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**Jennifer C. Sedlachek**  
Project Manager

**ExxonMobil**

May 15, 2015

**RECEIVED**

By Alameda County Environmental Health 12:18 pm, May 19, 2015

Mr. Mark Detterman  
Alameda County Health Care Services Agency  
Department of Environmental Health  
1131 Harbor Bay Parkway, Room 250  
Alameda, California 94502-6577

**RE: Former Exxon RAS #79374/990 San Pablo Avenue, Albany, California.**

Dear Mr. Detterman:

Attached for your review and comment is a copy of the letter report entitled ***Remedial Design Implementation Plan and Data Gap Investigation Work Plan***, dated May 15, 2015, for the above-referenced site. The report was prepared by Cardno of Petaluma, California, and details activities at the subject site.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

If you have any questions or comments, please contact me at 510.547.8196.

Sincerely,



Jennifer C. Sedlachek  
Project Manager

Attachment: Cardno's ***Remedial Design Implementation Plan and Data Gap Investigation Work Plan***, dated May 15, 2015

cc: w/ attachment  
Ms. Muriel T. Blank, Trustee, The Blank Family Trust  
Reverend Deborah Blank, Trustee, The Blank Family Trust  
Ms. Marcia Blank Kelly, The Blank Family Trust

w/o attachment  
Mr. Greg Gurs, Cardno

# Remedial Design Implementation Plan and Data Gap Investigation Work Plan

Former Exxon Service Station 79374  
Alameda County RO 2974

Cardno 2735C.R11

May 15, 2015

# Remedial Design Implementation Plan and Data Gap Investigation Work Plan

Former Exxon Service Station 79374  
990 San Pablo Avenue  
Albany, California

Alameda County RO 2974

Cardno 2735C.R11


May 15, 2015

SCANNED  
IMAGE

  
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SCANNED  
IMAGE

  
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# Table of Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Site Description</b>	<b>1</b>
<b>3</b>	<b>Selection of Clean-Up Goals</b>	<b>1</b>
<b>4</b>	<b>Proposed Remediation</b>	<b>2</b>
4.1	Pre-Field Activities	2
4.2	Equipment Description	2
4.3	Equipment Setup	2
4.4	First HIT Event	2
4.5	Dual-Phase Extraction HIT Events	3
4.6	Data Evaluation	3
4.7	Operation and Maintenance	3
4.8	System Optimization and Performance Metrics	3
4.9	Laboratory Analyses	3
<b>5</b>	<b>Proposed Work</b>	<b>3</b>
5.1	Pre-Drilling Activities	4
5.2	Well Installation and Sampling Activities	4
5.3	Laboratory Analyses	4
5.4	Waste Management Plan	4
5.5	Site Safety Plan	4
<b>6</b>	<b>Post-Remedial Monitoring</b>	<b>4</b>
<b>7</b>	<b>Implementation Schedule</b>	<b>4</b>
<b>8</b>	<b>Contact Information</b>	<b>5</b>
<b>9</b>	<b>Document Distribution</b>	<b>5</b>
<b>10</b>	<b>Limitations</b>	<b>5</b>
<b>11</b>	<b>References</b>	<b>6</b>
<b>12</b>	<b>Acronym List</b>	<b>7</b>

## Plates

Plate 1	Site Vicinity Map
Plate 2	Generalized Site Plan
Plate 3	Select Soil Analytical Results
Plate 4	Select Groundwater Analytical Results
Plate 5	Select Soil Vapor Analytical Results
Plate 6	Proposed Process and Instrumentation Diagram
Plate 7	Extended Site Plan Showing Proposed Well Locations

## Tables

Table 1A	Cumulative Groundwater Monitoring and Sampling Data
Table 1B	Additional Cumulative Groundwater Monitoring and Sampling Data
Table 2	Well Construction Details
Table 3A	Cumulative Soil Analytical Results
Table 3B	Additional Cumulative Soil Analytical Results – HVOCs and PAHs
Table 4	Cumulative Soil Vapor Analytical Results

## Appendices

Appendix A	Correspondence
Appendix B	Field Protocol
Appendix C	Environmental Project Schedule

## 1 Introduction

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At the request of ExxonMobil Environmental Services (EMES), on behalf of Exxon Mobil Corporation, Cardno prepared this remedial design implementation plan and data gap investigation work plan for the subject site (Plate 1). The Alameda County Department of Environmental Health (ACEH) requested the document(s) in a letter dated March 13, 2015 (Appendix A), which was submitted in response to the *Feasibility Study/Corrective Action Plan* (FS/CAP) dated February 4, 2015 (Cardno ERI, 2015). The purpose of this report is to propose one additional off-site monitoring well downgradient of the site and to expand on the remediation plans included in the FS/CAP. The landowner notification and draft fact sheet requested in the March 13, 2015 letter were submitted to ACEH under separate cover.

## 2 Site Description

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Former Exxon Service Station 79374 is located at 990 San Pablo Avenue, on the northwestern corner of the intersection of Buchanan Street and San Pablo Avenue, Albany, California (Plate 1). The site is a retail outlet for paint and painting products and is located in an area of mixed commercial and residential land use. The neighboring properties include another retail paint store, a restaurant, a beauty supply store, the City of Albany police department, the City of Albany Fire Department, and residential housing. A Generalized Site Plan is included as Plate 2.

Cumulative groundwater monitoring and sampling data are summarized in Tables 1A and 1B. Well construction details are presented in Table 2. Cumulative soil analytical results are summarized in Tables 3A and 3B. Select groundwater, soil, and soil vapor analytical results are illustrated on Plates 3 through 5, respectively.

Additional details about the geology, hydrogeology, previous work, and site conditions are presented in the *Feasibility Study/Corrective Action Plan* (FS/CAP) dated February 4, 2015 (Cardno ERI, 2015).

## 3 Selection of Clean-Up Goals

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The March 13, 2015 letter from ACEH requested the use of ESLs established by the California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFB, 2013) as well as the criteria contained in the *Low-Threat Underground Storage Tank Closure Policy* (SWRCB, 2012) for clean-up goals. Cardno proposes application of ESLs as long term cleanup goals for soil and groundwater containing residual gasoline and diesel hydrocarbons and fuel oxygenates underlying the site and adjacent areas. Since the site is a commercial facility and site usage is likely to remain commercial in the foreseeable future, Cardno proposes using the commercial/industrial land use ESLs as the specific clean-up goals where groundwater is not a current or potential drinking water source for the site. Hydrocarbon concentrations are also present at or near the site boundary with a residential property. Residential ESLs are appropriate for portions of the site bordering the residential property.

Continuing monitoring and/or remediation until long term clean-up goals are met is generally not feasible. Cardno proposes to use the criteria established in the State Water Resources Control Board's *Low-Threat Underground Storage Tank Closure Policy* (SWRCB, 2012) as short-term clean-up goals.

## 4 Proposed Remediation

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Targeted DPE High Intensity Targeted (HIT) events will be used to remove hydrocarbon concentrations from beneath the site using existing wells SVE1 through SVE3 and proposed wells SVE4 through SVE7 as the extraction wells. The HIT events will be performed on a semi-annual basis. Groundwater sampling and monitoring is performed on a semi-annual basis during the second and fourth quarters.

The first event will contain elements of a feasibility test to establish the flows, vacuums, and concentrations from the individual wells. To date, the feasibility testing activities have occurred within or near the former UST cavity (Cardno ERI, 2012b). Proposed wells SVE4 through SVE7 will be installed further from the former USTs and may produce a different flow/vacuum combination. Future HIT events will target wells to maximize mass removal during operations. It is anticipated that the HIT events will last between five days and 30 days, and may be extended if the mass removal is favorable.

### 4.1 Pre-Field Activities

Prior to field activities, Cardno will obtain an air discharge permit from the Bay Area Air Quality Management District (BAAQMD) if required. Due to the presence of a nearby school, and the public notification process, there may be delays associated with obtaining a discharge permit from the BAAQMD. The first HIT event may be performed prior to securing a discharge permit using a feasibility test waiver from the BAAQMD. Cardno will notify the pertinent agencies and coordinate activities with the property owner. Field work will occur in accordance with a site-specific health and safety plan and a standard field protocols (Appendix B).

### 4.2 Equipment Description

The proposed DPE system is capable of extracting groundwater and soil vapor using vacuum provided by a 10-horsepower liquid-ring pump, or equivalent, at a maximum flow rate of 120 scfm. The anticipated flow rate for the operational system is 40-50 scfm. Extracted water will be separated from the vapor stream and directed to an on-site holding tank for temporary storage. Extracted soil vapor will be directed to an electric catalytic oxidizer for abatement prior to discharge to the atmosphere.

### 4.3 Equipment Setup

A proposed process and instrumentation diagram is included as Plate 6. As part of equipment setup activities, Cardno will perform the following tasks:

- Mobilize a portable DPE system to the site. The DPE system consists of a vacuum blower, air-water separator tank, electric catalytic oxidizer, and associated pressure, temperature, and flow gauges.
- Install a holding tank to collect extracted groundwater, construct applicable piping and flexible hosing connections to connect the extraction wells to the remediation system, and remove extracted groundwater from the site.
- Obtain a temporary source of power to facilitate the operation of the equipment.

### 4.4 First HIT Event

To evaluate conditions further away from the UST cavity, Cardno will perform a feasibility test to assist in planning future HIT events. This feasibility test will be performed as follows:

- Perform two one-day, single well extraction events using wells SVE4 and SVE7 as the extraction wells.
- Monitor and record induced vacuum in wells MW3A, MW4, MW7, SVE1 through SVE7 (excluding the active extraction well), and wells SVS1 through SVS3 a minimum of once every two hours during testing.
- Monitor and record the influent flow rate and concentration, as well as the vacuum applied to the well.
- Monitor and record the amount of water generated.
- Collect influent vapor samples a minimum of three times per well and effluent samples as required by the BAAQMD.
- Gauge the DTW in wells SVE1 through SVE7 and MW1 through MW7 before and after each test.
- Store generated groundwater on site pending transport to an EMES-approved facility.

## 4.5 Dual-Phase Extraction HIT Events

Following the first event and subsequent data evaluation, Cardno will perform additional DPE HIT events. The wells used for extraction will be determined based on the ongoing groundwater and soil vapor monitoring as well as the data obtained during previous events. It is anticipated that approximately two wells will be operated simultaneously. As part of this task, Cardno will:

- Perform a series of DPE HIT events to remove dissolved-phase, residual, and vapor-phase hydrocarbons from beneath the site using wells SVE1 through SVE7 as the extraction wells.
- Monitor the system on a weekly basis at a minimum, or as required by applicable permits.
- Submit a minimum of one pre-test groundwater sample and one post-test groundwater sample collected from each extraction well and one set of vapor samples (influent and effluent samples) per week from the DPE system to a California state-certified laboratory, under COC protocol.
- Monitor the vapor extraction and treatment portion of the system using a PID, flow meter, and vacuum gauges to gauge system performance.

## 4.6 Data Evaluation

Based on the results of the DPE HIT event and subsequent groundwater and soil vapor sampling results, the need for additional source removal events will be evaluated and reported in each semi-annual sampling report.

## 4.7 Operation and Maintenance

The system will be operated and maintained in accordance with regulatory requirements and operating permits. During operational periods, the site will be visited a minimum of once per calendar week. The weekly visits will include monitoring the influent concentration, vapor flow rate, temperature and pressure, groundwater production, and applied vacuum. Additionally, vapor concentrations at individual wells will be monitored with a PID. Based on the observations, the extraction wells may be changed to maximize mass removal.

## 4.8 System Optimization and Performance Metrics

The performance of the system will be measured using data collected from the weekly field visits, laboratory data, mass removal calculations in addition to the results of the ongoing groundwater and soil vapor monitoring. During the 2012 feasibility test, the mass removal averaged approximately 12 pounds per hour or 298 pounds per day (Cardno ERI, 2012). The continued operation of the system will likely not be warranted once the mass removal decreases by approximately two orders of magnitude or to less than approximately 100 pounds per month.

## 4.9 Laboratory Analyses

Select vapor samples will be submitted for analysis to an EMES-approved, state-certified analytical laboratory. The samples will be analyzed for TPHg using EPA Method TO-3M, and BTEX, fuel oxygenates (MTBE, DIPE, ETBE, TAME, and TBA), and lead scavengers (1,2-DCA and EDB) using EPA Method TO-15M.

# 5 Proposed Work

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In addition to the wells proposed in the FS/CAP, Cardno proposes to install one additional monitoring well downgradient of the site within Adams Street (MW10). Proposed well MW10 is shown on Plate 7 along with the wells proposed in the FS/CAP (SVE4 through SVE7 and MW9). A well was previously proposed in this location (Cardno ERI, 2014), but the location was changed in the field due to the presence of subsurface utilities. The currently proposed location of well MW10 is near the location of boring B9. It should be noted that boring B9 was drilled using direct-push type drilling which requires less clearance than hollow stem augers due to the smaller diameter and lack of rotating equipment. Cardno will attempt to install the well as close to boring B9 as possible considering safety concerns with buried subsurface utilities.



## 5.1 Pre-Drilling Activities

Prior to the onset of drilling, a boring and well installation permit will be obtained from the County. Prior to the installation the off-site wells, an encroachment permit will be obtained from the City of Albany. Cardno personnel will visit the site to check for obstructions and to mark the proposed location. Underground Service Alert will be notified at least 48 hours prior to the onset of field activities. Based on the updated utility information obtained during the pre-drilling activities, Cardno will extend the utilities depicted on site maps as requested by ACEH in the March 13, 2015 letter. Prior to drilling, the locations will be excavated with air, water, and hand tools in accordance with EMES protocols. The procedures for well installation are described in the field protocols presented in Appendix B.

## 5.2 Well Installation and Sampling Activities

Well MW10 will be advanced to approximately 15 feet bgs to target the first encountered groundwater and the zone of maximum hydrocarbon concentrations. The drilling location will be sampled continuously from 5 feet bgs across the anticipated screened intervals to total depth for geological logging purposes. Select soil samples will be submitted for laboratory analysis.

The proposed well will be constructed using 2-inch diameter, Schedule 40 PVC, with a screen approximately 10 feet in length from approximately 5 to 15 feet bgs to target the first-encountered groundwater. The locations of proposed well MW10 and the wells proposed in the FS/CAP are shown on Plate 7.

## 5.3 Laboratory Analyses

Select soil samples will be submitted for analysis to an EMES-approved, state-certified analytical laboratory. The samples will be analyzed for TPHd and TPHg using EPA Method 8015B, and BTEX, fuel oxygenates (MTBE, DIPE, ETBE, TAME, and TBA), and lead scavengers (1,2-DCA and EDB) using EPA Method 8260B. In addition, soil samples collected from the on-site borings will be analyzed for PAHs using EPA Method 8270C or 8310 to assist in evaluating the site in accordance with the *Low-Threat Underground Storage Tank Closure Policy* (SWRCB, 2012).

## 5.4 Waste Management Plan

The soil and rinsate water generated during drilling activities will be temporarily stored on site in DOT-approved, 55-gallon drums. Waste will be transported to an EMES-approved facility. Soil and water disposal documentation will be included in the report.

## 5.5 Site Safety Plan

Fieldwork will be performed in accordance with a site-specific safety plan.

# 6 Post-Remedial Monitoring

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In accordance with ACEH's letter dated March 13, 2015, Cardno proposes to perform one year of quarterly groundwater monitoring after remediation activities have ceased. In addition to the quarterly groundwater monitoring and sampling, soil vapor sampling will be conducted semi-annually for a minimum of two events (approximately six months apart) after remediation activities have ceased.

# 7 Implementation Schedule

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Cardno anticipates implementation of the permitting for the proposed work following the approval of the FS/CAP. A potential schedule is included in Appendix C. The milestone date associated with each event is the report of

the field activities that is to be submitted by the last day of the first month of the following quarter. For example, the report for a HIT event performed during the fourth quarter would be submitted by January 31, 2016.

The schedule currently lists six HIT events over a three-year period. Based on the results of the ongoing monitoring it may be determined that fewer HIT events are required or that more frequent or longer events may be warranted.

## 8 Contact Information

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The responsible party contact is Ms. Jennifer C. Sedlachek, ExxonMobil Environmental Services Company, 4096 Piedmont Avenue #194, Oakland, California, 94611. The consultant contact is Mr. Greg Gurss, Cardno, 601 North McDowell Boulevard, Petaluma, California, 94954. The agency contact is Mr. Mark Detterman, Alameda County Health Care Services Agency, Environmental Health Services, 1131 Harbor Bay Parkway, Suite 250, Alameda, California, 94502-6577.

## 9 Document Distribution

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Cardno recommends submitted a copy of this report to the following:

Mr. Mark Detterman  
Alameda County Health Care Services Agency  
Environmental Health Services  
1131 Harbor Bay Parkway  
Suite 250, Alameda, California 94502-6577

Ms. Muriel T. Blank, Trustee  
The Blank Family Trusts  
1164 Solano Avenue, #406  
Albany, California 94706

Reverend Deborah Blank, Trustee  
The Blank Family Trusts  
1563 Solano Avenue, #344  
Berkeley, California 94707

Ms. Marcia Blank, Trustee  
The Blank Family Trusts  
641 SW Morningside Road  
Topeka, Kansas 66606

## 10 Limitations

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For documents cited that were not generated by Cardno, the data taken from those documents is used "as is" and is assumed to be accurate. Cardno does not guarantee the accuracy of this data and makes no warranties for the referenced work performed nor the inferences or conclusions stated in these documents.

This document and the work performed have been undertaken in good faith, with due diligence and with the expertise, experience, capability, and specialized knowledge necessary to perform the work in a good and workmanlike manner and within all accepted standards pertaining to providers of environmental services in California at the time of investigation. No soil engineering or geotechnical references are implied or should be

inferred. The evaluation of the geologic conditions at the site for this investigation is made from a limited number of data points. Subsurface conditions may vary away from these data points.

## 11 References

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California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFB). December 2013. *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*.

California Water Resources Control Board (SWRCB). August 17, 2012. *Low-Threat Underground Storage Tank Case Closure Policy. (Adopted May 1, 2012)*.

Cardno ERI. April 12, 2012. *Air Sparge and Dual-Phase Extraction and Feasibility Testing, Former Exxon Service Station 79374, 990 San Pablo Avenue, Albany, California, Alameda County #RO00002974*.

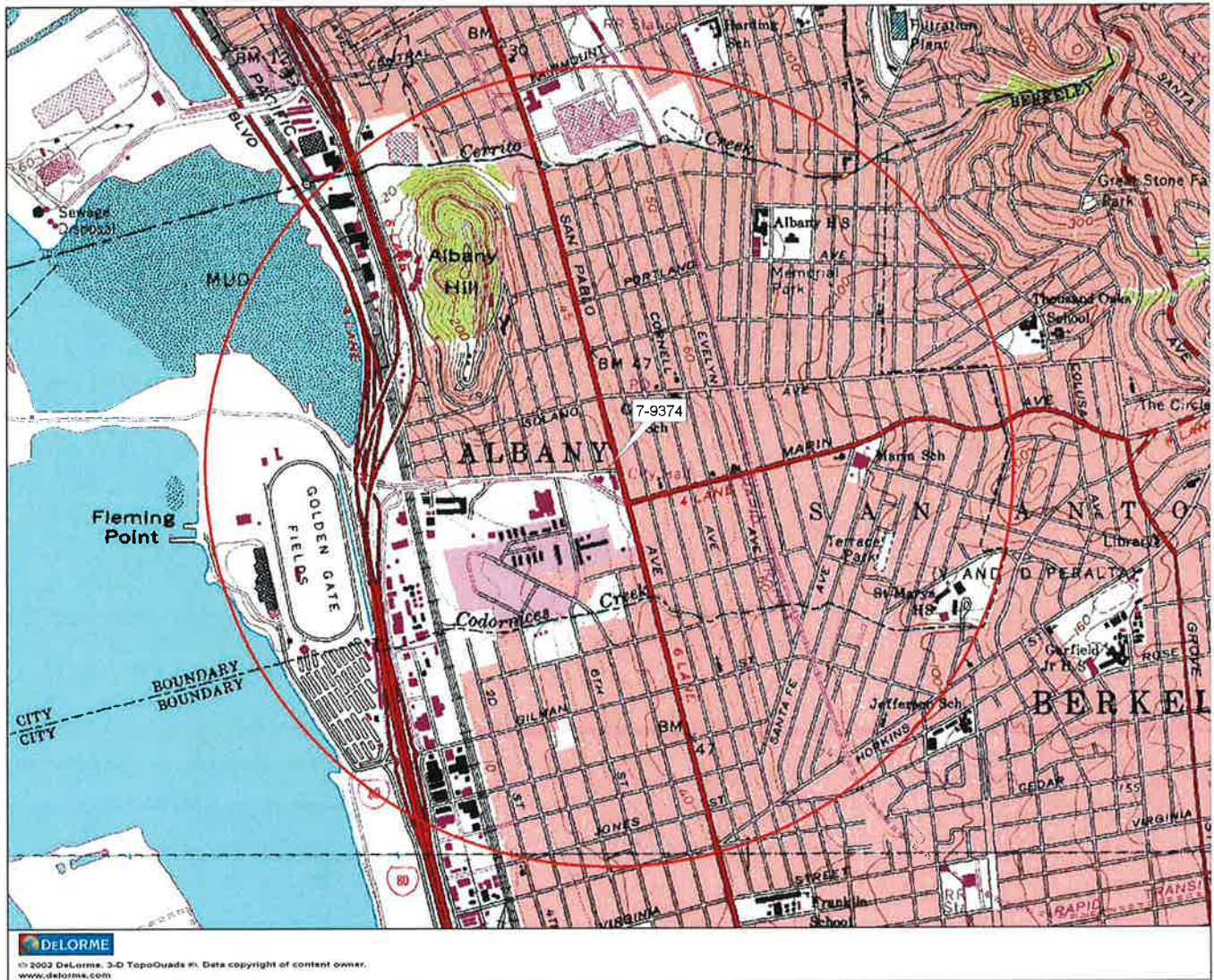
Cardno ERI. July 7, 2014. *Work Plan for Well Installation, Former Exxon Service Station 79374, 990 San Pablo Avenue, Albany, California, Alameda County #RO00002974*.

Cardno ERI. February 4, 2015. *Feasibility Study/Corrective Action Plan, Former Exxon Service Station 79374, 990 San Pablo Avenue, Albany, California, Alameda County #RO00002974*.

## 12 Acronym List

µg/L	Micrograms per liter	NAPL	Non-aqueous phase liquid
µs	Microsiemens	NEPA	National Environmental Policy Act
1,2-DCA	1,2-dichloroethane	NGVD	National Geodetic Vertical Datum
acfm	Actual cubic feet per minute	NPDES	National Pollutant Discharge Elimination System
AS	Air sparge	O&M	Operations and Maintenance
bgs	Below ground surface	ORP	Oxidation-reduction potential
BTEX	Benzene, toluene, ethylbenzene, and total xylenes	OSHA	Occupational Safety and Health Administration
CEQA	California Environmental Quality Act	OVA	Organic vapor analyzer
cfm	Cubic feet per minute	P&ID	Process & Instrumentation Diagram
COC	Chain of Custody	PAH	Polycyclic aromatic hydrocarbon
CPT	Cone Penetration (Penetrometer) Test	PCB	Polychlorinated biphenyl
DIPE	Di-isopropyl ether	PCE	Tetrachloroethene or perchloroethylene
DO	Dissolved oxygen	PID	Photo-ionization detector
DOT	Department of Transportation	PLC	Programmable logic control
DPE	Dual-phase extraction	POTW	Publicly owned treatment works
DTW	Depth to water	ppmv	Parts per million by volume
EDB	1,2-dibromoethane	PQL	Practical quantitation limit
EPA	Environmental Protection Agency	psi	Pounds per square inch
EPH	Extractable petroleum hydrocarbons	PVC	Polyvinyl chloride
ESL	Environmental screening level	QA/QC	Quality assurance/quality control
ETBE	Ethyl tertiary butyl ether	RBSL	Risk-based screening levels
FID	Flame-ionization detector	RCRA	Resource Conservation and Recovery Act
fpm	Feet per minute	RL	Reporting limit
GAC	Granular activated carbon	scfm	Standard cubic feet per minute
gpd	Gallons per day	SSTL	Site-specific target level
gpm	Gallons per minute	STLC	Soluble threshold limit concentration
GRO	Gasoline-range organics	SVE	Soil vapor extraction
GWPTS	Groundwater pump and treat system	SVOC	Semivolatile organic compound
HVOC	Halogenated volatile organic compound	TAME	Tertiary amyl methyl ether
J	Estimated value between MDL and PQL (RL)	TBA	Tertiary butyl alcohol
LEL	Lower explosive limit	TCE	Trichloroethene
LPC	Liquid-phase carbon	TOC	Top of well casing elevation; datum is msl
LRP	Liquid-ring pump	TOG	Total oil and grease
LUFT	Leaking underground fuel tank	TPHd	Total petroleum hydrocarbons as diesel
LUST	Leaking underground storage tank	TPHg	Total petroleum hydrocarbons as gasoline
MCL	Maximum contaminant level	TPHmo	Total petroleum hydrocarbons as motor oil
MDL	Method detection limit	TPHs	Total petroleum hydrocarbons as stoddard solvent
mg/kg	Milligrams per kilogram	TRPH	Total recoverable petroleum hydrocarbons
mg/L	Milligrams per liter	UCL	Upper confidence level
mg/m <sup>3</sup>	Milligrams per cubic meter	USCS	Unified Soil Classification System
MPE	Multi-phase extraction	USGS	United States Geologic Survey
MRL	Method reporting limit	UST	Underground storage tank
msl	Mean sea level	VCP	Voluntary Cleanup Program
MTBE	Methyl tertiary butyl ether	VOC	Volatile organic compound
MTCA	Model Toxics Control Act	VPC	Vapor-phase carbon
NAI	Natural attenuation indicators		





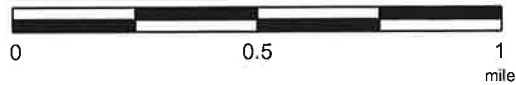
FN 2735 TOPO

**EXPLANATION**



1/2-mile radius circle

**APPROXIMATE SCALE**



SOURCE:  
 Modified from a map  
 provided by  
 DeLorme 3-D TopoQuads



**SITE VICINITY MAP**  
 FORMER EXXON SERVICE STATION 79374  
 990 San Pablo Avenue  
 Albany, California

**PROJECT NO.**

2735

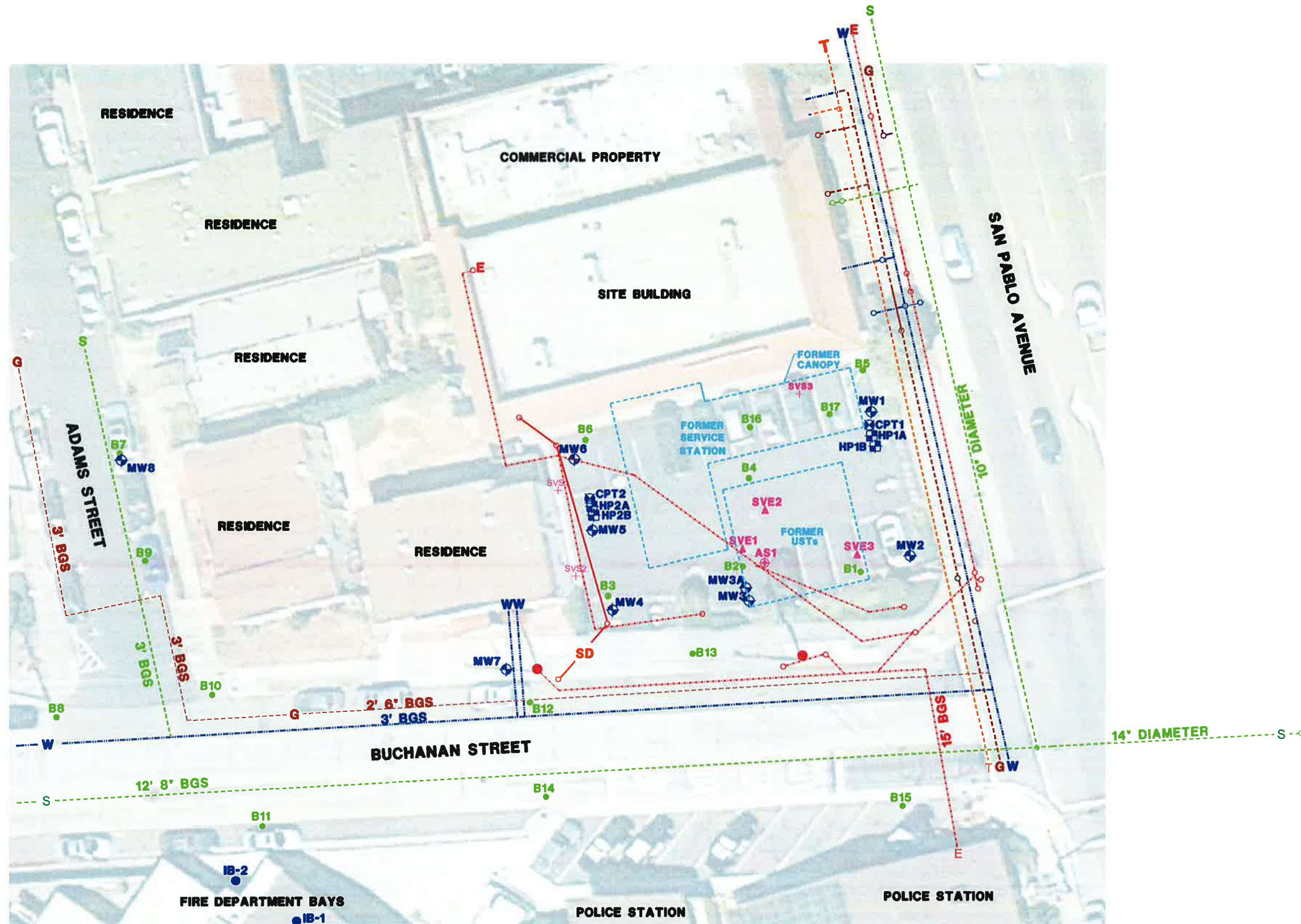
**PLATE**

1

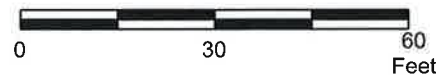


**UTILITIES LEGEND**

- TELEPHONE
- ELECTRICAL
- WATER
- GAS
- SEWER
- STORM DRAIN
- POWER POLE



APPROXIMATE SCALE



FN 2735 GSP AERIAL\_SP R11



**GENERALIZED SITE PLAN**  
 FORMER EXXON SERVICE STATION 79374  
 990 San Pablo Avenue  
 Albany, California

**EXPLANATION**

- |      |                                                    |      |                              |      |                            |
|------|----------------------------------------------------|------|------------------------------|------|----------------------------|
| MW8  | Groundwater Monitoring Well                        | HP2B | Hydropunch Boring            | AS1  | Air Sparge Well            |
| B17  | Soil Boring                                        | CPT2 | Cone Penetration Test Boring | SVE3 | Soil Vapor Extraction Well |
| IB-2 | Soil Boring by Other Consultant for City of Albany | SVS3 | Soil Vapor Sampling Well     |      |                            |

**PROJECT NO.**

2735

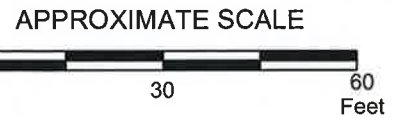
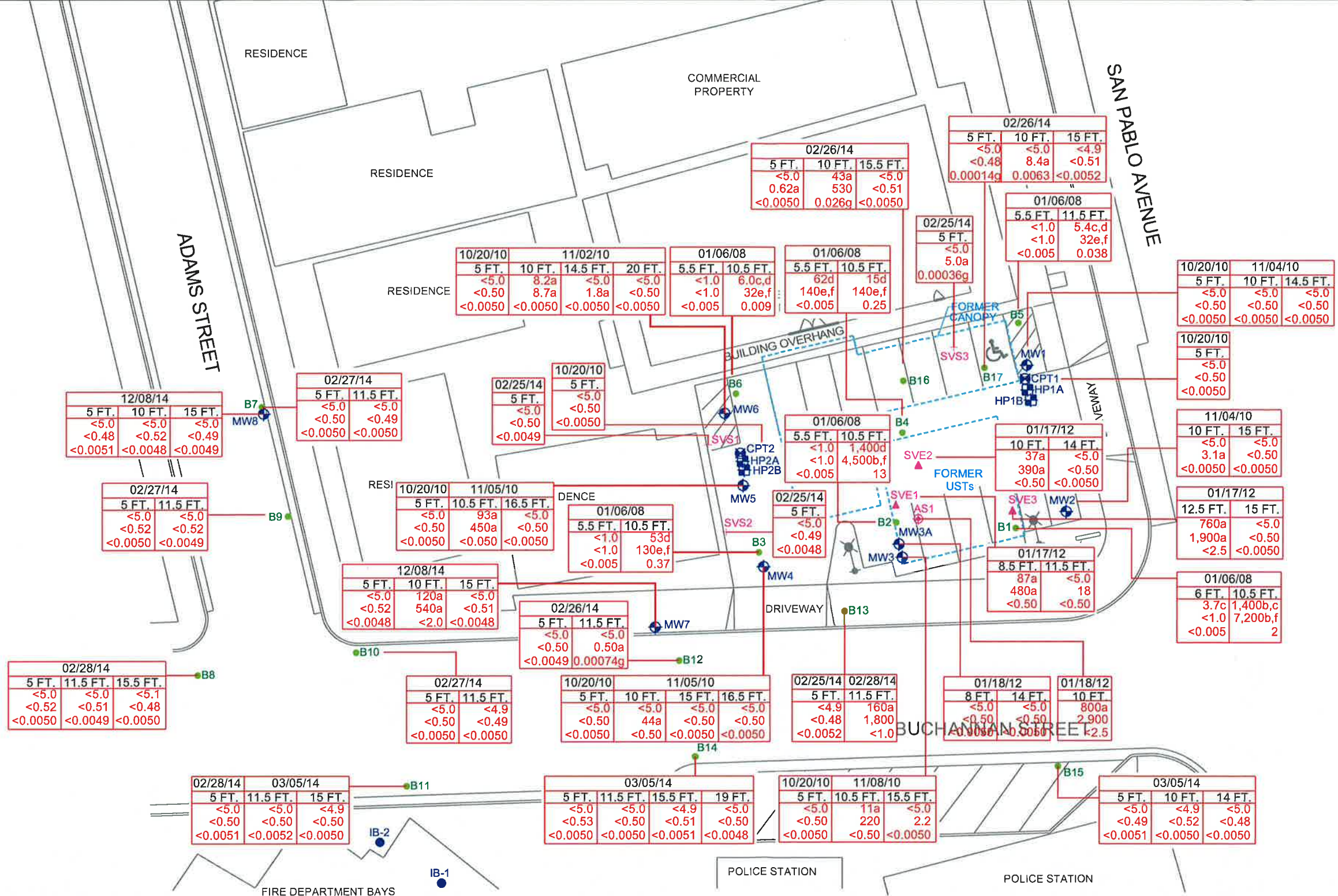
**PLATE**

2





- Analyte Concentrations in mg/kg
- |                                          |
|------------------------------------------|
| Sample Date                              |
| Sample Depth                             |
| Total Petroleum Hydrocarbons as diesel   |
| Total Petroleum Hydrocarbons as gasoline |
| Benzene                                  |
- < Less than the Stated Laboratory Reporting Limit
  - mg/kg Milligrams per Kilogram
  - NM Not Measured
  - a The chromatographic pattern does not match that of the specified standard.
  - b Heavier gasoline range compounds are significant.
  - c Diesel range compounds are significant; no recognizable pattern.
  - d Gasoline range compounds are significant.
  - e Strongly aged gasoline or diesel range compounds are significant.
  - f No recognizable pattern.
  - g Estimated value; analyte present at concentration above the method detection limit but below the reporting limit.



FN 27350004 R11

## SELECT SOIL ANALYTICAL RESULTS

FORMER EXXON SERVICE STATION 79374  
990 San Pablo Avenue  
Albany, California



### EXPLANATION

- MW8 Groundwater Monitoring Well
- B17 Soil Boring
- IB-2 Soil Boring by Other Consultant for City of Albany
- HP2B Hydropunch Boring
- CPT2 Cone Penetration Test Boring
- SVS3 Soil Vapor Sampling Well
- AS1 Air Sparge Well
- SVE3 Soil Vapor Extraction Well

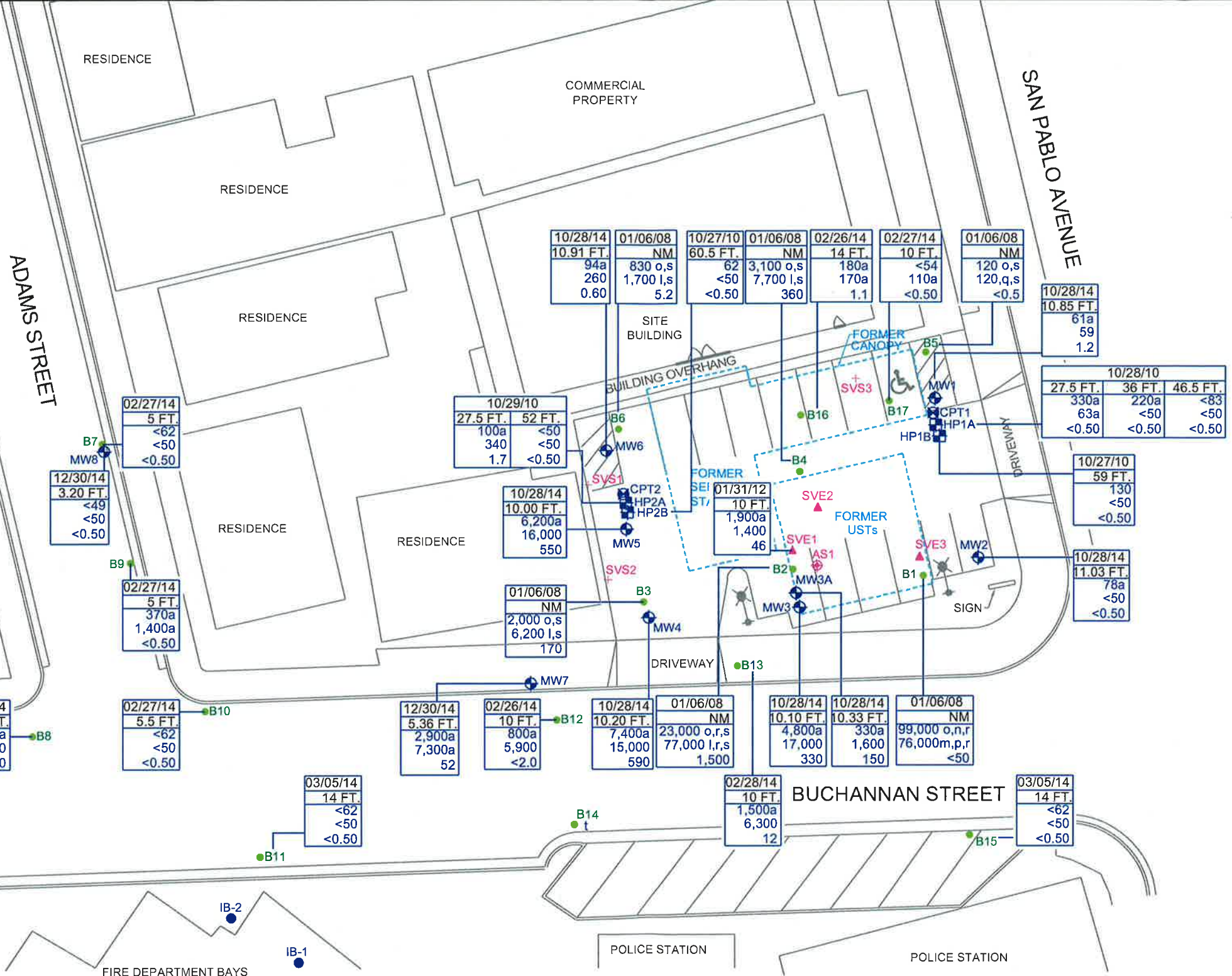
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2735

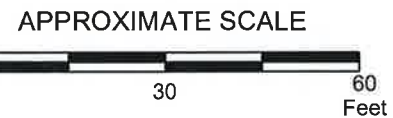
PLATE

3





Analyte Concentrations in ug/L	
Sample Date	Sample Depth
Total Petroleum Hydrocarbons as diesel	
Total Petroleum Hydrocarbons as gasoline	
Benzene	
<	Less Than the Stated Laboratory Reporting Limit
ug/L	Micrograms per Liter
NM	Not Measured
a	The chromatographic pattern does not match that of the specified standard.
i	Unmodified or weakly modified gasoline is significant.
m	Heavier gasoline-range compounds are significant.
n	Diesel-range compounds are significant; no recognizable pattern.
o	Gasoline-range compounds are significant.
p	No recognizable pattern.
q	Strongly aged gasoline or diesel compounds are significant.
r	Lighter than water immiscible sheen/product is present.
s	Liquid sample that contains greater than approximately 1 volume % sediment.
t	Groundwater did not enter boring; sample not collected.



FN 27350004 R11



## SELECT GROUNDWATER ANALYTICAL RESULTS

FORMER EXXON SERVICE STATION 79374  
 990 San Pablo Avenue  
 Albany, California

### EXPLANATION

- MW8 Groundwater Monitoring Well
- B17 Soil Boring
- IB-2 Soil Boring by Other Consultant for City of Albany
- HP2B Hydropunch Boring
- CPT2 Cone Penetration Test Boring
- SVS3 Soil Vapor Sampling Well
- AS1 Air Sparge Well
- SVE3 Soil Vapor Extraction Well

**PROJECT NO.**  
2735

**PLATE**  
4



Analyte Concentrations in ug/m<sup>3</sup>

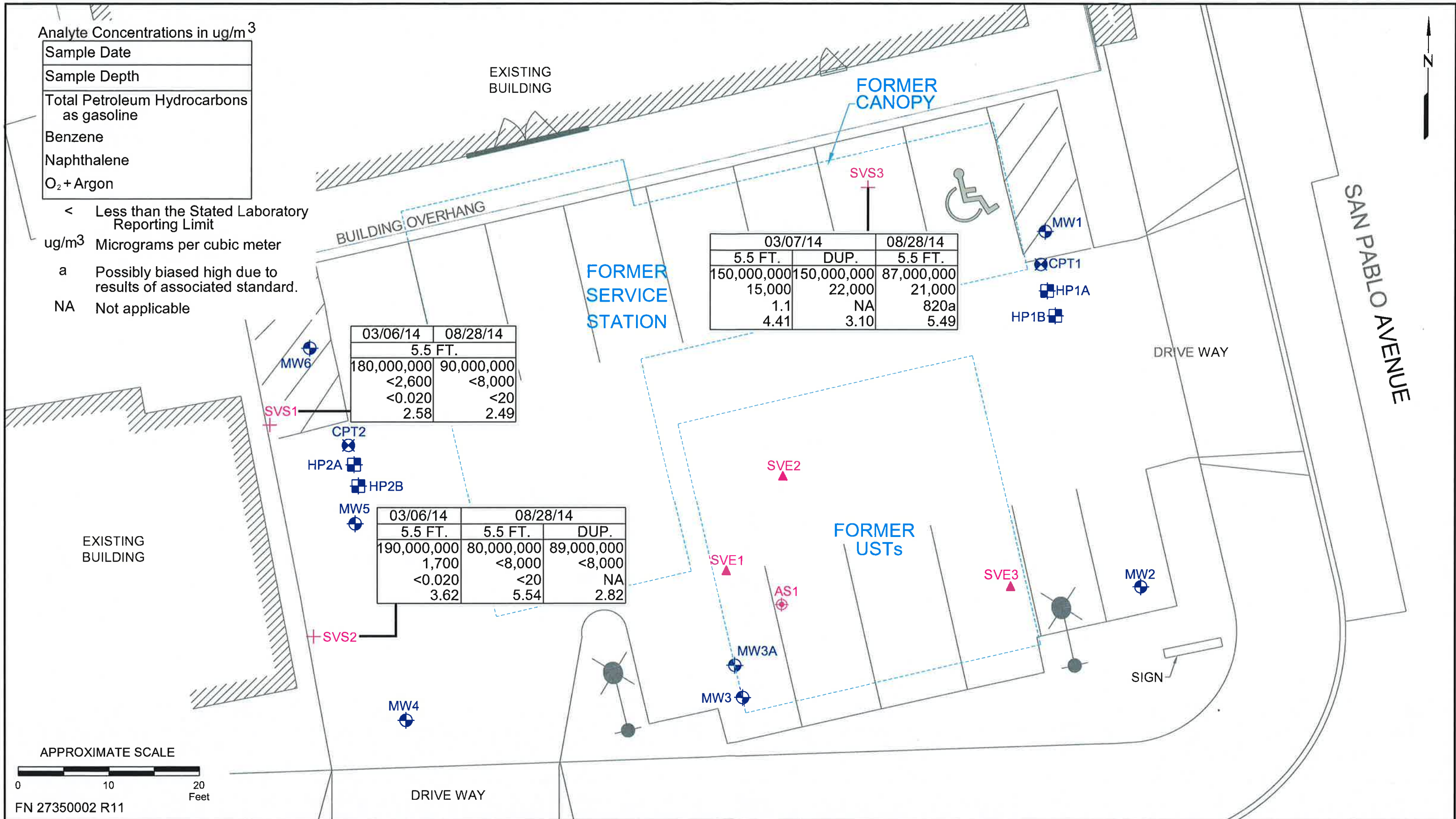
Sample Date
Sample Depth
Total Petroleum Hydrocarbons as gasoline
Benzene
Naphthalene
O <sub>2</sub> + Argon

< Less than the Stated Laboratory Reporting Limit

ug/m<sup>3</sup> Micrograms per cubic meter

a Possibly biased high due to results of associated standard.

NA Not applicable

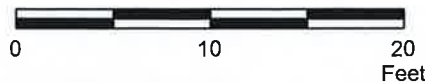


03/06/14	08/28/14
5.5 FT.	
180,000,000	90,000,000
<2,600	<8,000
<0.020	<20
2.58	2.49

03/07/14		08/28/14	
5.5 FT.	DUP.	5.5 FT.	
150,000,000	150,000,000	87,000,000	
15,000	22,000	21,000	
1.1	NA	820a	
4.41	3.10	5.49	

03/06/14	08/28/14	
5.5 FT.	5.5 FT.	DUP.
190,000,000	80,000,000	89,000,000
1,700	<8,000	<8,000
<0.020	<20	NA
3.62	5.54	2.82

APPROXIMATE SCALE



FN 27350002 R11



**SELECT SOIL VAPOR ANALYTICAL RESULTS**  
**March 6 and 7, 2014 and August 28, 2014**

FORMER EXXON SERVICE STATION 79374  
 990 San Pablo Avenue  
 Albany, California

**EXPLANATION**

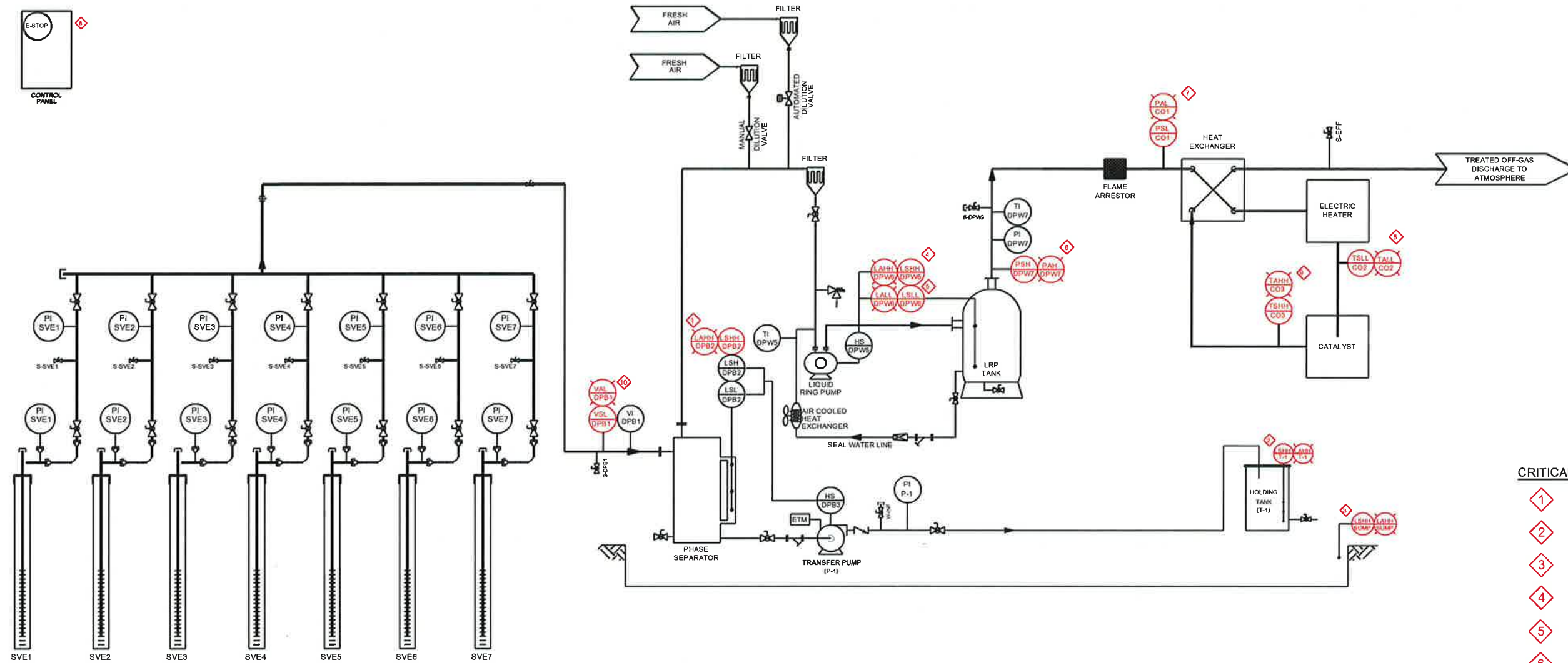
- MW6 Groundwater Monitoring Well
- HP2B Hydropunch Boring
- CPT2 Cone Penetration Test Boring
- AS1 Air Sparge Well
- SVS3 Soil Vapor Sampling Well
- SVE3 Soil Vapor Extraction Well

**PROJECT NO.**

2735

**PLATE**

5



**CRITICAL EQUIPMENT SCHEDULE**

- 1 PHASE SEPARATOR HIGH HIGH
- 2 HOLDING TANK HIGH HIGH
- 3 CONTAINMENT SUMP HIGH HIGH
- 4 SEAL WATER TANK HIGH LEVEL
- 5 SEAL WATER TANK LOW LEVEL
- 6 BLOWER DISCHARGE HIGH PRESSURE
- 7 CATOX LOW FLOW
- 8 CATOX TEMPERATURE LOW
- 9 CATOX TEMPERATURE HIGH
- 10 BLOWER LOW VACUUM SWITCH
- 7 ELECTRICAL GROUND (NOT SHOWN)
- 8 EMERGENCY STOP

Sheet No.	2735C
Project No.	05/07/15
Date	05/07/15
Last Rev. Date	05/07/15
Plot Scale	NOT TO SCALE
Drawn/Approved	MTH/JOC
DWG. #	2735 15 RDP

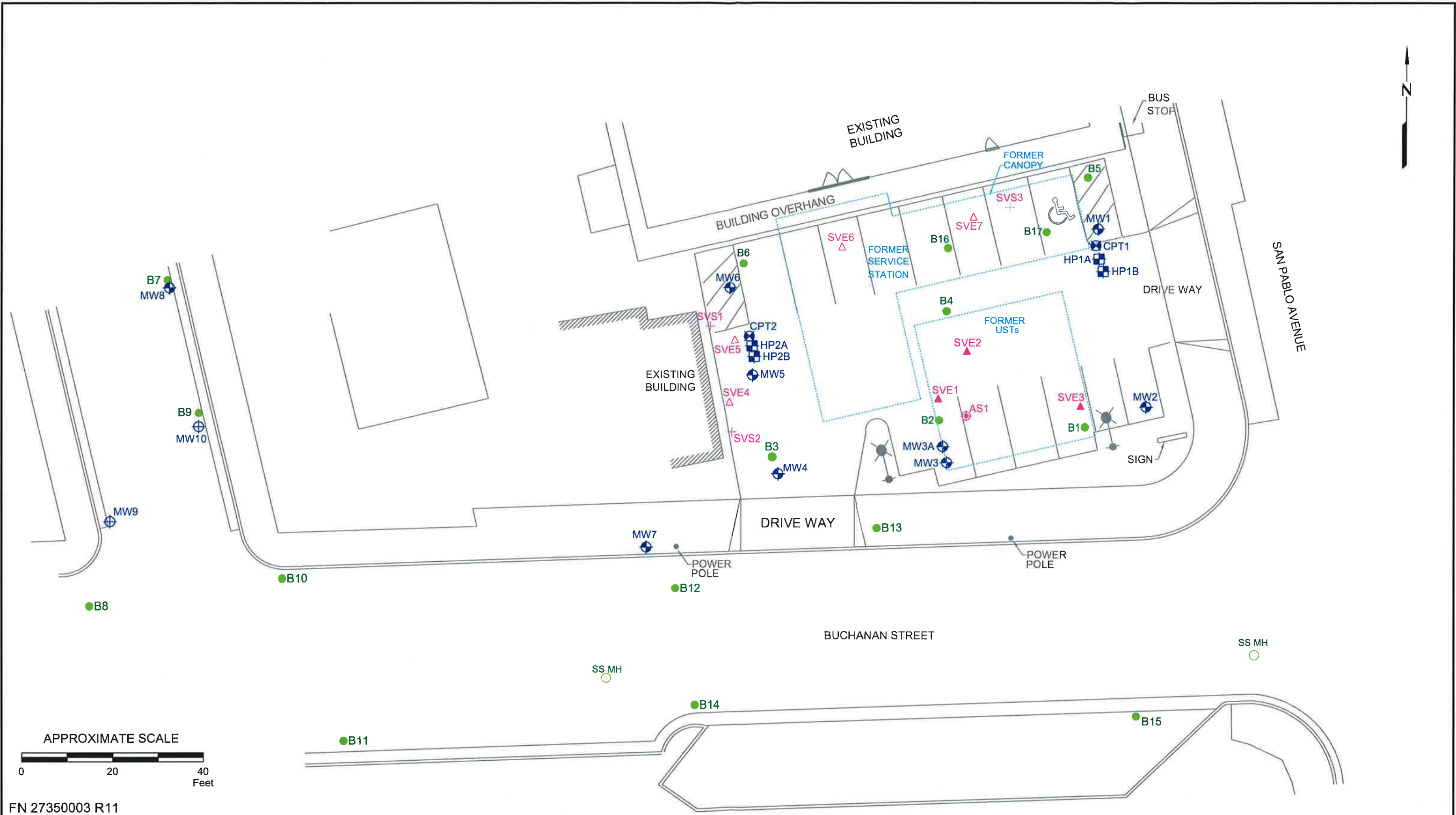
**PROJECT**  
**REMEDATION SYSTEM**  
 FORMER EXXON SERVICE STATION 79374  
 990 San Pablo Avenue  
 Albany, California

**DRAWING**  
**PROPOSED PROCESS AND INSTRUMENTATION DIAGRAM**

**DESIGN**  
**P&ID**







FN 27350003 R11



### EXTENDED SITE PLAN SHOWING PROPOSED WELL LOCATIONS

FORMER EXXON SERVICE STATION 79374  
990 San Pablo Avenue  
Albany, California

#### EXPLANATION

MW8 Groundwater Monitoring Well	HP2B Hydropunch Boring	SVE3 Soil Vapor Extraction Well
MW10 Proposed Groundwater Monitoring Well	CPT2 Cone Penetration Test Boring	SVE3 Proposed Soil Vapor Extraction Well
B17 Soil Boring	AS1 Air Sparge Well	SVS3 Soil Vapor Sampling Well

PROJECT NO.

2735

PLATE

7

**TABLE 1A**  
**CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Exxon Service Station 79374  
990 San Pablo Avenue  
Albany, California

Well ID	Sampling Date	Depth (feet)	TOC Elev. (feet)	DTW (feet)	GW Elev.	NAPL (feet)	O&G (µg/L)	TPHmo (µg/L)	TPHd (µg/L)	TPHg (µg/L)	MTBE (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
<b>Monitoring Well Samples</b>															
MW1	11/04/10	--	Well installed.												
MW1	12/01/10	--	41.45	Well surveyed.											
MW1	12/16/10	--	41.45	9.18	32.27	No	--	<250	71a	54	<0.50	1.4	0.65	0.58	1.6
MW1	01/31/11	--	41.45	8.78	32.67	No	--	<250	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50
MW1	04/07/11	--	41.45	8.45	33.00	No	--	<250	65a	160a	<0.50	2.9	0.92	<0.50	1.7
MW1	07/18/11	--	41.45	9.49	31.96	No	--	<250	<50	63a	<0.50	<0.50	<0.50	<0.50	<0.50
MW1	10/13/11	--	41.45	9.86	31.59	No	--	<250	54	<50	<0.50	<0.50	<0.50	<0.50	<0.50
MW1	04/06/12	--	41.45	8.11	33.34	No	--	<250	130	130	<0.50	2.1	<0.50	<0.50	<0.50
MW1	10/19/12	--	41.45	10.42	31.03	No	--	<250	<50	<50	<0.50	0.51	2.2	<0.50	0.65
MW1	06/11/13	--	41.45	10.48	30.97	No	--	<250	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50
MW1	12/19/13	--	41.45	10.67	30.78	No	--	<250	<50	<50	<0.50	<0.50	1.3	<0.50	0.53
MW1	04/03/14	--	44.19	Elevation converted to NAVD88.											
MW1	04/30/14	--	44.19	9.49	34.70	No	--	--	--	--	--	--	--	--	--
MW1	05/01/14	--	44.19	--	--	--	--	<240	<48	<50	<0.50	<0.50	<0.50	<0.50	<0.50
MW1	10/28/14	--	44.19	10.85	33.34	No	--	<250	61a	59	<0.50	1.2	<0.50	0.64	<0.50
<b>MW2</b>															
MW2	11/04/10	--	Well installed.												
MW2	12/01/10	--	41.25	Well surveyed.											
MW2	12/16/10	--	41.25	8.11	33.14	No	--	<250	110a	<50	<0.50	<0.50	<0.50	<0.50	<0.50
MW2	01/31/11	--	41.25	9.29	31.96	No	--	<250	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50
MW2	04/07/11	--	41.25	8.21	33.04	No	--	<250	<50	<50	0.51	<0.50	<0.50	<0.50	<0.50
MW2	07/18/11	--	41.25	9.52	31.73	No	--	<250	<50	54a	<0.50	<0.50	<0.50	<0.50	<0.50
MW2	10/13/11	--	41.25	9.56	31.69	No	--	<250	98	75a	<0.50	<0.50	<0.50	<0.50	<0.50
MW2	04/06/12	--	41.25	8.68	32.57	No	--	<250	60	68	<0.50	<0.50	<0.50	<0.50	<0.50
MW2	10/19/12	--	41.25	11.03	30.22	No	--	<250	<50	59a	<0.50	<0.50	<0.50	<0.50	<0.50
MW2	06/11/13	--	41.25	10.67	30.58	No	--	<250	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50
MW2	12/19/13	--	41.25	10.77	30.48	No	--	<250	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50
MW2	04/03/14	--	43.99	Elevation converted to NAVD88.											
MW2	04/30/14	--	43.99	9.63	34.36	No	--	--	--	--	--	--	--	--	--
MW2	05/01/14	--	43.99	--	--	--	--	<240	<48	53a	<0.50	<0.50	<0.50	<0.50	<0.50
MW2	10/28/14	--	43.99	11.03	32.96	No	--	<250	78a	<50	<0.50	<0.50	<0.50	<0.50	<0.50
<b>MW3</b>															
MW3	11/08/10	--	Well installed.												
MW3	12/01/10	--	40.42	Well surveyed.											
MW3	12/16/10	--	40.42	8.18	32.24	No	--	<250	2,900a	19,000	<12	350	130	940	290
MW3	01/31/11	--	40.42	7.64	32.78	No	--	390	2,800a	17,000a	<12	540	140	700	270
MW3	04/07/11	--	40.42	5.88	34.54	No	--	<250	2,700a	14,000	<10	600	150	780	230
MW3	07/18/11	--	40.42	8.31	32.11	No	--	<250	1,700a	19,000	<10	650	140	660	220
MW3	10/13/11	--	40.42	8.76	31.66	No	--	<250	1,900a	16,000	<10	520	150	900	270
MW3	04/06/12	--	40.42	8.13	32.29	No	--	<250	3,200a	18,000	<20	300	120	1,100	180
MW3	10/19/12	--	40.42	9.37	31.05	No	--	<250	1,700a	11,000a	<10	380	120	740	150

**TABLE 1A**  
**CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Exxon Service Station 79374  
990 San Pablo Avenue  
Albany, California

Well ID	Sampling Date	Depth (feet)	TOC Elev. (feet)	DTW (feet)	GW Elev.	NAPL (feet)	O&G (µg/L)	TPHmo (µg/L)	TPHd (µg/L)	TPHg (µg/L)	MTBE (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
MW3	06/11/13	---	40.42	9.48	30.94	No	---	<250	2,700a	17,000	<10	270	110	990	140
MW3	12/19/13	---	40.42	10.00	30.42	No	---	---	---	---	---	---	---	---	---
MW3	12/20/13	---	40.42	---	---	---	---	<250	2,000a	16,000	<10	310	120	710	120
MW3	04/03/14	---	43.16	Elevation converted to NAVD88.		---	---	---	---	---	---	---	---	---	---
MW3	04/30/14	---	43.16	9.17	33.99	No	---	---	---	---	---	---	---	---	---
MW3	05/01/14	---	43.16	---	---	---	---	<240	3,100a	18,000	<10	230	110	1,100	170
MW3	10/28/14	---	43.16	10.10	33.06	No	---	<250	4,800a	17,000	<20	330	120	1,200	150
MW3A	01/18/12	---	Well installed.			---	---	---	---	---	---	---	---	---	---
MW3A	02/06/12	---	40.68	Well surveyed.			---	---	---	---	---	---	---	---	---
MW3A	04/06/12	---	40.68	6.02	34.66	No	---	<250	170a	1,300	<2.0	41	7.5	140	38
MW3A	10/19/12	---	40.68	10.44	30.24	No	---	<250	860a	4,400a	<5.0	390	59	410	82
MW3A	06/11/13	---	40.68	9.75	30.93	No	---	<250	160a	1,100	<2.0	99	14	110	3.6
MW3A	12/19/13	---	40.68	10.05	30.63	No	---	<250	270a	1,800	<2.0	150	18	65	4.7
MW3A	04/03/14	---	43.42	Elevation converted to NAVD88.		---	---	---	---	---	---	---	---	---	---
MW3A	04/30/14	---	43.42	7.55	35.87	No	---	---	---	---	---	---	---	---	---
MW3A	05/01/14	---	43.42	---	---	---	---	<240	<48	130a	<0.50	7.0	1.2	7.4	1.3
MW3A	10/28/14	---	43.42	10.33	33.09	No	---	<250	330a	1,600	<0.50	150	17	26	4.0
MW4	11/05/10	---	Well installed.			---	---	---	---	---	---	---	---	---	---
MW4	12/01/10	---	39.30	Well surveyed.			---	---	---	---	---	---	---	---	---
MW4	12/16/10	---	39.30	6.10	33.20	No	---	<250	2,000a	9,900	<5.0	440	40	170	380
MW4	01/31/11	---	39.30	6.84	32.46	No	---	260	3,900a	13,000	<10	500	59	320	740
MW4	04/07/11	---	39.30	5.29	34.01	No	---	<250	1,900a	9,600	<10	530	59	250	340
MW4	07/18/11	---	39.30	7.36	31.94	No	---	<250	2,800a	14,000	<10	570	66	320	510
MW4	10/13/11	---	39.30	7.83	31.47	No	---	320	7,200a	14,000	<10	350	43	340	690
MW4	04/06/12	---	39.30	6.21	33.09	No	---	<250	1,800a	9,100a	<10	380	40	220	410
MW4	10/19/12	---	39.30	10.64	28.66	No	---	1,400a	20,000a	270,000	<10	440	88	2,100	3,800
MW4	03/06/13	---	39.30	8.02	31.28	No	---	---	---	---	---	---	---	---	---
MW4	06/11/13	---	39.30	9.05	30.25	No	---	<250	3,400a	16,000	<10	430	48	520	820
MW4	12/19/13	---	39.30	8.95	30.35	No	---	---	---	---	---	---	---	---	---
MW4	12/20/13	---	39.30	---	---	---	---	<250	2,800a	13,000	<10	590	41	430	530
MW4	03/05/14	---	39.30	---	---	No	---	---	---	---	---	---	---	---	---
MW4	04/03/14	---	42.04	Elevation converted to NAVD88.		---	---	---	---	---	---	---	---	---	---
MW4	04/30/14	---	42.04	6.25	35.79	No	---	---	---	---	---	---	---	---	---
MW4	05/01/14	---	42.04	---	---	---	---	<240	3,000a	13,000	<10	520	46	310	340
MW4	10/28/14	---	42.04	10.20	31.84	No	---	<250	7,400a	15,000	<10	590	42	360	230
MW5	11/11/10	---	Well installed.			---	---	---	---	---	---	---	---	---	---
MW5	12/01/10	---	40.38	Well surveyed.			---	---	---	---	---	---	---	---	---
MW5	12/16/10	---	40.38	7.69	32.69	No	---	<250	1,100a	6,200	<2.5	150	96	270	980
MW5	01/31/11	---	40.38	8.00	32.38	No	---	270	4,600a	15,000	<10	520	310	1,100	2,500
MW5	04/07/11	---	40.38	6.73	33.65	No	---	<250	610a	2,500	<2.5	61	32	180	390
MW5	07/18/11	---	40.38	7.63	32.75	No	---	<250	2,000a	11,000	<2.5	340	160	990	1,800

**TABLE 1A**  
**CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Exxon Service Station 79374  
990 San Pablo Avenue  
Albany, California

Well ID	Sampling Date	Depth (feet)	TOC Elev. (feet)	DTW (feet)	GW Elev.	NAPL (feet)	O&G (µg/L)	TPHmo (µg/L)	TPHd (µg/L)	TPHg (µg/L)	MTBE (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
MW5	10/13/11	--	40.38	9.31	31.07	No	--	660	7,600a	23,000	<20	390	160	1,200	3,100
MW5	04/06/12	--	40.38	6.77	33.61	No	--	<250	880a	6,000a	<5.0	62	17	360	680
MW5	10/19/12	--	40.38	10.64	29.74	No	--	280a	2,100a	15,000	<20	580	63	950	1,400
MW5	06/11/13	--	40.38	10.06	30.32	No	--	<250	2,700a	13,000	<20	540	36	930	1,200
MW5	12/19/13	--	40.38	9.85	30.53	No	--	--	--	--	--	--	--	--	--
MW5	12/20/13	--	40.38	--	--	--	--	<250	2,100a	21,000	<20	370	36	1,500	1,400
MW5	04/03/14	--	43.12	Elevation converted to NAVD88.											
MW5	04/30/14	--	43.12	7.51	35.61	No	--	--	--	--	--	--	--	--	--
MW5	05/01/14	--	43.12	--	--	--	--	<240	2,000a	10,000	<10	170	10	600	510
MW5	10/28/14	--	43.12	10.00	33.12	No	--	360a	6,200a	16,000	<10	550	17	890	360
MW6	11/03/10	--	Well installed.												
MW6	12/01/10	--	41.06	Well surveyed.											
MW6	12/16/10	--	41.06	8.55	32.51	No	--	<250	110a	1,700	<0.50	2.8	1.2	61	46
MW6	01/31/11	--	41.06	8.52	32.54	No	--	<250	800a	2,000a	<1.0	6.0	<1.0	30	24
MW6	04/07/11	--	41.06	7.78	33.28	No	--	<250	660a	2,000	<0.50	10	1.0	20	19
MW6	07/18/11	--	41.06	9.27	31.79	No	--	<250	350a	1,000a	<0.50	2.5	<0.50	3.8	3.5
MW6	10/13/11	--	41.06	10.21	30.85	No	--	<250	370a	890a	<0.50	2.8	<0.50	7.9	5.5
MW6	04/06/12	--	41.06	7.19	33.87	No	--	<250	440a	1,400a	<0.50	2.4	<0.50	13	15
MW6	10/19/12	--	41.06	11.36	29.70	No	--	<250	99a	510a	<0.50	4.2	1.6	8.0	7.0
MW6	06/11/13	--	41.06	10.81	30.25	No	--	<250	150a	500	<0.50	<0.50	<0.50	2.4	1.1
MW6	12/19/13	--	41.06	10.78	30.28	No	--	<250	68a	440	<0.50	<0.50	<0.50	2.3	0.87
MW6	04/03/14	--	43.80	Elevation converted to NAVD88.											
MW6	04/30/14	--	43.80	8.23	35.57	No	--	--	--	--	--	--	--	--	--
MW6	05/01/14	--	43.80	--	--	--	--	<240	450a	1,500	<0.50	2.8	0.57	13	4.8
MW6	10/28/14	--	43.80	10.91	32.89	No	--	<250	94a	260	<0.50	0.60	<0.50	0.56	<0.50
<b>MW7</b>	<b>12/08/14</b>	--	<b>Well installed.</b>												
<b>MW7</b>	<b>12/23/14</b>	--	<b>41.21</b>	<b>Well surveyed.</b>											
<b>MW7</b>	<b>12/30/14</b>	--	<b>41.21</b>	<b>5.36</b>	<b>35.85</b>	<b>No</b>	--	<b>&lt;250</b>	<b>2,900a</b>	<b>7,300a</b>	<b>&lt;5.0</b>	<b>52</b>	<b>8.9</b>	<b>32</b>	<b>15</b>
<b>MW8</b>	<b>12/08/14</b>	--	<b>Well installed.</b>												
<b>MW8</b>	<b>12/23/14</b>	--	<b>39.65</b>	<b>Well surveyed.</b>											
<b>MW8</b>	<b>12/30/14</b>	--	<b>39.65</b>	<b>3.20</b>	<b>36.45</b>	<b>No</b>	--	<b>&lt;250</b>	<b>&lt;49</b>	<b>&lt;50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>
AS1	01/18/12	--	Well installed.												
AS1	10/19/12	--	--	10.32	--	No	--	--	--	--	--	--	--	--	--
AS1	06/11/13	--	--	9.82	--	No	--	--	--	--	--	--	--	--	--
AS1	12/19/13	--	--	10.12	--	No	--	--	--	--	--	--	--	--	--
AS1	04/30/14	--	--	7.95	--	No	--	--	--	--	--	--	--	--	--
AS1	10/28/14	--	--	10.35	--	No	--	--	--	--	--	--	--	--	--
SVE1	01/17/12	--	Well installed.												
SVE1	02/06/12	--	40.58	Well surveyed.											
SVE1	10/19/12	--	40.58	10.21	30.37	No	--	--	--	--	--	--	--	--	--

**TABLE 1A**  
**CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Exxon Service Station 79374  
990 San Pablo Avenue  
Albany, California

Well ID	Sampling Date	Depth (feet)	TOC Elev. (feet)	DTW (feet)	GW Elev.	NAPL (feet)	O&G (µg/L)	TPHmo (µg/L)	TPHd (µg/L)	TPHg (µg/L)	MTBE (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
SVE1	06/11/13	--	40.58	9.63	30.95	No	--	--	--	--	--	--	--	--	--
SVE1	12/19/13	--	40.58	9.89	30.69	No	--	--	--	--	--	--	--	--	--
SVE1	04/03/14	--	43.32	Elevation converted to NAVD88.			--	--	--	--	--	--	--	--	--
SVE1	04/30/14	--	43.32	7.70	35.62	No	--	--	--	--	--	--	--	--	--
SVE1	10/28/14	--	43.32	10.17	33.15	No	--	--	--	--	--	--	--	--	--
SVE2	01/17/12	--	Well installed.			--	--	--	--	--	--	--	--	--	--
SVE2	02/06/12	--	40.94	Well surveyed.			--	--	--	--	--	--	--	--	--
SVE2	10/19/12	--	40.94	10.48	30.46	No	--	--	--	--	--	--	--	--	--
SVE2	06/11/13	--	40.94	9.94	31.00	No	--	--	--	--	--	--	--	--	--
SVE2	12/19/13	--	40.94	10.20	30.74	No	--	--	--	--	--	--	--	--	--
SVE2	04/03/14	--	43.68	Elevation converted to NAVD88.			--	--	--	--	--	--	--	--	--
SVE2	04/30/14	--	43.68	8.09	35.59	No	--	--	--	--	--	--	--	--	--
SVE2	10/28/14	--	43.68	10.50	33.18	No	--	--	--	--	--	--	--	--	--
SVE3	01/17/12	--	Well installed.			--	--	--	--	--	--	--	--	--	--
SVE3	02/06/12	--	40.93	Well surveyed.			--	--	--	--	--	--	--	--	--
SVE3	10/19/12	--	40.93	10.39	30.54	No	--	--	--	--	--	--	--	--	--
SVE3	06/11/13	--	40.93	9.65	31.28	No	--	--	--	--	--	--	--	--	--
SVE3	12/19/13	--	40.93	10.31	30.62	No	--	--	--	--	--	--	--	--	--
SVE3	04/03/14	--	43.67	Elevation converted to NAVD88.			--	--	--	--	--	--	--	--	--
SVE3	04/30/14	--	43.67	7.79	35.88	No	--	--	--	--	--	--	--	--	--
SVE3	10/28/14	--	43.67	10.48	33.19	No	--	--	--	--	--	--	--	--	--
<b>Grab Groundwater Samples</b>															
B-1W	01/06/08	--	--	--	--	--	26r,s	<5,000	99,000o,n,r	76,000m,p,r	<50	<50	93	3,100	9,600
B-2W	01/06/08	--	--	--	--	--	--	310s	23,000o,r,s	77,000 l,r,s	<50	1,500	300	2,000	6,800
B-3W	01/06/08	--	--	--	--	--	--	<250s	2,000o,s	6,200 l,s	<10	170	32	740	250
B-4W	01/06/08	--	--	--	--	--	--	<250s	3,100o,s	7,700 l,s	<10	360	<10	240	20
B-5W	01/06/08	--	--	--	--	--	--	<250s	120o,s	120q,s	<0.5	<0.5	<0.5	<0.5	<0.5
B-6W	01/06/08	--	--	--	--	--	--	<250s	830o,s	1,700 l,s	<2.5	5.2	<2.5	100	8.6
DR-W	01/06/08	--	--	--	--	--	--	<250	96o	730m,p	<0.5	<0.5	<0.5	6.9	14
W-27.5-HP1A	10/28/10	27.5	--	--	--	--	--	260	330a	63a	<0.50	<0.50	<0.50	<0.50	<0.50
W-36-HP1A	10/28/10	36	--	--	--	--	--	<250	220a	<50	<0.50	<0.50	<0.50	<0.50	<0.50
W-46.5-HP1A	10/28/10	46.5	--	--	--	--	--	<420	<83	<50	<0.50	<0.50	<0.50	<0.50	<0.50
W-59-HP1B	10/27/10	59	--	--	--	--	--	<250	130	<50	<0.50	<0.50	<0.50	<0.50	<0.50

**TABLE 1A**  
**CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Exxon Service Station 79374  
990 San Pablo Avenue  
Albany, California

Well ID	Sampling Date	Depth (feet)	TOC Elev. (feet)	DTW (feet)	GW Elev.	NAPL (feet)	O&G (µg/L)	TPHmo (µg/L)	TPHd (µg/L)	TPHg (µg/L)	MTBE (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
W-27.5-HP2A	10/29/10	27.5	--	--	--	--	--	<250	100a	340	<0.50	1.7	2.1	20	46
W-52-HP2A	10/29/10	52	--	--	--	--	--	<250	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50
W-60.5-HP2B	10/27/10	60.5	--	--	--	--	--	<250	62	<50	<0.50	<0.50	<0.50	<0.50	<0.50
W-10-SVE1-1	01/31/12	10	--	--	--	--	--	990a	1,900a	2,000	<2.0	87	2.1	13	23
W-10-SVE1-2	01/31/12	10	--	--	--	--	--	890a	1,500a	1,400	<1.0	46	2.0	24	23
W-5-B7	02/27/14	5	--	--	--	--	--	<310	<62	<50	<0.50	<0.50	<0.50	<0.50	<0.50
W-12-B8	02/28/14	12	--	--	--	--	--	<240	130a	<50	<0.50	<0.50	<0.50	<0.50	<0.50
W-5-B9	02/27/14	5	--	--	--	--	--	<310	370a	1,400a	<0.50	<0.50	<0.50	<0.50	<0.50
W-5.5-B10	02/27/14	5.5	--	--	--	--	--	<310	<62	<50	<0.50	<0.50	<0.50	<0.50	<0.50
W-14-B11	03/05/14	14	--	--	--	--	--	<310	<62	<50	<0.50	<0.50	<0.50	<0.50	<0.50
W-10-B12	02/26/14	10	--	--	--	--	--	<250	800a	5,900	<2.0	<2.0	<2.0	7.5	<2.0
W-10-B13	02/28/14	10	--	--	--	--	--	<250	1,500a	6,300	<5.0	12	8.8	290	22
B14	03/05/14	--	--	--	--	--	--	--	--	--	--	--	--	--	--
W-14-B15	03/05/14	14	--	--	--	--	--	<310	<62	<50	1.3	<0.50	<0.50	<0.50	<0.50
W-14-B16	02/26/14	14	--	--	--	--	--	<250	180a	170a	<0.50	1.1	<0.50	5.4	<0.50
W-10-B17	02/27/14	10	--	--	--	--	--	<270	<54	110a	<0.50	<0.50	<0.50	<0.50	<0.50



**TABLE 1A**  
**CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Exxon Service Station 79374  
990 San Pablo Avenue  
Albany, California

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Notes:

TOC	=	Top of well casing elevation; datum is NAVD88, prior to April 2014, datum was mean sea level.
DTW	=	Depth to water.
GW Elev.	=	Groundwater elevation; datum is NAVD88, prior to April 2014, datum was mean sea level. If liquid-phase hydrocarbons present, elevation adjusted using TOC - [DTW - (PT x 0.76)].
NAPL	=	Non-aqueous phase liquid.
O&G	=	Oil and grease with silica gel clean-up analyzed using Standard Method 5520B/F.
TPHmo	=	Total petroleum hydrocarbons as motor oil analyzed using EPA Method 8015 (modified).
TPHd	=	Total petroleum hydrocarbons as diesel analyzed using EPA Method 8015 (modified).
TPHg	=	Total petroleum hydrocarbons as gasoline analyzed using EPA Method 8015 (modified).
MTBE	=	Methyl tertiary butyl ether analyzed using EPA Method 8260B.
BTEX	=	Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8260B.
EDB	=	1,2-dibromoethane analyzed using EPA Method 8260B.
1,2-DCA	=	1,2-dichloroethane analyzed using EPA Method 8260B.
TAME	=	Tertiary amyl methyl ether analyzed using EPA Method 8260B.
TBA	=	Tertiary butyl alcohol analyzed using EPA Method 8260B.
ETBE	=	Ethyl tertiary butyl ether analyzed using EPA Method 8260B.
DIPE	=	Di-isopropyl ether analyzed using EPA Method 8260B.
Add'l VOCs	=	Additional volatile organic compounds or halogenated volatile organic compounds analyzed using EPA Method 8260B.
Add'l SVOCs	=	Additional semi-volatile organic compounds analyzed using EPA Method 8270C.
µg/L	=	Micrograms per liter.
ND	=	Not detected at or above laboratory reporting limits.
—	=	Not measured/Not sampled/Not analyzed.
<	=	Less than the stated laboratory reporting limit.
a	=	The chromatographic pattern does not match that of the specified standard.
b	=	n-butylbenzene.
c	=	sec-butylbenzene.
d	=	Isopropylbenzene.
e	=	n-propylbenzene.
f	=	1,2,4-trimethylbenzene.
g	=	1,3,5-trimethylbenzene.
h	=	Naphthalene.
i	=	1-butanone.
j	=	1,2-dibromo-3-chloropropane.
k	=	2-methylnaphthalene.
l	=	Unmodified or weakly modified gasoline is significant.
m	=	Heavier gasoline-range compounds are significant.
n	=	Diesel-range compounds are significant; no recognizable pattern.
o	=	Gasoline-range compounds are significant.
p	=	No recognizable pattern.
q	=	Strongly aged gasoline or diesel compounds are significant.
r	=	Lighter than water immiscible sheen/product is present.
s	=	Liquid sample that contains greater than approximately 1 volume % sediment.
t	=	Groundwater did not enter boring, sample not collected.
u	=	Analyzed beyond the EPA-recommended hold time.
v	=	tert-butylbenzene.
w	=	cis-1,2-dichloroethene.

**TABLE 1A**  
**CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Exxon Service Station 79374  
990 San Pablo Avenue  
Albany, California

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Notes:

- x = p-isopropyltoluene.
- y = Tetrachloroethene.
- z = Trichloroethene.

**TABLE 1B**  
**ADDITIONAL CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Exxon Service Station 79374  
990 San Pablo Avenue  
Albany, California

Well ID	Sampling Date	Depth (feet)	EDB (µg/L)	1,2-DCA (µg/L)	TAME (µg/L)	TBA (µg/L)	ETBE (µg/L)	DIPE (µg/L)	Add'l VOCs (µg/L)	Add'l SVOCs (µg/L)
<b>Monitoring Well Samples</b>										
MW1	11/04/10	--	Well installed.							
MW1	12/16/10	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW1	01/31/11	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW1	04/07/11	--	<0.50	<0.50	<0.50	10	<0.50	<0.50	--	--
MW1	07/18/11	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW1	10/13/11	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW1	04/06/12	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW1	10/19/12	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW1	06/11/13	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW1	12/19/13	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW1	05/01/14	--	<0.50	<0.50	<0.50	5.1	<0.50	<0.50	--	--
MW1	10/28/14	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	0.67f, 18w, 85u,y, 9.8,z	--
<b>MW2</b>										
MW2	11/04/10	--	Well installed.							
MW2	12/16/10	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW2	01/31/11	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW2	04/07/11	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW2	07/18/11	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW2	10/13/11	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW2	04/06/12	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW2	10/19/12	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW2	06/11/13	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW2	12/19/13	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW2	05/01/14	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--	--
MW2	10/28/14	--	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	8.8e, 73u,y, 8.9z	--
<b>MW3</b>										
MW3	11/08/10	--	Well installed.							
MW3	12/16/10	--	<12	<12	<12	<120	<12	<12	--	--
MW3	01/31/11	--	<12	<12	<12	<120	<12	<12	--	--
MW3	04/07/11	--	<10	<10	<10	<100	<10	<10	--	--
MW3	07/18/11	--	<10	<10	<10	<100	<10	<10	--	--
MW3	10/13/11	--	<10	<10	<10	<100	<10	<10	--	--
MW3	04/06/12	--	<20	<20	<20	<200	<20	<20	--	--
MW3	10/19/12	--	<10	<10	<10	<100	<10	<10	--	--
MW3	06/11/13	--	<10	<10	<10	<100	<10	<10	--	--
MW3	12/20/13	--	<10	<10	<10	<100	<10	<10	--	--
MW3	05/01/14	--	<10	<10	<10	<100	<10	<10	--	--
MW3	10/28/14	--	<20	<20	<20	<200	<20	<20	30b, 110d, 210e, 36g, 290h	--
<b>MW3A</b>										
MW3A	01/18/12	--	Well installed.							
MW3A	04/06/12	--	<2.0	<2.0	<2.0	<20	<2.0	<2.0	--	--
MW3A	10/19/12	--	<5.0	<5.0	<5.0	<50	<5.0	<5.0	--	--
MW3A	06/11/13	--	<2.0	<2.0	<2.0	<20	<2.0	<2.0	--	--

**TABLE 1B**  
**ADDITIONAL CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Exxon Service Station 79374  
990 San Pablo Avenue  
Albany, California

Well ID	Sampling Date	Depth (feet)	EDB (µg/L)	1,2-DCA (µg/L)	TAME (µg/L)	TBA (µg/L)	ETBE (µg/L)	DIPE (µg/L)	Add'l VOCs (µg/L)	Add'l SVOCs (µg/L)
MW3A	12/19/13	---	<2.0	<2.0	<2.0	<20	<2.0	<2.0	---	---
MW3A	05/01/14	---	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
MW3A	10/28/14	---	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	5.4b, 6.3c, 20d, 28e, 4.6f, 1.6g, 4.6h, 2.9v, 2.0x	---
MW4	11/05/10	---	Well installed.							
MW4	12/16/10	---	<5.0	<5.0	<5.0	<50	<5.0	<5.0	---	---
MW4	01/31/11	---	<10	<10	<10	<100	<10	<10	---	---
MW4	04/07/11	---	<10	<10	<10	<100	<10	<10	---	---
MW4	07/18/11	---	<10	<10	<10	<100	<10	<10	---	---
MW4	10/13/11	---	<10	<10	<10	<100	<10	<10	---	---
MW4	04/06/12	---	<10	<10	<10	<100	<10	<10	---	---
MW4	10/19/12	---	<10	<10	<10	<100	<10	<10	---	---
MW4	06/11/13	---	<10	<10	<10	<100	<10	<10	---	---
MW4	12/20/13	---	<10	<10	<10	<100	<10	<10	---	---
MW4	05/01/14	---	<10	<10	<10	<100	<10	<10	---	---
MW4	10/28/14	---	<10	<10	<10	<100	<10	<10	72b, 24c, 75d, 190e, 350f, 160g, 270h	---
MW5	11/11/10	---	Well installed.							
MW5	12/16/10	---	<2.5	<2.5	<2.5	<25	<2.5	<2.5	---	---
MW5	01/31/11	---	<10	<10	<10	<100	<10	<10	---	---
MW5	04/07/11	---	<2.5	<2.5	<2.5	<25	<2.5	<2.5	---	---
MW5	07/18/11	---	<2.5	<2.5	<2.5	<25	<2.5	<2.5	---	---
MW5	10/13/11	---	<20	<20	<20	<200	<20	<20	---	---
MW5	04/06/12	---	<0.50	<5.0	<5.0	<50	<5.0	<5.0	---	---
MW5	10/19/12	---	<20	<20	<20	<200	<20	<20	---	---
MW5	06/11/13	---	<20	<20	<20	<200	<20	<20	---	---
MW5	12/20/13	---	<20	<20	<20	<200	<20	<20	---	---
MW5	05/01/14	---	<10	<10	<10	<100	<10	<10	---	---
MW5	10/28/14	---	<10	<10	<10	<100	<10	<10	82b, 33c, 120d, 380e, 730f, 130g, 250h, 14x	---
MW6	11/03/10	---	Well installed.							
MW6	12/16/10	---	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
MW6	01/31/11	---	<1.0	<1.0	<1.0	<10	<1.0	<1.0	---	---
MW6	04/07/11	---	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
MW6	07/18/11	---	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
MW6	10/13/11	---	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
MW6	04/06/12	---	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
MW6	10/19/12	---	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
MW6	06/11/13	---	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
MW6	12/19/13	---	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
MW6	05/01/14	---	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
MW6	10/28/14	---	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	0.73c, 0.84d, 1.9e, 1.4h	---
<b>MW7</b>	<b>12/08/14</b>	---	Well installed.							
<b>MW7</b>	<b>12/30/14</b>	---	<b>&lt;5.0</b>	<b>&lt;5.0</b>	<b>&lt;5.0</b>	<b>&lt;50</b>	<b>&lt;5.0</b>	<b>13</b>	---	---

**TABLE 1B**  
**ADDITIONAL CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Exxon Service Station 79374  
990 San Pablo Avenue  
Albany, California

Well ID	Sampling Date	Depth (feet)	EDB (µg/L)	1,2-DCA (µg/L)	TAME (µg/L)	TBA (µg/L)	ETBE (µg/L)	DIPE (µg/L)	Add'l VOCs (µg/L)	Add'l SVOCs (µg/L)
MW8	12/08/14	---	Well installed.							
MW8	12/30/14	---	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
AS1	01/18/12	---	Well installed.							
AS1	10/19/12 - Present	---	Not sampled.							
SVE1	01/17/12	---	Well installed.							
SVE1	10/19/12 - Present	---	Not sampled.							
SVE2	01/17/12	---	Well installed.							
SVE2	10/19/12 - Present	---	Not sampled.							
SVE3	01/17/12	---	Well installed.							
SVE3	10/19/12 - Present	---	Not sampled.							
<b>Grab Groundwater Samples</b>										
B-1W	01/06/08	---	<50	<50	<50	<200	<50	<50	210b, 68c, 370d, 1,100e, 3,800f, 1,300g, 1,500h	4,000h, 3,900k
B-2W	01/06/08	---	<50	<50	<50	<200	<50	<50	110b, 140e, 440f, 2,400g, 730h, 610i, 32j	---
B-3W	01/06/08	---	<10	<10	<10	<40	<10	<10	25b, 11c, 74d, 190e, 290f, 49g, 55i	---
B-4W	01/06/08	---	<10	<10	<10	<40	<10	<10	46b, 19c, 48d, 160e, 16f, 100h	---
B-5W	01/06/08	---	ND	<0.5	<0.5	<2.0	<0.5	<0.5	2.6b, 0.83e, 4.8f, 1.2g, 6.5h	---
B-6W	01/06/08	---	<2.5	<2.5	<2.5	<10	<2.5	<2.5	14b, 5.6c, 17d, 60e, 32f, 5.8g, 38h, 10i	---
DR-W	01/06/08	---	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	6.9b, 2.4c, 2.5d, 11e, 17f, 5.5g, 7.0h	---
W-27.5-HP1A	10/28/10	27.5	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
W-36-HP1A	10/28/10	36	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
W-46.5-HP1A	10/28/10	46.5	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
W-59-HP1B	10/27/10	59	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
W-27.5-HP2A	10/29/10	27.5	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
W-52-HP2A	10/29/10	52	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
W-60.5-HP2B	10/27/10	60.5	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
W-10-SVE1-2	01/31/12	10	<1.0	<1.0	<1.0	57	<1.0	<1.0	---	---
W-10-SVE1-1	01/31/12	10	<2.0	<2.0	<2.0	62	<2.0	<2.0	---	---
W-5-B7	02/27/14	5	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
W-12-B8	02/28/14	12	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
W-5-B9	02/27/14	5	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
W-5.5-B10	02/27/14	5.5	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
W-14-B11	03/05/14	14	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---

**TABLE 1B**  
**ADDITIONAL CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Exxon Service Station 79374  
990 San Pablo Avenue  
Albany, California

Well ID	Sampling Date	Depth (feet)	EDB (µg/L)	1,2-DCA (µg/L)	TAME (µg/L)	TBA (µg/L)	ETBE (µg/L)	DIPE (µg/L)	Add'l VOCs (µg/L)	Add'l SVOCs (µg/L)
W-10-B12	02/26/14	10	<2.0	<2.0	<2.0	<20	<2.0	<2.0	---	---
W-10-B13	02/28/14	10	<5.0	<5.0	<5.0	<50	<5.0	<5.0	---	---
B14	03/05/14 t		---	---	---	---	---	---	---	---
W-14-B15	03/05/14	14	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
W-14-B16	02/26/14	14	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
W-10-B17	02/27/14	10	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---

**TABLE 1B**  
**ADDITIONAL CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
 Former Exxon Service Station 79374  
 990 San Pablo Avenue  
 Albany, California

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Notes:

TOC	=	Top of well casing elevation; datum is NAVD88, prior to April 2014, datum was mean sea level.
DTW	=	Depth to water.
GW Elev.	=	Groundwater elevation; datum is NAVD88, prior to April 2014, datum was mean sea level. If liquid-phase hydrocarbons present, elevation adjusted using TOC - [DTW - (PT x 0.76)].
NAPL	=	Non-aqueous phase liquid.
O&G	=	Oil and grease with silica gel clean-up analyzed using Standard Method 5520B/F.
TPHmo	=	Total petroleum hydrocarbons as motor oil analyzed using EPA Method 8015 (modified).
TPHd	=	Total petroleum hydrocarbons as diesel analyzed using EPA Method 8015 (modified).
TPHg	=	Total petroleum hydrocarbons as gasoline analyzed using EPA Method 8015 (modified).
MTBE	=	Methyl tertiary butyl ether analyzed using EPA Method 8260B.
BTEX	=	Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8260B.
EDB	=	1,2-dibromoethane analyzed using EPA Method 8260B.
1,2-DCA	=	1,2-dichloroethane analyzed using EPA Method 8260B.
TAME	=	Tertiary amyl methyl ether analyzed using EPA Method 8260B.
TBA	=	Tertiary butyl alcohol analyzed using EPA Method 8260B.
ETBE	=	Ethyl tertiary butyl ether analyzed using EPA Method 8260B.
DIPE	=	Di-isopropyl ether analyzed using EPA Method 8260B.
Add'l VOCs	=	Additional volatile organic compounds or halogenated volatile organic compounds analyzed using EPA Method 8260B.
Add'l SVOCs	=	Additional semi-volatile organic compounds analyzed using EPA Method 8270C.
µg/L	=	Micrograms per liter.
ND	=	Not detected at or above laboratory reporting limits.
—	=	Not measured/Not sampled/Not analyzed.
<	=	Less than the stated laboratory reporting limit.
a	=	The chromatographic pattern does not match that of the specified standard.
b	=	n-butylbenzene.
c	=	sec-butylbenzene.
d	=	Isopropylbenzene.
e	=	n-propylbenzene.
f	=	1,2,4-trimethylbenzene.
g	=	1,3,5-trimethylbenzene.
h	=	Naphthalene.
i	=	1-butanone.
j	=	1,2-dibromo-3-chloropropane.
k	=	2-methylnaphthalene.
l	=	Unmodified or weakly modified gasoline is significant.
m	=	Heavier gasoline-range compounds are significant.
n	=	Diesel-range compounds are significant; no recognizable pattern.
o	=	Gasoline-range compounds are significant.
p	=	No recognizable pattern.
q	=	Strongly aged gasoline or diesel compounds are significant.
r	=	Lighter than water immiscible sheen/product is present.
s	=	Liquid sample that contains greater than approximately 1 volume % sediment.
t	=	Groundwater did not enter boring, sample not collected.
u	=	Analyzed beyond the EPA-recommended hold time.
v	=	tert-butylbenzene.
w	=	cis-1,2-dichloroethene.

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**TABLE 1B**  
**ADDITIONAL CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Exxon Service Station 79374  
990 San Pablo Avenue  
Albany, California

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Notes:

- x = p-isopropyltoluene.
- y = Tetrachloroethene.
- z = Trichloroethene.



**TABLE 2**  
**WELL CONSTRUCTION DETAILS**  
Former Exxon Service Station 79374  
990 San Pablo Avenue  
Albany, California

Well ID	Well Installation Date	TOC Elevation (feet)	Borehole Diameter (inches)	Total Depth of Boring (feet bgs)	Well Depth (feet bgs)	Casing Diameter (inches)	Well Casing Material	Screened Interval (feet bgs)	Slot Size (inches)	Filter Pack Interval (feet bgs)	Filter Pack Material
MW1	11/04/10	44.19	8	17	17	2	Schedule 40 PVC	12-17	0.020	10-17	#3 Sand
MW2	11/04/10	43.99	8	17	17	4	Schedule 40 PVC	12-17	0.020	10-17	#3 Sand
MW3	11/08/10	43.16	8	17	17	4	Schedule 40 PVC	11-16	0.020	9-16	#3 Sand
MW3A	01/18/12	43.42	10	15.5	15.5	4	Schedule 40 PVC	5-15	0.020	4.5-15.5	#2/12 Sand
MW4	11/05/10	42.04	8	17	13	2	Schedule 40 PVC	8-13	0.020	6-13	#3 Sand
MW5	11/05/10	43.12	8	17	14	2	Schedule 40 PVC	9-14	0.020	7-14	#3 Sand
MW6	11/03/10	43.80	10	20	20	2	Schedule 40 PVC	15-20	0.020	13-20	#3 Sand
MW7	12/08/14	41.21	10	15	15	2	Schedule 40 PVC	5-15	0.020	4-15	#3 Sand
MW8	12/08/14	39.65	10	15	15	2	Schedule 40 PVC	5-15	0.020	4-15	#3 Sand
AS1	01/18/12	---	8	15.5	15.5	1	Schedule 80 PVC	10.25-13.5	#60 mesh	10.5-15.5	#2/12 Sand
SVE1	01/17/12	43.32	10	15.5	15.5	4	Schedule 40 PVC	5-15	0.020	4.5-15.5	#2/12 Sand
SVE2	01/17/12	43.68	10	15	15	4	Schedule 40 PVC	5-15	0.020	4.5-15	#2/12 Sand
SVE3	01/17/12	43.67	10	15	15	4	Schedule 40 PVC	5-15	0.020	4.5-15.5	#2/12 Sand
SVS1	02/25/14	---	4	5.6	5.6	0.25	PVC	5.4-5.6	0.010	4.6-5.6	#3 Sand
SVS2	02/25/14	---	4	5.6	5.6	0.25	PVC	5.4-5.6	0.010	4.6-5.6	#3 Sand
SVS3	02/25/14	---	4	5.6	5.6	0.25	PVC	5.4-5.6	0.010	4.6-5.6	#3 Sand

Notes:

- TOC = Top of well casing elevation; datum is NAVD88.
- PVC = Polyvinyl chloride.
- feet bgs = Feet below ground surface.

**TABLE 3A**  
**CUMULATIVE SOIL ANALYTICAL RESULTS**  
Former Exxon Service Station 79374  
990 San Pablo Boulevard  
Albany, California  
(Page 1 of 4)

Sample ID	Sampling Date	Depth (feet bgs)	TPHmo (mg/kg)	TPHd (mg/kg)	TPHg (mg/kg)	MTBE (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	EDB (mg/kg)	1,2-DCA (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	Naphthalene (mg/kg)	VOCs (mg/kg)	Lead (mg/kg)
<b>Environmental Screening Levels, Potential Drinking Water Source (December 2013)</b>																			
Shallow (<10 feet bgs), Residential (Table A-1)			—	100	100	0.023	0.044	2.9	3.3	2.3	0.00033	0.0045	0.075	—	—	—	1.2	—	80
Shallow (<10 feet bgs), Commercial (Table A-2)			—	110	500	0.023	0.044	2.9	3.3	2.3	0.00033	0.0045	0.075	—	—	—	1.2	—	320
Deep (≥10 feet bgs), Residential (Table C-1)			—	110	500	0.023	0.044	2.9	3.3	2.3	0.00033	0.0045	0.075	—	—	—	1.2	—	80
Deep (≥10 feet bgs), Commercial (Table C-2)			—	110	770	0.023	0.044	2.9	3.3	2.3	0.00033	0.0045	0.075	—	—	—	1.2	—	320
<b>Soil Boring Samples</b>																			
B-1	01/06/08	6.0	<5.0	3.7c	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—	—	—
B-1	01/06/08	10.5	<100	<b>1,400b,c</b>	<b>7,200b,f</b>	<5.0	<b>2</b>	<b>51</b>	<b>110</b>	<b>400</b>	—	—	—	—	—	—	—	—	—
B-2	01/06/08	5.5	<5.0	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—	—	—
B-2	01/06/08	10.5	<100	<b>1,400d</b>	<b>4,500b,f</b>	<5.0	<b>13</b>	<b>35</b>	<b>100</b>	<b>380</b>	—	—	—	—	—	—	—	—	—
B-3	01/06/08	5.5	<5.0	<1.0	<1.0	<0.50	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—	—	—
B-3	01/06/08	10.5	<5.0	53d	<b>130e,f</b>	<0.50	<b>0.37</b>	0.29	2.6	0.44	—	—	—	—	—	—	—	—	—
B-4	01/06/08	5.5	<5.0	62d	<b>140e,f</b>	<0.50	<0.005	1.0	0.066	0.094	—	—	—	—	—	—	—	—	—
B-4	01/06/08	10.5	<5.0	15d	<b>140e,f</b>	<0.50	<b>0.25</b>	1.5	1.3	0.11	—	—	—	—	—	—	—	—	—
B-5	01/06/08	5.5	<5.0	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—	—	—
B-5	01/06/08	11.5	<5.0	5.4c,d	32e,f	<0.25	0.038	0.24	0.051	0.035	—	—	—	—	—	—	—	—	—
B-6	01/06/08	5.5	<5.0	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	—	—	—	—	—	—	—	—	—
B-6	01/06/08	10.5	<5.0	6.0c,d	32e,f	<0.05	0.009	0.41	<0.005	0.039	—	—	—	—	—	—	—	—	—
S-5-B7	02/27/14	5.0	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.0099	<0.0099	<0.0099	<0.050	—	—
S-11.5-B7	02/27/14	11.5	<25	<5.0	<0.49	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—
S-5-B8	02/28/14	5.0	<25	<5.0	<0.52	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	<0.050	—	—
S-11.5-B8	02/28/14	11.5	<25	<5.0	<0.51	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.049	<0.0098	<0.0098	<0.0098	—	—	—
S-15.5-B8	02/28/14	15.5	<26	<5.1	<0.48	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—
S-5-B9	02/27/14	5.0	<25	<5.0	<0.52	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	<0.050	—	—
S-11.5-B9	02/27/14	11.5	<25	<5.0	<0.52	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.049	<0.0098	<0.0098	<0.0098	—	—	—
S-5-B10	02/27/14	5.0	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	<0.050	—	—
S-11.5-B10	02/27/14	11.5	<24	<4.9	<0.49	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—
S-5-B11	02/28/14	5.0	<25	<5.0	<0.50	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.051	<0.010	<0.010	<0.010	<0.051	—	—
S-11.5-B11	03/05/14	11.5	<25	<5.0	<0.50	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.052	<0.010	<0.010	<0.010	—	—	—
S-15-B11	03/05/14	15.0	<24	<4.9	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—
S-5-B12	02/26/14	5.0	<25	<5.0	<0.50	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.049	<0.0098	<0.0098	<0.0098	<0.049	—	—
S-11.5-B12	02/26/14	11.5	<25	<5.0	0.50a	<0.0052	0.00074g	<0.0052	0.00026g	<0.0052	<0.0052	<0.0052	<0.052	<0.010	<0.010	<0.010	—	—	—
S-5-B13	02/25/14	5.0	<24	<4.9	<0.48	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.052	<0.010	<0.010	<0.010	<0.052	—	—
S-11.5-B13	02/28/14	11.5	<25	<b>160a</b>	<b>1,800</b>	<1.0	<1.0	<1.0	<b>16</b>	1.5	<1.0	<1.0	<10	<2.0	<2.0	<2.0	—	—	—

**TABLE 3A**  
**CUMULATIVE SOIL ANALYTICAL RESULTS**  
Former Exxon Service Station 79374  
990 San Pablo Boulevard  
Albany, California  
(Page 2 of 4)

Sample ID	Sampling Date	Depth (feet bgs)	TPHmo (mg/kg)	TPHd (mg/kg)	TPHg (mg/kg)	MTBE (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	EDB (mg/kg)	1,2-DCA (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	Naphthalene (mg/kg)	VOCs (mg/kg)	Lead (mg/kg)	
<b>Environmental Screening Levels, Potential Drinking Water Source (December 2013)</b>																				
Shallow (<10 feet bgs), Residential (Table A-1)			—	100	100	0.023	0.044	2.9	3.3	2.3	0.00033	0.0045	0.075	—	—	—	1.2	—	80	
Shallow (<10 feet bgs), Commercial (Table A-2)			—	110	500	0.023	0.044	2.9	3.3	2.3	0.00033	0.0045	0.075	—	—	—	1.2	—	320	
Deep (≥10 feet bgs), Residential (Table C-1)			—	110	500	0.023	0.044	2.9	3.3	2.3	0.00033	0.0045	0.075	—	—	—	1.2	—	80	
Deep (≥10 feet bgs), Commercial (Table C-2)			—	110	770	0.023	0.044	2.9	3.3	2.3	0.00033	0.0045	0.075	—	—	—	1.2	—	320	
S-5-B14	03/05/14	5.0	<25	<5.0	<0.53	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	<0.050	—	—	
S-11.5-B14	03/05/14	11.5	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-15.5-B14	03/05/14	15.5	<24	<4.9	<0.51	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.051	<0.010	<0.010	<0.010	—	—	—	
S-19-B14	03/05/14	19.0	<25	<5.0	<0.50	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.048	<0.0096	<0.0096	<0.0096	—	—	—	
S-5-B15	03/05/14	5.0	<25	<5.0	<0.49	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.051	<0.010	<0.010	<0.010	<0.051	—	—	
S-10-B15	03/05/14	10.0	<24	<4.9	<0.52	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-14.0-B15	03/05/14	14.0	<25	<5.0	<0.48	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-5-B16	02/26/14	5.0	<25	<5.0	0.62a	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.030g	<0.0099	<0.0099	<0.0099	<0.050	—	—	
S-10-B16	02/26/14	10.0	<24	43a	<b>530</b>	<0.49	0.026g	<0.49	0.10g	0.058g	<0.49	<0.49	<4.9	<0.97	<0.97	<0.97	0.84g	—	—	
S-15.5-B16	02/26/14	15.5	<25	<5.0	<0.51	<0.0050	<0.0050	<0.0050	0.00021g	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-5-B17	02/26/14	5.0	<25	<5.0	<0.48	<0.0050	0.00014g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.011g	<0.010	<0.010	<0.010	0.0021g	—	—	
S-10-B17	02/26/14	10.0	<25	<5.0	8.4a	<0.0050	0.0063	<0.0050	<0.0050	0.00081g	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	<0.050	—	—	
S-15.5-B17	02/26/14	15.5	<24	<4.9	<0.51	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.052	<0.010	<0.010	<0.010	—	—	—	
<b>Well Samples</b>																				
S-5-MW1	10/20/10	5.0	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-10-MW1	11/04/10	10.0	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-14.5-MW1	11/04/10	14.5	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-10-MW2	11/04/10	10.0	<25	<5.0	3.1a	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-15-MW2	11/04/10	15.0	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-5-MW3	10/20/10	5.0	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-10.5-MW3	11/08/10	10.5	<25	11a	<b>220</b>	<0.50	<0.50	<0.50	2.0	1.1	<0.50	<0.50	<5.0	<1.0	<1.0	<1.0	—	—	—	
S-15.5-MW3	11/08/10	15.5	<25	<5.0	2.2	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-8-MW3A	01/18/12	8.0	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-14.5-MW3A	01/18/12	14.5	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	0.015	0.0052	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-5-MW4	10/20/10	5.0	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-10-MW4	11/05/10	10.0	<25	<5.0	44a	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<1.0	<1.0	<1.0	—	—	—	
S-15-MW4	11/05/10	15.0	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-16.5-MW4	11/05/10	16.5	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-5-MW5	10/20/10	5.0	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-10.5-MW5	11/05/10	10.5	29	93a	<b>450a</b>	<0.050	<0.050	1.5	<0.50	<0.50	<0.50	<0.50	<5.0	<1.0	<1.0	<1.0	—	—	—	
S-16.5-MW5	11/05/10	16.5	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-5-MW6	10/20/10	5.0	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-10-MW6	11/02/10	10.0	<25	8.2a	8.7a	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	

**TABLE 3A**  
**CUMULATIVE SOIL ANALYTICAL RESULTS**  
Former Exxon Service Station 79374  
990 San Pablo Boulevard  
Albany, California  
(Page 3 of 4)

Sample ID	Sampling Date	Depth (feet bgs)	TPHmo (mg/kg)	TPHd (mg/kg)	TPHg (mg/kg)	MTBE (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	EDB (mg/kg)	1,2-DCA (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	Naphthalene (mg/kg)	VOCs (mg/kg)	Lead (mg/kg)	
<b>Environmental Screening Levels, Potential Drinking Water Source (December 2013)</b>																				
Shallow (<10 feet bgs), Residential (Table A-1)			—	100	100	0.023	0.044	2.9	3.3	2.3	0.00033	0.0045	0.075	—	—	—	1.2	—	80	
Shallow (<10 feet bgs), Commercial (Table A-2)			—	110	500	0.023	0.044	2.9	3.3	2.3	0.00033	0.0045	0.075	—	—	—	1.2	—	320	
Deep (≥10 feet bgs), Residential (Table C-1)			—	110	500	0.023	0.044	2.9	3.3	2.3	0.00033	0.0045	0.075	—	—	—	1.2	—	80	
Deep (≥10 feet bgs), Commercial (Table C-2)			—	110	770	0.023	0.044	2.9	3.3	2.3	0.00033	0.0045	0.075	—	—	—	1.2	—	320	
S-14.5-MW6	11/02/10	14.5	<25	<5.0	1.8a	<0.0050	<0.0050	<0.0050	<0.0093	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-20-MW6	11/02/10	20.0	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-5-MW7	12/08/14	5.0	—	<5.0	<0.52	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	—	—	<0.048	<0.0096	<0.0096	<0.0096	—	—	—	
S-10-MW7	12/08/14	10.0	—	<b>120a</b>	<b>540a</b>	<2.0	<2.0	<2.0	<2.0	<2.0	—	—	<20	<4.0	<4.0	<4.0	—	—	—	
S-15-MW7	12/08/14	15.0	—	<5.0	<0.51	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	—	—	<0.048	<0.0096	<0.0096	<0.0096	—	—	—	
S-5-MW8	12/08/14	5.0	—	<5.0	<0.48	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	—	—	<0.051	<0.010	<0.010	<0.010	—	—	—	
S-10-MW8	12/08/14	10.0	—	<5.0	<0.52	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	—	—	<0.048	<0.0096	<0.0096	<0.0096	—	—	—	
S-15-MW8	12/08/14	15.0	—	<5.0	<0.49	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	—	—	<0.049	<0.0097	<0.0097	<0.0097	—	—	—	
S-5-CPT1	10/20/10	5.0	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-5-CPT2	10/20/10	5.0	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-10-AS1	01/18/12	10.0	<25	<b>800a</b>	<b>2,900</b>	<2.5	<2.5	<2.5	<b>47</b>	<2.5	<2.5	<2.5	<25	<5.0	<5.0	<5.0	—	—	—	
S-8.5-SVE1	01/17/12	8.5	<25	87a	<b>480a</b>	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<1.0	<1.0	<1.0	—	—	—	
S-11.5-SVE1	01/17/12	11.5	<25	<5.0	18	<0.0050	<0.50	0.010	0.084	0.11	<0.0050	<0.0050	<0.50	<0.010	<0.010	<0.010	—	—	—	
S-10-SVE2	01/17/12	10.0	53a	37a	<b>390a</b>	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<1.0	<1.0	<1.0	—	—	—	
S-14-SVE2	01/17/12	14.0	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.50	<0.010	<0.010	<0.010	—	—	—	
S-12.5-SVE3	01/17/12	12.5	57a	<b>760a</b>	<b>1,900a</b>	<2.5	<2.5	<2.5	<2.5	<2.5	<0.50	<0.50	<5.0	<1.0	<1.0	<1.0	—	—	—	
S-15-SVE3	01/17/12	15.0	<25	<5.0	<0.50	<0.0050	<0.0050	<0.0050	0.015	0.033	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	—	
S-5-SVS1	02/25/14	5.0	<25	<5.0	<0.50	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.049	<0.0099	<0.0099	<0.0099	<0.049	—	—	
S-5-SVS2	02/25/14	5.0	<25	<5.0	<0.49	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.048	<0.0096	<0.0096	<0.0096	<0.048	—	—	
S-5-SVS3	02/25/14	5.0	<25	<5.0	5.0a	<0.0050	0.00036g	<0.0050	0.0030g	0.00088g	<0.0050	<0.0050	0.016g	<0.010	<0.010	<0.010	0.0038g	—	—	
<b>Drum Samples</b>																				
DR-1	01/06/08	—	<5.0	2.5c,d	4.9e,f	<0.050	<0.005	0.027	0.035	0.035	—	—	—	—	—	—	—	—	9.7	
<b>Soil Stockpile Samples</b>																				
COMP(S-Profile-1-4)	11/08/10	—	<25	7.1a	14a	<0.0050	<0.0050	<0.0050	0.069	0.049	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	6.93	
S-SP1 (1-4)	01/18/12	—	190a	39a	230	<0.0050	0.20	0.66	4.3	14	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	—	—	37.6	
SP1	03/05/14	—	<24	<4.9	<0.49	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<0.010	<0.010	<0.010	<0.050	ND	5.34	

**TABLE 3A**  
**CUMULATIVE SOIL ANALYTICAL RESULTS**  
Former Exxon Service Station 79374  
990 San Pablo Boulevard  
Albany, California  
(Page 4 of 4)

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Notes:	
TPHmo	= Total petroleum hydrocarbons as motor oil analyzed using EPA Method 8015B.
TPHd	= Total petroleum hydrocarbons as diesel analyzed using EPA Method 8015B.
TPHg	= Total petroleum hydrocarbons as gasoline analyzed using EPA Method 8015B.
MTBE	= Methyl tertiary butyl ether analyzed using EPA Method 8260B; analyzed using EPA Method 8020 in 2008.
BTEX	= Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8260B.
EDB	= 1,2-Dibromoethane analyzed using EPA Method 8260B.
1,2-DCA	= 1,2-Dichloroethane analyzed using EPA Method 8260B.
TBA	= Tertiary butyl alcohol analyzed using EPA Method 8260B.
DIPE	= Di-isopropyl ether analyzed using EPA Method 8260B.
ETBE	= Ethyl tertiary butyl ether analyzed using EPA Method 8260B.
TAME	= Tertiary amyl methyl ether analyzed using EPA Method 8260B.
Lead	= Total lead analyzed using EPA Method 6010B.
VOCs	= Volatile organic compounds analyzed using EPA Method 8260B.
HVOCs	= Halogenated volatile organic compounds analyzed using EPA Method 8260B.
PAHs	= Polyaromatic hydrocarbons analyzed using EPA Method 8310.
feet bgs	= Feet below ground surface.
ND	= Not detected.
---	= Not analyzed/Not applicable
<	= Less than the laboratory reporting limit.
a	= The chromatographic pattern does not match that of the specified standard.
b	= Heavier gasoline range compounds are significant.
c	= Diesel range compounds are significant; no recognizable pattern.
d	= Gasoline range compounds are significant.
e	= Strongly aged gasoline or diesel range compounds are significant.
f	= No recognizable pattern.
g	= Estimated value; analyte present at concentration above the method detection limit but below the reporting limit.





**TABLE 3B**  
**ADDITIONAL CUMULATIVE SOIL ANALYTICAL RESULTS - HVOCs AND PAHs**

Former Exxon Service Station 79374  
990 San Pablo Boulevard  
Albany, California  
(Page 3 of 3)

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Notes:

TPHmo	=	Total petroleum hydrocarbons as motor oil analyzed using EPA Method 8015B.
TPHd	=	Total petroleum hydrocarbons as diesel analyzed using EPA Method 8015B.
TPHg	=	Total petroleum hydrocarbons as gasoline analyzed using EPA Method 8015B.
MTBE	=	Methyl tertiary butyl ether analyzed using EPA Method 8260B; analyzed using EPA Method 8020 in 2008.
BTEX	=	Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8260B.
EDB	=	1,2-Dibromoethane analyzed using EPA Method 8260B.
1,2-DCA	=	1,2-Dichloroethane analyzed using EPA Method 8260B.
TBA	=	Tertiary butyl alcohol analyzed using EPA Method 8260B.
DIPE	=	Di-isopropyl ether analyzed using EPA Method 8260B.
ETBE	=	Ethyl tertiary butyl ether analyzed using EPA Method 8260B.
TAME	=	Tertiary amyl methyl ether analyzed using EPA Method 8260B.
Lead	=	Total lead analyzed using EPA Method 6010B.
VOCs	=	Volatile organic compounds analyzed using EPA Method 8260B.
HVOCs	=	Halogenated volatile organic compounds analyzed using EPA Method 8260B.
PAHs	=	Polyaromatic hydrocarbons analyzed using EPA Method 8310.
feet bgs	=	Feet below ground surface.
ND	=	Not detected.
--	=	Not analyzed/Not applicable
<	=	Less than the laboratory reporting limit.
a	=	The chromatographic pattern does not match that of the specified standard.
b	=	Heavier gasoline range compounds are significant.
c	=	Diesel range compounds are significant; no recognizable pattern.
d	=	Gasoline range compounds are significant.
e	=	Strongly aged gasoline or diesel range compounds are significant.
f	=	No recognizable pattern.
g	=	Estimated value; analyte present at concentration above the method detection limit but below the reporting limit.



**TABLE 4**  
**CUMULATIVE SOIL VAPOR ANALYTICAL RESULTS**  
Former Exxon Service Station 79374  
990 San Pablo Avenue  
Albany, California

Sample ID	Sampling Date	Depth (feet)	TPHg (µg/m³)	MTBE (µg/m³)	B (µg/m³)	T (µg/m³)	E (µg/m³)	X (µg/m³)	EDB (µg/m³)	1,2-DCA (µg/m³)	TBA (µg/m³)	TAME (µg/m³)	ETBE (µg/m³)	DIPE (µg/m³)	Naphthalene (µg/m³)	Add'l VOCs (µg/m³)	Methane (%V)	Helium (%V)	CO <sub>2</sub> (%V)	O <sub>2</sub> + Argon (%V)	Vacuum (in Hg)
<b>Environmental Screening Levels, Shallow Soil Gas, Table E-2 (December 2013)</b>																					
Residential			300,000	4,700	42	160,000	490	52,000	17	58	---	---	---	---	36	---	---	---	---	---	---
Commercial/Industrial			2,500,000	47,000	420	1,300,000	4,900	440,000	170	580	---	---	---	---	360	---	---	---	---	---	---
<b>Media-Specific Criteria for Vapor Intrusion to Indoor Air, No Bioattenuation Zone (SWRCB, 2012)</b>																					
Residential			---	---	85	---	1,100	---	---	---	---	---	---	---	93	---	---	---	---	---	---
Commercial			---	---	280	---	3,600	---	---	---	---	---	---	---	310	---	---	---	---	---	---
<b>Media-Specific Criteria for Vapor Intrusion to Indoor Air, With Bioattenuation Zone (SWRCB, 2012)</b>																					
Residential			---	---	85,000	---	1,100,000	---	---	---	---	---	---	---	93,000	---	---	---	---	---	---
Commercial			---	---	280,000	---	3,600,000	---	---	---	---	---	---	---	310,000	---	---	---	---	---	---
SVS1	03/06/14	5.5	180,000,000	<12,000	<2,600	<3,000	<3,500	<3,500	<6,100	<3,200	<9,700	<13,000	<13,000	<13,000	<0.020	---	15.5	<0.0100	10.0	2.58	-5.00
SVS1	08/28/14	5.5	90,000,000	<36,000	<8,000	12,000	<11,000	<11,000	<19,000	<10,000	<30,000	<42,000	<42,000	<42,000	<20	ND	15.3	<0.0100	13.2	2.49	-5.00
SVS2	03/06/14	5.5	190,000,000	<1,800	1,700	740	650	3,100	<960	<510	<1,500	<2,100	<2,100	<2,100	<0.020	---	11.4	<0.0100	8.31	3.62	-5.00
SVS2	08/28/14	5.5	80,000,000	<36,000	<8,000	13,000	<11,000	<11,000	<19,000	<10,000	<30,000	<42,000	<42,000	<42,000	<20	ND	11.5	<0.0100	9.67	5.54	-5.00
SVS2 Dup	08/28/14	5.5	89,000,000	<36,000	<8,000	13,000	<11,000	<11,000	<19,000	<10,000	<30,000	<42,000	<42,000	<42,000	---	ND	13.5	<0.0100	11.3	2.82	-5.00
SVS3	03/07/14	5.5	150,000,000	<5,800	15,000	<1,500	15,000	<1,700	<3,100	<1,600	<4,900	<6,700	<6,700	<6,700	1.1	---	6.29	<0.0100	13.3	4.41	-5.00
SVS3 Dup	03/07/14	5.5	150,000,000	<5,800	22,000	<1,500	23,000	<1,700	<3,100	<1,600	<4,900	<6,700	<6,700	<6,700	---	---	6.73	<0.0100	14.4	3.10	-5.00
SVS3	08/28/14	5.5	87,000,000	<36,000	21,000	13,000	31,000	<11,000	<19,000	<10,000	<30,000	<42,000	<42,000	<42,000	820a	ND	5.11	<0.0100	14.7	5.49	-5.00

**TABLE 4**  
**CUMULATIVE SOIL VAPOR ANALYTICAL RESULTS**  
Former Exxon Service Station 79374  
990 San Pablo Avenue  
Albany, California

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Notes:	
TPHg	= Total petroleum hydrocarbons as gasoline analyzed using EPA Method TO-17; analyzed using EPA Method TO-3M in March 2014.
MTBE	= Methyl tertiary butyl ether analyzed using EPA Method TO-15.
BTEX	= Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method TO-15.
EDB	= 1,2-dibromoethane analyzed using EPA Method TO-15.
1,2-DCA	= 1,2-dichloroethane analyzed using EPA Method TO-15.
TBA	= Tertiary butyl alcohol analyzed using EPA Method TO-15.
TAME	= Tertiary amyl methyl ether analyzed using EPA Method TO-15.
ETBE	= Ethyl tertiary butyl ether analyzed using EPA Method TO-15.
DIPE	= Di-isopropyl ether analyzed using EPA Method TO-15.
Naphthalene	= Naphthalene analyzed using EPA Method TO-17(M).
Add'l VOCs	= Additional volatile organic compounds analyzed using EPA Method TO-15.
Methane	= Methane analyzed using ASTM Method D-1946.
Helium	= Helium analyzed using ASTM Method D-1946 (M).
CO <sub>2</sub>	= Carbon dioxide analyzed using ASTM Method D-1946.
O <sub>2</sub> + Argon	= Oxygen plus argon analyzed using ASTM Method D-1946.
Vacuum	= Vacuum measured using a vacuum gauge.
µg/m <sup>3</sup>	= Micrograms per cubic meter.
%V	= Percent by volume.
in Hg	= Inches of mercury.
ND	= Not detected.
<b>Bold</b>	= Greater than or equal to the most stringent, applicable screening level.
<	= Less than the stated method detection limit.
—	= Not applicable.
a	= Possibly biased high due to results of associated standard.

APPENDIX

A

CORRESPONDENCE



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March 13, 2015

Ms. Jennifer Sedlachek  
ExxonMobil  
4096 Piedmont Ave., #194  
Oakland, CA 94611

Ms. Muriel Blank  
Blank Family Trust  
1164 Solano Ave., #406  
Albany, CA 94706

(Sent via E-mail to:

[jennifer.c.sedlachek@exxonmobil.com](mailto:jennifer.c.sedlachek@exxonmobil.com))

Subject: Conditional Approval of the Feasibility Study / Corrective Action Plan; Fuel Leak Case No. RO0002974 and GeoTracker Global ID T0619716673, Exxon, 990 San Pablo Ave., Albany, CA 94706

Dear Ms. Sedlachek and Ms. Blank:

Alameda County Environmental Health (ACEH) staff has reviewed the case file including the *Groundwater Monitoring Report, Fourth Quarter 2014*, dated December 4, 2014, the *Well Installation Report*, dated January 22, 2015, and the *Feasibility Study / Corrective Action Plan (FS/CAP)*, dated February 4, 2015. The reports were prepared and submitted on your behalf by Cardno ERI (Cardno) for the subject site. Thank you for submitting the reports.

The FS/CAP proposes the installation of a High Intensity, Targeted (HIT) Dual Phase Extraction (DPE) system, using mobile remediation equipment, at the site. The mobile system is proposed to operate for periods of 5 to 30 days, but has the flexibility to extend the periods of operation depending on site specifics, such as contaminant extraction rates. The system is proposed to be operated at the site on a semi-annual basis in the 1<sup>st</sup> and 3<sup>rd</sup> quarters of a year, and groundwater monitoring is proposed to occur in the 2<sup>nd</sup> and 4<sup>th</sup> quarters to allow groundwater concentration stabilization in the interim period of time. Included in the system is the installation of four extraction wells, and the installation of one new groundwater monitoring well, to monitor groundwater concentrations in a downgradient location not currently monitored. The estimated period of time required for the proposed system to operate at the site is anticipated to be three years on the proposed schedule. Please be aware that the Low Threat Closure Policy (LTCP) generally expects that secondary source removal to occur within one year. This may require modifications to the approach to accelerate the rate of removal.

ACEH is in general agreement with the recommendations; however, requests the generation of a detailed Remedial Action Implementation Plan (system design drawings and specifications), modification of the proposed approach, based on rate of extraction, in order to meet LTCP policy, generation of a draft Public Comment Fact Sheet for the required 30 day public comment period (examples will be forwarded separately), and the submittal of a signed *List of Landowners Form* as requested and detailed below.

Based on the review of the case file ACEH requests that you address the following technical comments and send us the documents requested below.

#### **TECHNICAL COMMENTS**

- 1. Downgradient Dissolved-Phase Plume Definition** - The well installation report documented the installation of wells MW7 and MW8 downgradient of the site in order to define the downgradient extent of the dissolved-phase plume. The report recommended the installation of one additional well near the intersection of Adams and Buchanan Streets to monitor groundwater at the location due to groundwater concentrations at bore B9. ACEH is in agreement with this recommendation, but additionally requests the installation a second well at the location of B9 as previously requested in the

July 7, 2014 directive letter. Please submit a brief work plan by the date referenced below. Existing standard field protocol descriptions can be used for the work plan.

- 2. Remedial Design Implementation Plan** - As noted above, ACEH generally concurs that DPE may be an effective alternative to remediate petroleum hydrocarbons in soil and groundwater at the site. At present one pilot test has been conducted to determine the system radius of influence (ROI) at the site, however, it was conducted within the former UST excavation, which may not be fully representative of the area outside the former excavation. Therefore, please expand upon the DPE conceptual plans presented in the FS/CAP in a Remedial Design Implementation Plan (RDIP). Implementation details should include, but not be limited to, the following:

  - Detailed description of proposed remediation including confirmation sampling and monitoring during implementation.
  - Operation and maintenance plans.
  - System optimization and performance metrics.
  - Post-remediation monitoring and verification plans with proposed strategy for collecting groundwater, soil and soil vapor monitoring and confirmation samples.
  - Implementation schedule with milestone dates.
  - Updated cleanup goals utilizing the 2013 Regional Water Quality Control Board - San Francisco Region's Environmental Screening Levels and Low Threat Closure Policy screening levels for petroleum hydrocarbons.
  - A strategy for collecting soil data within the upper 10 feet of soil at the site during DPE well installation, if appropriate, to fulfill the requirements for the LTCP Media Specific Criteria for Direct Contact and Outdoor Air.
- 3. Draft Public Participation Fact Sheet** – A draft public notification fact sheet has not been generated for the site yet. Public participation is a requirement for the remedial process. Examples will be forwarded separately. Please return a draft copy by email to my attention. Upon ACEH approval of the document, ACEH will notify potentially affected members of the public who live or own property in the surrounding area of the proposed remediation described in the FS/CAP. Public comments on the proposed remediation will be accepted for a 30-day period. Upon termination of the 30-day comment period ACEH will notify ExxonMobil of the results of the comment period and any required modifications to the proposed approach, if any.
- 4. Remedial Action Progress Reporting** – The current planned or estimated period for remedial activities is approximately three years, and may be modified based on LTCP policy. Therefore, at a minimum, quarterly Remedial Progress Reports (RPR) will be requested. These are intended to monitor site progress and DPE system effectiveness.
- 5. Groundwater Monitoring** – ACEH will initially request that groundwater monitoring occur at quarterly intervals during corrective action activities and one year post remediation. Please continue to include chlorinated solvents by EPA 8260 in the analytical suite. Concentrations up to 85 micrograms per liter (µg/l) tetrachloroethene and 9.8 µg/l trichloroethene (TCE) were detected in wells along the eastern boundary of the site. The analysis was conducted outside of the hold period, thus the concentrations have the potential to be higher.
- 6. Storm Drain Location** – Storm drain lines are depicted onsite, but are not depicted offsite. In future site figures, please additionally identify the location and depth of storm drainage lines off the site.
- 7. Landowner Notification** - Pursuant to Section 25297.15 (a), ACEH, the local agency, shall not consider cleanup or site closure proposals from the primary or active responsible party, issue a closure letter, or make a determination that no further action is required with respect to a site upon which there was an unauthorized release of hazardous substances from an underground storage tank subject to this chapter unless all current record owners of fee title to the site of the proposed action have been notified of the proposed action by the primary or active responsible party. ACEH is required to notify the primary or active responsible party of their requirement to certify in writing to the

local agency that the notification requirement in the above-mentioned regulation has been satisfied and to provide the local agency with a complete mailing list of all record fee title owners.

To satisfy the above-mentioned requirement, please complete the attached, "List of Landowners Form," and mail it back to ACEH by the date specified below.

### **TECHNICAL REPORT REQUEST**

Please upload technical reports to the ACEH ftp site (Attention: Mark Detterman), and to the State Water Resources Control Board's Geotracker website, in accordance with the specified file naming convention below, according to the following schedule:

- **April 24, 2015** – Return Completed Landowner Notification Form and Draft Public Comment Fact Sheet; File to be named: RO2974\_LNDOWNR\_F\_L\_yyyy-mm-dd
- **May 22, 2015** – Data Gap Investigation Work Plan  
File to be named: RO2974\_WP\_R\_yyyy-mm-dd
- **May 22, 2015** – Remedial Design Implementation Plan  
File to be named: RO2974\_CAP\_R\_yyyy-mm-dd
- **July 10, 2015** – Semi-Annual Groundwater Monitoring  
File to be named: RO2974\_GWM\_R\_yyyy-mm-dd
- **60 Days After Groundwater Monitoring Well Installation** – First DPE Post Implementation Quarterly Groundwater Monitoring and Well Installation Report; File to be named: RO2974\_GWM\_R\_yyyy-mm-dd
- **January 15, 2016** – Quarterly Groundwater Monitoring  
File to be named: RO2974\_GWM\_R\_yyyy-mm-dd

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

Should you have any questions, please contact me at (510) 567--6876 or send me an electronic mail message at [mark.detterman@acgov.org](mailto:mark.detterman@acgov.org).

Sincerely,



Digitally signed by Mark E. Detterman  
DN: cn=Mark E. Detterman, o, ou,  
email, c=US  
Date: 2015.03.13 10:46:20 -07'00'

Mark E. Detterman, PG, CEG  
Senior Hazardous Materials Specialist

Enclosures: Attachment 1 – Responsible Party (ies) Legal Requirements / Obligations and Electronic Report Upload (ftp) Instructions

List of Landowners Form

cc: Christine Capwell, Cardno ERI, 601 North McDowell Blvd., Petaluma, CA 94954 (Sent via E-mail to: [christine.capwell@cardno.com](mailto:christine.capwell@cardno.com))

Greg Gurss, Cardno ERI, 601 North McDowell Blvd., Petaluma, CA 94954 (Sent via E-mail to: [greg.gurss@cardno.com](mailto:greg.gurss@cardno.com))

Ms. Sedlachek and Mrs. Blank  
RO0002974  
March 13, 2015, Page 4

David Daniels, Cardno ERI, 601 North McDowell Blvd., Petaluma, CA 94954 (Sent via E-mail to:  
[david.daniels@cardno.com](mailto:david.daniels@cardno.com))

Mrs. Marcia B. Kelly, 641 SW Morningside Rd., Topeka, KS 66615 (Sent via E-mail to:  
[marciabkelly@earthlink.net](mailto:marciabkelly@earthlink.net))

Rev. Deborah Blank, 1563 Solano Ave. #344, Berkeley, CA 94707 (Sent via E-mail to:  
[miracoli@earthlink.net](mailto:miracoli@earthlink.net))

Dilan Roe, ACEH, (sent via electronic mail to [dilan.roe@acgov.org](mailto:dilan.roe@acgov.org))

Mark Detterman, ACEH, (sent via electronic mail to [mark.detterman@acgov.org](mailto:mark.detterman@acgov.org))

Electronic File, GeoTracker

## Attachment 1

### Responsible Party(ies) Legal Requirements / Obligations

#### REPORT REQUESTS

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

#### ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements ([http://www.waterboards.ca.gov/water\\_issues/programs/ust/electronic\\_submittal/](http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/)).

#### PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

#### PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

#### UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

#### AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to \$10,000 per day for each day of violation.



<b>Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)</b>	<b>REVISION DATE:</b> May 15, 2014
	<b>ISSUE DATE:</b> July 5, 2005
	<b>PREVIOUS REVISIONS:</b> October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010, July 25, 2010
<b>SECTION:</b> Miscellaneous Administrative Topics & Procedures	<b>SUBJECT:</b> Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

## REQUIREMENTS

- **Please do not submit reports as attachments to electronic mail.**
- Entire report including cover letter must be submitted to the ftp site as a **single portable document format (PDF) with no password protection.**
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- **Signature pages and perjury statements must be included and have either original or electronic signature.**
- **Do not password protect the document.** Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted.**
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:

RO#\_Report Name\_Year-Month-Date (e.g., RO#5555\_WorkPlan\_2005-06-14)

## Submission Instructions

- 1) Obtain User Name and Password
  - a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
    - i) Send an e-mail to [deh.loptoxic@acgov.org](mailto:deh.loptoxic@acgov.org)
  - b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses, and the Case Numbers (RO# available in Geotracker) you will be posting for.**
- 2) Upload Files to the ftp Site
  - a) Using Internet Explorer (IE4+), go to <ftp://alcoftp1.acgov.org>
    - (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
  - b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
  - c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
  - d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
  - e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.
- 3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
  - a) Send email to [deh.loptoxic@acgov.org](mailto:deh.loptoxic@acgov.org) notify us that you have placed a report on our ftp site.
  - b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
  - c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
  - d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

## LIST OF LANDOWNERS FORM

County of Alameda  
Environmental Health Services  
Environmental Protection  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

### CERTIFIED LIST OF RECORD FEE TITLE OWNERS FOR:

Site Name: Exxon  
Address: 990 San Pablo Ave.  
City, State, Zip: Albany, CA 94706  
Record ID #: RO0000350

Please fill out item 1 if there are multiple site landowners (attach an extra sheet if necessary). If you are the sole site landowner, skip item 1 and fill out item 2.

1. In accordance with Section 25297.15(a) of Chapter 6.7 of the California Health & Safety Code, I, \_\_\_\_\_ (name of primary responsible party), certify that the following is a complete list of current record fee title owners and their mailing addresses for the above site:

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City, State, Zip: \_\_\_\_\_  
E-mail Address: \_\_\_\_\_

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City, State, Zip: \_\_\_\_\_  
E-mail Address: \_\_\_\_\_

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

2. In accordance with Section 25297.15(a) of Chapter 6.7 of the California Health & Safety Code, I, \_\_\_\_\_, certify that I am the sole landowner for the above site.

Sincerely,

\_\_\_\_\_  
Signature of Primary Responsible Party

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
E-mail Address

APPENDIX

B

FIELD PROTOCOLS



## **Cardno Dual-Phase Extraction Test Field Protocol**

Dual-phase extraction (DPE) consists of extracting vapor and liquid through the same conduit. If vapor phase, dissolved phase and separate phase contaminants are all present, the procedure is often referred to as multi-phase extraction. Testing procedures are the same for both.

### **Objective**

The objective of a DPE test is often two-fold: 1) to determine the radius of influence (ROI) and obtain engineering data for evaluation of future remediation options at the site, and 2) to accomplish mass removal of hydrocarbons by removing both soil vapor and groundwater from one or more wells.

Cardno utilizes a DPE mobile treatment system that has the capability of removing hydrocarbon-affected groundwater and soil vapor simultaneously. Vacuum may be provided by various types of blowers - a liquid ring pump (high vacuum for tight formations – 10 to 25 inches of mercury) or positive displacement or regenerative blowers (modest vacuum for sandy formations – 3 to 12 inches of mercury). Hydrocarbon vapor is treated on site with a thermal/catalytic oxidizer, which has been approved for operation by the local air pollution control agency. As an alternative, for sites with low soil vapor concentrations, Cardno uses activated carbon to treat the extracted soil vapor.

### **Phase I – DPE Test to Obtain Engineering Data**

For the extraction well, one groundwater well is selected near the center of the area to be tested. Usually this is a zone containing high levels of hydrocarbons. A wellhead assembly is installed as shown on Plate DPE-1 (attached). Vacuum is measured in three places: 1) at  $V_0$  to monitor the performance of the blower and to estimate flow from the pump curve, 2) at  $V_1$  to determine the vacuum being applied to the formation, and 3) at  $V_2$  to determine the line loss in the stinger and to be sure a standing head of water has not developed in the vacuum stinger tube. Vapor flow rates are measured and vapor samples are collected for analysis after vapor passes through the phase separator and blower.

Observation wells are selected at various distances from the extraction well. It may be necessary to drill additional observation wells if the existing wells are too far away from the extraction well to observe an induced vacuum and/or a water level decrease. If groundwater is present, the wells are equipped with a wellhead seal and a stinger tube as shown on Plate DPE-2 (Wells #3 and #4) (attached). The induced vacuum is periodically measured at  $V_3$  and  $V_4$  during the test using magnehelic gauges or other calibrated meters to determine the effective ROI for vapor extraction, and the values are recorded. The log of the induced vacuum is plotted against the distance from the extraction well to the observation well. The effective ROI is taken as the distance where the induced vacuum would be 0.5 inches of water.

The change in liquid level is measured in the stinger tube using a water level meter to an accuracy of 0.01 foot, and recorded to determine the hydraulic gradient and establish an ROI for groundwater capture. Various hydraulic models are used to determine a capture zone with respect to groundwater flow direction and gradient.

**Note:** Observation wells #1 and #2 on Plate DPE-2 are included for information to show the effect of removing only vapor from an extraction well. There would be an induced rise of the water level in the well due to vacuum, but the level in the stinger tube would not change because it is still under atmospheric pressure, indicating no hydraulic gradient and thus no net flow of groundwater toward the extraction well.

The test is run until the induced vacuum and depth to water in the observation wells stabilize – usually 4 to 8 hours. Stabilization is said to be reached when readings do not change more than 10% for three consecutive hourly

observations. The test for engineering data may be repeated on other extraction wells if there is an indication that the site stratigraphy may not be uniform.

Prior to starting Phase I of the DPE test, Cardno performs the following tasks:

1. Collect groundwater samples from the extraction well(s).
2. Install a stinger tube in the extraction well, extending to approximately 1-2 feet above the total depth of each well. An aboveground hose, covered by a temporary ramp in traffic areas, is used to connect the wellhead assembly from the extraction well to the treatment system.
3. Install dip tubes in each observation well containing groundwater approximately 3 to 4 feet into groundwater.
4. Measure distances from each observation well to the extraction well.
5. Connect the extraction well to the phase separator on the unit.
6. Calibrate and install magnehelic gauges on all test wells to measure vacuum (in inches of water) and a flow meter [in cubic feet per minute (cfm)] at the extraction well.
7. Install a sample port after the phase separator and blower to sample the influent vapor stream.
8. Install a flow meter on the pressure side of the blower.

During Phase I of the DPE test, Cardno performs the following tasks:

1. Check and change magnehelic gauges as needed to obtain readings in each gauge's scale range.
2. Record the following values:
  - Soil vapor influent concentrations at the unit on the pressure side of the blower
  - Vacuum readings at the extraction well
  - Vacuum readings at each observation well
  - Flow readings at the unit on the pressure side of the blower
  - Volume of groundwater extracted
  - Hour meter reading on the extraction unit
  - Water levels in each observation well containing groundwater

The soil vapor concentrations are measured using a photo-ionization detector or a lower explosive limit meter. The meter is calibrated on a daily basis using a hexane or isobutylene standard. The calibration gas and concentration, and the well and system influent measurements are recorded.

For very concentrated vapor streams, dilution air will be added and measured with a rotameter or pitot tube.

3. Pump water periodically from the phase separator into a holding tank.
4. Collect samples in a Tedlar<sup>®</sup> bag from the influent vapor stream for analysis by a client-approved, state-certified laboratory under proper storage, shipment and chain-of-custody (COC) protocol. Samples are always stored out of direct sunlight. No ice is placed in the cooler, and the COC is placed inside the cooler. At a minimum, samples are typically collected at the beginning and end of Phase I.

## **Phase II – DPE for Mass Removal**

For mass removal, one or more groundwater wells are selected near the center of the area containing the highest hydrocarbons. Wellhead fittings as shown on Plate DPE-1 are placed on each extraction well. If more than one well is used for extraction, the total vacuum will be reduced. Care is exercised to ensure that a reasonable ROI is maintained.

Total vapor flow is measured on the pressure side of the blower and the measured flow rate is checked against the blower curve. Vapor samples are collected periodically in a Tedlar® bag for analysis on the pressure side of the blower, usually at the beginning, middle and end of an extended test.

Water is collected in tank(s) for later off-site disposal or treated on site with carbon adsorption through a properly permitted unit. The water produced is measured with a totalizer or by recording the level in the tank(s).

The mass of constituents removed with the soil vapor is calculated and tabulated using vapor flow rates and constituent concentrations; the mass of constituents removed with groundwater is calculated and tabulated using water volume and constituent concentrations.

Prior to starting Phase II of the DPE test, Cardno performs the same tasks involving the extraction well(s) and the unit as prior to Phase I with the following modifications:

1. Connect the extraction well(s) to a manifold to provide individual well control as necessary during this portion of the test.
2. Install a sample port at each extraction well to sample soil vapor at each wellhead.

During Phase II of the DPE test, Cardno performs the following tasks:

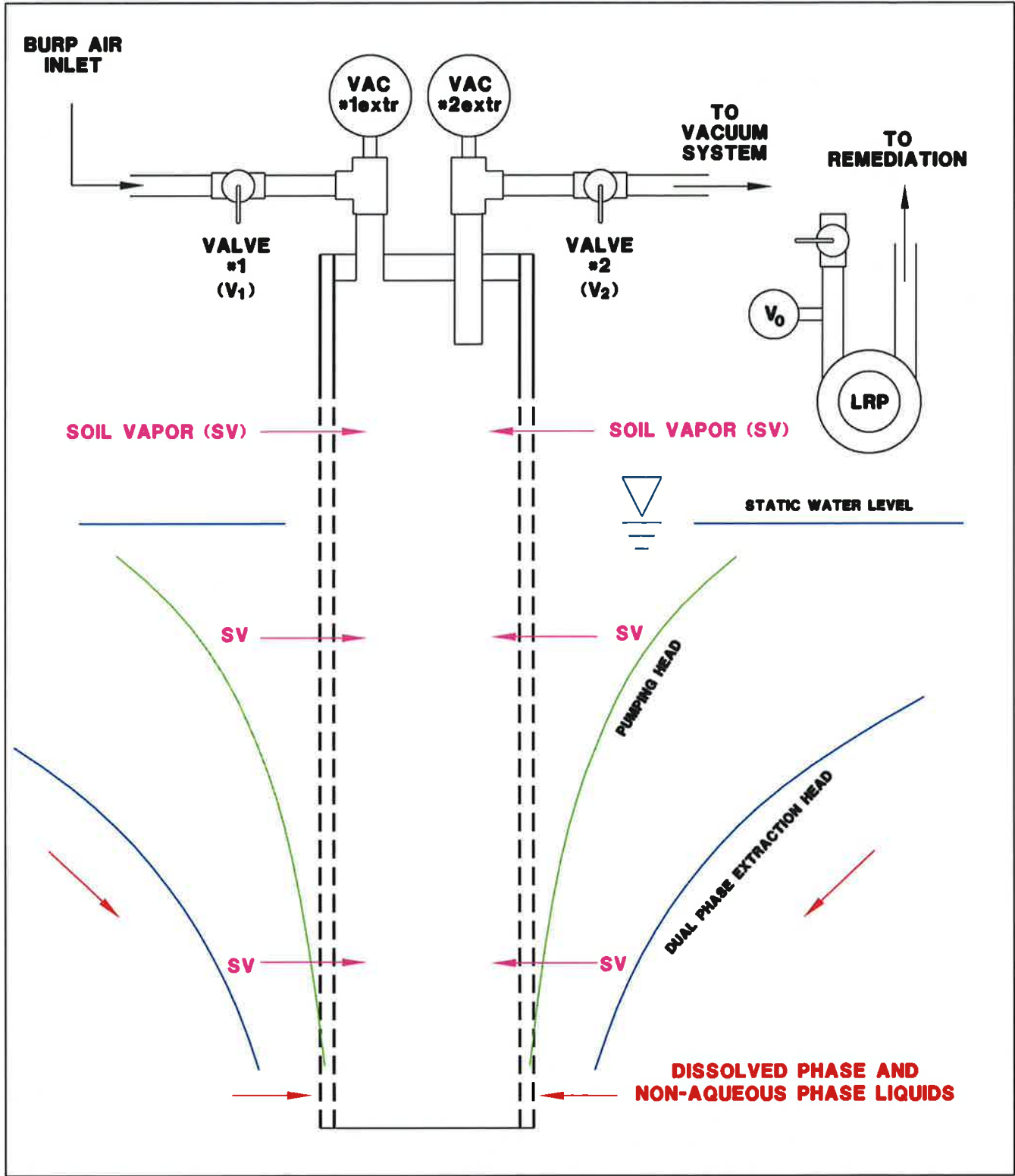
1. Record the same values for the extraction well(s) and the unit with the following modification:
  - Record soil vapor concentrations at each extraction well, if feasible
2. Pump water periodically from the phase separator into a holding tank.
3. Collect influent vapor stream samples for laboratory analysis as described in Phase I.
4. Collect groundwater samples periodically and at the end of Phase II for analysis of constituents of concern or those required by the permit. Submit groundwater samples collected during Phases I and II to a client-approved, state-certified laboratory under proper storage, shipment and COC protocol.

## **Groundwater Disposal**

Extracted groundwater is treated at a client- and regulatory-approved facility, treated with a permitted mobile carbon treatment system, or transported off site in a truck or trailer-mounted tank and disposed of in accordance with regulatory requirements.

At the end of the DPE test and following receipt of the analytical results, Cardno prepares a report summarizing the field and laboratory procedures, presenting the laboratory and feasibility testing results, providing mass removal calculations, and discussing conclusions and recommendations.

Attachments: Plate DPE-1 – Example Dual-Phase Extraction Wellhead Assembly  
Plate DPE-2 – Example Observation Well Responses



FN Example DPE-EXTR



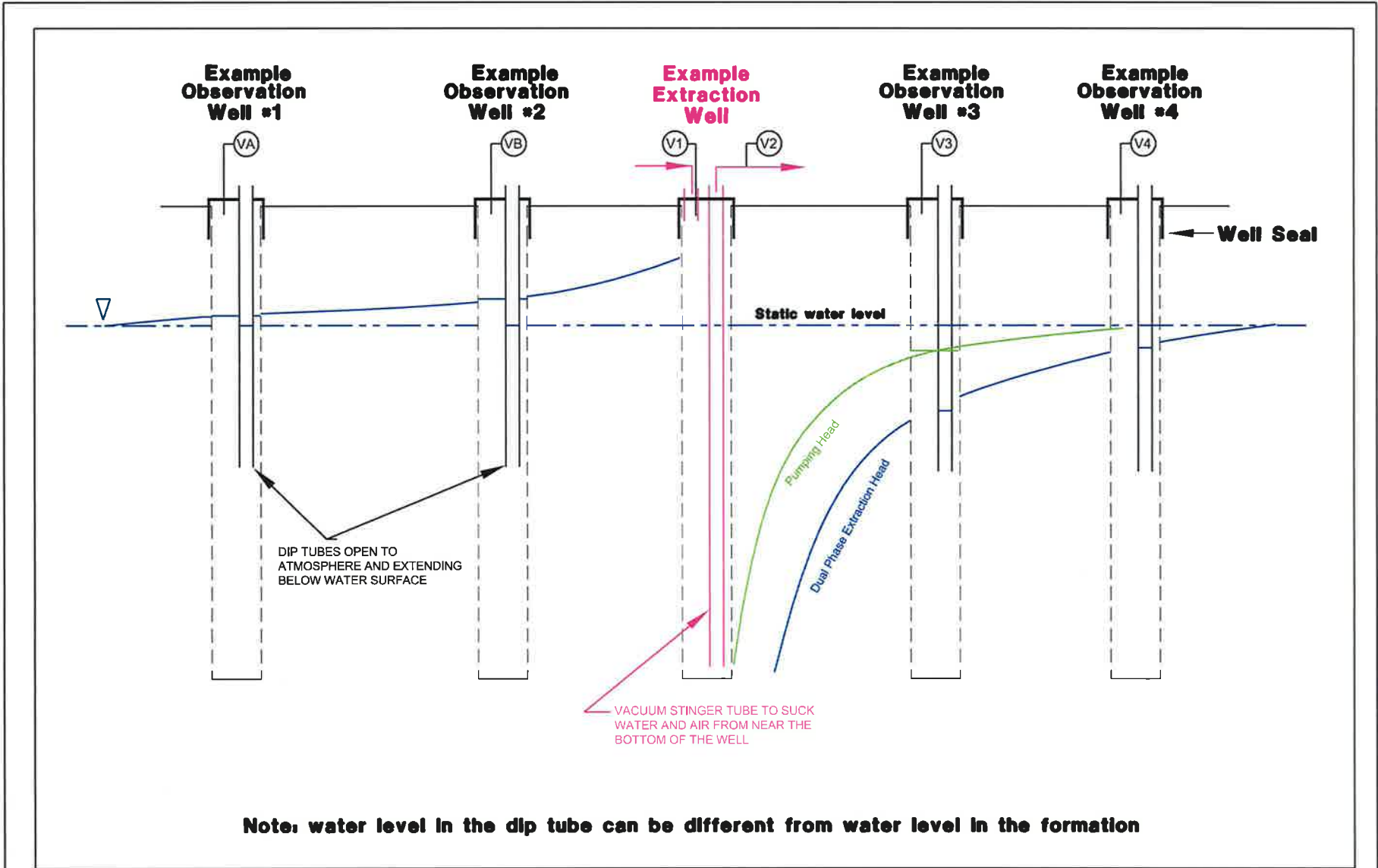
### EXAMPLE DUAL-PHASE EXTRACTION WELLHEAD ASSEMBLY

Cardno ERI  
 25371 Commercentre Drive, Suite 250  
 Lake Forest, California 92630

**PROJECT NO.**  
 DPE-1

**PLATE**  
 DPE-1

DATE: 01/10/11



**Note: water level in the dip tube can be different from water level in the formation**

FN Example DPE-OBSER-2



**EXAMPLE OBSERVATION WELL RESPONSES**

Cardno ERI  
 25371 Commercentre Drive, Suite 250  
 Lake Forest, California 92630

**EXPLANATION**

- V1 Vacuum applied at example extraction well
- V3 Induced vacuum observed at example observation well #3

**PROJECT NO.**

DPE

**PLATE**

DPE-2

DATE: 01/10/11



## **Cardno Soil Boring and Well Installation Field Protocol**

### **Preliminary Activities**

Prior to the onset of field activities at the site, Cardno obtains the appropriate permit(s) from the governing agency(s). Advance notification is made as required by the agency(s) prior to the start of work. Cardno marks the borehole locations and contacts the local one call utility locating service at least 48 hours prior to the start of work to mark buried utilities. Borehole locations may also be checked for buried utilities by a private geophysical surveyor. Prior to drilling, the borehole location is cleared in accordance with the client's procedures. Fieldwork is conducted under the advisement of a registered professional geologist and in accordance with an updated site-specific safety plan prepared for the project, which is available at the job site during field activities.

### **Drilling and Soil Sampling Procedures**

Cardno contracts a licensed driller to advance the boring and collect soil samples. The specific drilling method (e.g., hollow-stem auger, direct push method, or sonic drilling), sampling method [e.g., core barrel or California-modified split spoon sampler (CMSSS)] and sampling depths are documented on the boring log and may be specified in a work plan. Soil samples are typically collected at the capillary fringe and at 5-foot intervals to the total depth of the boring. To determine the depth of the capillary fringe prior to drilling, the static groundwater level is measured with a water level indicator in the closest monitoring well to the boring location, if available.

The borehole is advanced to just above the desired sampling depth. For CMSSSs, the sampler is placed inside the auger and driven to a depth of 18 inches past the bit of the auger. The sampler is driven into the soil with a standard 140-pound hammer repeatedly dropped from a height of 30 inches onto the sampler. The number of blows required to drive the sampler each 6-inch increment is recorded on the boring log. For core samplers (e.g., direct push), the core is driven 18 inches using the rig apparatus.

Soil samples are preserved in the metal or plastic sleeve used with the CMSSS or core sampler, in glass jars or other manner required by the local regulatory agency (e.g., Environmental Protection Agency Method 5035). Sleeves are removed from the sample barrel, and the lowermost sample sleeve is immediately sealed with Teflon™ tape, capped, labeled, placed in a cooler chilled to 4° Celsius and transported to a state-certified laboratory. The samples are transferred under chain-of-custody (COC) protocol.

### **Field Screening Procedures**

Cardno places the soil from the middle of the sampling interval into a plastic re-sealable bag. The bag is placed away from direct sunlight for a period of time which allows volatilization of chemical constituents, after which the tip of a photo-ionization detector (PID) or similar device is inserted through the plastic bag to measure organic vapor concentrations in the headspace. The PID measurement is recorded on the boring log. At a minimum, the PID or other device is calibrated on a daily basis in accordance with manufacturer's specifications using a hexane or isobutylene standard. The calibration gas and concentration are recorded on a calibration log. Instruments such as the PID are useful for evaluating relative concentrations of volatilized hydrocarbons, but they do not measure the concentration of petroleum hydrocarbons in the soil matrix with the same precision as laboratory analysis. Cardno trained personnel describe the soil in the bag according to the Unified Soil Classification System and record the description on the boring log, which is included in the final report.

### **Air Monitoring Procedures**

Cardno performs a field evaluation for volatile hydrocarbon concentrations in the breathing zone using a calibrated photo-ionization detector or lower explosive level meter.

### **Groundwater Sampling**

A groundwater sample, if desired, is collected from the boring by using Hydropunch™ sampling technology or installing a well in the borehole. In the case of using Hydropunch™ technology, after collecting the capillary fringe soil sample, the boring is advanced to the top of the soil/groundwater interface and a sampling probe is pushed to approximately 2 feet below the top of the static water level. The probe is opened by partially withdrawing it and thereby exposing the screen. A new or decontaminated bailer is used to collect a water sample from the probe. The water sample is then emptied into laboratory-supplied containers constructed of the correct material and with the correct volume and preservative to comply with the proposed laboratory test. The container is slowly filled with the retrieved water sample until no headspace remains and then promptly sealed with a Teflon-lined cap, checked for the presence of bubbles, labeled, entered onto a COC record and placed in chilled storage at 4° Celsius. Laboratory-supplied trip blanks accompany the water samples as a quality assurance/quality control procedure. Equipment blanks may be collected as required. The samples are kept in chilled storage and transported under COC protocol to a client-approved, state-certified laboratory for analysis.

### **Backfilling of Soil Boring**

If a well is not installed, the boring is backfilled from total depth to approximately 5 feet below ground surface (bgs) with either neat cement or bentonite grout using a tremie pipe and either the boring is backfilled from 5 feet bgs to approximately 1 foot bgs with hydrated bentonite chips or backfill is continued to just below grade with neat cement grout. The borehole is completed to surface grade with material that best matches existing surface conditions and meets local agency requirements. Site-specific backfilling details are shown on the respective boring log.

### **Well Construction**

A well (if constructed) is completed using materials documented on the boring log or specified in a work plan. The well is constructed with slotted casing across the desired groundwater sampling depth(s) and completed with blank casing to within 6 inches of surface grade. No further construction is conducted on temporary wells. For permanent wells, the annular space of the well is backfilled with Monterey sand from the total depth to approximately 2 feet above the top of the screened casing. A hydrated granular bentonite seal is placed on top of the sand filter pack. Grout may be placed on top of the bentonite seal to the desired depth using a tremie pipe. The well may be completed to surface grade with a 1-foot thick concrete pad. A traffic-rated well vault and locking cap for the well casing may be installed to protect against surface-water infiltration and unauthorized entry. Site-specific well construction details including type of well, well depth, casing diameter, slot size, length of screen interval and sand size are documented on the boring log or specified in the work plan.

### **Well Development and Sampling**

If a permanent groundwater monitoring well is installed, the grout is allowed to cure a minimum of 48 hours before development. Cardno personnel or a contracted driller use a submersible pump or surge block to develop the newly installed well. Prior to development, the pump is decontaminated by allowing it to run and re-circulate while immersed in a non-phosphate solution followed by successive immersions in potable water and de-ionized water baths. The well is developed until sufficient well casing volumes are removed so that turbidity is within allowable limits and pH, conductivity and temperature levels stabilize in the purge water. The volume of groundwater extracted is recorded on a log.

Following development, groundwater within the well is allowed to recharge until at least 80% of the drawdown is recovered. A new or decontaminated bailer is slowly lowered past the air/water interface in the well, and a water sample is collected and checked for the presence of non-aqueous phase liquid, sheen or emulsions. The water sample is then emptied into laboratory-supplied containers as discussed above.

**Surveying**

If required, wells are surveyed by a licensed land surveyor relative to an established benchmark of known elevation above mean sea level to an accuracy of +/- 0.01 foot. The casing is notched or marked on one side to identify a consistent surveying and measuring point.

**Decontamination Procedures**

Cardno or the contracted driller decontaminates soil and water sampling equipment between each sampling event with a non-phosphate solution, followed by a minimum of two tap water rinses. De-ionized water may be used for the final rinse. Downhole drilling equipment is steam-cleaned prior to drilling the borehole and at completion of the borehole.

**Waste Treatment and Soil Disposal**

Soil cuttings generated from the drilling or sampling are stored on site in labeled, Department of Transportation-approved, 55-gallon drums or other appropriate storage container. The soil is removed from the site and transported under manifest to a client- and regulatory-approved facility for recycling or disposal. Decontamination fluids and purge water from well development and sampling activities, if conducted, are stored on site in labeled, regulatory-approved storage containers. Fluids are subsequently transported under manifest to a client- and regulatory-approved facility for disposal or treated with a permitted mobile or fixed-base carbon treatment system.

APPENDIX

C

ENVIRONMENTAL PROJECT SCHEDULE

Environmental Project Schedule  
Former Exxon Service Station 79374  
Albany, California

	2015			2016				2017				2018				2019					
	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	
Data Gap Work Plan	█																				
Remedial Design Implementation Plan	█																				
Public Fact Sheet	█																				
Well Installation and Off-site Assessment		█																			
High Intensity Targeted (HIT) Events			█		█		█		█		█		█								
Remedial Progress Reports			█	█	█	█	█	█	█	█	█	█	█								
Groundwater Monitoring and Sampling	█		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█			
Soil Vapor Sampling			█		█		█		█		█		█		█						
Closure Request																	█				
Public Notice																		█			
Well Destruction																				█	
No Further Action																					█

Milestone dates are the last day of the first month of the following quarter. For example, January 31 for fourth quarter. Dates and timeframes are approximate.