measured by	Top of Casing Elevation (ft msl)	Depth to Water (ft btoc)	Water Level Elevation (ft msl)
		1	2	3					

Notes:

All coordinates are provided in the California Coordinate System, Zone VI, 1983 North American Datum (191.35 EPOCH OCS GPS adjustment)

Well ID suffix corresponds to the water-bearing zone in which the well is screened. For example:

IS72MW02S (FWBZ well)

IS72MW02D (SWBZ well)

IS72MW02D2 (TWBZ well)

The following extraction wells are screened in both the first and second water-bearing zones: IS72EX01D, IS72EX02D, IS72EX03D, IS72EX05D, and IS72EX07D.

^{*}:Wells resurveyed by Evans Land Surveying on August 10, 2009.

^{**}:Wells resurveyed by Evans Land Surveying on March 28, 2011.

Acronyms and Abbreviations:

btoc = below top of casing

ft = feet

ID = identification

in = inches

msl = mean sea level

OU = operable unit

RA = remedial action

FWBZ = first water-bearing zone

SWBZ = second water-bearing zone

TWBZ = third water-bearing zone

**TABLE 3
SUMMARY OF FIELD PARAMETER MEASUREMENTS IN GROUNDWATER**

OU-1A and PCAP Wells
Former MCAS Tustin, California

Location	WELL INSTALLATION					Sampling Date	pH	EC (S/m)	Temp (°C)	DO (mg/L)	Turbidity (NTU)*	Salinity (%)	ORP (mV)	Initial Water Depth (ft-btoc)	Discharge Rate (ml/min)	Final Water Depth (ft-btoc)	Filtered (Y/N)	Purge Time			Draw-down (ft)	Pump Type
	Well Number	Sample ID	Water Bearing Zone															Begin	End	Duration (min)		
			1st	2nd	3rd																	

PCAP Extraction Wells

PCAP	222EW03SC	222EW03SC	x	-	-	8/10/2011	6.95	0.308	23.85	7.01	3.04	1.60	288	22.20	100	22.20	N	7:15	8:05	50	0.00	EW PUMP
PCAP	222EW03SD	222EW03SD	x	-	-	8/10/2011	6.91	0.316	22.11	0.82	2.51	1.65	203	20.67	100	20.67	N	7:15	8:05	50	0.00	EW PUMP
PCAP	222EW05-WBZ1	222EW05-WBZ1	x	-	-	8/10/2011	6.98	0.328	23.03	0.39	1.22	1.72	317	16.47	100	16.60	N	14:40	15:05	25	0.13	PERIS
PCAP	222EW05-WBZ2	222EW05-WBZ2	-	x	-	8/10/2011	6.91	0.344	23.79	0.24	1.21	1.80	235	38.39	100	38.39	N	13:00	13:35	35	0.00	EW PUMP
PCAP	222EW09	222EW09	x	x	-	8/10/2011	6.90	0.380	22.81	0.38	1.43	2.00	214	19.12	100	19.12	N	9:45	10:20	35	0.00	EW PUMP
PCAP	222EW10-WBZ1	222EW10-WBZ1	x	-	-	8/10/2011	6.85	0.339	22.71	0.55	1.55	1.77	286	17.23	100	17.30	N	15:20	16:10	50	0.07	PERIS
PCAP	222EW10-WBZ2	222EW10-WBZ2	-	x	-	8/10/2011	6.91	0.362	22.79	0.44	1.54	1.90	189	21.88	100	21.88	N	11:15	11:50	35	0.00	EW PUMP
PCAP	222EW12	222EW12	-	x	-	8/10/2011	6.89	0.363	22.73	0.47	1.69	1.91	227	39.85	100	39.85	N	9:00	9:35	35	0.00	EW PUMP
PCAP	222EW13-WBZ1	222EW13-WBZ1	x	-	-	8/11/2011	6.88	0.362	22.68	1.59	2.37	1.92	205	18.18	100	18.33	N	10:35	11:30	55	0.15	PERIS
PCAP	222EW13-WBZ2	222EW13-WBZ2	-	x	-	8/10/2011	6.86	0.384	22.97	13.85	2.94	2.03	230	42.15	100	42.15	N	10:30	11:00	30	0.00	EW PUMP
PCAP	222EW14	222EW14	-	x	-	8/10/2011	6.87	0.339	22.88	0.44	10.38	1.77	189	48.11	100	48.11	N	8:15	8:50	35	0.00	EW PUMP

Minimum	6.85	0.308	22.11	0.24	1.21	1.60	189	-	-	-	-	-	-	-	-	-	-	-	-	25	0.00
Average	6.90	0.348	22.94	2.38	2.72	1.82	235	-	-	-	-	-	-	-	-	-	-	-	-	40	0.03
Maximum	6.98	0.384	23.85	13.85	10.38	2.03	317	-	-	-	-	-	-	-	-	-	-	-	-	55	0.15

OU-1A Extraction Wells

OU-1A	IS72EX01D	IS72EX01D	x	x	-	8/4/2011	6.84	0.382	24.84	0.68	12.5	2.02	93	14.86	100	14.86	N	16:55	17:15	20	0.00	EW PUMP
OU-1A	IS72EX02D	IS72EX02D	x	x	-	8/4/2011	6.97	0.348	24.44	0.48	1.51	1.82	88	14.75	100	14.75	N	16:30	16:50	20	0.00	EW PUMP
OU-1A	IS72EX03D	IS72EX03D	x	x	-	8/4/2011	6.95	0.350	24.39	0.39	1.22	1.82	80	13.70	100	13.70	N	16:05	16:25	20	0.00	EW PUMP
OU-1A	IS72EX05D	IS72EX05D	x	x	-	8/4/2011	6.85	0.459	26.54	0.88	3.08	2.46	100	14.65	100	14.65	N	14:45	15:05	20	0.00	EW PUMP
OU-1A	IS72EX07D	IS72EX07D	x	x	-	8/4/2011	6.83	0.359	23.87	1.08	0.83	1.89	120	38.20	100	38.20	N	15:15	15:35	20	0.00	EW PUMP
OU-1A	IS72EX08S	IS72EX08S	x	-	-	8/5/2011	6.94	0.376	24.35	0.68	2.24	1.98	73	13.02	100	13.02	N	7:40	8:00	20	0.00	EW PUMP
OU-1A	IS72EX09S	IS72EX09S	x	-	-	8/4/2011	6.89	0.508	25.13	0.86	2.75	2.75	99	16.05	100	16.05	N	14:15	14:35	20	0.00	EW PUMP
OU-1A	IS72EX10D	IS72EX10D	-	x	-	8/5/2011	6.89	0.354	23.04	0.47	2.00	1.84	86	18.14	100	18.14	N	7:15	7:35	20	0.00	EW PUMP
OU-1A	IS72EX11D	IS72EX11D	-	x	-	8/4/2011	6.85	0.396	24.90	0.74	2.47	2.12	115	18.44	100	18.44	N	15:40	16:00	20	0.00	EW PUMP

Minimum	6.83	0.348	23.04	0.39	0.83	1.82	73	-	-	-	-	-	-	-	-	-	-	-	-	20	0.00
Average	6.89	0.392	24.61	0.70	3.18	2.08	95	-	-	-	-	-	-	-	-	-	-	-	-	20	0.00
Maximum	6.97	0.508	26.54	1.08	12.5	2.75	120	-	-	-	-	-	-	-	-	-	-	-	-	20	0.00

PCAP/OU-1A Monitoring Wells

PCAP/OU-1A	222MW03S	222MW03S	x	-	-	8/8/2011	6.80	0.310	23.04	0.68	5.66	1.61	286	16.58	100	16.62	N	9:50	10:15	25	0.04	BLADR
PCAP/OU-1A	222MW04S	222MW04S	x	-	-	8/2/2011	6.82	0.315	22.26	0.30	1.18	1.64	82	14.34	100	14.36	N	14:30	15:10	40	0.02	BLADR
PCAP/OU-1A	222MW05S	222MW05S	x	-	-	8/2/2011	6.82	0.365	24.96	0.77	0.98	1.92	89	17.74	100	17.80	N	12:05	12:40	35	0.06	BLADR
PCAP/OU-1A	222MW06S	222MW06S	x	-	-	8/8/2011	7.07	0.215	22.97	5.84	1.20	1.10	301	17.05	100	17.22	N	16:05	16:35	30	0.17	BLADR
PCAP/OU-1A	222PW03SA	222PW03SA	x	-	-	8/8/2011	6.77	0.343	23.31	1.38	87.5	1.80	297	15.81	100	15.82	N	10:20	10:55	35	0.01	BLADR
PCAP/OU-1A	222PW03SB	222PW03SB	x	-	-	8/8/2011	6.89	0.282	24.12	1.01	16.8	1.46	293	15.39	100	15.39	N	11:10	11:50	40	0	BLADR
PCAP/OU-1A	222PW03SC	222PW03SC	x	-	-	8/8/2011	6.77	0.309	24.54	0.61	31.6	1.61	226	15.12	100	15.12	N	13:35	14:05	30	0.00	BLADR
PCAP/OU-1A	222PW03SD	222PW03SD	x	-	-	8/8/2011	6.75	0.305	23.91	0.65	10.78	1.59	289	15.88	100	15.90	N	11:55	12:30	35	0.02	BLADR
PCAP/OU-1A	222PW09S	222PW09S	x	-	-	8/9/2011	6.78	0.371	23.68	0.51	5.49	1.93	310	17.38	100	17.38	N	14:35	15:10	35	0	BLADR
PCAP/OU-1A	222PW10S	222PW10S	x	-	-	8/9/2011	6.34	0.379	25.66	1.13	78.4	1.90	307	17.60	100	17.74	N	14:00	14:30	30	0.14	BLADR
PCAP/OU-1A	222PW13S	222PW13S	x	-	-	8/9/2011	6.58	0.382	22.28	0.71	14.8	2.01	299	16.42	100	16.46	N	16:00	16:30	30	0.04	BLADR
PCAP/OU-1A	IS72MW01SR	IS72MW01SR	x	-	-	8/1/2011	6.73	0.343	23.66	0.28	1.85	1.80	112	12.62	100	12.65	N	11:05	12:00	55	0.03	BLADR
PCAP/OU-1A	IS72MW02S	IS72MW02S	x	-	-	8/2/2011	6.83	0.400	23.70	0.43	1.02	2.11	84	14.81	100	14.85	N	10:40	11:20	40	0.04	BLADR
PCAP/OU-1A	IS72MW03S	IS72MW03S	x	-	-	8/8/2011	6.85	0.368	24.69	0.63	1.87	1.93	2.45	16.31	100	16.33	N	14:15	14:50	35	0.02	BLADR
PCAP/OU-1A	IS72MW05S	IS72MW05S	x	-	-	8/1/2011	6.62	0.509	24.39	0.39	1.19	2.73	105	15.17	100	15.21	N	13:20	14:05	45	0.04	BLADR
PCAP/OU-1A	IS72MW11S	IS72MW11S	x	-	-	8/9/2011	6.71	1.97	24.72	0.54	3.96	11.77	257	16.52	100	16.93	N	13:25	13:55	30	0.41	BLADR
PCAP/OU-1A	IS72MW12S	IS72MW12S	x	-	-	8/2/2011	6.71	0.378	24.32	0.35	1.09	1.99	96	16.97	100	16.98	N	16:40	17:25	45	0.01	BLADR

**TABLE 3
SUMMARY OF FIELD PARAMETER MEASUREMENTS IN GROUNDWATER**

OU-1A and PCAP Wells
Former MCAS Tustin, California

Location	WELL INSTALLATION					Sampling Date	pH	EC (S/m)	Temp (°C)	DO (mg/L)	Turbidity (NTU)*	Salinity (%)	ORP (mV)	Initial Water Depth (ft-btoc)	Discharge Rate (ml/min)	Final Water Depth (ft-btoc)	Filtered (Y/N)	Purge Time			Draw-down (ft)	Pump Type
	Well Number	Sample ID	Water Bearing Zone															Begin	End	Duration (min)		
			1st	2nd	3rd																	
PCAP/OU-1A	IS72MW15S	IS72MW15S	x	-	-	8/9/2011	6.64	0.298	24.69	0.49	3.51	1.54	291	16.89	100	16.90	N	12:45	13:20	35	0.01	BLADR
PCAP/OU-1A	IS72MW17S	IS72MW17S	x	-	-	8/3/2011	6.80	0.419	23.07	0.31	1.22	2.21	111	12.66	100	12.68	N	8:55	9:35	30	0.02	BLADR
PCAP/OU-1A	IS72MW18S	IS72MW18S	x	-	-	8/1/2011	6.98	0.283	23.96	2.48	1.40	1.47	110	17.87	100	17.91	N	14:45	15:25	40	0.04	BLADR

Minimum	6.34	0.215	22.26	0.28	0.98	1.10	2.45	-	-	-	-	-	-	-	-	25	0.00
Average	6.76	0.427	23.90	0.97	13.58	2.31	197	-	-	-	-	-	-	-	-	36	0.06
Maximum	7.07	1.970	25.66	5.84	87.5	11.77	310	-	-	-	-	-	-	-	-	55	0.41

PCAP/OU-1A	222MW03D	222MW03D	-	x	-	8/8/2011	6.11	0.327	22.84	1.18	2.38	1.71	298	15.69	100	16.03	N	9:10	9:45	35	0.34	BLADR
PCAP/OU-1A	222MW04D	222MW04D	-	x	-	8/2/2011	6.84	0.380	22.90	0.54	1.25	2.00	87	14.26	100	14.48	N	15:15	15:55	40	0.22	BLADR
PCAP/OU-1A	222MW05D	222MW05D	-	x	-	8/2/2011	6.85	0.360	23.06	0.32	0.99	1.89	90	17.93	100	17.97	N	12:45	13:30	45	0.04	BLADR
PCAP/OU-1A	222MW06D	222MW06D	-	x	-	8/9/2011	6.74	0.380	22.37	0.95	2.19	2.00	312	17.00	100	17.22	N	9:40	10:10	30	0.22	BLADR
PCAP/OU-1A	222MW08D	222MW08D	-	x	-	8/9/2011	6.76	0.382	21.05	0.89	2.58	2.01	326	17.06	100	17.54	N	9:05	9:35	30	0.48	BLADR
PCAP/OU-1A	222MW09 (D)	222MW09 (D)	-	x	-	8/9/2011	6.67	0.483	22.36	0.84	15.5	2.58	317	17.27	100	17.27	N	15:15	15:50	35	0.00	BLADR
PCAP/OU-1A	222MW10 (D)	222MW10 (D)	-	x	-	8/9/2011	6.75	0.433	22.43	1.18	9.10	2.35	316	15.98	100	16.01	N	10:15	10:45	30	0.03	BLADR
PCAP/OU-1A	222MW11D	222MW11D	-	x	-	8/9/2011	6.95	0.408	23.60	0.89	5.87	2.16	318	15.57	100	15.58	N	10:50	11:20	30	0.01	BLADR
PCAP/OU-1A	222PW09D	222PW09D	-	x	-	8/8/2011	6.83	0.360	23.80	0.90	4.91	1.77	278	16.96	100	16.96	N	15:30	16:00	30	0	BLADR
PCAP/OU-1A	222PW10D	222PW10D	-	x	-	8/8/2011	6.95	0.188	24.87	1.08	2.98	0.99	275	18.09	100	18.12	N	14:55	15:25	30	0.03	BLADR
PCAP/OU-1A	222PW13D	222PW13D	-	x	-	8/9/2011	6.60	0.368	22.55	0.71	1280	2.00	264	16.36	100	16.38	N	16:40	17:15	35	0.02	BLADR
PCAP/OU-1A	IS72MW01D	IS72MW01D	-	x	-	8/2/2011	6.81	0.347	21.72	0.58	15.1	1.82	98	13.42	100	13.44	N	8:45	9:35	50	0.02	BLADR
PCAP/OU-1A	IS72MW02D	IS72MW02D	-	x	-	8/2/2011	7.19	0.179	23.27	0.58	1.40	0.90	62	14.75	100	14.77	N	9:50	10:35	45	0.02	BLADR
PCAP/OU-1A	IS72MW03D	IS72MW03D	-	x	-	8/2/2011	6.79	0.367	24.57	0.34	1.29	1.93	85	16.24	100	16.25	N	13:35	14:15	40	0.01	BLADR
PCAP/OU-1A	IS72MW12D	IS72MW12D	-	x	-	8/2/2011	6.84	0.371	23.92	0.28	0.98	1.94	90	16.99	100	17.03	N	16:00	16:35	35	0.04	BLADR
PCAP/OU-1A	IS72MW15D	IS72MW15D	-	x	-	8/1/2011	6.73	0.371	24.78	1.78	1.26	1.95	106	16.59	100	16.62	N	14:10	14:40	30	0.03	BLADR
PCAP/OU-1A	IS72MW16D	IS72MW16D	-	x	-	8/1/2011	6.74	0.409	24.01	0.73	0.81	2.17	111	18.95	100	18.97	N	15:30	16:25	55	0.02	BLADR

Minimum	6.11	0.179	21.05	0.28	0.81	0.90	62	-	-	-	-	-	-	-	-	-	-	30	0.00
Average	6.77	0.360	23.18	0.81	79.33	1.89	202	-	-	-	-	-	-	-	-	-	-	37	0.09
Maximum	7.19	0.483	24.87	1.78	1280	2.58	326	-	-	-	-	-	-	-	-	-	-	55	0.48

PCAP/OU-1A	222MW03D2	222MW03D2	-	-	x	8/8/2011	6.89	0.251	22.98	2.34	1.90	1.29	310	14.35	100	14.38	N	8:30	9:05	35	0.03	BLADR
PCAP/OU-1A	222MW08D2	222MW08D2	-	-	x	8/9/2011	7.04	0.207	20.47	4.15	6.85	1.05	325	14.69	100	14.87	N	8:30	9:00	20	0.18	BLADR
PCAP/OU-1A	IS72MW02D2	IS72MW02D2	-	-	x	8/1/2011	7.17	0.175	23.84	0.60	1.08	0.88	38	12.42	100	12.51	N	16:40	17:25	45	0.09	BLADR
PCAP/OU-1A	IS72MW07D2	IS72MW07D2	-	-	x	8/1/2011	7.10	0.203	23.40	0.57	1.05	1.03	128	12.97	100	12.99	N	10:10	11:00	50	0.02	BLADR

Minimum	6.89	0.18	20.47	0.57	1.05	0.88	38	-	-	-	-	-	-	-	-	-	-	20	0.02
Average	7.05	0.21	22.67	1.92	2.72	1.06	200	-	-	-	-	-	-	-	-	-	-	38	0.08
Maximum	7.17	0.25	23.84	4.15	6.85	1.29	325	-	-	-	-	-	-	-	-	-	-	50	0.18

**TABLE 3
SUMMARY OF FIELD PARAMETER MEASUREMENTS IN GROUNDWATER**

OU-1A and PCAP Wells
Former MCAS Tustin, California

Location	WELL INSTALLATION			Sampling Date	pH	EC (S/m)	Temp (°C)	DO (mg/L)	Turbidity (NTU)*	Salinity (%)	ORP (mV)	Initial Water Depth (ft-btoc)	Discharge Rate (ml/min)	Final Water Depth (ft-btoc)	Filtered (Y/N)	Purge Time			Draw-down (ft)	Pump Type		
	Well Number	Sample ID	Water Bearing Zone													Begin	End	Duration (min)				
			1st																		2nd	3rd

Notes:

Symbols:

- = Not applicable or available
% = Percent

Acronyms/Abbreviations:

BTOC = below top of casing
BLADR = bladder Pump
°C = degrees Celsius
DO = dissolved oxygen
EC = electrical conductance
EW Pump = extraction well pump
ft = feet
gal = gallons
ID = identification
MCAS = Marine Corps Air Station
mg/L = milligrams per liter
ml/min = milliliters per minute
mV = millivolt
min = minute
NTU = nephelometric turbidity unit
ORP = oxidation-reduction potential
OU = operable unit
PCAP = Petroleum Corrective Action Program
pH = potential hydrogen
PERIS = peristaltic pump
S/m = Siemens per meter
Temp = Temperature
WBZ = water-bearing zone

**TABLE 4
SUMMARY OF GROUNDWATER ANALYSES**

OU-1A and PCAP Wells
Former MCAS Tustin, California

AREA	WELL ID	SAMPLE DATE	Duplicate?	DATE ANALYZED	SAMPLED BY	Water Bearing Zone	Benzene	1,2-DCA	Cis-1,2-DCE	Trans-1,2-DCE	Ethylbenzene	MTBE	Toluene	1,1,2-TCA	TCE	1,2,3-TCP	Vinyl Chloride	M,P-Xylenes	O-Xylene	Xylenes (total)	TBA	DIPE	ETBE	TAME	1,1-DCA	1,1-DCE																								
																											EPA Method 8260B																							
																											1	2	3	µg/L																				

PCAP Extraction Wells

PCAP	222EW03SC	08/10/11		08/13/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	25	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP	222EW03SD	08/10/11		08/13/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	9.6	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP	222EW05 (1st WBZ)	08/10/11		08/13/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	7.6	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP	222EW05 (2nd WBZ)	08/10/11		08/13/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	100	<1.0	<1.0	<1.0	3.8	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	0.55 J	<1.0	<1.0
PCAP	222EW09	08/10/11		08/13/11	ECS	x	x	-	<1.0	<1.0	0.21 J	<1.0	<1.0	15	<1.0	<1.0	0.59 J	23	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP	222EW10 (1st WBZ)	08/10/11		08/13/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	160	<1.0	<1.0	<1.0	0.44 J	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	0.87 J	<1.0	<1.0
PCAP	222EW10 (2nd WBZ)	08/10/11		08/13/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	82	<1.0	<1.0	<1.0	15	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	0.59 J	<1.0	<1.0
PCAP	222EW12	08/10/11		08/13/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	18	<1.0	<1.0	<1.0	8.4	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP	222EW13 (1st WBZ)	08/11/11		08/13/11	ECS	x	-	-	1.2	<1.0	<1.0	<1.0	<1.0	0.54 J	0.51 J	<1.0	<1.0	0.58	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP	222EW13 (2nd WBZ)	08/10/11		08/13/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	28	<1.0	<1.0	<1.0	2.0	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP	222EW14	08/10/11		08/13/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	13	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0

Number of Samples Detected	-	-	-	-	1	0	1	0	0	11	1	0	1	7	0	-	-	0	0	0	0	0	3	0	0
Minimum Concentration	-	-	-	-	1.2	0	0.21 J	0	0	0.54 J	0.51 J	0	0.59 J	0.44 J	0	-	-	0	0	0	0	0	0.55 J	0	0
Maximum Concentration	-	-	-	-	1.2	0	0.21 J	0	0	160	0.51 J	0	0.59 J	23	0	-	-	0	0	0	0	0	0.87 J	0	0

OU-1A Extraction Wells

OU-1A	IS72EX01D	08/04/11		08/06/11	ECS	x	x	-	<1.0	<1.0	0.58 J	<1.0	<1.0	<1.0	<1.0	<1.0	76	15	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
OU-1A	IS72EX02D	08/04/11		08/08/11	ECS	x	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.2	15	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
OU-1A	IS72EX03D	08/04/11		08/06/11	ECS	x	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	9.1	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0	
OU-1A	IS72EX05D	08/04/11		08/06/11	ECS	x	x	-	<1.0	0.32 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.26 J	4.3	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
OU-1A	IS72EX07D	08/04/11		08/06/11	ECS	x	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	62	<1.0	<1.0	<1.0	7.0	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	0.40 J	<1.0	<1.0
OU-1A	IS72EX08S	08/05/11		08/06/11	ECS	x	-	-	<1.0	<1.0	1.6	0.37 J	<1.0	<1.0	<1.0	<1.0	110	8.2	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
OU-1A	IS72EX09S	08/04/11		08/06/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	2.3	<1.0	<1.0	<1.0	2.4	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
OU-1A	IS72EX10D	08/05/11		08/06/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	8.8	23	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
OU-1A	IS72EX11D	08/04/11		08/06/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	35	<1.0	<1.0	<1.0	23	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0

Number of Samples Detected	-	-	-	-	0	1	2	1	0	3	0	0	5	9	0	-	-	0	0	0	0	0	1	0	0
Minimum Concentration	-	-	-	-	0	0.32 J	0.58 J	0.37 J	0	2.3	0	0	0.26 J	2.4	0	-	-	0	0	0	0	0	0.40 J	0	0
Maximum Concentration	-	-	-	-	0	0.32 J	1.6	0.37 J	0	62	0	0	110	23	0	-	-	0	0	0	0	0	0.40 J	0	0

PCAP/OU-1A 1st WBZ Monitoring Wells

PCAP/OU-1A	222MW03S	08/08/11		08/17/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	222MW04S	08/02/11		08/05/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.0	1.2	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	222MW05S	08/02/11		08/05/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	0.72 J	<1.0	<1.0	3.2	8.3	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	222MW06S	08/08/11		08/12/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0	
PCAP/OU-1A	222PW03SA	08/08/11		08/12/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	20	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	222PW03SB	08/08/11		08/12/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	8.0	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	222PW03SC	08/08/11		08/12/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	11	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	222PW03SD	08/08/11		08/12/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	0.33 J	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	222PW09S	08/09/11		08/13/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	50	<1.0	<1.0	<1.0	0.58	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	0.67 J	<1.0	<1.0
PCAP/OU-1A	222PW10S	08/09/11		08/13/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	13	<1.0	<1.0	<1.0	1.7	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	222PW13S	08/09/11		08/17/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	8.7	<1.0	<1.0	<1.0	16	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	IS72MW01SR	08/01/11		08/04/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.2	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	IS72MW02S	08/02/11		08/04/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.3	15	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	IS72MW03S	08/08/11		08/12/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	75	<1.0	<1.0	0.26 J	0.45 J	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	0.39 J	<1.0	<1.0
PCAP/OU-1A	IS72MW03X	08/08/11	Yes	08/12/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	80	<1.0	<1.0	0.29 J	0.57	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	0.37 J	<1.0	<1.0
PCAP/OU-1A	IS72MW05S	08/01/11		08/04/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	IS72MW11S	08/09/11		08/13/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	IS72MW12S	08/02/11		08/05/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	57	<1.0	<1.0	<1.0	0.94	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	0.83 J	<1.0	<1.0
PCAP/OU-1A	IS72MW15S	08/09/11		08/12/11	ECS	x	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	20	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	0.28 J	<1.0	<1.0

**TABLE 4
SUMMARY OF GROUNDWATER ANALYSES**

OU-1A and PCAP Wells
Former MCAS Tustin, California

AREA	WELL ID	SAMPLE DATE	Duplicate?	DATE ANALYZED	SAMPLED BY	Water Bearing Zone	Benzene	1,2-DCA	Cis-1,2-DCE	Trans-1,2-DCE	Ethylbenzene	MTBE	Toluene	1,1,2-TCA	TCE	1,2,3-TCP	Vinyl Chloride	M,P-Xylenes	O-Xylene	Xylenes (total)	TBA	DIPE	ETBE	TAME	1,1-DCA	1,1-DCE

EPA Method 8260B
µg/L

PCAP/OU-1A 2nd WBZ Monitoring Wells

PCAP/OU-1A	222MW03D	08/08/11		08/12/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	39	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	222MW04D	08/02/11		08/05/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.2	47	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0	
PCAP/OU-1A	222MW05D	08/02/11		08/05/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	3.2	<1.0	<1.0	5.5	19	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	222MW06D	08/09/11		08/12/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	5.8	<1.0	<1.0	<1.0	0.67	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	222MW08D	08/09/11		08/12/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	26	<1.0	<1.0	<1.0	0.75	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	0.42 J	<1.0	<1.0
PCAP/OU-1A	222MW09 (D)	08/09/11		08/17/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0	
PCAP/OU-1A	222MW10 (D)	08/09/11		08/12/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	1.5	<1.0	<1.0	0.24 J	0.45 J	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	222MW11D	08/09/11		08/12/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	14	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	222PW09D	08/08/11		08/12/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	7.7	<1.0	<1.0	<1.0	3.9	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	222PW10D	08/08/11		08/12/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	110	<1.0	<1.0	<1.0	13	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	0.55 J	<1.0	<1.0
PCAP/OU-1A	222PW13D	08/09/11		08/17/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	37	<1.0	<1.0	<1.0	23	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	IS72MW01D	08/02/11		08/04/11	-	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	17	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0	
PCAP/OU-1A	IS72MW02D	08/02/11		08/04/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0	
PCAP/OU-1A	IS72MW03D	08/02/11		08/05/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	51	<1.0	<1.0	0.42 J	0.98	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	0.27 J	<1.0	<1.0
PCAP/OU-1A	IS72MW03X	08/02/11	Yes	08/05/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	52	<1.0	<1.0	0.41 J	0.85	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	0.26 J	<1.0	<1.0
PCAP/OU-1A	IS72MW12D	08/02/11		08/05/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	35	<1.0	<1.0	<1.0	0.45 J	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	0.61 J	<1.0	<1.0
PCAP/OU-1A	IS72MW15D	08/01/11		08/04/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.23 J	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	IS72MW16D	08/01/11		08/04/11	ECS	-	x	-	<1.0	<1.0	<1.0	<1.0	<1.0	0.82 J	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0

Number of Samples Detected	-	-	-	-	0	0	0	0	0	0	13	0	0	7	13	0	-	-	0	0	0	0	5	0	0
Minimum Concentration	-	-	-	-	0	0	0	0	0	0	0.82 J	0	0	0.23 J	0.45 J	0	-	-	0	0	0	0	0.26 J	0	0
Maximum Concentration	-	-	-	-	0	0	0	0	0	0	110	0	0	17	47	0	-	-	0	0	0	0	0.61 J	0	0

PCAP/OU-1A 3rd WBZ Monitoring Wells

PCAP/OU-1A	222MW03D2	08/08/11		08/12/11	ECS	-	-	x	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	222MW03DX	08/08/11	Yes	08/12/11	ECS	-	-	x	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	222MW08D2	08/09/11		08/12/11	ECS	-	-	x	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	IS72MW02D2	08/01/11		08/04/11	ECS	-	-	x	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
PCAP/OU-1A	IS72MW07D2	08/01/11		08/04/11	ECS	-	-	x	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	-	-	<1.0	<10 UJ	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Number of Samples Detected	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0	0	0	0	0	0
Minimum Concentration	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0	0	0	0	0	0
Maximum Concentration	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0	0	0	0	0	0

Acronyms and Abbreviations:

DCA = Dichloroethane
DCE = Dichloroethene
DIPE = Diisopropyl Ether
EPA = U.S. Environmental Protection Agency
ETBE = Ethyl Tertiary Butyl Ether
ID = identification
MCAS = Marine Corps Air Station
MTBE = Methyl Tertiary Butyl Ether
OU = operable unit
PCAP = Petroleum Corrective Action Program
TAME = Tertiary Amyl Methyl Ether
TBA = Tertiary-Butanol or Tertiary-Butyl Alcohol
TCA = Trichloroethane
TCE = Trichloroethene
TCP = Trichloropropane
WBZ = Water-Bearing Zone
Xylenes: M = Meta, O = Ortho, P = Para
µg/L = micrograms per Liter

Laboratory and Validation Qualifiers:

J = Indicates an estimated value
U = Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
UJ = Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

Symbols:

- = not applicable or available
< = less than
Bold = Compounds exceed the remediation goal

**TABLE 5
MONTHLY TREATMENT SUMMARY**

PCAP and OU-1A-1B North

OCSD Discharge Permit 57-256

Former Marine Corps Air Station Tustin, California

YEAR & MONTH	PCAP (1)						OU-1A-1B North (1)						OCSD (2)							
	Days		Operating Efficiency	Treated Gallons	Average Gallons per Minute	Influent (3)		Days		Operating Efficiency	Treated Gallons	Average Gallons per Minute	Influent (3)			Electricity Kilowatt-Hour	Contribution (%)		Month End Meter (Gallons)	Discharged (Gallons)
	On	Off				MTBE (ug/L)	1,2,3 TCP (ug/L)	On	Off				MTBE (ug/L)	TCE (ug/L)	1,2,3 TCP (ug/L)		PCAP	OU-1A/ -1B (No.)		

Monthly Summary

September-07	1.9	2.5	43%	49,650	8	310.0	-	-	-	-	0	-	-	-	-	0	100%	0%	94,920	89,230
October-07	24.6	6.1	80%	2,011,920	46	310.0	-	-	-	-	0	-	-	-	-	4,900	100%	0%	2,346,950	2,252,030*
November-07	27.4	2.5	92%	2,490,040	58	280.0	7.6	16.9	6.0	74%	62,400	2	-	-	-	5,751	98%	2%	5,205,190	2,858,240
December-07	27.0	4.1	87%	2,904,980	65	280.0	8.9	26.0	5.1	83%	664,532	15	-	-	-	8,488	81%	19%	7,854,790	2,649,600
January-08	27.2	4.0	87%	3,121,480	70	-	-	30.3	0.9	97%	831,640	19	-	-	-	10,428	79%	21%	1,897,540	4,042,750
February-08	28.2	0.7	97%	3,809,430	91	198.6	2.0	29.0	0.0	100%	1,128,700	27	-	-	-	11,900	77%	23%	7,194,540	5,297,000
March-08	30.9	0.0	100%	3,837,890	86	150.0	8.7	30.9	0.0	100%	2,194,730	49	-	-	-	13,894	64%	36%	2,564,330	5,369,790
April-08	29.9	0.0	100%	3,327,710	77	-	-	29.9	0.0	100%	1,258,010	29	-	-	-	14,652	73%	27%	6,990,160	4,425,830
May-08	31.1	0.0	100%	4,032,850	90	95	7.3	31.1	0.0	100%	1,539,580	34	-	-	-	14,952	72%	28%	2,313,630	5,323,470
June-08	29.9	0.0	100%	3,767,390	87	-	-	29.9	0.0	100%	1,463,870	34	-	-	-	14,107	72%	28%	7,472,360	5,158,730
July-08	32.1	0.0	100%	3,840,340	83	91	8.7	32.1	0.0	100%	1,544,930	33	30	25	12	15,154	71%	29%	2,842,850	5,370,490
August-08	31.2	0.0	100%	3,812,357	85	51	7.5	31.2	0.0	100%	1,356,600	30	26	21	12	14,101	74%	26%	8,381,302	5,538,452
September-08	29.8	0.0	100%	3,185,213	74	70	8.2	29.8	0.0	100%	1,125,740	26	31	24	<1.0	11,746	74%	26%	2,764,280	4,382,978
October-08	31.2	0.0	100%	2,360,000	53	110	12.0	31.2	0.0	100%	1,347,580	30	27	27	14	11,232	64%	36%	6,660,980	3,896,700
November-08	26.9	2.9	90%	2,330,487	54	22	6.7	29.8	0.0	100%	1,195,583	28	21	21	9	11,424	66%	34%	9,880,684	3,219,704
December-08	29.2	1.8	94%	2,575,183	58	76	10.0	31.0	0.0	100%	1,480,967	33	19	16	11	13,473	63%	37%	4,619,730	4,739,046
January-09	31.0	0.0	100%	2,611,144	58	71	11.0	31.0	0.0	100%	1,466,822	33	19	23	11	13,287	64%	36%	8,961,842	4,342,112
February-09	24.0	4.0	86%	1,681,028	42	62	12.0	27.9	0.0	100%	1,364,807	34	22	20	13	10,118	55%	45%	2,357,574	3,395,732
March-09	29.8	1.2	96%	2,556,648	57	69	9.8	29.0	2.0	94%	1,593,071	36	40	17	8.6	13,647	62%	38%	7,185,900	4,828,326
April-09	30.0	0.0	100%	2,292,360	53	63	6.6	30.0	0.0	100%	1,321,810	31	37	17	7.6	12,361	63%	37%	4,351,550	3,996,413
May-09	31.0	0.0	100%	2,373,615	53	76	9.6	31.0	0.0	100%	1,207,574	27	18	20	10	13,070	66%	34%	4,331,832	4,369,142
June-09	29.9	0.0	100%	2,178,085	51	76	6.4	29.9	0.0	100%	1,059,216	25	55	14	6.9	12,823	67%	33%	7,852,800	3,520,968
July-09	31.1	0.0	100%	2,014,520	45	82	9.4	31.1	0.0	100%	1,182,990	26	11	14	10	14,370	63%	37%	781,690	2,928,890
August-09	30.8	0.1	100%	1,560,430	35	89	7.8	30.8	0.1	100%	1,185,540	27	70	8.4	7.1	13,249	57%	43%	2,888,380	2,106,690
September-09	30.0	0.0	100%	2,393,290	55	36	3.1	30.0	0.0	100%	1,088,070	25	60	8.5	4.4	14,243	69%	31%	5,969,300	3,080,920
October-09	30.9	0.0	100%	2,261,053	51	56	11	30.9	0.0	100%	1,097,122	25	38	9.2	7.1	14,337	67%	33%	9,070,509	3,101,209
November-09	30.0	0.0	100%	2,170,567	50	39	10	30.0	0.0	100%	986,568	23	21	8.0	7.1	13,674	69%	31%	1,859,680	2,789,171
December-09	28.0	3.0	90%	2,114,090	47	33	8.9	31.1	0.0	100%	1,073,560	24	24	7.0	7.4	14,208	66%	34%	4,315,590	2,455,910
January-10	27.4	3.7	88%	2,376,539	53	26	8.1	30.4	0.7	98%	1,078,603	24	19	6.1	8.1	14,045	69%	31%	6,830,396	2,746,536^
February-10	28.1	0.0	100%	2,271,544	56	38	10	28.1	0.0	100%	1,135,809	28	60	6.3	6.0	13,964	67%	33%	100,834	3,270,437
March-10	30.7	0.0	100%	2,488,516	56	35	12	30.7	0.0	100%	1,144,428	26	65	7.9	7.2	13,390	68%	32%	3,415,550	3,314,716
April-10	30.1	0.0	100%	2,572,670	59	38	12	30.1	0.0	100%	1,174,700	27	68	7.3	8.1	12,983	69%	31%	6,958,230	3,542,680
May-10	30.9	0.0	100%	2,638,967	59	26	11	30.9	0.0	100%	1,181,338	27	38	5.3	8.4	13,362	69%	31%	755,988	3,797,758
June-10	30.1	0.0	100%	2,516,183	58	25	10	30.1	0.0	100%	1,055,402	24	41	5.4	7.8	12,389	70%	30%	4,301,920	3,545,932
July-10	30.8	0.0	100%	2,547,430	57	29	10	30.8	0.0	100%	985,510	22	27	4.8	6.5	12,277	72%	28%	7,936,774	3,634,854
August-10	31.0	0.0	100%	2,612,820	59	29	10	31.0	0.0	100%	795,490	18	27	4.8	6.5	11,711	77%	23%	1,486,860	3,550,086
September-10	30.2	0.0	100%	2,504,440	58	29	10	30.2	0.0	100%	725,050	17	27	4.8	6.5	11,043	78%	22%	4,823,330	3,336,470
October-10	31.0	0.0	100%	2,561,133	57	28	11	31.0	0.0	100%	808,233	18	13	6.6	7.1	12,024	76%	24%	8,350,136	3,526,806
November-10	30.0	0.0	100%	2,594,279	60	28	11	30.0	0.0	100%	900,911	21	13	6.6	7.1	11,716	74%	26%	1,904,468	3,554,333
December-10	25.0	5.9	81%	1,974,842	44	28	11	30.9	0.0	100%	1,020,884	23	13	6.6	7.1	10,292	66%	34%	4,816,889	2,912,421
January-11	31.2	0.0	100%	2,584,476	58	34	11	31.2	0.0	100%	1,277,192	28	37	6.2	6.4	12,780	67%	33%	8,889,250	4,072,361

TABLE 5
MONTHLY TREATMENT SUMMARY
PCAP and OU-1A/-1B North
 OCSD Discharge Permit 57-256
 Former Marine Corps Air Station Tustin, California

YEAR & MONTH	PCAP (1)							OU-1A/-1B North (1)							OCSD (2)					
	Days		Operating Efficiency	Treated Gallons	Average Gallons per Minute	Influent (3)		Days		Operating Efficiency	Treated Gallons	Average Gallons per Minute	Influent (3)			Electricity Kilowatt-Hour	Contribution (%)		Month End Meter (Gallons)	Discharged (Gallons)
	On	Off				MTBE (ug/L)	1,2,3 TCP (ug/L)	On	Off				MTBE (ug/L)	TCE (ug/L)	1,2,3 TCP (ug/L)		PCAP	OU-1A/-1B (No.)		
February-11	28.2	0.0	100%	2,227,420	55	34	11	28.2	0.0	100%	1,295,920	32	37	6.2	6.4	11,816	63%	37%	2,675,460	3,786,210
March-11	30.8	0.0	100%	2,006,370	45	34	11	30.8	0.0	100%	1,390,080	31	37	6.2	6.4	12,765	59%	41%	6,682,720	4,007,260
April-11	30.1	0.0	100%	2,190,316	50	26	12	30.1	0.0	100%	1,360,475	31	22	9.3	6.7	12,251	62%	38%	762,699	4,079,979
May-11	29.1	2.0	94%	2,584,358	58	26	12	30.7	0.4	99%	1,295,653	29	22	9.3	6.7	12,023	67%	33%	5,008,588	4,245,889
June-11	29.6	0.0	100%	2,521,146	59	26	12	29.6	0.0	100%	1,181,682	28	22	9.3	6.7	11,709	68%	32%	8,742,740	3,734,152
July-11	30.9	0.0	100%	2,626,971	59	20	11	30.9	0.0	100%	1,360,344	31	21	8.0	6.5	12,566	66%	34%	3,108,068	4,365,328
August-11	31.0	0.0	100%	2,620,039	59	20	11	31.0	0.0	100%	1,319,216	30	21	8.0	6.5	12,410	67%	33%	7,393,150	4,285,082
September-11	30.0	0.0	100%	2,538,280	59	20	11	30.0	0.0	100%	1,271,040	29	21	8.0	6.5	12,011	67%	33%	1,488,240	4,095,090
October-11	31.3	0.0	100%	2,621,970	58	19	11	31.3	0.0	100%	1,236,460	27	-	7.9	5.9	12,296	68%	32%	5,671,740	4,183,500
November-11	22.9	0.0	100%	1,948,040	59	19	11	22.9	0.0	100%	928,100	28	-	7.9	5.9	9,034	68%	32%	8,766,480	3,094,740
TOTAL	1,475.7	44.7	97%	266,990,499 (4)	61			1,462.9	15.3	99%	57,744,532	27				616,446	69%	31%		190,212,143

Quarterly & Annual Summary

2007 4th Qtr	79.0	12.7	86%	7,406,940	56			42.8	11.1	79%	726,932	12				19,139	91%	9%		7,759,870
TOTAL (2007)	80.9	15.3	84%	7,456,590	54			42.8	11.1	79%	726,932	12				19,139	91%	9%		7,849,100
TOTAL (2008)	357.6	9.4	97%	40,000,330	78			366.1	0.9	100%	16,467,930	31				157,063	71%	29%		56,764,940
TOTAL (2009)	356.7	8.2	98%	26,206,830	51			362.9	2.1	99%	14,627,150	28				159,387	64%	36%		40,915,483
TOTAL (2010)	355.3	9.7	97%	29,659,364	58			364.2	0.8	100%	12,006,358	23				149,196	71%	29%		40,733,029
2011 1st Qtr	90.2	0.0	100%	6,818,266	52			90.3	0.0	100%	3,963,192	30				37,361	63%	37%		11,865,831
2011 2nd Qtr	88.9	2.0	98%	7,295,820	56			90.5	0.4	100%	3,837,810	29				35,983	66%	34%		12,060,020
2011 3rd Qtr	91.9	0.0	100%	7,785,290	59			91.9	0.0	100%	3,950,600	30				36,987	66%	34%		12,745,500
2011 4th Qtr	54.2	0.0	100%	4,570,010	59			54.2	0.0	100%	2,164,560	28				21,330	68%	32%		7,278,240
TOTAL (2011)	325.2	2.1	99%	26,469,386	57			326.8	0.4	100%	13,916,162	30				131,661	66%	34%		43,949,591

Notes

- = Not applicable or available
- *Navy reported 2,223,350 gallons to OCSD
- ^ OCSD flow meter froze on 1/19/10, and was repaired on 1/22/10. While the OCSD flow meter was not operating, the PCAP system discharged 87,970 gallons & the OU1B(N) system discharged 143,760 gallons to the sanitary sewer. Therefore, a total of 231,730 gallons were discharged while the OCSD meter was not operating. This volume is included in the reported gallons discharged for the month.
- (1) = Flow meter not calibrated. These values are used to compute total gallons, total contaminant mass recovered, & percent contribution to OCSD discharge.
- (2) = Flow meter calibrated according to OCSD protocols. Data used for required reporting to OCSD
- (3) = Concentration taken from most recent influent analysis
- (4) = Includes total volume treated from Interim PCAP System through August 2007 of >>>>>> 137,197,999 gallons

Acronyms & Abbreviations

- MTBE = Methyl Tertiary Butyl Ether
- OCSD = Orange County Sanitation District
- OU = Operable Unit
- PCAP = Petroleum Corrective Action Program
- TCP = Trichloropropane

TABLE 6
PCAP SYSTEM GAC ANALYSES
Former MCAS Tustin, California

Sample Date	GAC Change	Volatile Organic Compounds (ug/L)													Lab	Lead GAC
		1,2,3-TCP	Ben zene*	Bromo Form	Chloro Methane	Cis 1,2 DCE	DiBromo Chloro Methane	Methylene Chloride*	MTBE	TCE*	TBA	TAME	Other	TTO		
		(EPA Method 8260B)														

Influent

11/9/2007	-	7.6	<1.0	-	-	-	-	-	280	<1.0	15	2.6	ND	<1.0	EMAX	-
12/3/2007	-	8.9	<1.0	-	-	-	-	-	280	<1.0	34	1.90	ND	<1.0	EMAX	-
2/11/2008	-	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	198.6	<1.0	-	-	ND ¹	<1.0	EMAX	-
3/12/2008	-	8.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	150	<1.0	<1.0	1.3	ND	<1.0	EMAX	-
5/9/2008	-	7.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	95	<1.0	33	0.66 J	ND	<1.0	EMAX	-
7/8/2008	-	8.7	<1.0	0.84 J	0.45 J	<1.0	0.24 J	<1.0	91	<1.0	<1.0	0.80 J	ND	<1.0	EMAX	-
8/5/2008	-	7.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	51	<1.0	<1.0	0.40 J	ND	<1.0	EMAX	-
9/3/2008	-	8.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	70	<1.0	<1.0	0.57 J	ND	<1.0	EMAX	-
10/2/2008	-	12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	110	<1.0	<1.0	0.80 J	ND	<1.0	EMAX	-
11/3/2008	-	6.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	22	<1.0	8.30 J	<1.0	ND	<1.0	EMAX	-
12/1/2008	-	10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	76	<1.0	<1.0	0.53 J	ND	<1.0	EMAX	-
1/6/2009	-	11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	71	<1.0	<1.0	0.50 J	ND	<1.0	EMAX	-
2/5/2009	-	12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	62	<1.0	<1.0	0.41 J	ND ²	<1.0	EMAX	-
3/4/2009	-	9.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	69	<1.0	<1.0	0.46 J	ND ⁶	<1.0	EMAX	-
4/1/2009	-	6.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	63	<1.0	<1.0	0.50 J	ND	<1.0	EMAX	-
5/1/2009	-	9.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	76	<1.0	11	0.48 J	ND	<1.0	EMAX	-
6/1/2009	-	6.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	40	<1.0	<1.0	0.26 J	ND	<1.0	EMAX	-
7/2/2009	-	9.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	82	<1.0	<1.0	0.63 J	ND	<1.0	EMAX	-
8/5/2009	-	7.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	89	<1.0	<1.0	0.72 J	ND	<1.0	EMAX	-
8/31/2009	-	3.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	36	<1.0	<1.0	0.23 J	ND	<1.0	EMAX	-
10/1/2009	-	11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	56	<1.0	<1.0	0.35 J	ND	<1.0	EMAX	-
11/2/2009	-	10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	39	<1.0	<1.0	0.26 J	ND	<1.0	EMAX	-
12/7/2009	-	8.9	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	33	<1.0	<1.0	0.23 J	ND	<1.0	EMAX	-
1/4/2010	-	8.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	26	<1.0	<1.0	<1.0	ND ⁷	<1.0	EMAX	-
2/12/2010	-	10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	38	<1.0	<1.0	<1.0	ND	<1.0	EMAX	-
3/1/2010	-	12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	35	0.23 J	<1.0	0.22 J	ND	<1.0	EMAX	-
4/2/2010	-	12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	38	<1.0	<1.0	<1.0	ND	<1.0	EMAX	-
5/24/2010	-	11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	26	<1.0	<1.0	<1.0	ND	<1.0	EMAX	-
6/1/2010	-	10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	25	<1.0	<1.0	<1.0	ND	<1.0	EMAX	-
7/1/2010	-	10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	29	<1.0	11 J	<1.0	ND	<1.0	EMAX	-
10/6/2010	-	11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	28	0.24 J	<1.0	<1.0	ND	<1.0	EMAX	-
1/6/2011	-	11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	34	<1.0	<1.0	0.23 J	ND	<1.0	EMAX	-
4/1/2011	-	12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	26	<1.0	<1.0	<1.0	ND ¹⁰	<1.0	EMAX	-
7/1/2011	-	11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	20	0.22 J	<1.0	<1.0	ND	<1.0	EMAX	-
10/4/2011	-	11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	19	0.20 J	<1.0	<1.0	ND	<1.0	EMAX	-

Mid-Point 1

11/9/2007	-	<1.0	<1.0	-	-	-	-	-	14	<1.0	<1.0	<1.0	-	<1.0	EMAX	1
11/19/2007	-	<0.5	<0.5	-	-	-	-	-	2.3	<0.5	-	-	-	<1.0	EMAX	1
12/3/2007	-	<1.0	<1.0	-	-	-	-	-	2.4	<1.0	<1.0	<1.0	-	<1.0	EMAX	1
12/3/2007 (dup)	-	<1.0	<1.0	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	-	<1.0	EMAX	1
2/11/2008	1/8/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	-	-	<1.0	EMAX	2
3/12/2008	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.32 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	2
5/9/2008	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ND	<1.0	EMAX	2
7/8/2008	-	<1.0	<1.0	1.4	0.42 J	<1.0	0.48 J	<1.0	0.42 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	2
8/5/2008	-	0.72 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.45 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	2
9/3/2008	-	1.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.44 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	2
10/2/2008	-	2.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.61 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	2
11/3/2008	-	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.73 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	2
12/1/2008	-	3.9	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.65 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	2
1/6/2009	-	5.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.61 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	2
2/5/2009	-	6.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.72 J	<1.0	<1.0	<1.0	ND ⁵	<1.0	EMAX	2
3/4/2009	-	6.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.59 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	2
4/1/2009	-	6.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.66 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	2
5/1/2009	-	9.9	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.94 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	2
6/1/2009	5/22/2009	<1.0	<1.0	<1.0	<1.0	0.22 J	<1.0	<1.0	0.57 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1
7/2/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.48 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1
8/5/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.46 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1
8/31/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.52 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1
10/1/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.77 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1
11/2/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.62 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1
12/7/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.61 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1
1/4/2010	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.90 J	<1.0	<1.0	<1.0	ND ⁶	<1.0	EMAX	1
2/12/2010	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.78 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1
3/1/2010	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.73 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1
4/2/2010	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.74 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1
5/24/2010	-	0.62 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.72 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1
6/1/2010	-	0.85 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.69 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1
7/1/2010	-	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.62 J	<1.0	<1.0 UJ	<1.0	ND	<1.0	EMAX	1
10/6/2010	-	3.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.78 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1
1/6/2011	-	5.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.9	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1
4/1/2011	-	11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.71 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1
7/1/2011	-	11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.77 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1
10/4/2011	-	13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.55 J	<1.0	<1.0	<1.0	ND	<1.0	EMAX	1

TABLE 6
PCAP SYSTEM GAC ANALYSES
Former MCAS Tustin, California

Sample Date	GAC Change	Volatile Organic Compounds (ug/L)														Lab	Lead GAC
		1,2,3-TCP	Ben zene*	Bromo Form	Chloro Methane	Cis 1,2 DCE	DiBromo Chloro Methane	Methylene Chloride*	MTBE	TCE*	TBA	TAME	Other	TTO			
		(EPA Method 8260B)															

Mid-Point 2

11/9/2007	-	<1.0	<1.0	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	-	<1.0	EMAX	1
2/11/2008	1/8/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	-	-	<1.0	EMAX	2
3/12/2008	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ND	<1.0	EMAX	2
7/8/2008	-	<1.0	<1.0	1.0	<1.0	<1.0	0.22 J	0.61 J	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	2
8/5/2008	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	2
9/3/2008	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	2
10/2/2008	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	2
11/3/2008	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	2
12/1/2008	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	2
1/6/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	2
2/5/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND ⁴	<1.0	EMAX	2
3/4/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND ⁵	<1.0	EMAX	2
4/1/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	2
5/1/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	2
6/1/2009	5/22/2009	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	1
7/2/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	1
8/5/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	1
8/31/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	1
10/1/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	1
11/2/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	1
12/7/2009	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	1
1/4/2010	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND ⁹	<1.0	EMAX	1
2/12/2010	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	1
3/1/2010	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	1
4/2/2010	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	1
5/24/2010	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	1
6/11/2010	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	ND	<1.0	EMAX	1
7/1/2010	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10 UJ	<1.0	ND	<1.0	EMAX	1
10/6/2010	-	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.20 J	<1.0	<10	<1.0	ND	<1.0	EMAX	1
1/6/2011	-	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.37 J	<1.0	<10	<1.0	ND	<1.0	EMAX	1
4/1/2011	-	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.80 J	<1.0	<10	<1.0	ND	<1.0	EMAX	1
7/1/2011	-	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.73 J	<1.0	<10	<1.0	ND	<1.0	EMAX	1
10/4/2011	-	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.74 J	<1.0	<10	<1.0	ND	<1.0	EMAX	1

¹ = All other VOCs were ND, except for Toluene (0.26 J)

² = All other VOCs were ND, except for Acetone (8.3 J)

³ = All other VOCs were ND, except for Acetone (7.3 J)

⁴ = All other VOCs were ND, except for Acetone (5.1 J)

⁵ = All other VOCs were ND, except for Acetone (7.5 J)

⁶ = All other VOCs were ND, except for Acetone (5.3 J)

⁷ = All other VOCs were ND, except for Toluene (0.24 J)

⁸ = All other VOCs were ND, except for Toluene (0.25 J)

⁹ = All other VOCs were ND, except for Toluene (0.22 J)

¹⁰ = All other VOCs were ND, except for Acetone (6.4 J)

- = Not applicable or available

* = Compound included in TTO computation when concentration > 10 ug/L

DCE = Dichloroethene

dup = duplicate

GAC = Granular Activated Carbon

Influent = Prior to GAC treatment

Mid-Point 1 = Between GAC Vessels

Mid-Point 2 = Discharged to OCSD Sewer

MTBE = Methyl Tertiary Butyl Ether

ND = No other analyte was detected

OCSD = Orange County Sanitation District

Other = Other analytes reported by laboratory

TAME = Tertiary Amyl Amine

TBA = T-Butanol or Tertiary Butyl Alcohol

TCE = Trichloroethene

TCP = Trichloropropane

TTO = Total Toxic Organics (expressed in ug/L)

ug/L = micrograms per liter

Note: TTO Limit is 580 ug/L

TTO Compounds (OCSD limit is 580 ug/L)

1,1,1-Trichloroethane

1,1,2-Trichloroethane

1,1-Dichloroethane

1,2-Dichloroethane

1,2-Dichloropropane

1,4-Dioxane

Benzene

Chloroform

Dichlorobromomethane (Bromodichloromethane)

Ethylbenzene

Methylene Chloride

Tetrachloroethylene (Tetrachloroethene)

Toluene

Trichloroethylene (Trichloroethene)

TABLE 8
LIFE-OF-PROJECT MTBE MASS RECOVERY
Former MCAS Tustin, California

Year	Mass of MTBE Recovered										Combined Influent	
	Percent of Mass contributed by Extraction Well (rounded)									Total Mass (lbs)		
Approximate Distance to Source Area (ft)	Phase 1		Phase 2				Phase 3				Total Mass (lbs)	lbs/day
	222EW03SC	222EW03SD	222EW05	222EW09	222EW10	222EW11	222EW12	222EW13	222EW14			
	200	300	600	1000	800	425	1120	1175	1575			
2001	25.5%	74.5%	-	-	-	-	-	-	-	327.7	-	327.7
2002	9.2%	30.2%	11.1%	8.7%	35.6%	5.1%	-	-	-	1,376.9	3.77	1,704.6
2003	4.2%	19.6%	16.0%	19.3%	35.4%	5.5%	-	-	-	1,550.2	4.25	3,254.8
2004	6.5%	16.3%	21.5%	17.1%	32.1%	6.6%	-	-	-	581.7	1.59	3,836.5
2005	14.3%	27.2%	18.6%	15.4%	22.3%	2.2%	-	-	-	245.9	0.67	4,082.4
2006	17.3%	19.5%	24.9%	20.3%	18.0%	-	-	-	-	65.0	0.18	4,147.4
2007	13.2%	24.3%	23.6%	20.0%	18.2%	-	0.72%	0.006%	0.01%	74.0	0.20	4,221.4
2008	3.2%	5.8%	32.3%	14.4%	7.6%	-	25.5%	9.4%	1.8%	50.8	0.14	4,272.2
2009	4.8%	0.0%	37.7%	10.9%	14.1%	-	16.2%	12.3%	3.9%	21.5	0.06	4,293.7
2010	1.8%	0.5%	35.2%	14.3%	9.0%	-	20.7%	16.3%	2.3%	11.6	0.03	4,305.3
2011	0.0%	0.0%	26.4%	12.0%	26.7%	-	17.3%	15.7%	1.9%	7.6	0.02	4,312.9

Notes:

Percent mass rounded to nearest tenth

Values taken from Appendices G and H.

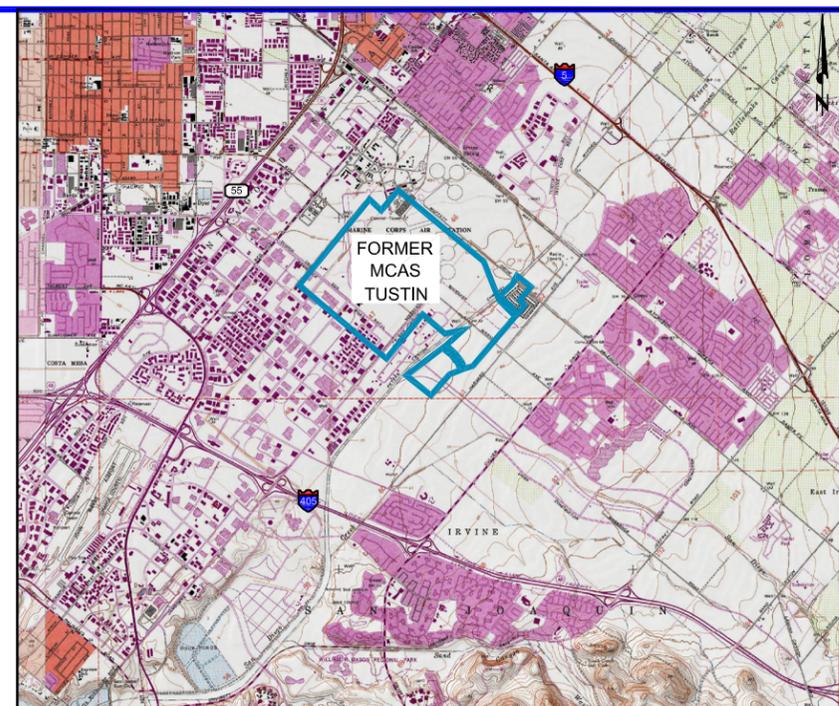
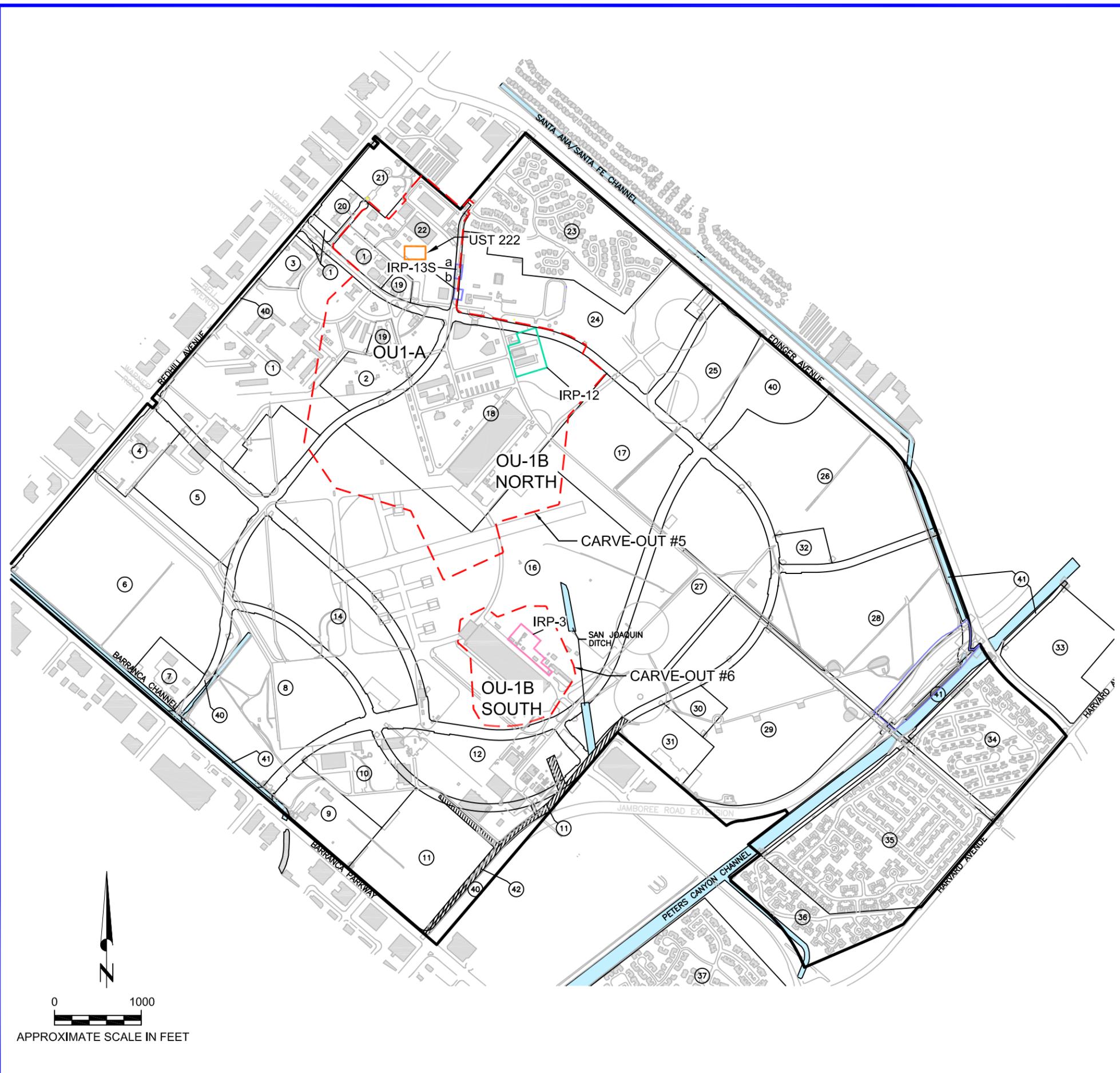
Extraction well 222EW11 shut down in 2005 and destroyed in 2006

Extraction wells 222EW12, EW13 and EW14 were brought on line in December 2007

lbs = pounds

1 = October 2007 through December 2010 Data Calculated Using the Weighted-Average Method of PCAP Extraction Wells (see Appendix F)

FIGURES



VICINITY MAP
0 .5 1 Mile

- LEGEND:**
- FORMER MCAS TUSTIN BOUNDARY
 - ROAD OR PAVED AREA
 - RAILROAD
 - SURFACE CHANNEL
 - ▨ BOX CULVERT CHANNEL
 - ▭ BUILDING OR STRUCTURE
 - ② PARCEL NUMBER
 - PARCEL BOUNDARY
 - ▭ CARVE-OUT AREA
 - a TEMPORARY STORAGE AREA ST-72
 - b MISCELLANEOUS WASH AREA MWA-18

ENVIRONMENTAL RESTORATION LEGEND		
IRP SITE	OPERABLE UNIT DESIGNATION	IRP SITE DESIGNATION
	OU-1A	IRP-13S
	OU-1B North	IRP-12
	OU-1B South	IRP-3
	UST 222	NONE

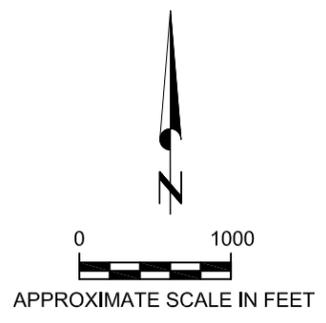


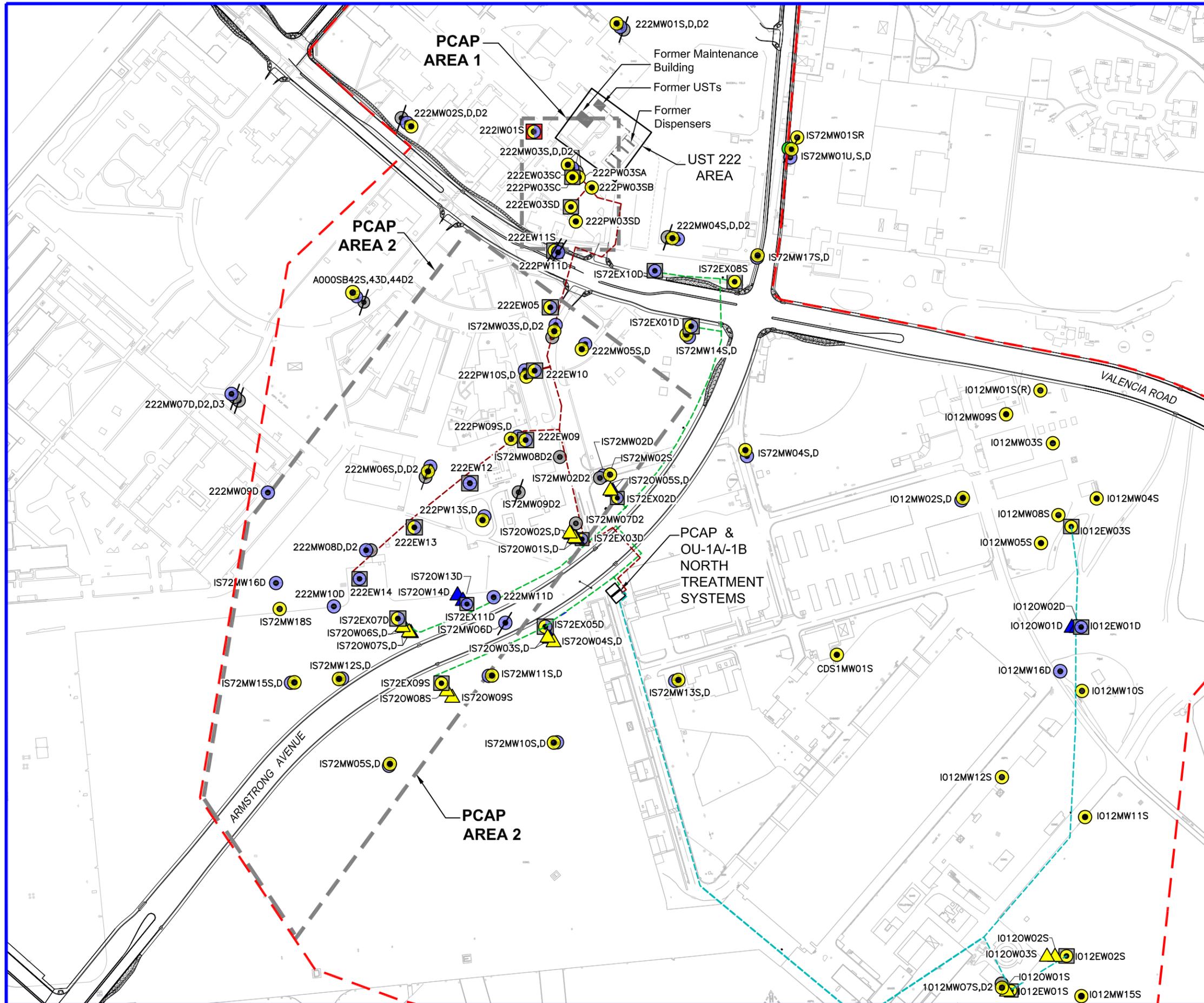
FIGURE 1

SITE LOCATION MAP

UST Site 222
Former Marine Corps Air Station
Tustin, CA

Enviro Compliance Solutions, Inc.
1571 Parkway Loop, Suite B
Tustin, CA 92780





LEGEND:

- Monitoring Well (Upper Clay)
- ▲ Observation Well (First WBZ)
- Monitoring Well (First WBZ)
- Monitoring Well (Second WBZ)
- ▲ Observation Well (Second WBZ)
- Monitoring Well (Third WBZ)
- Infiltration Well (First & Second WBZ)
- Extraction Well (First WBZ)
- Extraction Well (Second WBZ)
- Extraction Well (First & Second WBZ)
- / Slash Through Well Symbol Indicates Properly Destroyed Well
- Approximate Target Treatment Area Boundary
- Conveyance Piping (PCAP)
- Conveyance Piping (OU-1A)
- Conveyance Piping (OU-1B North)
- Carve-Out #5 Boundary

WELL ID SUFFIX

U = UPPER CLAY
 S, SA, SB, SC, SD, SR = First WBZ
 D = Second WBZ
 D2 = Third WBZ

ABBREVIATIONS

OU = Operable Unit
 PCAP = Petroleum Corrective Action Program
 USTs = Underground Storage Tank
 WBZ = Water Bearing Zone

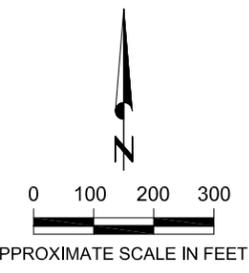


FIGURE 2

WELL LOCATIONS

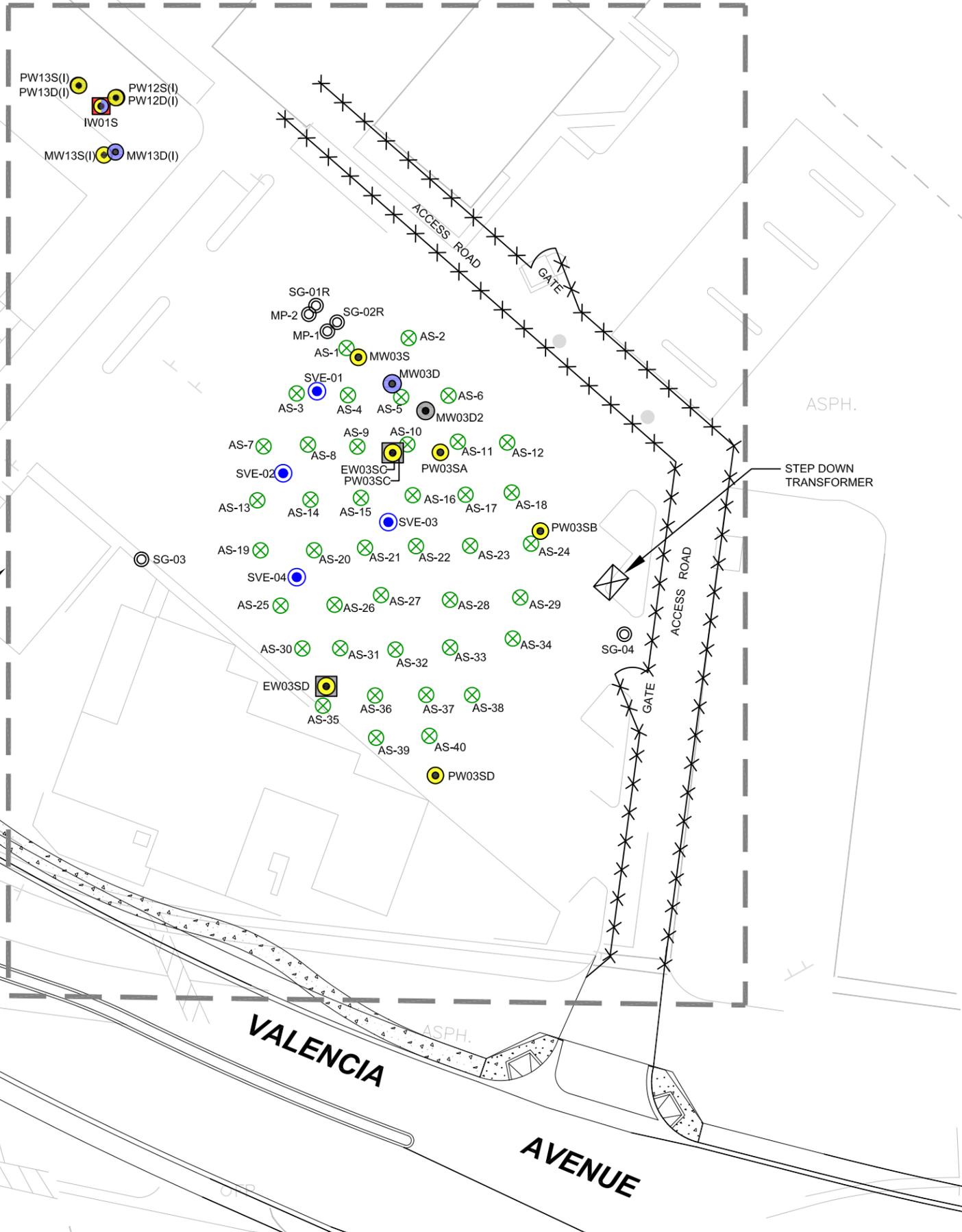
UST SITE 222 & OU-1A/-1B North
 Former Marine Corps Air Station
 Tustin, CA

Enviro Compliance Solutions, Inc.
 1571 Parkway Loop, Suite B
 Tustin, CA 92780





VIEW TOWARD SOUTHEAST
SCALE: Not To Scale



LEGEND:

- AIR SPARGE WELLS (First WBZ)
- SOIL VAPOR EXTRACTION WELLS (First WBZ)
- SOIL GAS MONITORING POINTS (First WBZ)
- EXTRACTION WELLS (First WBZ)
- MONITORING WELLS (First WBZ)
- MONITORING WELLS (Second WBZ)
- MONITORING WELLS (Third WBZ)
- INFILTRATION WELL (First & Second WBZ)

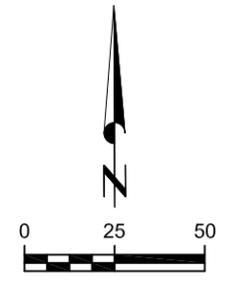
- APPROXIMATE TARGET TREATMENT AREA BOUNDARY
- CHAIN LINK FENCE

NOTES:

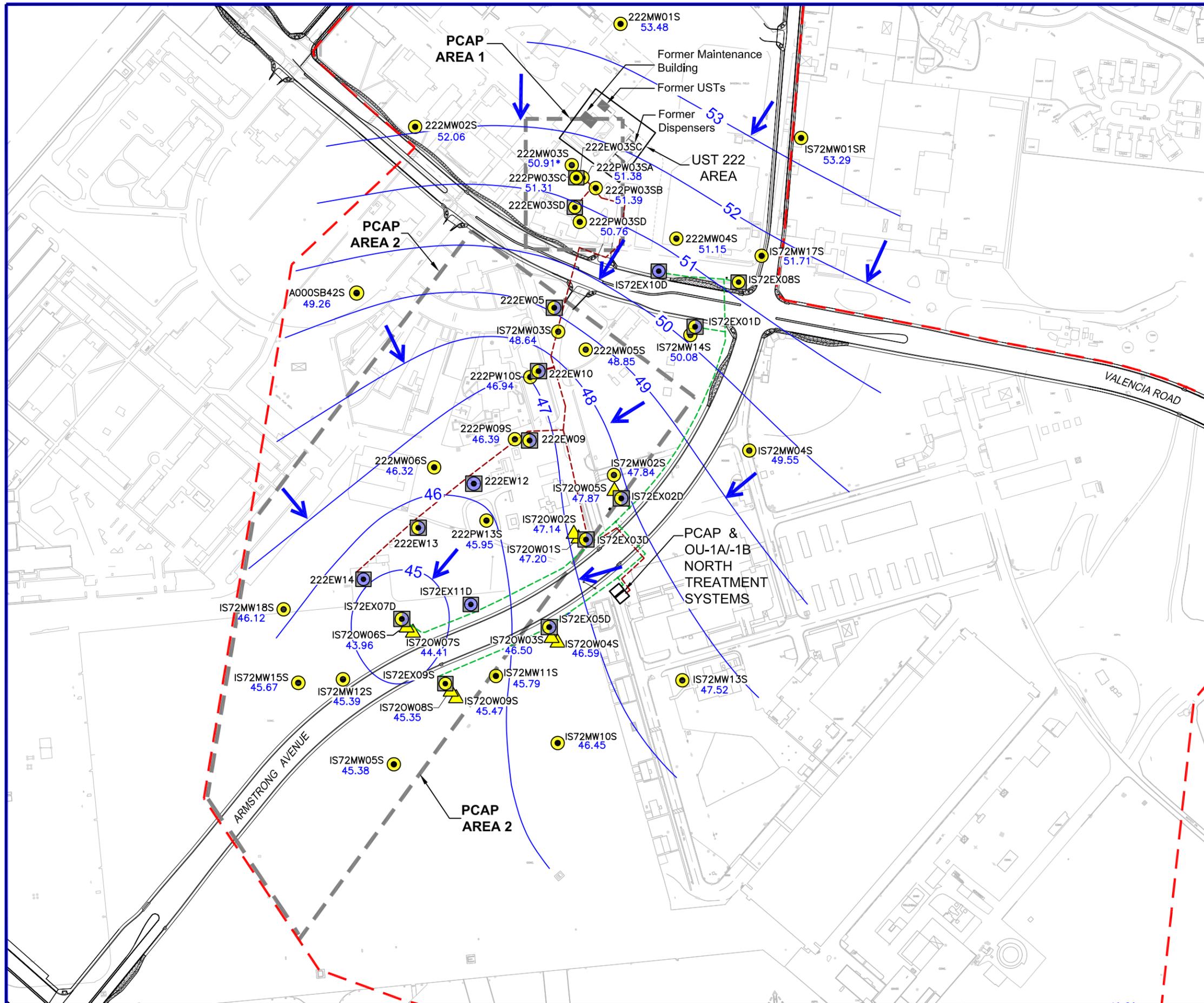
1. All wells have a 222 prefix
2. Base map and wells data from field surveys performed by Evans Land Surveying and Mapping

ABBREVIATION:

WBZ = Water Bearing Zone



APPROXIMATE SCALE IN FEET



LEGEND:

- Monitoring Well (First WBZ)
 - Observation Well (First WBZ)
 - Extraction Well (First WBZ)
 - Extraction Well (Second WBZ)
 - Extraction Well (First & Second WBZ)
 - Approximate Target Treatment Area Boundary
 - Conveyance Piping (PCAP)
 - Conveyance Piping (OU-1A)
 - Conveyance Piping (OU-1B North)
 - Carve-Out #5 Boundary
 - Water Level Contour in Feet Above Mean Sea Level; Dashed Where Approximate; Queried Where Uncertain
 - Groundwater Flow Direction
- 222MW02S ← Well ID
 52.06 ← Groundwater Elevation
 * Not used for contouring

NOTES

1. Groundwater levels collected on July 25, 2011.
2. In June 2009, packers were placed in PCAP Extraction Wells 222EW05, 222EW10, and 222EW13 to separate the first and second WBZ. Groundwater is only extracted from the second WBZ in these wells.
3. Extraction Wells 222EW03SC and 222EW03SD are on standby.
4. Refer to Table 2 for water level data.

WELL ID SUFFIX

S, SA, SB, SC, SD, SR = First WBZ
 D = Second WBZ

ABBREVIATIONS

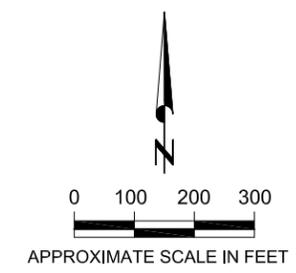
NA = Not Applicable
 NM = Not Measured
 OU = Operable Unit
 PCAP = Petroleum Corrective Action Program
 UST = Underground Storage Tank
 WBZ = Water Bearing Zone

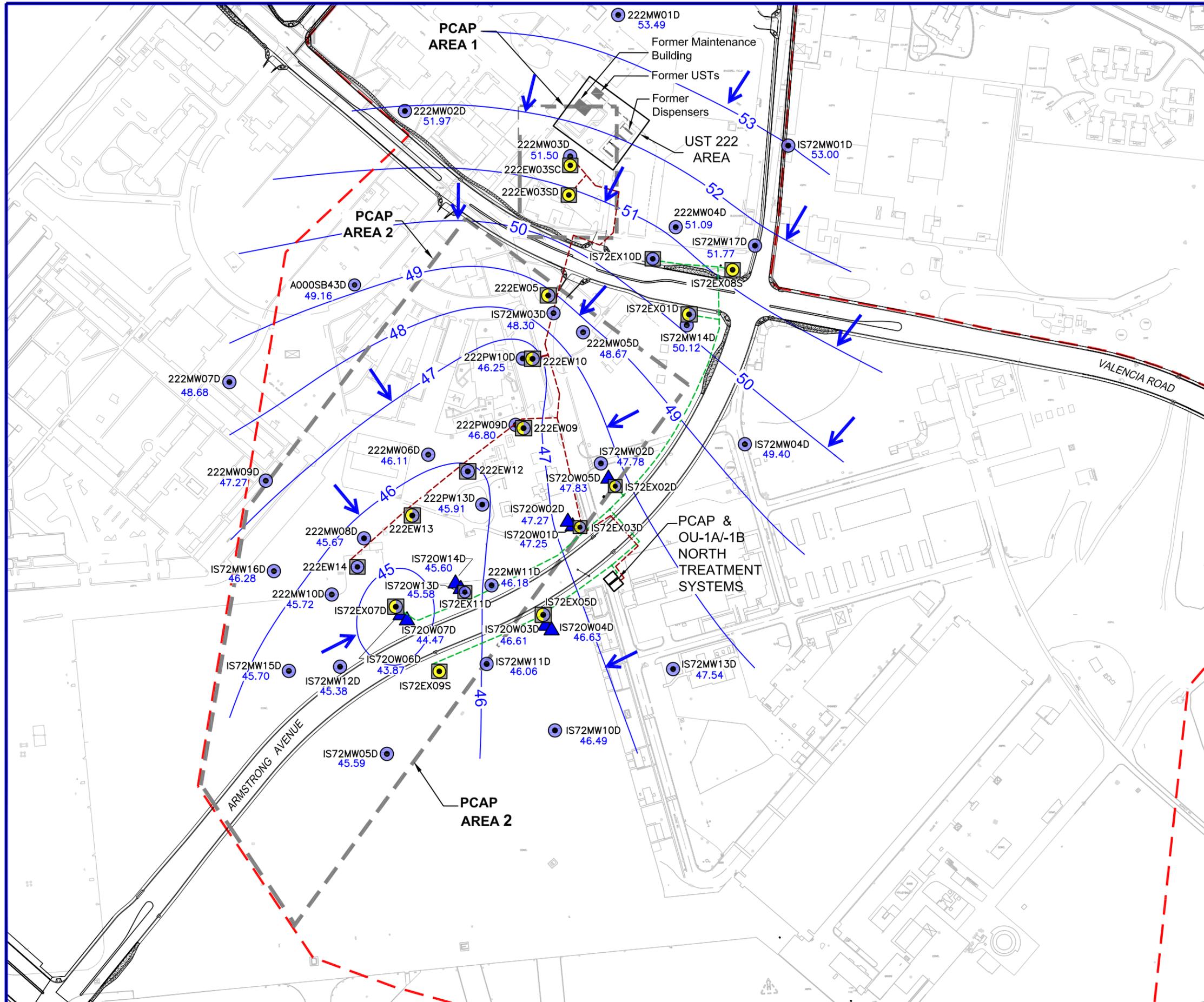
FIGURE 4

3RD QUARTER 2011 - FIRST WBZ GROUNDWATER ELEVATIONS

UST SITE 222 & OU-1A/1B North
 Former Marine Corps Air Station
 Tustin, CA

Enviro Compliance Solutions, Inc.
 1571 Parkway Loop, Suite B
 Tustin, CA 92780





LEGEND:

- Monitoring Well (Second WBZ)
 - Observation Well (Second WBZ)
 - Extraction Well (First WBZ)
 - Extraction Well (Second WBZ)
 - Extraction Well (First & Second WBZ)
 - Approximate Target Treatment Area Boundary
 - Conveyance Piping (PCAP)
 - Conveyance Piping (OU-1A)
 - Conveyance Piping (OU-1B North)
 - Carve-Out #5 Boundary
 - Water Level Contour in Feet Above Mean Sea Level
 - Groundwater Flow Direction
- 222MW02D ← Well ID
 51.97 ← Groundwater Elevation

NOTES

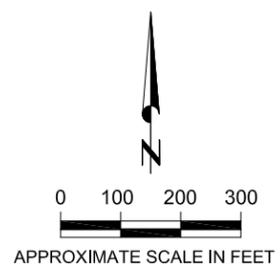
1. Groundwater levels collected on July 25, 2011
2. Refer to Table 2 for water level data
3. In June 2009, packers were placed in PCAP Extraction Wells 222EW05, 222EW10, and 222EW13 to separate the first and second WBZ. Groundwater is only extracted from the second WBZ in these wells.

WELL ID SUFFIX

SC, SD = First WBZ
 D = Second WBZ

ABBREVIATIONS

OU = Operable Unit
 PCAP = Petroleum Corrective Action Program
 UST = Underground Storage Tank
 WBZ = Water Bearing Zone



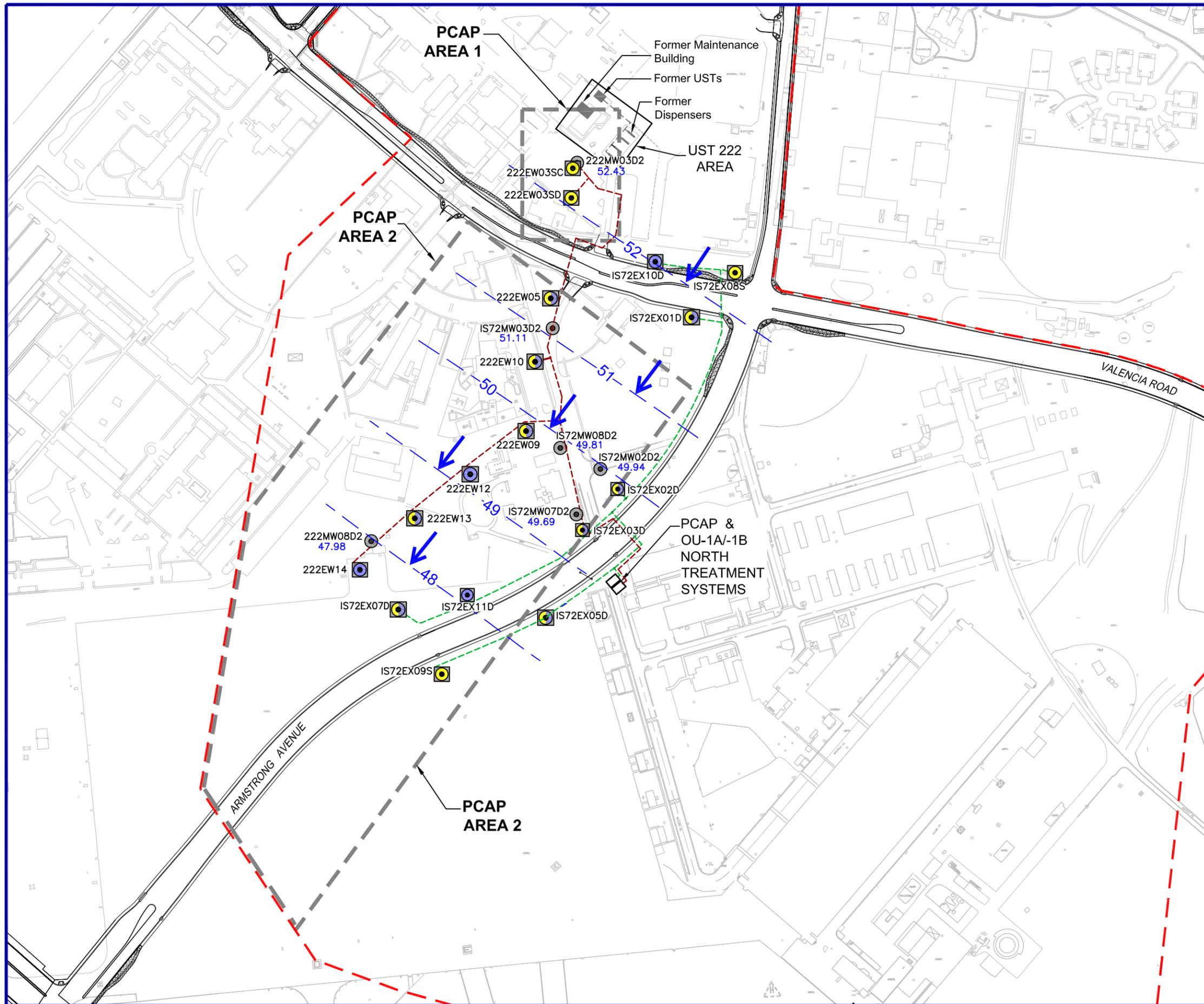
3RD QUARTER 2011 - SECOND WBZ GROUNDWATER ELEVATIONS

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 Tustin, CA 92780



FIGURE 5

UST SITE 222 & OU-1A/-1B North
 Former Marine Corps Air Station
 Tustin, CA



LEGEND:

- Monitoring Well (Third WBZ)
 - Extraction Well (First WBZ)
 - Extraction Well (Second WBZ)
 - Extraction Well (First & Second WBZ)
 - Approximate Target Treatment Area Boundary
 - Conveyance Piping (PCAP)
 - Conveyance Piping (OU-1A)
 - Conveyance Piping (OU-1B North)
 - Water Level Contour in Feet Above Mean Sea Level; Dashed Where Approximate
 - Groundwater Flow Direction
 - Carve-Out #5 Boundary
- 222MW03D2 ← Well ID
52.43 ← Groundwater Elevation

NOTES

1. Groundwater levels collected on July 25, 2011
2. Refer to Table 2 for water level data
3. Extraction wells do not pump from the third WBZ

WELL ID SUFFIX

- SC, SD = First WBZ
- D = Second WBZ
- D2 = Third WBZ

ABBREVIATIONS

- OU = Operable Unit
- PCAP = Petroleum Corrective Action Program
- UST = Underground Storage Tank
- WBZ = Water Bearing Zone

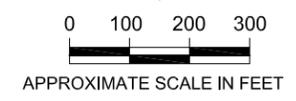


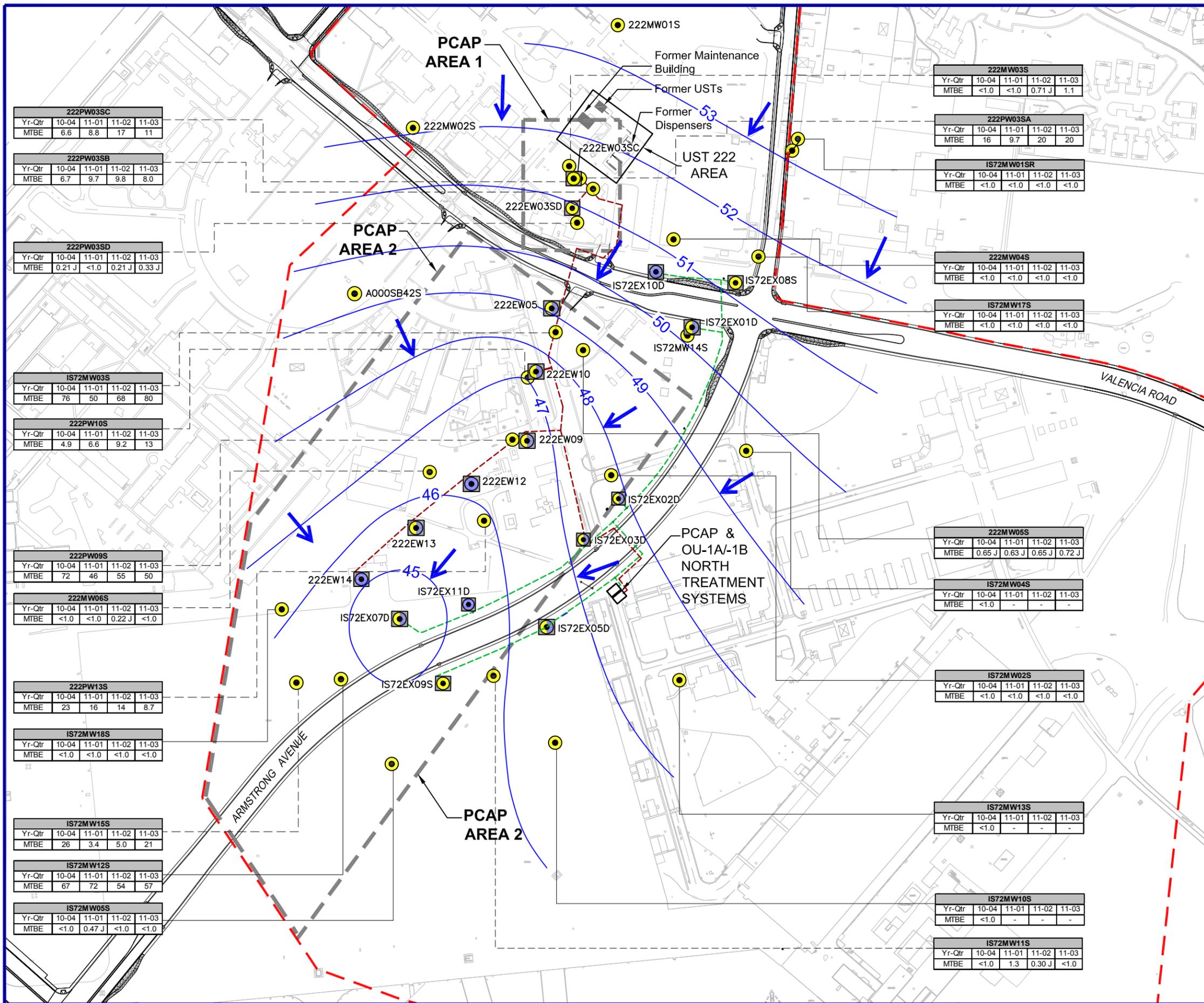
FIGURE 6

3RD QUARTER 2011 - THIRD WBZ GROUNDWATER ELEVATIONS

UST SITE 222 & OU-1A/-1B North
Former Marine Corps Air Station
Tustin, CA

Enviro Compliance Solutions, Inc.
1571 Parkway Loop, Suite B
Tustin, CA 92780





LEGEND:

- Monitoring Well (First WBZ)
- Extraction Well (First WBZ)
- Extraction Well (Second WBZ)
- Extraction Well (First & Second WBZ)
- Approximate Target Treatment Area Boundary
- Conveyance Piping (PCAP)
- Conveyance Piping (OU-1A)
- Conveyance Piping (OU-1B North)
- Water Level Contour in Feet Above Mean Sea Level; Dashed Where Approximate
- Groundwater Flow Direction
- Carve-Out #5 Boundary

Dashed line indicates PCAP Program
Solid line indicates OU-1A/-1B Program
- Not Sampled

222EW03SC				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	27	17	27	25

Well ID
Year & Quarter
Compound
Concentration(µg/L)

- NOTES**
- Groundwater samples collected from August 1 to 11, 2011
 - In June 2009, packers were placed in PCAP Extraction Wells 222EW05, 222EW10, and 222EW13 to separate the first and second WBZ. Groundwater is only extracted from the second WBZ in these wells.
 - Extraction wells 222EW03SC and 222EW03SD are secured
- WELL ID SUFFIX**
- S, SA, SB, SC, SR = First WBZ
D = Second WBZ
- ABBREVIATIONS**
- J = Estimated
MTBE = Methyl Tertiary Butyl Ether
OU = Operable Unit
PCAP = Petroleum Corrective Action Program
UST = Underground Storage Tank
WBZ = Water Bearing Zone
< = Less Than the Laboratory Detection Limit

222MW03S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	<1.0	0.71 J	1.1

222PW03SA

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	16	9.7	20	20

IS72MW01SR

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	<1.0	<1.0	<1.0

222MW04S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	<1.0	<1.0	<1.0

IS72MW17S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	<1.0	<1.0	<1.0

222MW05S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	0.65 J	0.63 J	0.65 J	0.72 J

IS72MW04S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	-	-	-

IS72MW02S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	<1.0	<1.0	<1.0

IS72MW13S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	-	-	-

IS72MW10S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	-	-	-

IS72MW11S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	1.3	0.30 J	<1.0

222PW03SC

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	6.6	8.8	17	11

222PW03SB

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	6.7	9.7	9.8	8.0

222PW03SD

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	0.21 J	<1.0	0.21 J	0.33 J

IS72MW03S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	76	50	68	80

222PW10S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	4.9	6.6	9.2	13

222PW09S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	72	46	55	50

222MW06S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	<1.0	0.22 J	<1.0

222PW13S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	23	16	14	8.7

IS72MW18S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	<1.0	<1.0	<1.0

IS72MW15S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	26	3.4	5.0	21

IS72MW12S

Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	67	72	54	57

IS72MW05S

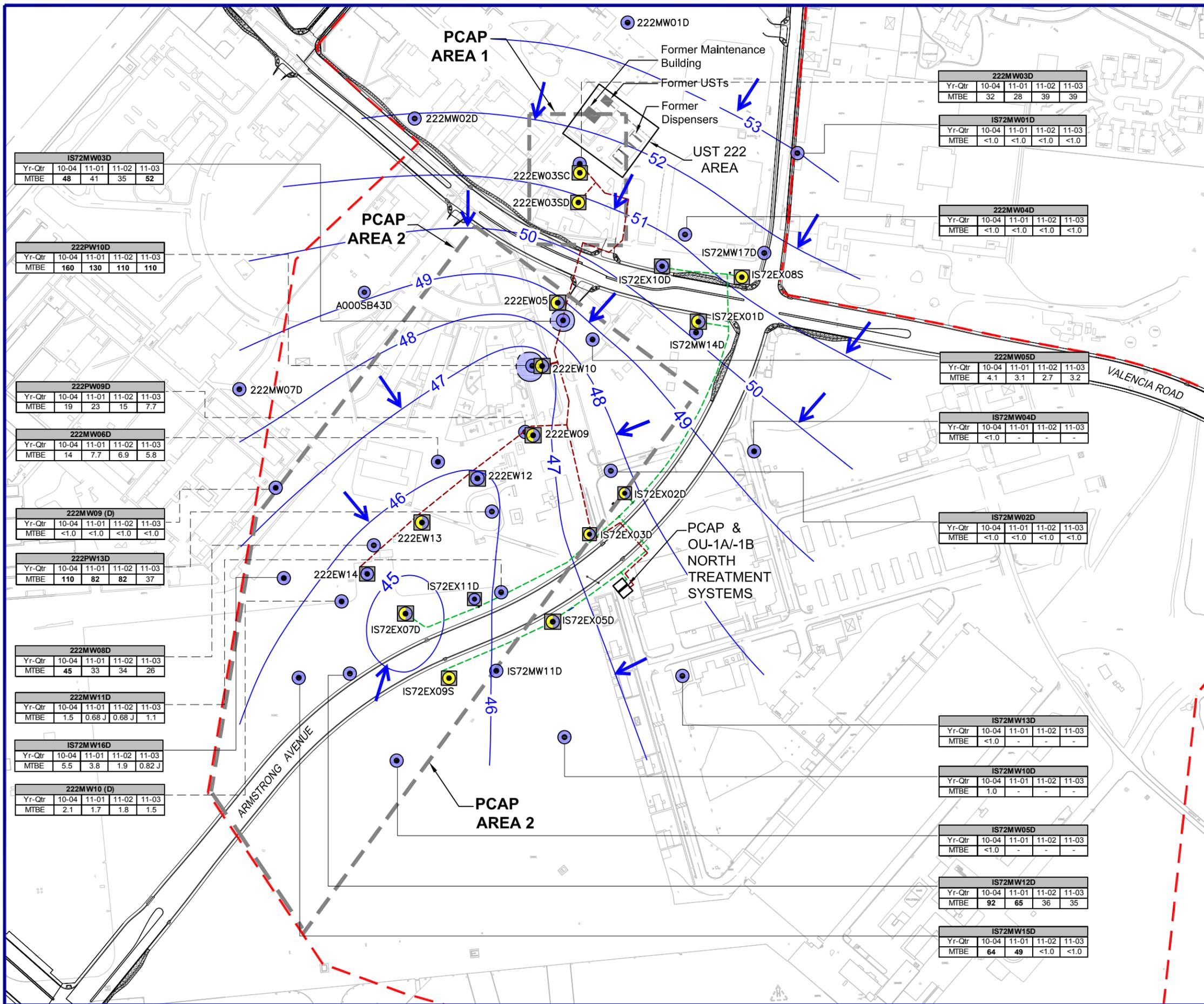
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	0.47 J	<1.0	<1.0

0 100 200 300
APPROXIMATE SCALE IN FEET

FIGURE 7

3RD QUARTER 2011 - FIRST WBZ MTBE IN GROUNDWATER

UST SITE 222 & OU-1A/-1B North
Former Marine Corps Air Station
Tustin, CA



LEGEND:

- Monitoring Well (Second WBZ)
- Extraction Well (First WBZ)
- Extraction Well (Second WBZ)
- Extraction Well (First & Second WBZ)
- Approximate Target Treatment Area Boundary
- Conveyance Piping (PCAP)
- Conveyance Piping (OU-1A)
- Conveyance Piping (OU-1B North)
- Water Level Contour in Feet Above Mean Sea Level; Dashed Where Approximate; Queried Where Uncertain
- Groundwater Flow Direction
- Carve-Out #5 Boundary
- Areal extent of MTBE reported at concentrations exceeding the clean up goal (44 µg/L) in second WBZ groundwater using data from the 3rd quarter 2011; dashed where approximate.

Dashed line indicates PCAP Program

IS72MW03D					
Well ID	Yr-Qtr	10-04	11-01	11-02	11-03
Compound	MTBE	48	41	35	52

Solid line indicates OU-1A/-1B Program
- Not sampled

NOTES

1. Groundwater samples collected from August 1 to 11, 2011
2. **BOLD** text indicates results that exceed the cleanup goal.
3. In June 2009, packers were placed in PCAP Extraction Wells 222EW05, 222EW10, and 222EW13 to separate the first and second WBZ. Groundwater is only extracted from the second WBZ in these wells.
4. Extraction well data not used to delineate the extents of the plumes, except in areas where no monitoring data were available.

WELL ID SUFFIX

SC, SD = First WBZ
D = Second WBZ

ABBREVIATIONS

J = Estimated
 MTBE = Methyl Tertiary Butyl Ether
 OU = Operable Unit
 PCAP = Petroleum Corrective Action Program
 UST = Underground Storage Tank
 WBZ = Water Bearing Zone
 < = Less Than the Laboratory Detection Limit

IS72MW03D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	48	41	35	52

222PW10D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	160	130	110	110

222PW09D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	19	23	15	7.7

222MW06D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	14	7.7	6.9	5.8

222MW09 (D)				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	<1.0	<1.0	<1.0

222PW13D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	110	82	82	37

222MW08D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	45	33	34	26

222MW11D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	1.5	0.68 J	0.68 J	1.1

IS72MW16D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	5.5	3.8	1.9	0.82 J

222MW10 (D)				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	2.1	1.7	1.8	1.5

222MW03D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	32	28	39	39

IS72MW01D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	<1.0	<1.0	<1.0

222MW04D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	<1.0	<1.0	<1.0

222MW05D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	4.1	3.1	2.7	3.2

IS72MW04D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	-	-	-

IS72MW02D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	<1.0	<1.0	<1.0

IS72MW13D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	-	-	-

IS72MW10D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	1.0	-	-	-

IS72MW05D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	<1.0	-	-	-

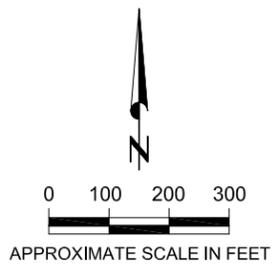
IS72MW12D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	92	65	36	35

IS72MW15D				
Yr-Qtr	10-04	11-01	11-02	11-03
MTBE	64	49	<1.0	<1.0

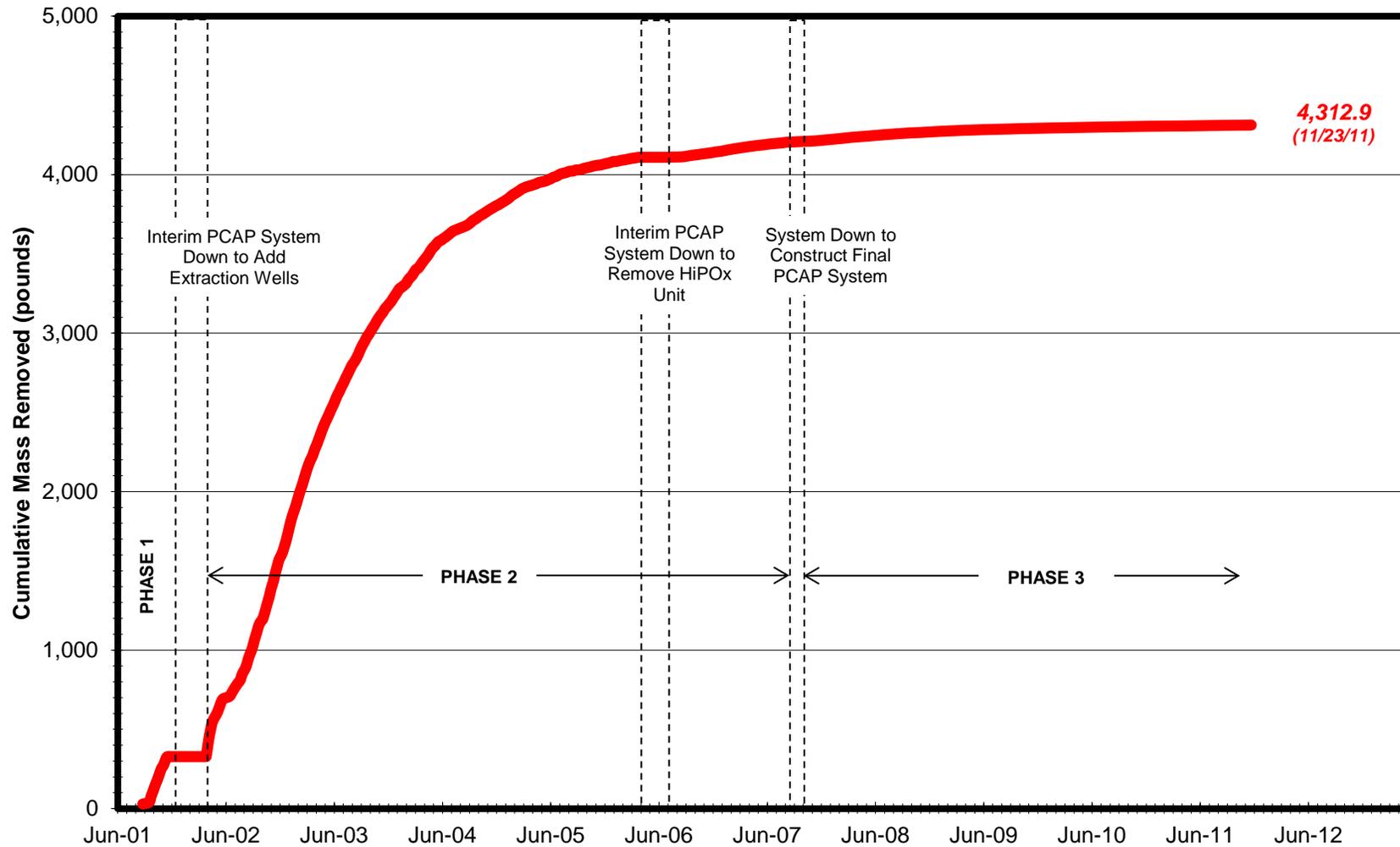
FIGURE 8

3RD QUARTER 2011 - SECOND WBZ MTBE IN GROUNDWATER
 UST SITE 222 & OU-1A/-1B North
 Former Marine Corps Air Station
 Tustin, CA

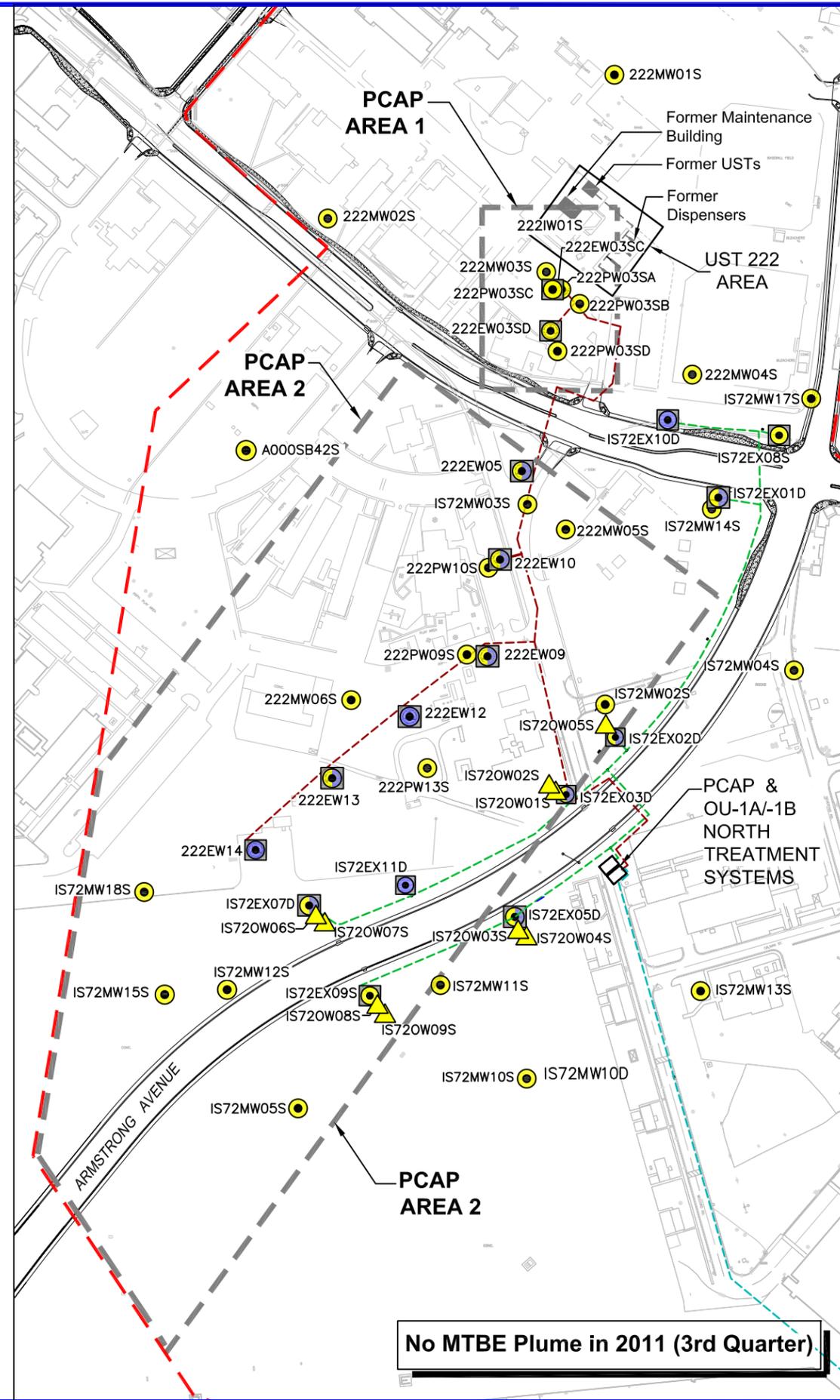
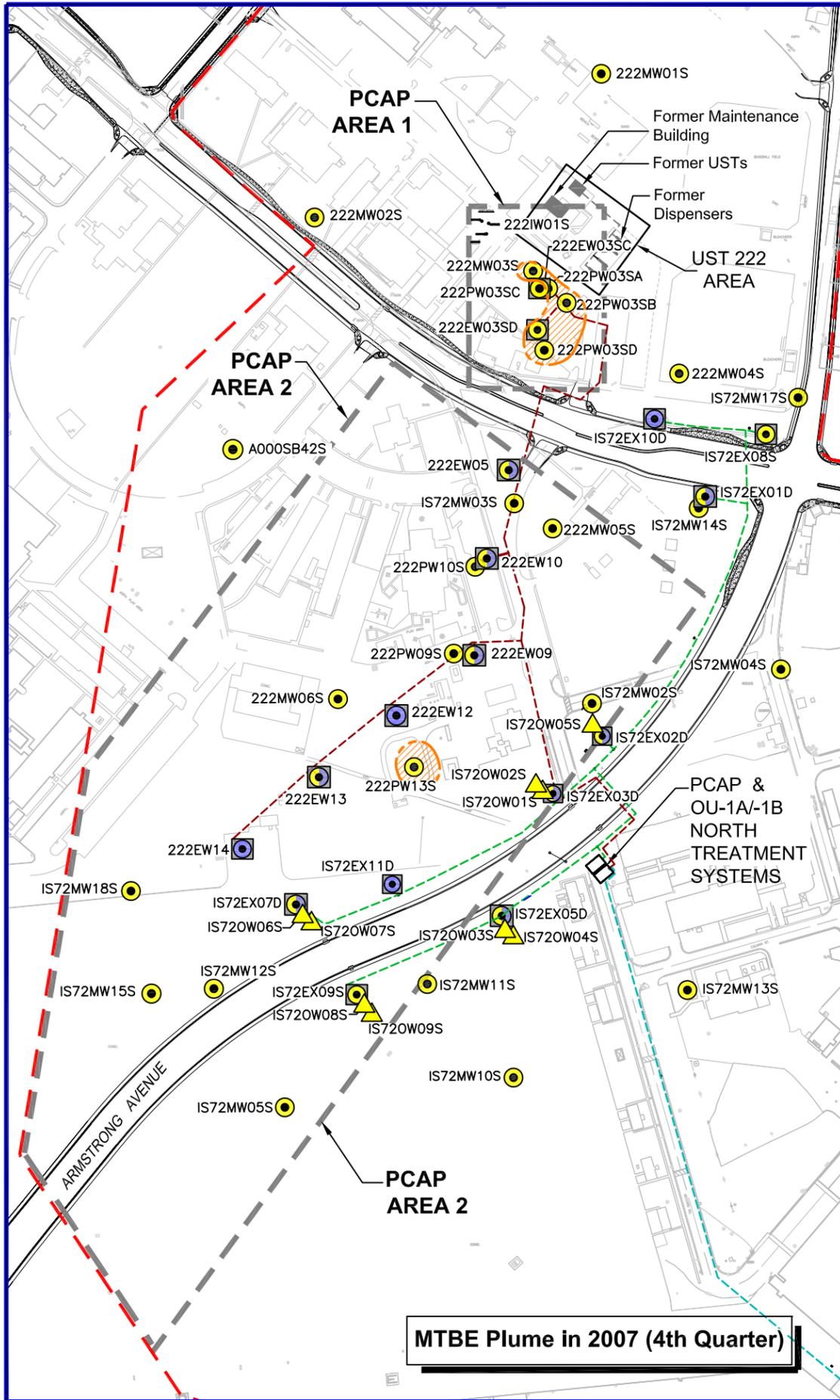
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 Tustin, CA 92780



**FIGURE 9
MASS OF MTBE REMOVED
PCAP System Performance**



Source: PCAP System Performance (Table F-1)



LEGEND:

- Monitoring Well (First WBZ)
- ▲ Observation Well (First WBZ)
- Extraction Well (First WBZ)
- Extraction Well (Second WBZ)
- Extraction Well (First & Second WBZ)
- Approximate Target Treatment Area Boundary
- - - Conveyance Piping (PCAP)
- - - Conveyance Piping (OU-1A)
- - - Conveyance Piping (OU-1B North)
- - - Carve-Out #5 Boundary
- Areal extent of MTBE reported in groundwater at concentrations exceeding the clean up goal (300 µg/L) in first WBZ groundwater using data from the 4th quarter 2007; dashed where approximate.

WELL ID SUFFIX
 S, SA, SB, SC, S(R) = First WBZ
 D = Second WBZ

N

0 100 200 300

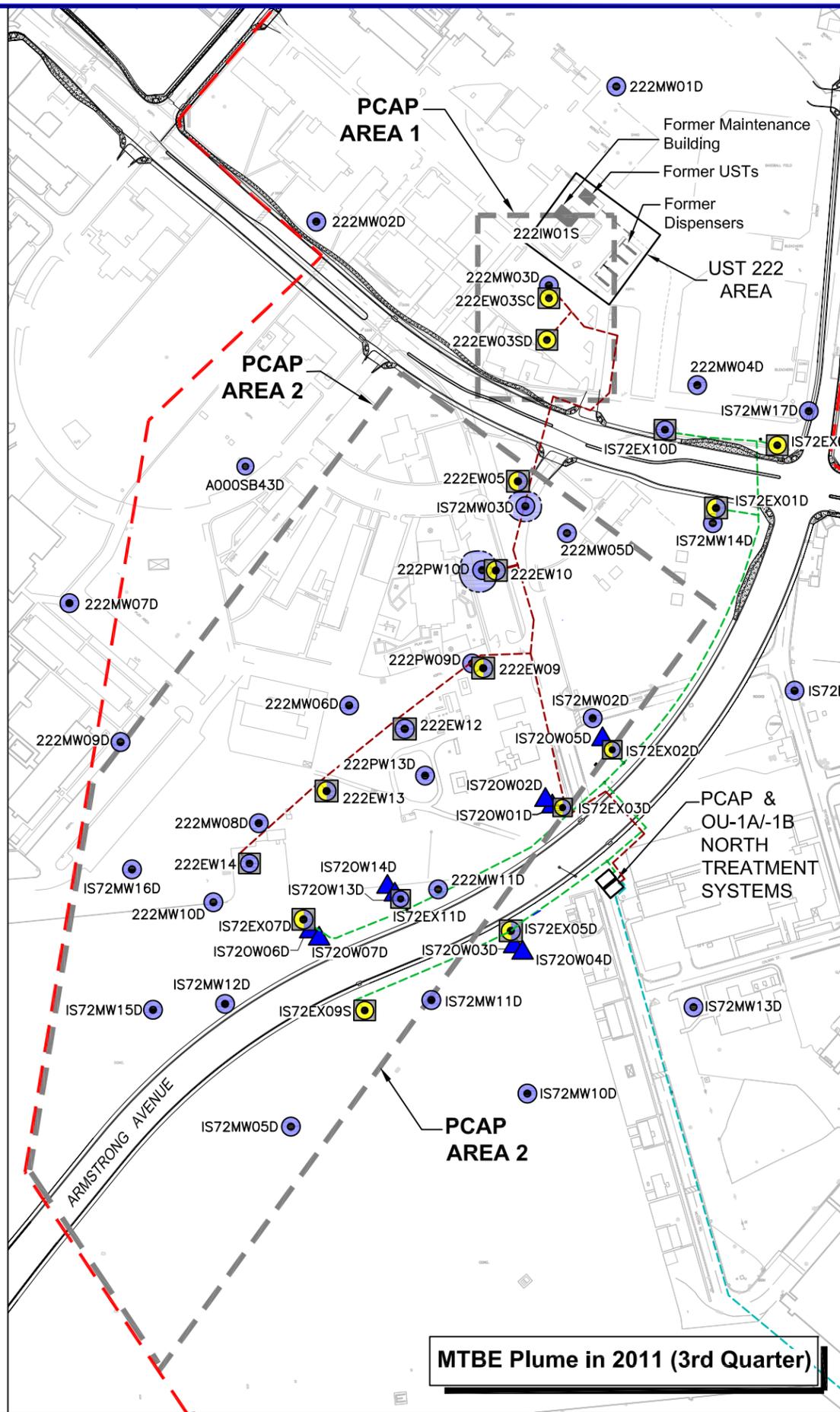
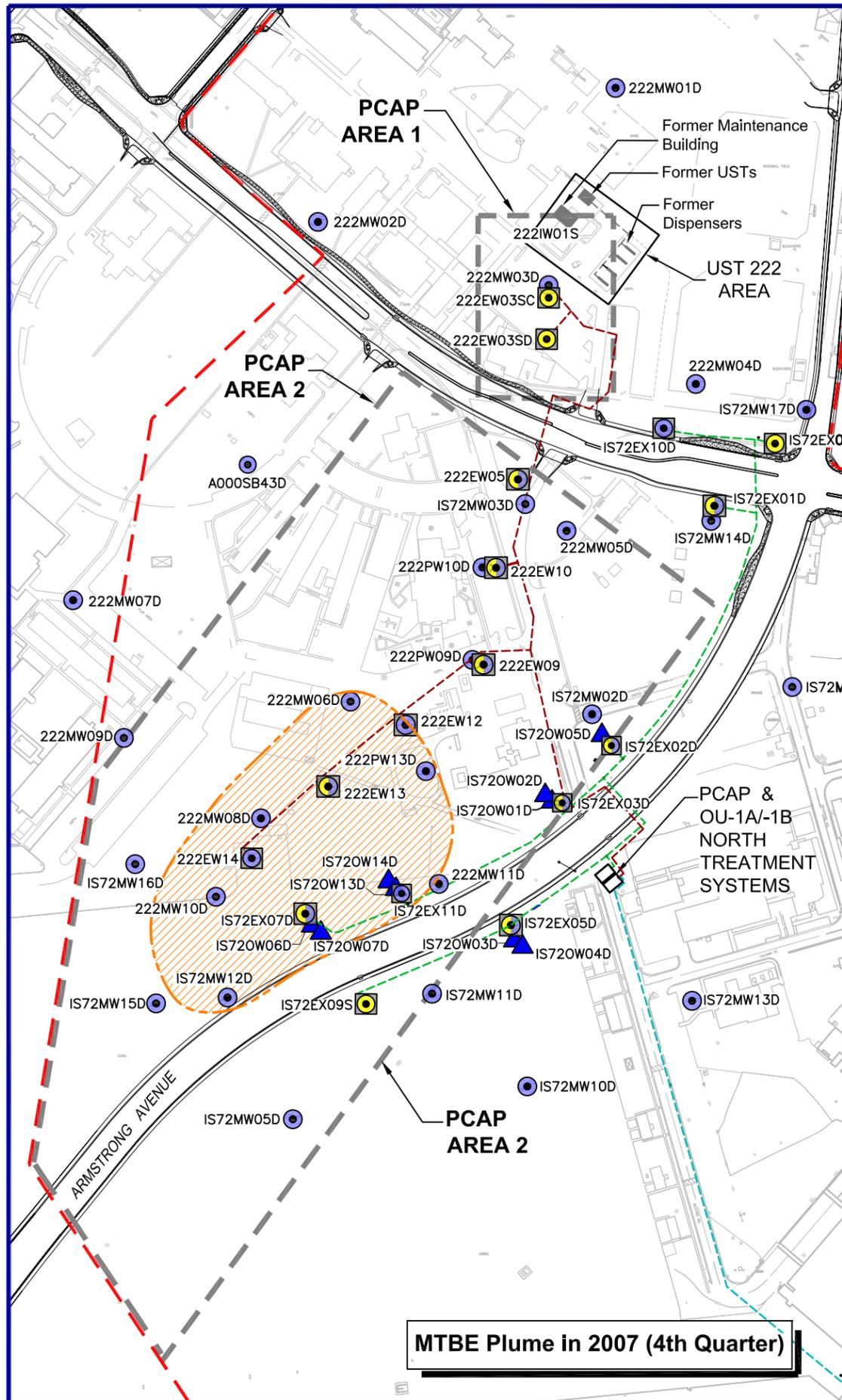
APPROXIMATE SCALE IN FEET

3RD QUARTER 2011 - FIRST WBZ MTBE PLUME BOUNDARIES OVER TIME

UST SITE 222 & OU-1A/-1B North
Former Marine Corps Air Station
Tustin, CA

Enviro Compliance Solutions, Inc.
1571 Parkway Loop, Suite B
Tustin, CA 92780

FIGURE 10

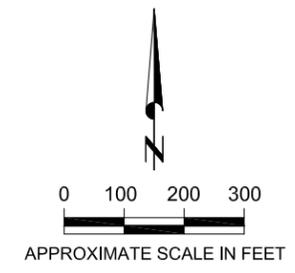


LEGEND:

- Monitoring Well (Second WBZ)
- Observation Well (Second WBZ)
- Extraction Well (First WBZ)
- Extraction Well (Second WBZ)
- Extraction Well (First & Second WBZ)
- Approximate Target Treatment Area Boundary
- Conveyance Piping (PCAP)
- Conveyance Piping (OU-1A)
- Conveyance Piping (OU-1B North)
- Carve-Out #5 Boundary
- Areal extent of MTBE reported in groundwater at concentrations exceeding the clean up goal (44 µg/L) in second WBZ groundwater using data from the 4th quarter 2007; dashed where approximate.
- Areal extent of MTBE reported in groundwater at concentrations exceeding the clean up goal (44 µg/L) in second WBZ groundwater using data from the 3rd quarter 2011; dashed where approximate.

WELL ID SUFFIX

S, SA, SB, SC, S(R) = First WBZ
D = Second WBZ



**FIGURE 12
MTBE CONCENTRATIONS OVER TIME
FOR IS72MW03D AND 222PW10D**

