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Jennifer C. Sedlachek
Project Manager

ExxonMobil

July 5, 2011

Ms. Barbara Jakub, P.G.
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 Ms. Jakub:

Attached for your review and comment is a copy of the letter report entitled ***Work Plan for Air Sparge, Soil Vapor Extraction, and Dual-Phase Extraction Well Installation and Feasibility Testing,*** dated July 5, 2011, for the above-referenced site. The report was prepared by Cardno ERI of Petaluma, California, and details proposed activities pertaining to 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 ERI's ***Work Plan for Air Sparge, Soil Vapor Extraction, and Dual-Phase Extraction Well Installation and Feasibility Testing,*** dated July 5, 2011

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

w/o attachment
Ms. Paula Sime, Cardno ERI

Cardno ERI
Shaping the Future

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July 5, 2011
Cardno ERI 2735C.W02

Ms. Jennifer C. Sedlachek
ExxonMobil Environmental Services
4096 Piedmont Avenue #194
Oakland, California 94611

SUBJECT **Work Plan for Air Sparge and Soil Vapor Extraction Well Installation and Feasibility Testing**
Former Exxon Service Station 79374
990 San Pablo Avenue
Albany, California

Alameda County Department of Environmental Health RO No. 2974

Ms. Sedlachek:

At the request of ExxonMobil Environmental Services (EMES), on behalf of Exxon Mobil Corporation, Cardno ERI prepared this work plan for AS and SVE well installation and AS and SVE feasibility tests at the subject site (Plate 1). The purpose of the AS and SVE tests is to evaluate the feasibility of AS and SVE as remediation technologies to remove hydrocarbons from soil and groundwater and to obtain engineering data for potential future remediation activities.

SITE DESCRIPTION

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 currently

occupied by a retail outlet for Benjamin Moore paints and painting products and associated paved asphalt driveway and parking area. The surrounding areas consist of residential and commercial properties. A Shell Service Station and an Atlantic Richfield Company Service Station (Arco) are located approximately 350 feet and 500 feet, respectively, south-southeast of the site.

According to City of Albany building permits issued in 1951, a service station owned by Signal Oil Company occupied the site. Humble Oil company acquired the site in approximately 1967 from Standard Oil Company of California (Chevron) rebranding the site as an Enco station. The station was rebranded as an Exxon service station in 1972. The service station was demolished in 1983; during demolition activities, one used-oil UST and four gasoline USTs were removed and the tank cavity was backfilled with sand to 90% compaction (City of Albany permit 82-0708).

Environmental Resolutions, Inc. (ERI) reviewed eight historical aerial photographs of the site and vicinity dated between September 6, 1949, and June 21, 1983. Based on these photographs, the dispenser islands were most likely located beneath the station canopy on the north side of the site and the former USTs were most likely located on the south side of the site, east of the station's service bays. The location of the former used-oil UST is not apparent. The approximate locations of the former dispenser island and UST cavity are shown on Plate 2.

GEOLOGY AND HYDROGEOLOGY

The site lies at an approximate elevation of 40 feet above msl, and the local topography slopes toward the southwest. The site is located along the eastern margin of the San Francisco Bay within the East Bay Plain (Hickenbottom and Muir, 1988). The surficial deposits in the site vicinity are mapped as Holocene alluvial fan and fluvial deposits (Graymer, 2000). The site is located approximately 1,630 feet north-northwest of Cordornices Creek. The active northwest trending Hayward fault is located approximately 1½ mile northeast of the site.

The East Bay Plain is regionally divided into two major groundwater basins: the San Pablo and the San Francisco Basin. These basins are tectonic depressions that are filled primarily with a sequence of coalescing alluvial fans. The San Francisco Basin is further divided into seven sub-areas. The site is located in the Berkeley Sub-Area, which is filled primarily by alluvial deposits that range from 10 to 300 feet thick with poorly defined aquitards (CRWQCB, 1999). Under natural conditions, the direction of groundwater flow in the East Bay Plain is east to west.

Soil borings indicate that the soil beneath the site consists predominantly of silt and clay with an apparently continuous coarse-grained unit 2 to 8 feet thick encountered between approximately 8 and 20 feet bgs (EC&A, 2008; Cardno ERI, 2011a). CPT borings indicate the presence of predominantly silt and clay between approximately 20 and 60 feet bgs, the maximum depth explored. Minor coarse-grained layers up to 3 feet thick are interbedded with the silts and clays. During the groundwater monitoring events conducted during 2010 and 2011, the DTW has ranged from approximately 5 to 9 feet bgs. During the three groundwater monitoring events conducted through second quarter 2011, the groundwater flow direction has been variable (Cardno ERI, 2011b). The distribution of dissolved-phase hydrocarbons suggests that the dominant groundwater flow direction is towards the west.

PREVIOUS WORK

Cumulative groundwater monitoring and sampling data are presented in Tables 1A and 1B. Well construction details are presented in Table 2. Cumulative results of soil samples collected at the site are presented in Tables 3A and 3B.

Fueling System Activities

In 1983, one used-oil UST and four gasoline USTs were removed and the tank cavity was backfilled with sand to 90% compaction (City of Albany permit 82-0708).

Site Assessment Activities

Six exploratory borings (B1 through B6) were advanced on site in 2008 (EC&A, 2008). Maximum concentrations of TPHg, TPHd, and benzene were reported in the soil samples collected from 10.5 feet bgs from borings B1 and B2 located near the former USTs. Grab groundwater results indicated maximum dissolved-phase TPHg, TPHd, and benzene concentrations in the samples collected from soil borings B1 and B2 located near the former USTs. The laboratory reported an immiscible sheen present in the groundwater samples collected from borings B1 and B2.

Monitoring wells MW1 through MW6 and borings CPT1/HP1 and CPT2/HP2 were installed at the site in 2010 (Cardno ERI, 2011a). Maximum concentrations of TPHg and TPHd in soil were reported in the samples collected at 10.5 feet bgs from wells MW3 and MW5, west of the former USTs. Dissolved-phase hydrocarbons were adequately delineated vertically at the site with petroleum hydrocarbon concentrations absent or near the laboratory reporting limits in the deeper water-bearing zones.

Remediation Activities

No documented remedial activities have been performed at the site. According to City of Albany permit 82-0708, the USTs were removed and backfilled in 1983. It is unknown if overexcavation was performed during the UST removal.

Groundwater Monitoring Activities

Groundwater monitoring was initiated at the site in 2010 with the installation of wells MW1 through MW6. Results of groundwater monitoring have indicated maximum dissolved-phase TPHg and benzene concentrations in groundwater samples of 19,000 µg/L and 600 µg/L, respectively. Maximum dissolved-phase TPHg and benzene are primarily in the western portion of the site.

PROPOSED WORK

The proposed work consists of installing one AS well, three SVE wells, and reinstalling well MW3 with a different screen interval. After the wells are installed, at a minimum Cardno ERI will perform one 4-hour AS test, one 4-hour SVE test, and one 4-hour AS/SVE test. Tests may be extended beyond 4 hours to allow for stabilization. The proposed SVE wells will be installed near the former USTs (SVE1 and SVE2) and within the former UST pit (SVE3). Well MW3 will be reinstalled with a new screen interval to more effectively target the zone of maximum hydrocarbon concentrations. Proposed well AS1 will be installed west of the former USTs. Proposed well locations are shown on Plate 2.

The procedures for drilling, decontamination, and well construction are described in the field protocol contained in Appendix A. The fieldwork will be conducted under the advisement of a professional geologist and in accordance with applicable regulatory guidelines.

Pre-Drilling Activities

Prior to the onset of drilling, well installation and soil boring permits will be obtained from the County. Cardno ERI personnel will visit the site to check for obstructions and to mark the proposed locations. Underground Service Alert will be notified at least 48 hours prior to the start of field activities. Prior to drilling, the locations will be excavated with air, water, and hand tools to a depth of 4 to 8 feet bgs in accordance with EMES subsurface clearance protocol.

Well Installations and Sampling Activities

Wells SVE1 through SVE3 will be advanced to approximately 15 feet bgs. AS well AS1 will be advanced to approximately 15 feet bgs to the base of the expected coarse-grained unit. The drilling locations will be sampled at 5-foot intervals and continuously across anticipated screened intervals to total depth for geological logging purposes. Select soil samples will be submitted for laboratory analysis.

Well MW3 is currently a 4-inch well screened from 11 to 16 feet bgs. Maximum soil concentrations reported from well MW3 were collected from 10.5 feet bgs. The DTW has varied from approximately 6 to 8 feet bgs in well MW3 since its installation. Well MW3 will be overdrilled using 12-inch hollow stem augers to total depth and reinstalled in the boring with a screen interval of approximately 5 to 15 feet bgs as well MW3A.

The proposed SVE wells will be constructed using 4-inch diameter, Schedule 40 PVC, with a screen 10 feet in length, positioned to affect the zones of maximum residual hydrocarbon concentrations (approximately 5 to 15 feet bgs). The proposed AS well will be constructed using 1-inch, Schedule 80 PVC, and will be screened from at the base of the anticipated coarse-grained unit approximately 12 to 15 feet bgs. Plates 3 and 4 provide typical construction details for SVE and AS wells, respectively. The wells will be surveyed in accordance with Assembly Bill (AB) 2886 and incorporated into the future remediation system if testing proves feasible.

The screen intervals of the existing and proposed wells to be used in the testing are summarized in the following table:

Well Name	Well Diameter (inches)	Screen Interval (feet bgs)
SVE1 (proposed)	4	5 to 15
SVE2 (proposed)	4	5 to 15
SVE3 (proposed)	4	5 to 15
MW3A (proposed)	4	5 to 15
AS1 (proposed)	1	base of coarse grained unit
MW2	4	12 to 17
MW4	4	8 to 13

The procedures for drilling, sampling, and decontamination are described in the field protocol presented in Appendix A. The fieldwork will be conducted under advisement of a professional geologist and in accordance with applicable regulatory guidelines.

Feasibilty Testing

Soil Vapor Extraction

To evaluate SVE as a remedial technology and obtain site-specific engineering data, one minimum 4-hour feasibility test will be performed. The test will be performed using well SVE1 as the extraction well. The test will be conducted to assess the radius of influence of subsurface vacuum, extracted subsurface airflow rates, and extracted hydrocarbon vapor concentrations. The test may be extended to allow the system to reach steady state conditions prior to additional testing.

Proposed well SVE1, located west of the former USTs, will be used as the extraction well for assessing the vacuum radius of influence during the SVE phase of testing. Vacuum will be applied to the well for a minimum of 4 hours. Vacuum will be measured in surrounding wells SVE2, SVE3, and MW3A during the test.

The test will be performed using a mobile extraction and treatment system with vapor-phase abatement. A PID, flow meter, and Magnehelic® gauges will be used to monitor system performance and influence.

A minimum of two vapor samples will be collected during the test from the influent and effluent of the treatment system.

Air Sparge

To evaluate AS as a remedial technology and obtain site-specific engineering data, one 4-hour AS feasibility tests will be performed while the groundwater is at equilibrium either prior to or following the other phases of testing. The AS test will be performed using proposed well AS1. The tests will be conducted to assess the radius of influence of subsurface pressure and air injection flow rates.

Pressure and DO will be measured in surrounding wells SVE1, SVE2, SVE3, MW2, MW3A, and MW4 during the test.

Air Sparge/Soil Vapor Extraction

Following the AS and SVE test, a minimum 4-hour combined AS/SVE test will be performed to evaluate hydrocarbon concentrations extracted during operation of the AS well. Proposed well SVE1 will be used as the extraction well and proposed well AS1 will be used as the sparge well. Proposed well locations are shown on Plate 2.

The test will be performed using an air compressor and a mobile extraction and treatment system with vapor-phase abatement. A PID, flow meter, and Magnehelic® gauges will be used to monitor system performance and influence.

The procedures for feasibility testing are described in Cardno ERI's filed protocol (Appendix A). The fieldwork will be conducted under the advisement of a professional geologist and in accordance with applicable regulatory guidelines.

A minimum of two vapor samples will be collected during the test from the influent and effluent of the treatment system.

Dual-Phase Extraction

If it is determined that AS/SVE is not feasible based on the results of AS, SVE, and AS/SVE tests, Cardno ERI proposes to evaluate DPE as a remedial technology and obtain site-specific engineering data, one minimum 4-hour feasibility test may be performed. If conducted, the test will be performed using well SVE1 to assess the radius of influence of subsurface vacuum, radius of influence of groundwater extraction, extracted subsurface airflow rates, extracted groundwater rates, extracted groundwater concentrations, and extracted hydrocarbon vapor concentrations. The tests may be extended to allow the system to reach steady state conditions prior to additional testing.

Proposed well SVE1, located west of the former UST be used as the extraction well for assessing the vacuum radius of influence during the DPE phase of testing. Vacuum will be applied to the well for a minimum of 4 hours. Vacuum in surrounding wells SVE2, SVE3, and MW3A will be measured during the test and groundwater level will be monitored in wells SVE2, SVE3, MW2, MW3A, and MW4 during the test.

If DPE is conducted, the test will be performed using a mobile extraction and treatment system with vapor-phase abatement. Extracted groundwater will be stored in a tank and transported to an EMES-approved facility for treatment. A data logger, pressure transducers, PID, water level indicator, flow meter, and Magnehelic® gauges will be used to monitor system performance and influence.

A minimum of two vapor samples will be collected during the test from the influent and effluent of the treatment system. A minimum of two groundwater samples will be collected during the test.

Laboratory Analyses

Select soil vapor, soil, and groundwater samples will be submitted for analysis to an EMES-approved, state-certified analytical laboratory. The samples will be analyzed for TPHd (soil and groundwater only) and TPHg by EPA Method 8015B or TO-3 and BTEX, fuel oxygenates (MTBE, DIPE, ETBE, TAME, TBA), and lead scavengers (1,2-DCA and EDB) by EPA Method 8260B or TO-15.

Waste Management Plan

The soil and rinsate water generated during drilling activities will be temporarily stored on site in DOT-approved, 55-gallon drums. Water generated during the feasibility testing will be stored in an approximately 6,000 gallon tank. Soil cuttings will be transported to TPST Soil Recyclers of California's facility in Adelanto, California, for recycling. Rinsate water will be transported to Instrat, Inc., of Rio Vista, California, for disposal. Copies of the waste documentation for the disposal of soil and water will be included in the report.

Site Safety Plan

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

Report

After completion of the feasibility testing activities, the field and laboratory procedures, laboratory results, conclusions, and recommendations will be incorporated into a report and submitted to EMES and the County. The report will be signed by a State of California professional geologist.

CONTACT INFORMATION

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

LIMITATIONS

For any documents cited that were not generated by Cardno ERI, the data taken from those documents is used "as is" and is assumed to be accurate. Cardno ERI 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 was prepared in accordance with generally accepted standards of environmental, geological, and engineering practices 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.

Please contact Ms. Paula Sime, Cardno ERI's project manager for this site, at (707) 766-2000 with any questions regarding this site.

Sincerely,

David R. Daniels
Senior Staff Geologist
for Cardno ERI
707 766 2000
Email: david.daniels@cardno.com

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707 766 2000
Email: heidi.dieffenbach-carle@cardno.com

cc: Ms. Barbara Jakub, 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

Enclosures:

References
Acronym List

Plate 1	Site Vicinity Map
Plate 2	Generalized Site Plan
Plate 3	Typical SVE Well Detail
Plate 4	Typical AS Well Detail

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

Appendix A	Field Protocols

REFERENCES

California Regional Water Quality Control Board San Francisco Bay Region Groundwater Committee (CRWQCB). June 1999. *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda and Contra Costa Counties, CA.*

Edd Clark & Associates (EC&A). January 31, 2008. *Report of Phase II Environmental Assessment, 990 San Pablo Avenue, Albany, California 94706.* EC&A Project No 0589,002.07.

Cardno ERI. February 28, 2011a. *Site Assessment Report, Former Exxon Service Station 79374, 990 San Pablo Avenue, Albany, California , Alameda County #RO00002974.*

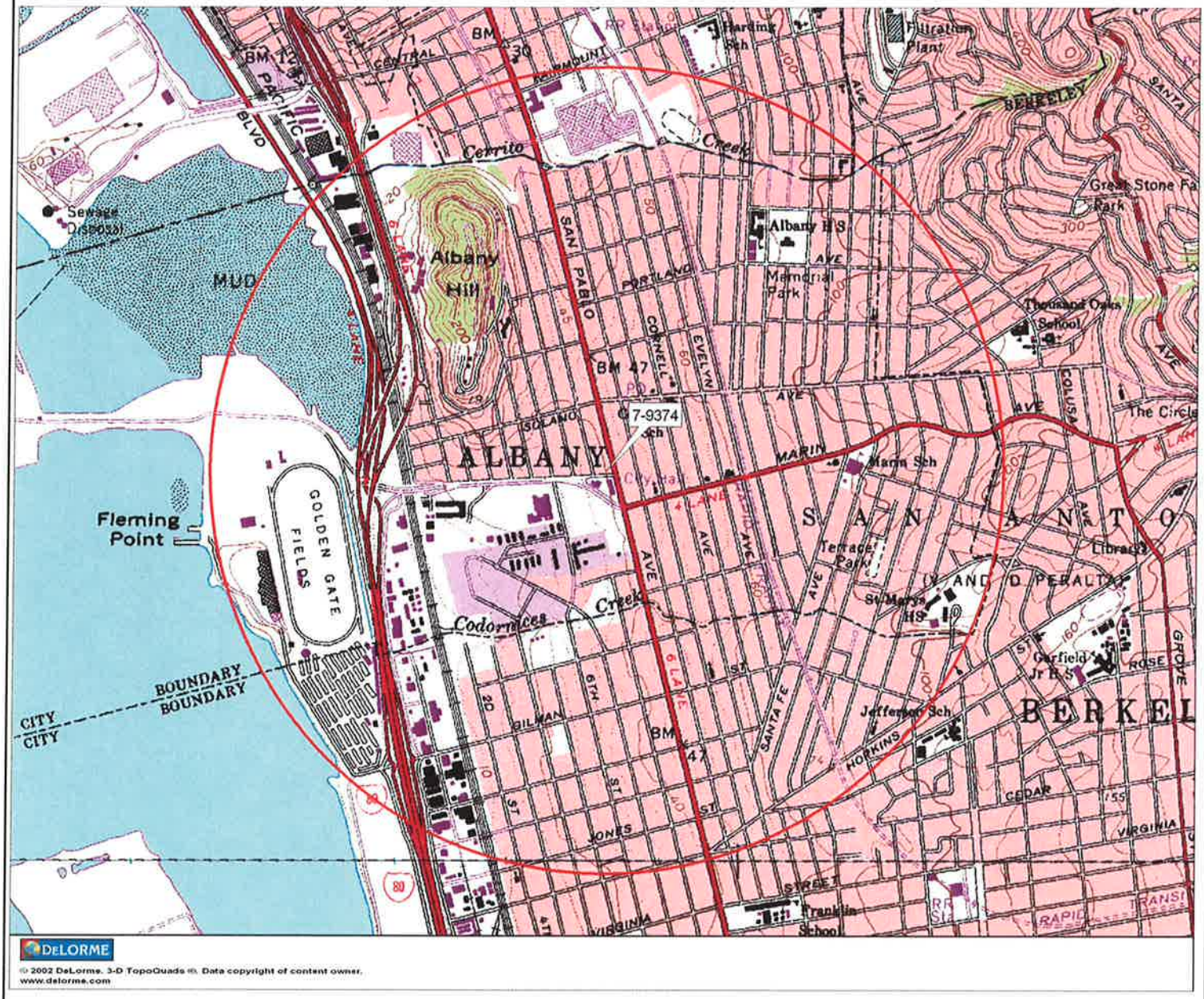
Cardno ERI. June 23, 2011b. *Groundwater Monitoring Report, Second Quarter 2011, Former Exxon Service Station 79374, 990 San Pablo Avenue, Albany, California , Alameda County #RO00002974.*

Graymer, R.W. 2000. Geologic map and map database of the Oakland metropolitan area, Alameda, Contra Costa, and San Francisco Counties, California. USGS, Miscellaneous Field Studies MF-2342.

Hickenbottom, Kelvin and Muir, Kenneth S. June 1988. *Geohydrogeology and Groundwater Quality Overview of the East Bay Plain Area, Alameda County, CA.* Alameda County Flood Control and Water Conservation District. 83p.

ACRONYM LIST

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



FN 2735 TOPO

EXPLANATION

1/2-mile radius circle

N

APPROXIMATE SCALE

0 0.5 1 mile

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

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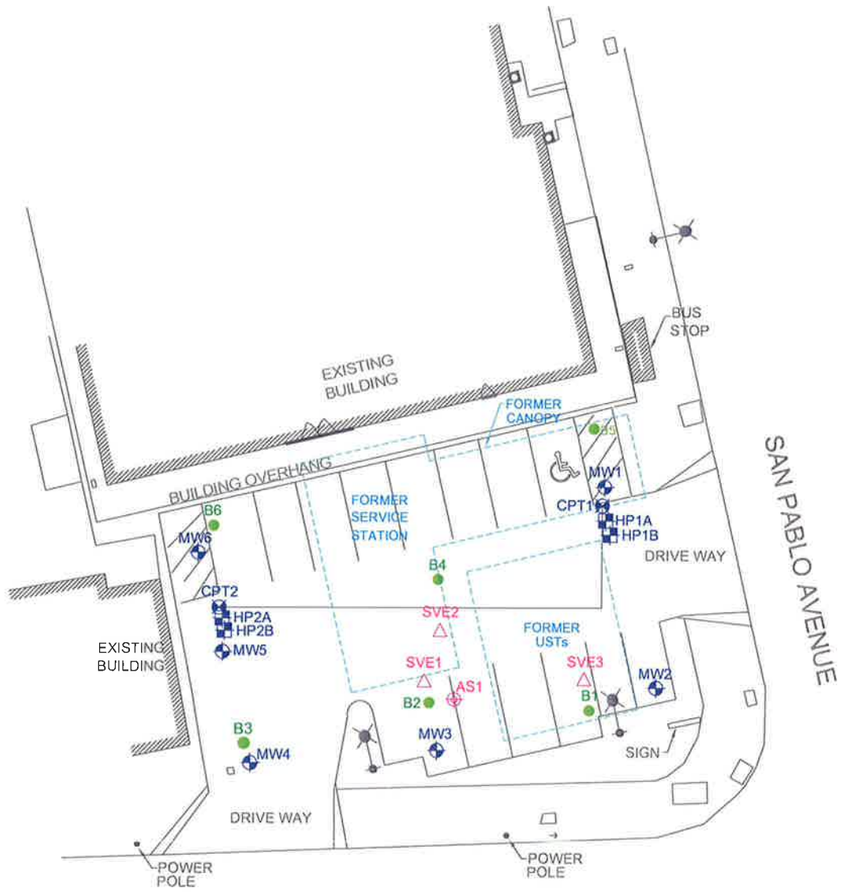
SITE VICINITY MAP

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

PROJECT NO.
2735

PLATE
1



APPROXIMATE SCALE

0 30 60 Feet

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GENERALIZED SITE PLAN

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

EXPLANATION

- MW6 Groundwater Monitoring Well
- B6 Soil Boring
- HP2B Hydropunch Boring
- CPT2 Cone Penetration Test Boring
- SVE3 Proposed Soil Vapor Extraction Well
- AS1 Proposed Air Sparge Well

PROJECT NO. 2735

PLATE 2

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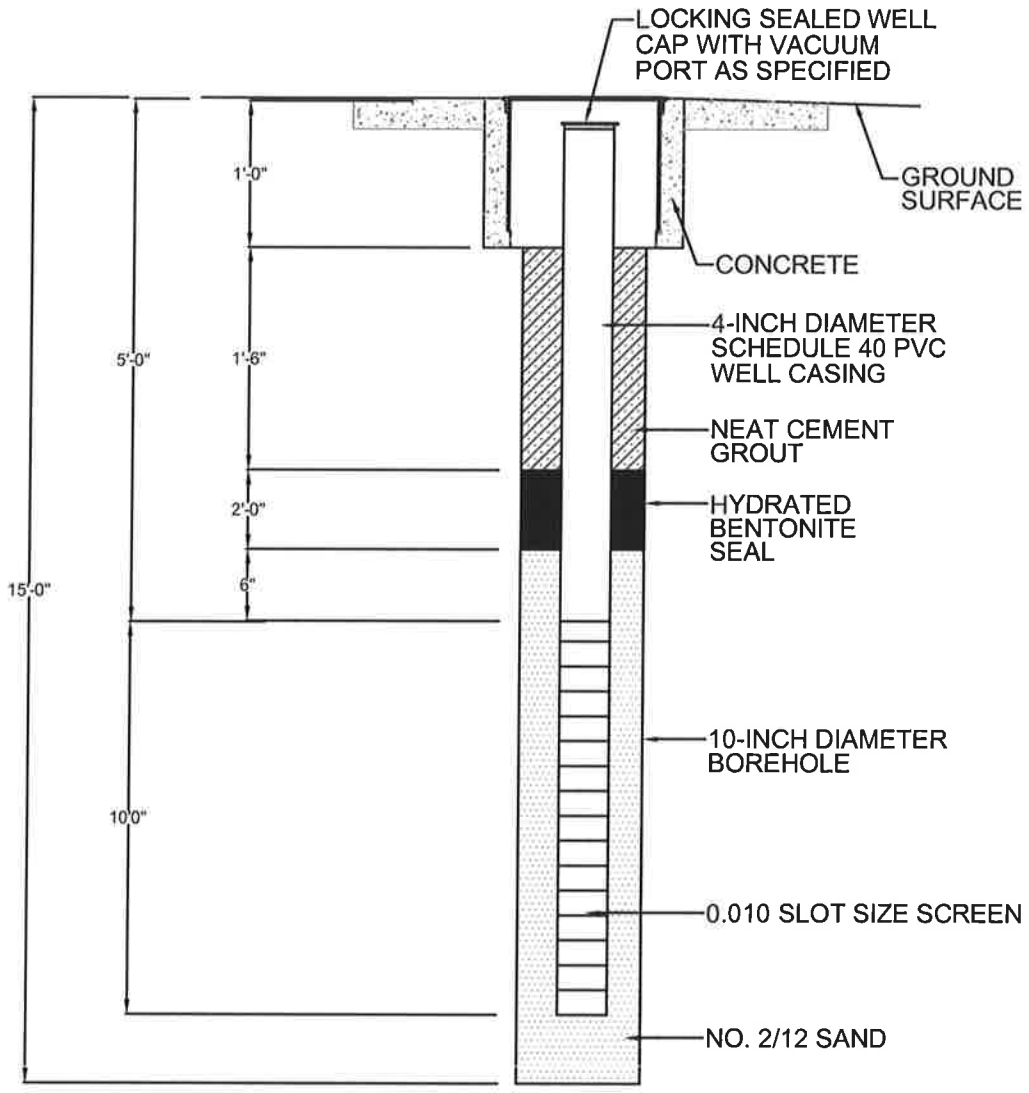

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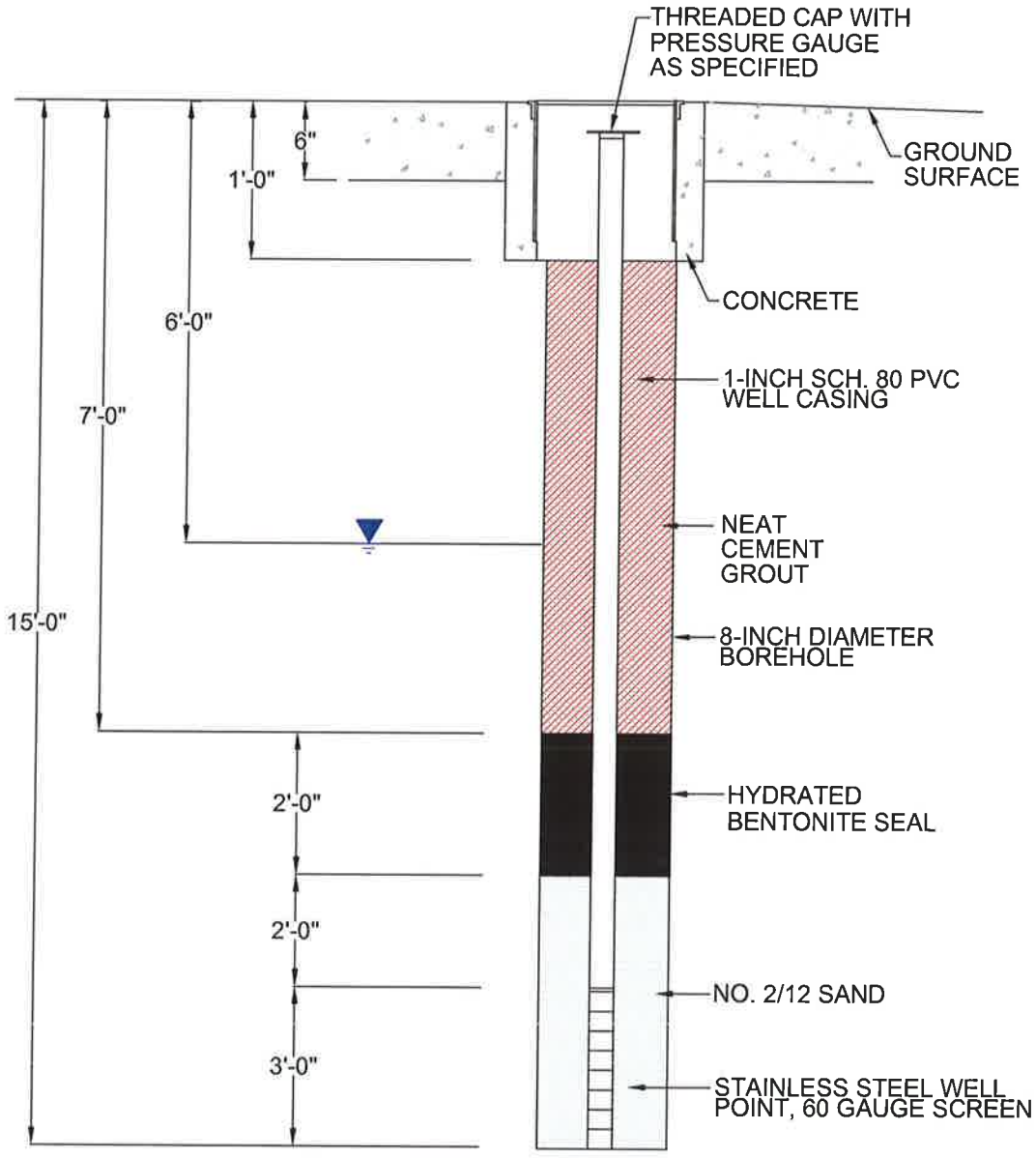
TYPICAL SVE WELL DETAIL

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

PROJECT NO.
2735

PLATE
3



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TYPICAL AS WELL DETAIL

FORMER EXXON SERVICE STATION 79574
990 San Pablo Avenue
Albany, California

PROJECT NO. 2735

PLATE 4

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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. (feet)	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)
Monitoring Well Samples															
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**
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**
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**
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**
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**
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**

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. (feet)	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)
Grab Groundwater Samples															
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
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

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

Notes:		
TOC	=	Top of well casing elevation; datum is mean sea level.
DTW	=	Depth to water.
GW Elev.	=	Groundwater elevation; datum is 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 carbons analyzed using EPA Method 8260B.
Add'l SVOCs	=	Additional semi-volatile organic carbons 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	=	Sample 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-methylnapthalene.
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.

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

Notes (Cont.):

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.

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)
Monitoring Well Samples										
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**	**---**	**---**
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**	**---**	**---**
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**	**---**	**---**
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**	**---**	**---**
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**	**---**	**---**
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**	**---**	**---**
Grab Groundwater Samples										
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-HP1	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-HP1	10/28/10	46.5	<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-59-HP1B	10/27/10	59	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---	---
W-27.5-HP2	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-HP2	10/27/10	60.5	<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

Notes:		
TOC	=	Top of well casing elevation; datum is mean sea level.
DTW	=	Depth to water.
GW Elev.	=	Groundwater elevation; datum is 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 carbons analyzed using EPA Method 8260B.
Add'l SVOCs	=	Additional semi-volatile organic carbons 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	=	Sample 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-methylnapthalene.
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.

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

Notes (Cont.):

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.

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	41.45	8	17	17	2	Schedule 40 PVC	12-17	0.020	10-17	#3 Sand
MW2	11/04/10	41.25	8	17	17	4	Schedule 40 PVC	12-17	0.020	10-17	#3 Sand
MW3	11/08/10	40.42	8	17	17	4	Schedule 40 PVC	11-16	0.020	9-16	#3 Sand
MW4	11/05/10	39.30	8	17	13	2	Schedule 40 PVC	8-13	0.020	6-13	#3 Sand
MW5	11/05/10	40.38	8	17	14	2	Schedule 40 PVC	9-14	0.020	7-14	#3 Sand
MW6	11/03/10	41.06	10	20	20	2	Schedule 40 PVC	15-20	0.020	13-20	#3 Sand

Notes:
TOC = Top of well casing elevation; datum is mean sea level.
PVC = Polyvinyl chloride.
feet bgs = Feet below ground surface.

TABLE 2A
CUMULATIVE SOIL ANALYTICAL RESULTS
Former Exxon Service Station 79374
990 San Pablo Boulevard
Albany, California

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)	Total Lead (mg/kg)
Soil Boring Samples																	
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	1,400b,c	7,200b,f	<5.0	2	51	110	400	---	---	---	---	---	---	---
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	1,400d	4,500b,f	<5.0	13	35	100	380	---	---	---	---	---	---	---
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	130e,f	<0.50	0.37	0.29	2.6	0.44	---	---	---	---	---	---	---
B-4	01/06/08	5.5	<5.0	62d	140e,f	<0.50	<0.005	1.0	0.066	0.094	---	---	---	---	---	---	---
B-4	01/06/08	10.5	<5.0	15d	140e,f	<0.50	0.25	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	---	---	---	---	---	---	---
Monitoring Well Samples																	
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	220	<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-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	450a	<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	---
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	---

TABLE 2A
CUMULATIVE SOIL ANALYTICAL RESULTS
Former Exxon Service Station 79374
990 San Pablo Boulevard
Albany, California

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)	Total Lead (mg/kg)
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	---
Drum Samples																	
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
Soil Stockpile Samples																	
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

Notes:

S-15-MW4	=	Soil - depth - monitoring well 4.
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 isong 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-Dicholorethane 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.
Total Lead	=	Total lead analyzed using EPA Method 6010B.
1,2,4-trimethylbenzene	=	1,2,4-Trimethylbenzene analyzed using EPA Method 8260B.
1,3,5-trimethlynemzene	=	1,3,5-Trimethlynemzene analyzed using EPA Method 8260B.
Isopropyltoluene	=	Isopropyltoluene analyzed using EPA Method 8260B.
Naphthalene	=	Naphthalene analyzed using EPA Method 8260B.
n-Butylbenzene	=	n-Butylbenzene analyzed using EPA Method 8260B.
p-Isopropyltoluene	=	p-Isopropyltoluene analyzed using EPA Method 8260B.
sec-Butylbenzene	=	sec-Butylbenzene analyzed using EPA Method 8260B.
t-Butylbenzene	=	t-Butylbenzene analyzed using EPA Method 8260B.
Add'l HVOCs	=	Additional Halogenated Volatile Organic Compounds analyzed using EPA Method 8260B.
feet bgs	=	Feet below ground surface.
ND	=	Not detected.
---	=	Not analyzed/Not applicable
<	=	Less than the laboratory reporting limit.
a	=	The sample 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.

TABLE 2B
ADDITIONAL CUMULATIVE SOIL ANALYTICAL RESULTS - HVOCs
Former Exxon Service Station 79374
990 San Pablo Boulevard
Albany, California

Sample ID	Sampling Date	Depth (feet bgs)	1,2,4-trimethyl-benzene (mg/kg)	1,3,5-trimethyl-benzene (mg/kg)	Isopropyl-benzene (mg/kg)	Naph-thalene (mg/kg)	n-Butyl-benzene (mg/kg)	p-Isopropyl-toluene (mg/kg)	sec-Butyl-benzene (mg/kg)	t-Butyl-benzene (mg/kg)	Add'l HVOCs (mg/kg)
Soil Boring Samples											
Not analyzed for these analytes.											
Monitoring Well Samples											
Not analyzed for these analytes.											
Drum Samples											
Not analyzed for these analytes.											
Soil Stockpile Samples											
COMP(S-Profile-1-4)	11/08/10	---	0.0053	0.062	0.061	0.098	0.14	0.012	0.053	0.018	ND

Notes:

S-15-MW4	=	Soil - depth - monitoring well 4.
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 isong 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-Dicholorethane 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.
Total Lead	=	Total lead analyzed using EPA Method 6010B.
1,2,4-trimethylbenzene	=	1,2,4-Trimethylbenzene analyzed using EPA Method 8260B.
1,3,5-trimethlynemzene	=	1,3,5-Trimethlynemzene analyzed using EPA Method 8260B.
Isopropyltoluene	=	Isopropyltoluene analyzed using EPA Method 8260B.
Naphthalene	=	Naphthalene analyzed using EPA Method 8260B.

TABLE 2B
ADDITIONAL CUMULATIVE SOIL ANALYTICAL RESULTS - HVOCs
Former Exxon Service Station 79374
990 San Pablo Boulevard
Albany, California

Notes (Cont.):		
n-Butylbenzene	=	n-Butylbenzene analyzed using EPA Method 8260B.
p-Isopropyltoluene	=	p-Isopropyltoluene analyzed using EPA Method 8260B.
sec-Butylbenzene	=	sec-Butylbenzene analyzed using EPA Method 8260B.
t-Butylbenzene	=	t-Butylbenzene analyzed using EPA Method 8260B.
Add'l HVOCs	=	Additional Halogenated Volatile Organic Compounds analyzed using EPA Method 8260B.
feet bgs	=	Feet below ground surface.
ND	=	Not detected.
---	=	Not analyzed/Not applicable
<	=	Less than the laboratory reporting limit.
a	=	The sample 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.

APPENDIX A
FIELD PROTOCOLS

Soil Boring and Well Installation
Field Protocol

Preliminary Activities

Prior to the onset of field activities at the site, ERI 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 ERI 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 ERI 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 ERI 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 ERI 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 ERI 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 ERI 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

Carno ERI 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.

Cardno ERI

Air Sparge/Soil Vapor Extraction Feasibility Test
Field Protocol

Procedure

The purpose of the test is to measure the effect of air sparging on extracted soil vapor concentrations and to obtain data regarding engineering design parameters. The test uses a sparge/extraction and treatment system as specified by the permit for air sparge/soil vapor extraction (AS/SVE). The fieldwork is performed in accordance with the site-specific safety plan, which is available at the job site during field activities.

The test is conducted in three phases. The first phase is conducted in two parts to obtain an extracted air flow rate versus applied vacuum curve, and to obtain the extraction radius of influence (ROI) and extracted hydrocarbon concentrations. The second phase is conducted to obtain the AS pressure ROI. The third phase is conducted to evaluate the change in hydrocarbon vapor concentrations with AS as opposed to SVE alone.

Prior to the application of vacuum, several parameters are recorded to establish baseline test data. These include static groundwater levels in groundwater observation wells, dissolved oxygen in groundwater observation wells, and initial vacuum, if any, in observation and extraction wells.

Phase I

A vacuum is applied to the extraction SVE well, which is located within the area of interest. Induced vacuum is monitored at the surrounding SVE observation wells, which are located at various distances from the extraction well. One observation well is located outside the expected influence of the test to monitor changes in barometric pressure. Magnehelic gauges are attached to the wells and set to read zero vacuum.

Phase I, Part I – SVE Step Test

1. Starting from a low vacuum, the vacuum applied at the wellhead is increased approximately every 5 minutes in 5 to 10 steps until the maximum applied vacuum has been achieved.
2. Photo-ionization detector (PID) readings are recorded during each step at the extraction unit and/or the wellhead.
3. The applied vacuum and flow reading in standard cubic feet per minute (scfm) are recorded for each step at the extraction unit and/or the wellhead.
4. An influent soil vapor sample may be collected during the test and submitted for laboratory analysis.

The procedure may be repeated for additional extraction wells located in other areas of the site.

Phase I, Part II – SVE Radius of Influence

1. Vacuum readings in inches of water are recorded a minimum of every ½ hour at the vapor extraction unit and wellhead.
2. PID readings are recorded a minimum of every ½ hour at the extraction unit and wellhead.
3. Flow readings in scfm are recorded a minimum of every ½ hour at the extraction unit and wellhead.
4. At a minimum, influent soil vapor samples are collected at the beginning and end of the test and submitted for laboratory analysis.
5. Induced vacuum readings in the SVE observation wells are recorded every 15 minutes for the first hour and every 30 minutes thereafter.

The vacuum unit is connected to the extraction well for a period of 4 hours for each ROI vacuum, or until induced vacuum has stabilized, whichever comes first. The procedure is performed for at least three different wellhead vacuums in increasing order for the initial test well and may be repeated for additional extraction wells located in other areas of the site.

Phase II – Air Sparge Radius of Influence

Air is injected into the sparge well, which is located within the area of interest. Induced pressure is monitored at the surrounding AS or groundwater observation wells, which are located at various distances from the injection well. One observation well is located outside the expected influence of the test to monitor changes in barometric pressure. Magnehelic gauges are attached to the wells and set to read zero vacuum. The test will be started at an applied pressure of 5 pounds per square inch (psi). Pressure is incrementally increased by 5 psi until 30 psi are reached or until a flow rate of 10 scfm can be sustained.

1. Compressor pressure and flow are recorded every 15 minutes for the first hour and then every 30 minutes thereafter.
2. Positive pressure measurements are recorded from select observation wells at 15-minute intervals for the first hour and every 30 minutes thereafter.
3. Depth to water measurements are recorded hourly from perimeter groundwater monitoring wells located at varying distances from the AS test area to determine if groundwater mounding is occurring.
4. Dissolved oxygen measurements are collected periodically from perimeter monitoring wells.

The sparge unit is connected to the injection well for a period of 4 hours, or until induced pressure has stabilized, whichever comes first. If desired, the procedure can be performed for different wellhead pressures in increasing order for the initial test well and may be repeated for additional injection wells located in other areas of the site.

Phase III – Combined Air Sparge and Soil Vapor Extraction

1. Vacuum readings in inches of water are recorded every 15 minutes, then every 30 minutes thereafter at the vapor extraction unit and extraction wellhead.
2. PID readings are recorded every hour at the vapor extraction unit and extraction wellhead.
3. Flow readings in scfm are recorded every hour at the vapor extraction unit and extraction wellhead.
4. Positive pressure and flow are measured periodically at the compressor.
5. Positive pressure is measured in several observation wells located at varying distances from the AS/SVE test area.
6. Dissolved oxygen measurements are recorded periodically from perimeter wells.
7. Influent vapor samples are collected at the beginning, middle and end of the test and submitted for laboratory analysis.