Atlantic Richfield Company

Shannon Couch
Operations Project Manager

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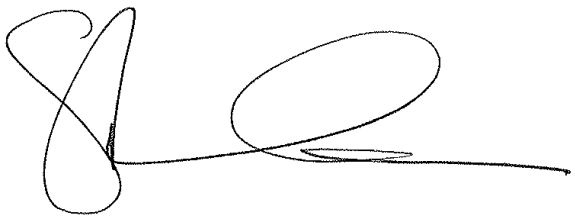
January 5, 2012

Re: Work Plan for Off-Site Groundwater Investigation
Atlantic Richfield Company Station #2162
15135 Hesperian Boulevard, San Leandro, California
ACEH Case #RO0000190

I declare that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct.

Submitted by,



Shannon Couch
Operations Project Manager

Attachment

Broadbent & Associates, Inc.
1324 Mangrove Ave., Suite 212
Chico, CA 95926
Voice (530) 566-1400
Fax (530) 566-1401

January 5, 2012

Project No. 06-88-620

Atlantic Richfield Company
P.O. Box 1257
San Ramon, CA 94583
Submitted via ENFOS

Attn: Ms. Shannon Couch

RE: Work Plan for Off-Site Groundwater Investigation, Atlantic Richfield Company Station No. 2162, 15135 Hesperian Boulevard, San Leandro, California;
ACEH Case No.RO0000190

Dear Ms. Couch:

Attached is the *Work Plan for Off-Site Groundwater Investigation* proposed for Atlantic Richfield Company Station No. 2162 located at 15135 Hesperian Boulevard in San Leandro, Alameda County, California (Site).

Should you have any questions regarding this submittal, please do not hesitate to contact us at 530-566-1400.

Sincerely,
BROADBENT & ASSOCIATES, INC.

Thomas A. Venus, PE
Senior Engineer

Enclosures

cc: Mr. Paresh Khatri, Alameda County Environmental Health (submitted via ACEH ftp site)
Electronic copy uploaded to GeoTracker

WORK PLAN FOR OFF-SITE GROUNDWATER INVESTIGATION
Atlantic Richfield Company Station No. 2162
15135 Hesperian Boulevard, San Leandro, California
ACEH Fuel Leak Case No. RO0000190

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ATTACHMENTS

WORK PLAN FOR OFF-SITE GROUNDWATER INVESTIGATION
Atlantic Richfield Company Station No. 2162
15135 Hesperian Boulevard, San Leandro, California
ACEH Fuel Leak Case No. RO0000190

1.0 INTRODUCTION

On behalf of the Atlantic Richfield Company (ARCO), Remediation Management – a BP affiliated company, Broadbent & Associates, Inc. (Broadbent) has prepared this *Work Plan for Off-Site Groundwater Investigation* for the Atlantic Richfield Company Station No. 2162, located at 15135 Hesperian Boulevard, San Leandro, Alameda County, California (Site). The purpose of the proposed investigation is to delineate the downgradient extent of petroleum hydrocarbons in groundwater and assess whether a potential impact exists to offsite receptors. This work plan includes brief discussions on the Site background and previous investigations, regional and Site geology and hydrogeology, the scope of work for proposed activities, and proposed schedule for implementation.

2.0 SITE LOCATION

The Site is an active ARCO-brand gasoline retail station that consists of a station building with service bays, four 10,000-gallon double-walled fiberglass underground storage tanks (USTs), and eight dispensers around four pumps under one canopy. The Site is predominantly covered with concrete and asphalt. The Site is located on the west side of Hesperian Boulevard south of Ruth Court in San Leandro, California. A Site Location Map is provided as Drawing 1.

The land use in the immediate vicinity of the Site is mixed commercial and residential. A Kentucky Fried Chicken (KFC) dine-in and drive-through restaurant is located on the adjacent property to the south. A secured parking lot for a satellite TV company is located on the adjacent property to the west. Across Ruth Court to the north is the office building for the satellite TV company. Across Hesperian Boulevard to the east is the Bayfair Center mall with Target, Macy's, Kohl's, Staples, Old Navy, and Bed Bath & Beyond stores. Further south of the KFC are the elevated tracks for Bay Area Rapid Transit (BART) and at-grade railroad tracks used by Amtrak and commercial railroad traffic. Further south of this railroad right of way is the driveway to Hesperian Gardens and single-family residences. An aerial photograph showing the site and vicinity is provided as Drawing 2.

3.0 SITE BACKGROUND AND SUMMARY OF PREVIOUS INVESTIGATIONS

A UST leak was reported in September of 1991. The USTs, product lines and dispensers were removed and replaced with four, double-walled fiberglass, 10,000 gallon tanks in late 1991 through early 1992. Approximately 100 cubic yards (approximately 130 tons) of contaminated soil and approximately 50,000 gallons of water from the UST excavation were removed during these activities. A limited soil vapor performance test was reportedly completed in late 1991 to determine if Soil Vapor Extraction (SVE) was feasible at the Site. Results of the test using vapor wells VW-1 and VW-2 in the southern portion of the Site showed that SVE was not an effective remediation technique due to an insufficient radius of influence by the SVE test system. Periodic groundwater monitoring at the Site began in 1992, when four monitoring wells were installed.

Product lines and dispensers were again replaced with upgrades in January 2003. Approximately 140 cubic yards (183 tons) of soil were excavated and removed from the Site

during this upgrade of the product lines and dispensers. Following excavation, samples were collected of soil left in place below the dispensers and pipeline runs: Sample S-L4-3.5 yielded a Total Petroleum Hydrocarbons as Gasoline (TPH-G) concentration of 200 milligrams per kilogram (mg/kg), Toluene concentration of 2.1 mg/kg, Ethylbenzene concentration of 1.4 mg/kg, and a Total Xylenes concentration of 1.5 mg/kg; Sample S-L1-3.5 yielded a Benzene concentration of 0.072 mg/kg; and samples S-L3-3.5, S-L1-3.5, and S-D5-3 yielded concentrations of Methyl Tertiary Butyl Ether (MTBE) of 0.55 mg/kg, 0.14 mg/kg, and 0.093 mg/kg, respectively.

Groundwater at the Site has been monitored since 1992 through a network of 4 monitoring wells with the addition of two wells in 2009: Wells MW-1 and MW-2 are adjacent to the USTs; Wells MW-3, MW-4 and MW-6 are located downgradient near the southern boundary of the Site; well MW-5 is located near the entrance to the service bays of the station building (Drawing 3). Historic water level elevations have yielded potentiometric horizontal groundwater gradients mostly to the southwest at magnitudes ranging from 0.002 ft/ft to 0.013 ft/ft. Historic groundwater gradient directions and magnitudes since 2001 are provided in Appendix A.

With the exception of MW-6, concentrations of TPH-G/Gasoline-Range Organics (GRO) have, since July 2002, been non-detect and/or below the Environmental Screening Level (ESL) of 100 micrograms per liter (µg/l) for ground water that is a current or potential drinking water resource. The maximum TPH-G/GRO concentration was detected in well MW-6 at a concentration of 6,200 µg/L in June 2010. Concentrations of Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) have been non-detect and/or below the ESLs since December 2000. The maximum Benzene concentration in ground water at the Site was detected in well MW-6 at a concentration of 15 µg/L in June 2010. Maximum concentrations for Toluene, Ethylbenzene, and Total Xylenes were 3.2 µg/L (MW-3, 6/23/1999), 45 µg/L (MW-2, 2/26/1996), and 28 µg/L (MW-2, 2/26/1996), respectively.

The wells have shown a decreasing trend in MTBE concentrations since 1996. MTBE has not been detected in well MW-1 since July 2002, well MW-2 since 2000, or well MW-4 since August 2005, and has not been detected in MW-5. The maximum MTBE concentration was detected in well MW-3 at 1,900 µg/L in June 1997. Concentrations of MTBE in MW-3 have shown a decreasing trend from 1,900 µg/L in June 1997 to non-detect in November 2010. The MTBE concentration in well MW-4 has shown a decreasing trend from July 2002 to non-detect since August 2005. Results of periodic ground-water monitoring and sampling are summarized Appendix A. Historic soil and groundwater analytical data are provided in Appendix A.

In July 2007, Stratus Environmental, Inc. (Stratus) advanced a total of five soil borings to evaluate the extent of petroleum hydrocarbon impacted soil and ground water on-site. Soil and groundwater samples were collected from each boring for laboratory analyses. The analytical results for the collected soil samples indicated concentrations of GRO above laboratory reporting limits in five of the 14 soil samples at concentrations ranging from 0.65 mg/kg (CB3 7.5'-8') to 1,100 mg/kg (CB5 11.5'-12'); Diesel-Range Organics (DRO) were detected above laboratory reporting limits in 11 of the 14 soil samples collected at concentrations ranging from 1.6 mg/kg (CB3 15.5'-16') to 1,300 mg/kg (CB2 11.5'-12'); Total Xylenes were detected above laboratory

reporting limits in soil sample CB2 11.5'-12' at a concentration of 0.0071 mg/kg; and MTBE was detected above laboratory reporting limits in soil sample CB3 7.5'-8' at a concentration of 0.0063 mg/kg.

Based on the field investigation observations, analytical results obtained, and to further progress towards case closure, Broadbent recommended that a new monitoring well be constructed along the southern boundary of the Site in the approximate location of recently advanced boring CB-5. On 24 April 2009, Stratus oversaw RSI Drilling, Inc. advance two Geoprobe/hollow-stem auger soil borings (identified as MW-5 and MW-6) at the Site. Boring MW-5 (completed as well MW-5) was located in close proximity of the previous boring CB-2, slightly north of the former waste oil tank and southwest of the USTs. Previous boring CB-2 had been advanced in July 2007 within the source area. Total Petroleum Hydrocarbons in the Diesel Range (TPH-D) were detected in the soil sample collected from boring CB-2 at a concentration of 1,300 mg/kg. TPH-G and TPH-D were detected in the grab groundwater sample collected from CB-2 at concentrations of 1,900 micrograms per liter (µg/L) and 2,000 µg/L, respectively. Boring MW-6 (completed as well MW-6) was located in close proximity of previous boring CB-5, directly south of well VW-1 and west of previous boring CB-5. TPH-G was detected in the soil sample collected from boring CB-5 at a concentration of 1,100 mg/kg. TPH-G and TPH-D were detected in the grab groundwater sample from boring CB-5 at concentrations of 490 µg/L and 360 µg/L, respectively.

4.0 SITE GEOLOGY AND HYDROGEOLOGY

According to the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report* (California Regional Water Quality Control Board – San Francisco Bay Region/SFRWQCB, June 1999), the Site is located within the San Leandro Sub-Area, near the northern boundary of the San Lorenzo Sub-Area, in the East Bay Plain of the San Francisco Basin. These Sub-Areas share the same hydrogeologic characteristics, yet are separated by the junction of the surface trace between the San Leandro and San Lorenzo alluvial fans. These Sub-Areas consist primarily of alluvial fan sediments with the distinction of the Yerba Buena Mud extending west into the San Leandro and San Lorenzo Sub-Areas, unlike the northern Sub-Areas. The Yerba Buena Mud forms a major aquitard between the shallow and deep aquifers throughout much of southwestern area of the East Bay Plain. The San Leandro and San Lorenzo Sub-Areas alluvial fans are finer grained and produce less groundwater than the Niles Cone basin to the south.

Throughout most of the Alameda County portion of the East Bay Plain, from Hayward north to Albany, water level contours show that the general direction of groundwater flow is from east to west or from the Hayward Fault to the San Francisco Bay. Groundwater flow direction generally correlates to topography. Flow direction and velocity are also influenced by buried stream channels that typically are oriented in an east-west direction. In the southern end of the study area however, near the San Lorenzo Sub-Area, the direction of flow may not be this simple. According to information presented in *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, the small set of water level measurements available seemed to show that the groundwater in the upper aquifers may be flowing south, with the deeper aquifers, the Alameda Formation, moving north. The nearest surface water drainage is the Estudillo Canal, located approximately 1,100 feet southeast of the Site. The Estudillo Canal's overall general flow direction is from east to west; however, specific flow directions of the canal vary to the

southwest near the Site, eventually turning to the west-northwest prior to entering the San Francisco Bay via the San Leandro Flood Control Channel.

The Site elevation is approximately 33 feet above mean sea level. The water table fluctuates seasonally with recorded static depths to water in monitor wells at the Site ranging between a historic minimum depth of 6.69 ft (MW-2 on 4/14/2005) and maximum of 10.08 feet (MW-4 on 10/9/2002). Historically, depth-to-water measurements have averaged 8.49 ft below top-of-casing measuring point elevations in the monitoring wells (See Appendix A). The potentiometric groundwater gradient during the second quarter 2011 monitoring event on May 19, 2011 (most recent available) was to the south-southeast at a magnitude of 0.003 ft/ft. Historic groundwater gradients and magnitudes for the Site are summarized in Appendix A. Based on this information, the local groundwater gradient is to the southwest which is similar to the surface topography and assumed flow direction, southwest towards the San Francisco Bay.

According to the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, the majority of East Bay Plain Cities (except the City of Hayward) do not have "any plans to develop local ground-water resources for drinking water purposes, because of existing or potential saltwater intrusion, contamination, or poor or limited quantity." The SFRWQCB's basin plan denotes existing beneficial uses of municipal and domestic supply (MUN), industrial process supply (PROC), industrial service supply (IND), and agricultural supply (AGR) for the East Bay Plain ground-water basin.

Geologic data derived from on-site borings indicate unconsolidated sediments consisting of interbedded silts and silty clay from one to nine feet bgs. A sand and gravel unit underlies these silts and silty clays. A silt unit encountered at 13 feet bgs underlies the sand and gravel unit. Soil boring and well construction logs are provided in Appendix B.

5.0 CONCEPTUAL SITE MODEL

It is believed a containment failure from the UST/pipeline systems at Station 2162 resulted in a release of petroleum hydrocarbons to the Site. This release was mobilized within groundwater and migrated as a contamination plume with the documented direction of the groundwater gradient towards the south. Impacted groundwater has been found in samples near the southern property boundary of the Site. It is possible that groundwater with detectable concentrations of petroleum hydrocarbons has migrated offsite to the south. Adjacent to the south from the Site is a parking lot for a Kentucky Fried Chicken (KFC) restaurant. The restaurant building is in the southern portion of the adjacent property, separated from its southern property boundary by the drive-thru lane to its fast food pickup window. Further beyond the KFC to its south are the railroad right-of-ways for the CalTrain and Union Pacific Rail Road Company. Further south is the narrow driveway to the Hesperian Gardens apartment complex. Much further south beyond that are single-family residences. The closest potential receptors to the release from Station 2162 would be the employees and visitors to the KFC restaurant. As the KFC restaurant is provided potable water from East Bay Municipal Utility District (EBMUD) which sources its water far away from the Site, the single potential exposure pathway might be vapor intrusion emanating upward from the impacted groundwater plume up through the KFC restaurant slab into the indoor air. Therefore, in order to progress towards case closure,

Broadbent recommends four direct-push borings be advanced to collect groundwater samples on the southern neighboring site in order to delineate the lateral extent of the contamination plume.

6.0 PROPOSED SCOPE OF WORK

6.1 Proposed Boring Locations

To further characterize the extent of the groundwater contamination by petroleum hydrocarbons downgradient of the Site, Broadbent proposes advancement of four direct-push borings in the parking lot of the neighboring KFC restaurant facility. The proposed locations are based on information in the Soil and Water Investigation Report (Broadbent, 9/14/2007), groundwater gradient, and subsurface conditions.

6.2 Preliminary Activities, Local Permitting and Notification

Prior to initiating field activities, Broadbent will attempt to obtain offsite property access from the owner of the adjacent property with the KFC restaurant. Broadbent will meet with the restaurant manager and discuss the need for the offsite investigation, the scope of the proposed work, and how we might be able to minimize impacts during the short-duration investigation. Broadbent will prepare a standard BP Offsite Property Access Agreement, and submit the proposed agreement to the offsite owner on behalf of BP. If necessary, Broadbent will act as liaison between the offsite property owner and BP Legal.

Following acquisition of an access agreement, Broadbent will obtain the necessary permits from Alameda County; prepare a site health and safety plan (HASP) for the proposed work; clear the Site for subsurface utilities; and provide 72-hour advance written notification to ACEH (email preferred to paresh.khatri@acgov.org). The utility clearance will include notifying Underground Service Alert (USA) of the pending work a minimum of 48 hours prior to initiating the field investigation, and securing the services of a private utility locating company to confirm the absence of underground utilities at each boring location. Boreholes will be physically cleared to 6.5 ft bgs using hand auger or air knife methods.

The Site-specific HASP will be prepared for use by personnel implementing the work plan. The HASP will address the proposed boring installations. A copy of the HASP will be available on-site during work. The subcontractor(s) performing field activities will be provided with a copy of the HASP prior to initiating work. A safety tailgate meeting will also be conducted daily to review the Site hazards and drilling work scope.

6.3 Groundwater Borings

The borings will be completed under the supervision of a Broadbent field geologist with the use of a drill rig equipped direct push technology. The borings will be advanced until groundwater is encountered, at approximately 10 feet. Groundwater samples will be collected for laboratory analyses. Soil will be classified according to the Unified Soil Classification System (USCS), and will be examined using visual and manual methods for parameters including odor, staining, color, grain size, and moisture content. Field screening for hydrocarbons will include visual and olfactory observations and portable photo-ionization detector (PID) measurements.

Collected groundwater samples will be analyzed for the following: GRO (hydrocarbon chain lengths between C4-C12) by EPA Method 8015B; DRO (hydrocarbon chain lengths between C10-C28) by EPA Method 8015B (M); and for BTEX, MTBE, Di-Isopropyl Alcohol (DIPE), Ethyl-Tertiary Butyl Ether (ETBE), Tert-Amyl Methyl Ether (TAME), 1,2-Dichloroethane (1,2-DCA), 1,2-Dibromomethane (EDB), Tert-Butyl Alcohol (TBA), and Ethanol by EPA Method 8260B.

Investigation-derived residuals will be temporarily stored on-site in 55-gallon drums, pending characterization for proper disposal. Broadbent will coordinate the transportation and disposal of surplus soils and liquids to the appropriate California-regulated facilities.

7.0 PROPOSED SCHEDULE

The schedule for the above-noted work shall proceed as follows:

- Implement Offsite Investigation – Within 60 days after approval of this work plan and obtaining the necessary permits and offsite access from the private property owner.
- Submittal of Offsite Investigation Report – Within 60 days after completion of fieldwork.

8.0 LIMITATIONS

The findings presented in this document are based upon: observation of field personnel from previous consultants, the points investigated, and results of laboratory tests performed by various laboratories. Our services were performed in accordance with the generally accepted standard of practice at the time this document was written. No other warranty, expressed on implied was made. This report has been prepared for the exclusive use of Atlantic Richfield Company. It is possible that variations in soil or ground-water conditions could exist beyond points explored in this investigation. Also changes in site conditions could occur in the future due to variations in rainfall, temperature, regional water usage, or other factors.

9.0 REFERENCES

BAI, 15 May 2007. *Work Plan for On-Site Soil and Ground-Water Investigation, Atlantic Richfield Company Station #2162, 15135 Hesperian Boulevard, (San Leandro), California; ACEH Case No. RO0000190.* Submitted to Mr. Steven Plunkett of ACEH on behalf of BP.

Broadbent & Associates, Inc., 15 September 2007. *Soil and Ground-Water Investigation Report, Atlantic Richfield Company Station #2162, 15135 Hesperian Boulevard, San Leandro, California; ACEH Case No. RO0000190.* Submitted to Mr. Steven Plunkett of ACEH on behalf of BP.

Broadbent & Associates, Inc., 2 June 2009. *On-Site Soil & Ground-Water Investigation Report, Atlantic Richfield Company Station No.2162, 15135 Hesperian Boulevard, San Leandro, California; ACEH Case #RO0000190.* Submitted to Mr. Paresh Khatri of ACEH on behalf of BP.

Broadbent & Associates, Inc., 29 July 2011. *Second Quarter 2011 Semi-Annual Groundwater*

Monitoring Report, Atlantic Richfield Company Station No.2162, 15135 Hesperian Boulevard, San Leandro, California; ACEH Case #RO0000190. Submitted to Mr. Paresh Khatri of ACEH on behalf of BP.

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

URS, 4 June 2005. *Request for Case Closure, Atlantic Richfield Company Service Station #2162, 15135 Hesperian Boulevard, San Leandro, California.* Submitted to Ms. Eva Chu of ACEH on behalf of BP.

LIST OF DRAWINGS

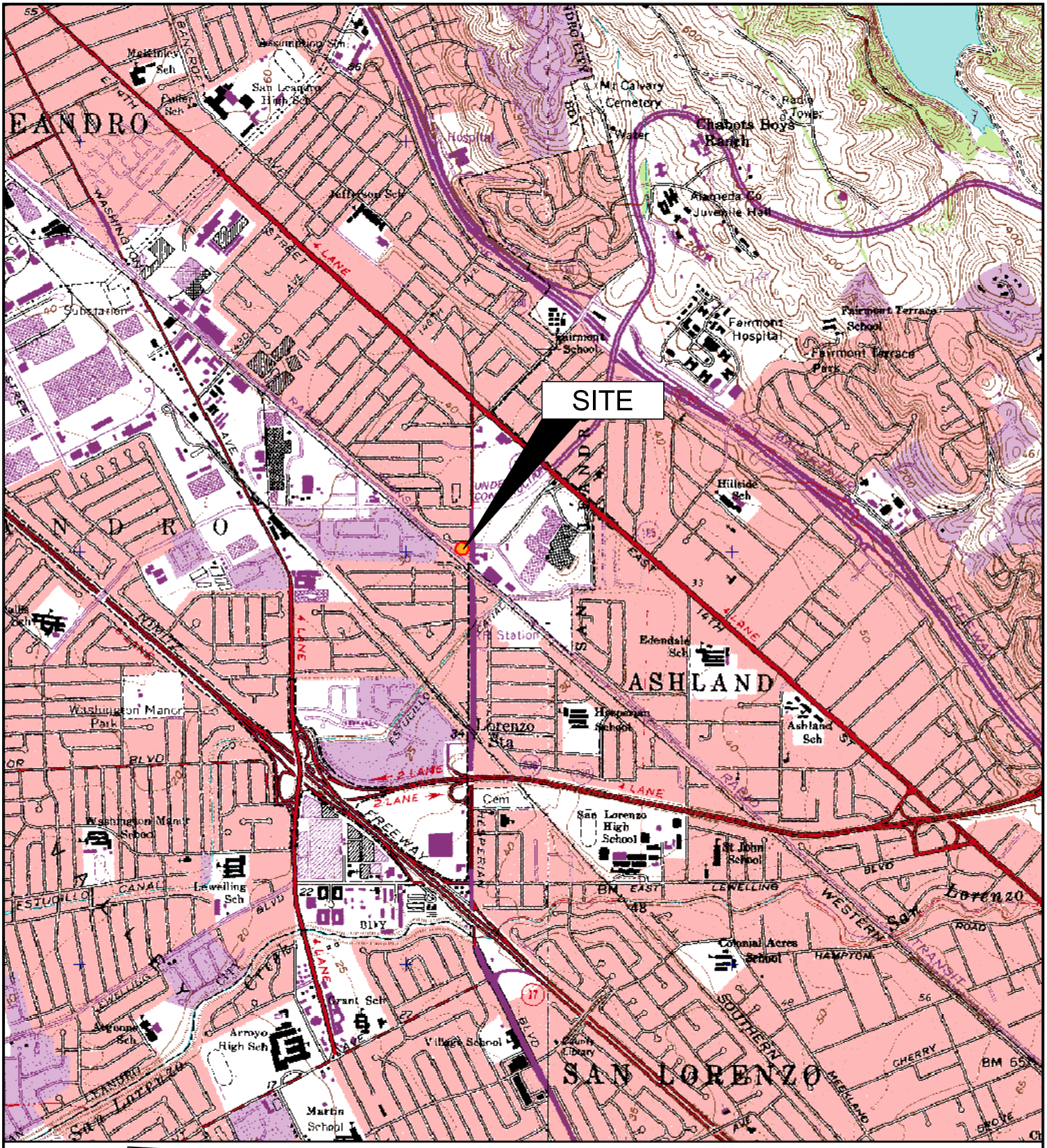


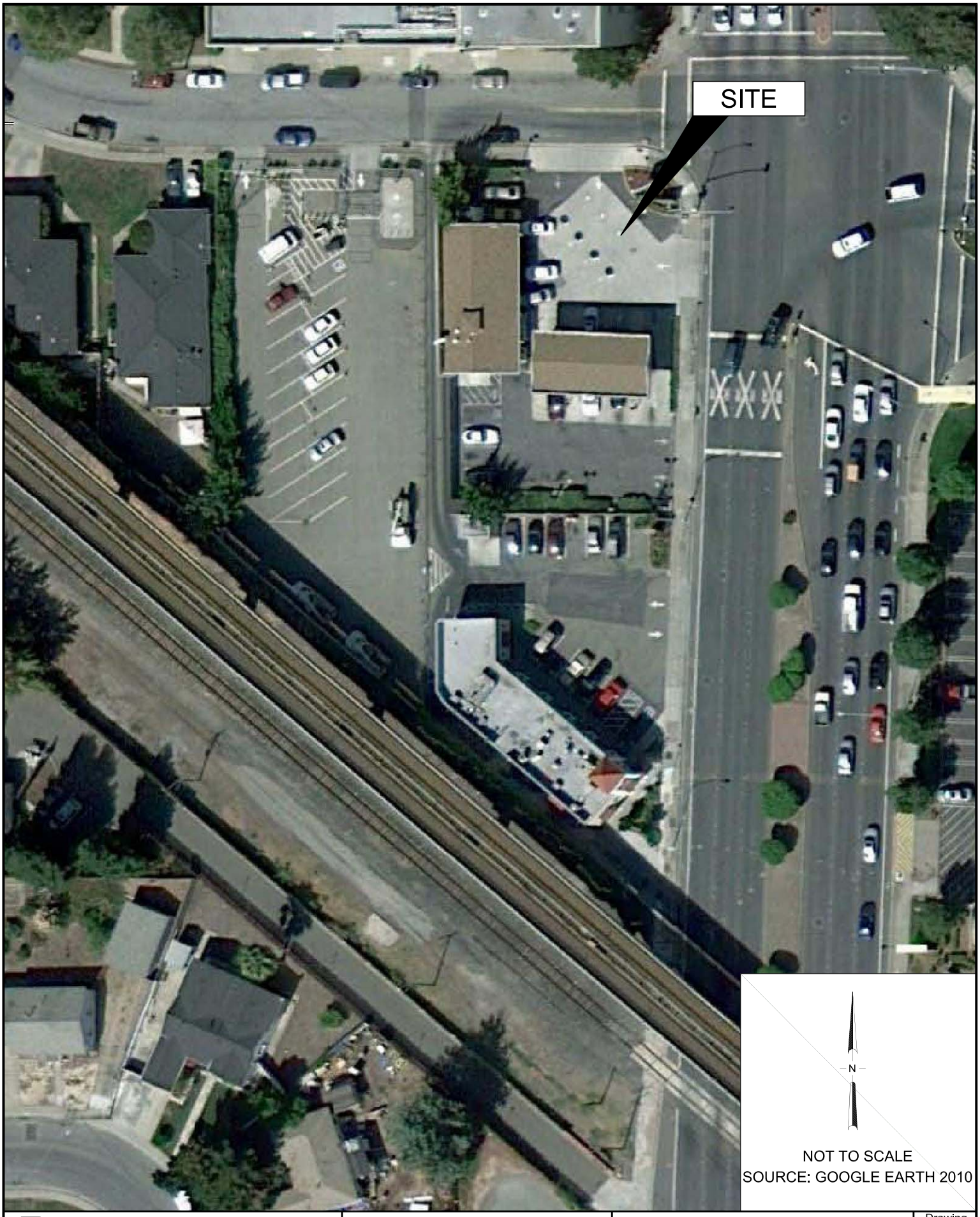
IMAGE SOURCE: USGS

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, CA 95926
Project No.: 06-88-620 Date: 07/27/09

Station #2162
15135 Hesperian Boulevard
San Leandro, California

Site Location Map

Drawing
1

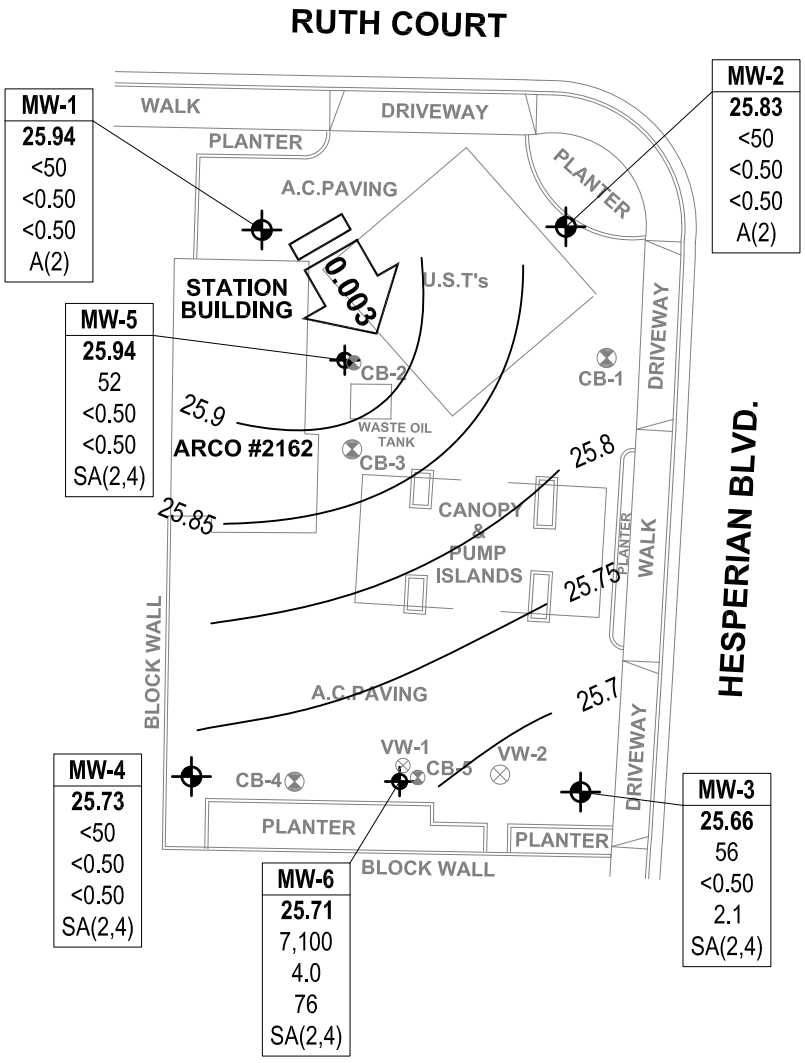


BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, CA 95926
Project No.: 06-88-620 Date: 11/28/11

Station #2162
15135 Hesperian Boulevard
San Leandro, California

Site and Vicinity Layout

Drawing
2



LEGEND

- GROUNDWATER MONITORING WELL
- VAPOR EXTRACTION WELL
- SOIL BORING
- 24.5 GROUNDWATER ELEVATION CONTOUR (FEET ABOVE DATUM)
- 0.003 APPROXIMATE GROUNDWATER FLOW DIRECTION AND GRADIENT (FT/FT)

NOTE: SITE MAP ADAPTED FROM WOOD RODGERS SURVYING.

Well	WELL DESIGNATION
ELEV	GROUNDWATER ELEVATION (FEET)
GRO Benzene MTBE	GRO, BENZENE & MTBE CONCENTRATIONS (µg/L)
A/Q/SA	SAMPLING FREQUENCY
<	NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMITS
*	DATA NOT USED FOR CONTOURING
SA	SAMPLED SEMI-ANNUALLY

N

0 40 80

SCALE (ft)

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California

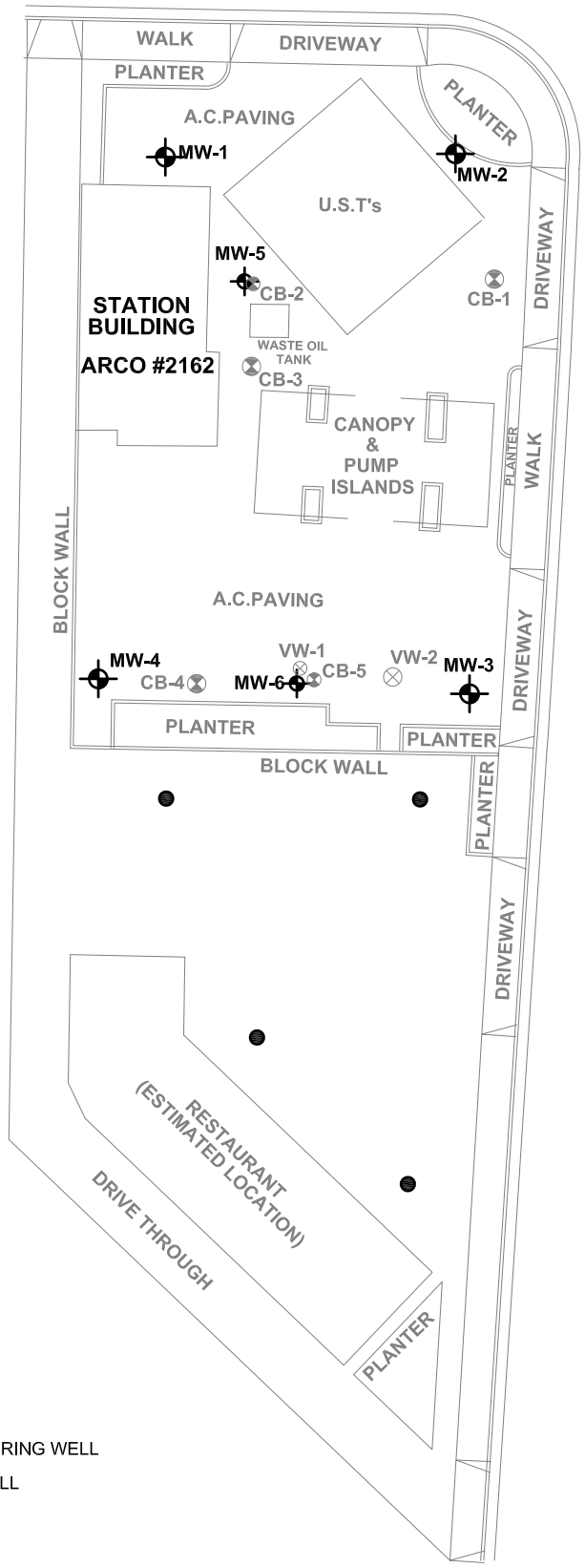
Project No.: 06-88-620 Date: 07/17/11

Station #2162
15135 Hesperian Boulevard
San Leandro, California

Groundwater Elevation Contours and Analytical Summary Map
19 May 2011

Drawing 3

RUTH COURT



LEGEND

- GROUNDWATER MONITORING WELL
- VAPOR EXTRACTION WELL
- SOIL BORING
- PROPOSED BORING

NOTE: SITE MAP ADAPTED FROM WOOD RODGERS SURVYING.

N

0 40 80

SCALE (ft)

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California

Project No.: 06-88-620 Date: 12/02/11

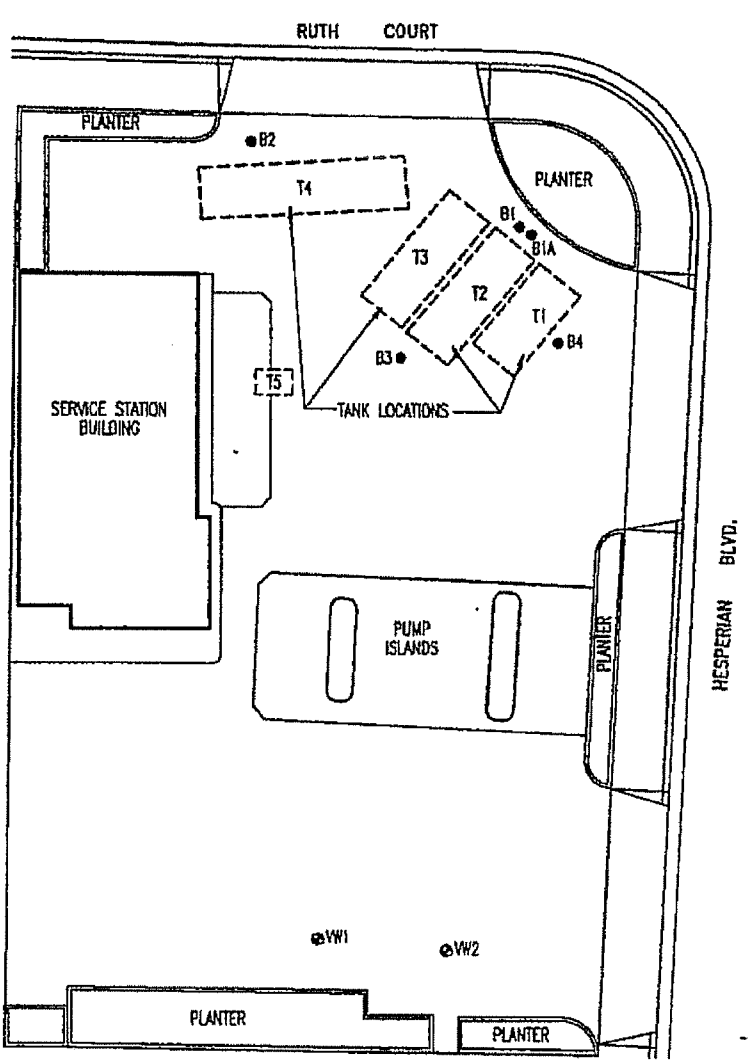
Station #2162
15135 Hesperian Boulevard
San Leandro, California

Proposed GeoProbe Boring Locations

Drawing 4

APPENDIX A.

HISTORIC SOIL AND GROUNDWATER DATA



EXPLANATION

- ●B1 SOIL BORING LOCATIONS AND DESIGNATIONS.
- ⊕VW1 VAPOR EXTRACTION TEST WELL LOCATIONS AND DESIGNATIONS.
- [ ] FORMER UNDERGROUND STORAGE TANK LOCATION.

T1	6,000 GAL. STEEL TANK.
T2	8,000 GAL. STEEL TANK.
T3	8,000 GAL. STEEL TANK.
T4	12,000 GAL. FIBERGLASS TANK.
T5	560 GAL. WASTE OIL TANK.

0' 30' 60'

APPROXIMATE SCALE

ROUX ASSOCIATES
ENVIRONMENTAL CONSULTING & MANAGEMENT

COMPILED BY:	T.R.
PREPARED BY:	R.P.
PROJECT MNGR.	G.M.
DATE:	06/92
SCALE:	AS SHOWN
PROJECT NO.	A117W01
FILE NAME:	AR216201

PREPARED FOR: ARCO PRODUCTS COMPANY

TITLE: SITE PLAN

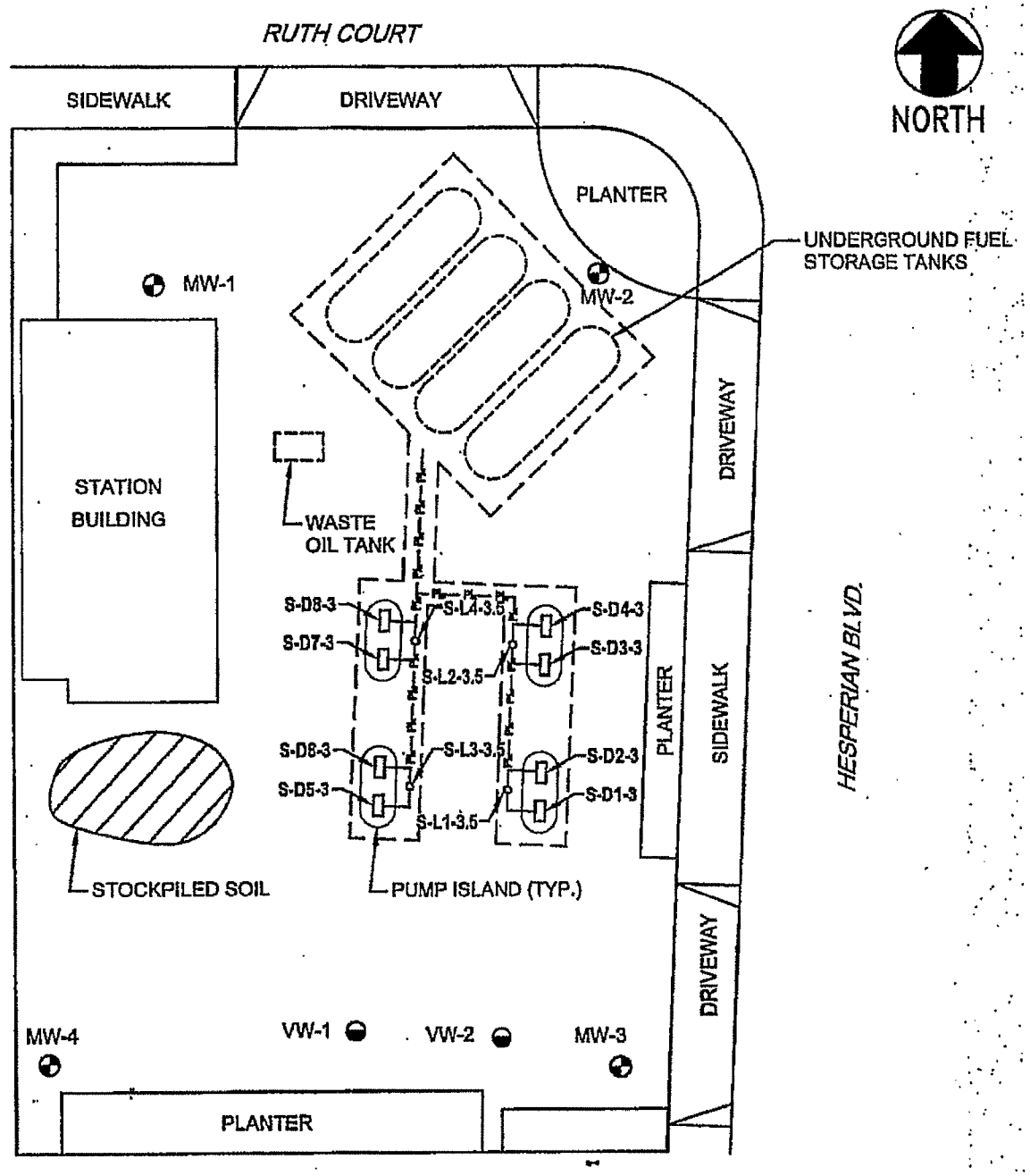
ARCO FACILITY NO. 2162

FIGURE 2

Table 2. Summary of Soil Analyses: Sidewall and Product Lines
ARCO Facility No. 2162, San Leandro, California

Sample Number	Date Sampled	Depth Sampled	TPH-G (1)	BTEX Distinction (1)			
				Benzene	Toluene	Ethylbenzene	Xylenes
Excavation Sidewall Samples:							
SW-1	12/5/91	9	500	ND	0.4	3.5	8.4
SW-2	12/5/91	10	140	0.1	0.38	3.0	7.2
SW-3	12/5/91	10	150	0.26	0.11	2.1	2.0
SW-4	12/5/91	10	610	0.47	7.1	11	82
SW-5	12/5/91	10	1,000	2.3	9.2	25	220
Product Line Samples:							
L-1	2/4/92	3	ND	ND	ND	ND	ND
L-2	2/4/92	3.5	4.4	0.082	0.013	0.21	0.3
L-3	2/4/92	3	ND	ND	ND	ND	ND
L-4	2/4/92	3	ND	0.0063	0.0076	ND	0.029
L-5	2/4/92	3	110	0.65	0.17	1.2	0.14
L-6	2/4/92	2.5	16	1.0	0.2	0.96	4.0
L-7	2/4/92	4	12	0.28	0.018	0.35	0.78

FOOTNOTES
(1) = Concentrations reported in mg/kg (= parts per million).
TPH-G = Total Petroleum Fuel Hydrocarbons as Low/Medium Boiling Point Hydrocarbons (USEPA Method 8015).
BTEX Distinction (USEPA Method 8020).
ND = Not Detected.



LEGEND

MW-1	GROUNDWATER MONITORING WELL
VW-1	SOIL VAPOR EXTRACTION WELL
S-L1-3.5	FUEL LINE SAMPLING LOCATION
S-D1-3	FUEL DISPENSER SAMPLING LOCATION.
	EXPOSED PRODUCT LINE PIPING
	APPROXIMATE LIMITS OF EXCAVATION

0 25 50

SCALE IN FEET

URS	Project No. 38486067 Arco Service Station No. 2162 15135 Hesperian Boulevard San Leandro, California	SOIL SAMPLING LOCATION PLAN January 10, 2003	FIGURE 2

Soil Analytical Data
ARCO Service Station No. 2162
15135 Hesperian Boulevard
San Leandro, California

TABLE 1
Product Line/Dispenser Analytical Results

Soil Sample ID	Sample	Date	TPH as gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)	MTBE (ppm)
S-D1-3	3	1/10/03	ND<0.5	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.025
S-D2-3	3	1/10/03	ND<0.5	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.025
S-D3-3	3	1/10/03	ND<0.5	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.025
S-D4-3	3	1/10/03	ND<0.5	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.025
S-D5-3	3	1/10/03	**0.75**	ND<0.005	ND<0.005	**0.021**	**0.03**	**0.093**
S-D6-3	3	1/10/03	ND<0.5	ND<0.005	ND<0.005	ND<0.005	ND<0.01	**0.021**
S-D7-3	3	1/10/03	**5.7**	ND<0.025	ND<0.025	**0.1**	**0.49**	ND<0.12
S-D8-3	3	1/10/03	**46**	ND<0.025	**0.13**	**0.17**	**0.36**	ND<0.25
S-L1-3.5	3.5	1/10/03	ND<0.5	**0.072**	**0.0095**	**0.029**	**0.032**	**0.14**
S-L2-3.5	3.5	1/10/03	ND<0.5	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.025
S-L3-3.5	3.5	1/10/03	ND<2.5	ND<0.025	ND<0.025	ND<0.025	ND<0.05	**0.55**
S-L4-3.5	3.5	1/10/03	**200**	ND<0.025	**2.1**	**1.4**	**1.5**	ND<0.25

TABLE 2
Soil Stockpile Analytical Results

Soil Sample ID	Sample	Date	TPH as gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)	MTBE (ppm)	Total Lead (ppm)
SP (1-4) Composite	--	1/10/03	**0.79**	ND<0.025	ND<0.025	**0.032**	**0.14**	ND<0.12	**19**

TPH = Total purgeable petroleum hydrocarbons using EPA Method 8015B, modified.
BTEX = Benzene, toluene, ethylbenzene, total xylenes using EPA Method 8021B.
MTBE = Methyl Tertiary Butyl Ether.
ppb = Parts per billion.
ppm = Parts per million.
ND< = Less than stated laboratory detection limit.

Table 1
Groundwater Elevation Data

ARCO Service Station 2162
15135 Hesperian Boulevard at Ruth Court
San Leandro, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)
MW-1	09/30/92	31.19	10.68	20.51
	10/16/92		10.83	20.36
	01/14/93		7.25	23.94
	02/24/93		7.23	23.96
	03/30/93		7.58	23.61
	04/14/93		7.96	23.23
	05/19/93		8.26	22.93
	06/17/93		8.42	22.77
	07/28/93		8.68	22.51
	08/11/93		9.07	22.12
	09/28/93		9.60	21.59
	10/15/93		9.51	21.68
	11/16/93		— Well Inaccessible —	
	12/16/93		8.70	22.49
	02/15/94		8.51	22.68
	03/18/94		8.46	22.73
	05/05/94		8.66	22.53
	08/05/94		9.50	21.69
	11/21/94		8.83	22.36
	02/24/95		7.90	23.29
	05/31/95		7.86	23.33
	08/23/95		8.74	22.45
MW-2	09/30/92	30.38	9.74	20.64
	10/16/92		9.91	20.47
	01/14/93		6.56	23.82
	02/24/93		6.67	23.71
	03/30/93		6.76	23.62
	04/14/93		7.10	23.28
	05/19/93		7.40	22.98
	06/17/93		7.51	22.87
	07/28/93		7.73	22.65
	08/11/93		8.11	22.27
	09/28/93		8.57	21.81
	10/15/93		8.56	21.82
	11/16/93		8.87	21.51
	12/16/93		7.92	22.46
	02/15/94		7.62	22.76
	03/18/94		7.57	22.81
	05/05/94		7.75	22.63
	08/05/94		8.53	21.85
	11/21/94		7.92	22.46
	02/24/95		6.98	23.40
	05/31/95		6.97	23.41
	08/23/95		7.83	22.55
MW-3	09/30/92	30.30	9.93	20.37
	10/16/92		10.13	20.17
	01/14/93		6.71	23.59
	02/24/93		6.82	23.48
	03/30/93		7.07	23.23
	04/14/93		7.41	22.89
	05/19/93		7.72	22.58
	06/17/93		7.86	22.44
	07/25/93		8.13	22.17
	08/11/93		8.45	21.85
	09/28/93		8.96	21.34

Table 1 (continued)
Groundwater Elevation Data

ARCO Service Station 2162
15135 Hesperian Boulevard at Ruth Court
San Leandro, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)
MW-3	10/15/93		8.85	21.45
(cont.)	11/16/93		9.09	21.21
	12/16/93		8.10	22.20
	02/15/94		7.88	22.42
	03/18/94		7.88	22.42
	05/05/94		8.08	22.22
	08/05/94		8.82	21.48
	11/21/94		8.17	22.13
	02/24/95		7.40	22.90
	05/31/95		7.35	22.95
	08/23/95		8.15	22.15
MW-4	09/30/92	30.39	11.15	19.24
	10/16/92		11.33	19.06
	01/14/93		7.49	22.90
	02/24/93		7.57	22.82
	03/30/93		8.06	22.33
	04/14/93		8.48	21.91
	05/19/93		7.80	22.59
	06/17/93		8.94	21.45
	07/25/93		9.28	21.11
	05/11/93		9.61	20.78
	09/25/93		10.14	20.25
	10/15/93		10.00	20.39
	11/16/93		10.22	20.17
	12/16/93		9.11	21.28
	02/15/94		8.97	21.42
	03/15/94		8.99	21.40
	05/05/94		9.21	21.18
	08/05/94		10.02	20.37
	11/21/94		9.30	21.09
	02/24/95		8.46	21.93
	05/31/95		8.41	21.98
	08/23/95		9.32	21.07

MSL = Mean sea level
TOC = Top of casing

Table 2
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Gasoline and BTEX Compounds)

ARCO Service Station 2162
15135 Hesperian Boulevard at Ruth Court
San Leandro, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)
MW-1	09/30/92	1,100	6.2	<0.50	6.9	<0.50
	10/16/92	790	3.0	0.8	5.6	2.9
	01/14/93	660	1.2	<1 a	15	4.6
	04/14/93	310	<1 a	<1 a	<1 a	
	08/11/93	660	0.8	<0.7	9.0	<1 b
	10/15/93	620	0.7	<0.5	5.9	2.2
	02/15/94	650	1.9	<0.5	4.5	4.9 b
	05/05/94	510	<0.5	<0.5	<1	1.6
	08/05/94	310	<0.5	<0.5	1.5	1.2
	11/21/94	330	<0.5	<0.5	1.5	1.1
	02/24/95	120	<0.50	<0.50	<0.50	<0.50
	05/31/95	<50	<0.50	<0.50	<0.50	<0.50
	08/23/95	160	<0.50	<0.50	<0.50	<0.50
MW-2	09/30/92	1,000	9.6	<0.50	45	110
	10/16/92	630	8	<1 a	37	64
	01/14/93	7,800	33	5	340	920
	04/14/93	1,600	7	<5 a	220	520
	08/11/93	1,600	4.3	<1 a	80	120
	10/15/93	1,100	1.7	<1 a	62	70
	02/15/94	490	1.8	1.5	49	37
	05/05/94	360	<0.5	<0.5	27	18
	08/05/94	680	<0.5	<0.5	42	37
	11/21/94	500	<0.5	<0.5	40	25
	02/24/95	650	<0.50	<0.50	52	48
	05/31/95	450	<0.50	<0.50	33	33
	08/23/95	180	<0.50	<0.50	12	9.5
MW-3	09/30/92	<50	<0.50	<0.50	<0.50	<0.50
	10/16/92	<50	<0.50	<0.50	<0.50	<0.50
	01/14/93	52	<0.50	<0.50	<0.50	<0.50
	04/14/93	360	86	2.1	5.1	4.0
	08/11/93	69	1.1	<0.5	<0.5	<0.5
	10/15/93	<50	<0.5	<0.5	<0.5	<0.5
	02/15/94	<50	<0.5	<0.5	<0.5	<0.5
	05/05/94	<50	<0.5	<0.5	<0.5	<0.5
	08/05/94	<50	<0.5	<0.5	<0.5	<0.5
	11/21/94	<50	<0.5	<0.5	<0.5	<0.5
	02/24/95	<50	0.93	<0.50	<0.50	<0.50
	05/31/95	120	24	<0.50	<0.50	<0.50
	08/23/95	85	<0.5	<0.5	<0.5	<0.5
MW-4	09/30/92	330	81	<0.50	<0.50	<0.50
	10/16/92	250	44	<0.50	<0.50	0.7
	01/14/93	260	29	0.6	<0.50	1.1
	04/14/93	NS	NS	NS	NS	NS
	08/11/93	150	21	<0.5	<0.5	<0.5
	10/15/93	190	12	<0.5	<0.5	<0.5
	02/15/94	<50	2.0	<0.5	<0.5	<0.5
	05/05/94	160	17	<0.5	<0.5	0.6
	08/05/94	120	10	<0.5	<0.5	<0.5
	11/21/94	120	17	<0.5	<0.5	0.6

Table 2 (continued)
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Gasoline and BTEX Compounds)

ARCO Service Station 2162
15135 Hesperian Boulevard at Ruth Court
San Leandro, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)
MW-4	02/24/95	110	14	<0.50	<0.50	<0.50
(cont.)	05/31/95	97	11	<0.50	<0.50	<0.50
	08/23/95	110	16	<0.50	<0.50	<0.50

ppb = Parts per million
NS = Not sampled, separate-phase hydrocarbon entered well during purging.
a. Raised MRL due to high analyte concentration requiring sample dilution
b. Raised MRL due to matrix interference

Table 3

Groundwater Analytical Data

Total Methyl t-Butyl Ether

ARCO Service Station 2162

15135 Hesperian Boulevard at Ruth Court

San Leandro, California

Well Number	Date Sampled	Methyl t-Butyl Ether (ppb)
MW-1	8/23/95	<2.5
MW-2	8/23/95	<2.5
MW-3	8/23/95	41
MW-4	8/23/95	<2.5

ppb = Parts per billion

Table 1
Groundwater Elevation and Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, and MTBE)

ARCO Service Station 2162
15135 Hesperian Boulevard, San Leandro, California

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	MTBE 8021B* (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
MW-1	02/26/96	31.19	7.14	24.05	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	
MW-1	05/23/96	31.19	7.70	23.49	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	
MW-1	08/21/96	31.19	8.75	22.44	210	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NA	
MW-1	11/20/96	31.19	8.62	22.57	91	<0.5	<0.5	<0.5	<0.5	2.6	NA	NA	
MW-1	04/01/97	31.19	8.70	22.49	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NA	NP
MW-1	06/10/97	31.19	8.45	22.74	94	<0.5	<0.5	0.68	0.56	6.4	NA	NA	NP
MW-1	09/17/97	31.19	9.20	21.99	<50	<0.5	<0.5	<0.5	<0.5	10	NA	1.0	NP
MW-1	12/12/97	31.19	8.00	23.19	<200	<2	<2	<2	<2	180	NA	2.0	NP
MW-1	03/25/98	31.19	7.00	24.19	<200	<2	<2	3	<2	180	NA	2.0	
MW-1	05/14/98	31.19	7.46	23.73	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	1.17	P
MW-1	07/31/98	31.19	8.10	23.09	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	2.0	NP
MW-1	10/12/98	31.19	8.60	22.59	<50	<0.5	<0.5	<0.5	<0.5	9	NA	2.5	NP
MW-1	02/11/99	31.19	7.32	23.87	<50	<0.5	<0.5	<0.5	<0.5	25	NA	1.0	P
MW-1	06/23/99	31.19	8.40	22.79	55	<0.5	<0.5	<0.5	<0.5	<3	NA	1.36	NP
MW-1	08/23/99	31.19	8.85	22.34	<50	<0.5	0.6	<0.5	<0.5	5	NA	1.42	NP
MW-1	10/27/99	31.19	8.50	22.69	<50	<0.5	<0.5	<0.5	<1	90	NA	0.83	NP
MW-1	02/09/00	31.19	8.11	23.08	<50	<0.5	<0.5	<0.5	<1	9	NA	0.77	NP
MW-2	02/26/96	30.38	6.41	23.97	770	<0.5	<0.5	45	28	NA	NA	NA	
MW-2	05/23/96	30.38	6.80	23.58	590	0.50	<0.5	35	18	NA	NA	NA	
MW-2	08/21/96	30.38	7.80	22.58	170	<0.5	<0.5	21	6.3	<2.5	NA	NA	
MW-2	11/20/96	30.38	7.73	22.65	88	<0.5	<0.5	7.9	1.1	<2.5	NA	NA	
MW-2	04/01/97	30.38	7.83	22.55	66	<0.5	<0.5	3.6	0.56	33	NA	NA	
MW-2	06/10/97	30.38	7.52	22.86	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NA	NP
MW-2	09/17/97	30.38	8.24	22.14	<50	<0.5	<0.5	<0.5	<0.5	<3.0	NA	0.6	NP
MW-2	12/12/97	30.38	7.10	23.28	<50	<0.5	<0.5	<0.5	<0.5	<3.0	NA	1.2	NP
MW-2	03/25/98	30.38	6.27	24.11	<50	<0.5	<0.5	0.7	0.5	55	NA	1.0	
MW-2	05/14/98	30.38	6.54	23.84	210	<0.5	<0.5	3.3	<0.5	42	NA	1.47	P
MW-2	07/31/98	30.38	7.14	23.24	230	<0.5	<0.5	3.9	<0.5	6	NA	1.0	P

Table 1
Groundwater Elevation and Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, and MTBE)

ARCO Service Station 2162
15135 Hesperian Boulevard, San Leandro, California

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	MTBE 8021B* (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
MW-2	10/12/98	30.38	7.65	22.73	110	<0.5	<0.5	1.5	<0.5	<3	NA	1.0	P
MW-2	02/11/99	30.38	6.55	23.83	660	<0.5	<0.5	6.7	0.7	3	NA	1.0	P
MW-2	06/23/99	30.38	7.48	22.90	270	<0.5	<0.5	2.2	0.8	<3	NA	NM	P
MW-2	08/23/99	30.38	7.89	22.49	200	<0.5	0.9	1.8	<0.5	<3	NA	1.17	P
MW-2	10/27/99	30.38	8.30	22.08	2,100	1.0	2.5	14	3	3	NA	0.75	NP
MW-2	02/09/00	30.38	8.02	22.36	<50	<0.5	<0.5	<0.5	<1	5	NA	0.69	NP
MW-3	02/26/96	30.30	6.72	23.58	120	5.0	<0.5	<0.5	<0.5	NA	NA	NA	
MW-3	05/23/96	30.30	7.18	23.12	140	12	<0.5	<0.5	<0.5	NA	NA	NA	
MW-3	08/21/96	30.30	8.17	22.13	<50	1.1	<0.5	<0.5	<0.5	130	NA	NA	
MW-3	11/20/96	30.30	8.03	22.27	55	<0.5	<0.5	<0.5	<0.5	59	NA	NA	
MW-3	04/01/97	30.30	8.09	22.21	<50	<0.5	<0.5	<0.5	<0.5	180	NA	NA	NP
MW-3	06/10/97	30.30	7.97	22.33	<50	<0.5	<0.5	<0.5	<0.5	1,900	NA	NA	NP
MW-3	09/17/97	30.30	8.54	21.76	<5,000	<50	<50	<50	<50	1,100	860	2.2	NP
MW-3	12/12/97	30.30	7.50	22.80	560	<5.0	<5.0	<5.0	5.0	370	NA	1.4	NP
MW-3	03/25/98	30.30	6.60	23.70	<500	<5	<5	<5	<5	470	NA	1.0	
MW-3	05/14/98	30.30	7.13	23.17	750	<5	<5	<5	<5	630	NA	1.97	P
MW-3	07/31/98	30.30	7.58	22.72	<500	<5	<5	<5	<5	590	NA	1.0	P
MW-3	10/12/98	30.30	8.00	22.30	<500	<5	<5	<5	<5	600	NA	2.0	P
MW-3	02/11/99	30.30	6.90	23.40	<500	<5	<5	<5	<5	280	NA	1.0	P
MW-3	06/23/99	30.30	7.82	22.48	220	<0.5	3.2	<0.5	<0.5	740	NA	1.98	P
MW-3	08/23/99	30.30	8.28	22.02	<50	<0.5	1.1	<0.5	<0.5	230	NA	1.20	P
MW-3	10/27/99	30.30	9.27	21.03	<50	<0.5	<0.5	<0.5	<1	<3	NA	0.81	NP
MW-3	02/09/00	30.30	7.45	22.85	<50	<0.5	<0.5	<0.5	<1	80	NA	0.81	P
MW-4	02/26/96	30.39	7.59	22.80	110	9.9	<0.5	<0.5	<0.5	NA	NA	NA	
MW-4	05/23/96	30.39	8.22	22.17	69	8.0	<0.5	<0.5	<0.5	NA	NA	NA	
MW-4	08/21/96	30.39	9.28	21.11	<50	6.8	<0.5	<0.5	<0.5	<2.5	NA	NA	
MW-4	11/20/96	30.39	9.12	21.27	95	10	0.59	<0.5	0.52	3.8	NA	NA	

Table 2
Groundwater Flow Direction and Gradient

ARCO Service Station 2162
15135 Hesperian Boulevard, San Leandro, California

Date Measured	Average Flow Direction	Average Hydraulic Gradient
02/26/96	Southwest	0.009
05/23/96	South-Southwest	0.010
08/21/96	South-Southwest	0.01
11/20/96	South-Southwest	0.011
04/01/97	South-Southwest	0.004
06/10/97	South-Southwest	0.010
09/17/97	South-Southwest	0.01
12/12/97	Southwest	0.01
03/25/98	South-Southwest	0.008
05/14/98	Southwest	0.01
07/31/98	Southwest	0.01
10/12/98	Southwest	0.01
02/11/99	Southwest	0.008
06/23/99	Southwest	0.02
08/23/99	Southwest	0.013
10/27/99	South-Southwest	0.02
02/09/00	**Southwest**	**0.01**

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

ARCO Service Station #2162, 15135 Hesperian Blvd., San Leandro, CA

Well and Sample Date	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-1															
6/20/2000	--	31.19	8.00	16.00	8.33	22.86	<50	<0.5	0.8	<0.5	<1.0	<10	--	--	
9/29/2000	--		8.00	16.00	9.07	22.12	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/17/2000	--		8.00	16.00	8.69	22.50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/23/2001	--		8.00	16.00	8.19	23.00	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
6/20/2001	--		8.00	16.00	8.97	22.22	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
9/22/2001	--		8.00	16.00	9.56	21.63	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/28/2001	--		8.00	16.00	8.40	22.79	<50	<0.5	<0.5	<0.5	0.63	<2.5	--	--	
3/14/2002	--		8.00	16.00	8.05	23.14	<50	<0.5	<0.5	<0.5	<0.5	170	--	--	
4/18/2002	--		8.00	16.00	8.27	22.92	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
7/19/2002	NP		8.00	16.00	8.88	22.31	<50	<0.5	<0.5	<0.5	<0.5	11	1.0	8.2	
10/09/02	NP		8.00	16.00	--	--	--	--	--	--	--	--	--	--	a
03/28/2003	NP		8.00	16.00	--	--	--	--	--	--	--	--	--	--	a, c
4/7/2003	NP		8.00	16.00	8.28	22.91	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.6	6.9	
7/9/2003	NP		8.00	16.00	8.62	22.57	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.1	7.2	
10/08/2003	--	31.13	8.00	16.00	9.19	21.94	--	--	--	--	--	--	--	--	d, e
01/13/2004	--		8.00	16.00	8.35	22.78	--	--	--	--	--	--	--	--	
04/05/2004	--	33.70	8.00	16.00	7.29	26.41	--	--	--	--	--	--	--	--	
07/12/2004	NP		8.00	16.00	9.00	24.70	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.8	7.0	
10/19/2004	--		8.00	16.00	9.47	24.23	--	--	--	--	--	--	--	--	
01/11/2005	--		8.00	16.00	7.64	26.06	--	--	--	--	--	--	--	--	
04/14/2005	--		8.00	16.00	7.35	26.35	--	--	--	--	--	--	--	--	
08/01/2005	--		8.00	16.00	8.21	25.49	--	--	--	--	--	--	--	--	
7/31/2006	--		8.00	16.00	8.10	25.60	--	--	--	--	--	--	--	--	
6/12/2009	P		8.00	16.00	8.93	24.77	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.59	7.40	
11/6/2009	--		8.00	16.00	9.18	24.52	--	--	--	--	--	--	--	--	
6/4/2010	P		8.00	16.00	8.13	25.57	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.31	7.2	
11/19/2010	--		8.00	16.00	9.28	24.42	--	--	--	--	--	--	--	--	
5/19/2011	**P**		**8.00**	**16.00**	**7.76**	**25.94**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**1.36**	**6.8**	
MW-2															
6/20/2000	--	30.38	8.00	16.00	7.38	23.00	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

ARCO Service Station #2162, 15135 Hesperian Blvd., San Leandro, CA

Well and Sample Date	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-2 Cont.															
9/29/2000	--	30.38	8.00	16.00	8.08	22.30	266	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/17/2000	--		8.00	16.00	7.80	22.58	175	<0.5	<0.5	0.659	<0.5	<2.5	--	--	
3/23/2001	--		8.00	16.00	7.23	23.15	351	<0.5	<0.5	0.912	<0.5	<2.5	--	--	
6/20/2001	--		8.00	16.00	7.98	22.40	360	<0.5	<0.5	0.74	<0.5	<2.5	--	--	
9/22/2001	--		8.00	16.00	8.55	21.83	190	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/28/2001	--		8.00	16.00	7.53	22.85	130	<0.5	0.93	<0.5	0.51	<2.5	--	--	
3/14/2002	--		8.00	16.00	7.17	23.21	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
4/18/2002	--		8.00	16.00	7.31	23.07	74	<0.5	<0.5	<0.5	<0.5	--	--	--	
7/19/2002	P		8.00	16.00	7.93	22.45	<50	<0.5	<0.5	<0.5	<0.5	<2.5	1.1	7.6	
10/9/2002	P		8.00	16.00	8.55	21.83	<50	<0.5	<0.5	<0.5	<0.5	<2.5	0.7	7.3	
03/28/2003	P		8.00	16.00	7.30	23.08	<50	<0.50	0.83	<0.50	<0.50	<0.50	1.48	7.7	c
4/7/2003	P		8.00	16.00	7.36	23.02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.4	7.0	
7/9/2003	P		8.00	16.00	7.71	22.67	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.5	7.6	
10/08/2003	--		8.00	16.00	8.25	22.13	--	--	--	--	--	--	--	--	
01/13/2004	--		8.00	16.00	7.55	22.83	--	--	--	--	--	--	--	--	
04/05/2004	--	32.97	8.00	16.00	7.29	25.68	--	--	--	--	--	--	--	--	
07/12/2004	NP		8.00	16.00	8.09	24.88	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.4	7.2	
10/19/2004	--		8.00	16.00	8.29	24.68	--	--	--	--	--	--	--	--	
01/11/2005	--		8.00	16.00	6.81	26.16	--	--	--	--	--	--	--	--	
04/14/2005	--		8.00	16.00	6.69	26.28	--	--	--	--	--	--	--	--	
08/01/2005	--		8.00	16.00	7.40	25.57	--	--	--	--	--	--	--	--	
7/31/2006	--		8.00	16.00	7.22	25.75	--	--	--	--	--	--	--	--	
6/12/2009	P	32.95	8.00	16.00	8.18	24.77	51	<0.50	<0.50	<0.50	<0.50	<0.50	0.60	7.55	
11/6/2009	--		8.00	16.00	8.32	24.63	--	--	--	--	--	--	--	--	
6/4/2010	P		8.00	16.00	7.24	25.71	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.33	
11/19/2010	--		8.00	16.00	8.38	24.57	--	--	--	--	--	--	--	--	
5/19/2011	**P**		**8.00**	**16.00**	**7.12**	**25.83**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**1.24**	**9.0**	
MW-3															
6/20/2000	--	30.30	8.00	15.00	7.75	22.55	--	--	--	--	--	--	--	--	
9/29/2000	--		8.00	15.00	8.46	21.84	<50	<0.5	<0.5	<0.5	<0.5	128	--	--	

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ARCO Service Station #2162, 15135 Hesperian Blvd., San Leandro, CA

Well and Sample Date	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-3 Cont.															
12/17/2000	--	30.30	8.00	15.00	8.01	22.29	<50	<0.5	<0.5	<0.5	<0.5	46.7	--	--	
3/23/2001	--		8.00	15.00	7.70	22.60	<50	<0.5	<0.5	<0.5	<0.5	26.8	--	--	
6/20/2001	--		8.00	15.00	8.23	22.07	<50	<0.5	<0.5	<0.5	<0.5	30	--	--	
9/22/2001	--		8.00	15.00	8.89	21.41	<50	<0.5	<0.5	<0.5	<0.5	12	--	--	
12/28/2001	--		8.00	15.00	7.83	22.47	<50	<0.5	<0.5	<0.5	<0.5	6.2	--	--	
3/14/2002	--		8.00	15.00	7.48	22.82	<50	<0.5	<0.5	<0.5	<0.5	47	--	--	
4/18/2002	--		8.00	15.00	7.62	22.68	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
7/19/2002	P		8.00	15.00	8.23	22.07	100	<1.0	<1.0	<1.0	<1.0	330	0.9	7.6	b (TPH-g)
10/9/2002	P		8.00	15.00	8.83	21.47	<50	<0.5	<0.5	<0.5	<0.5	61	0.5	7.4	
03/28/2003	P		8.00	15.00	7.85	22.45	52	<0.50	1.2	<0.50	<0.50	45	1.42	7.6	c
4/7/2003	P		8.00	15.00	7.71	22.59	56	<0.50	<0.50	<0.50	<0.50	56	1.1	6.8	
7/9/2003	P		8.00	15.00	8.00	22.30	<500	<5.0	<5.0	<5.0	<5.0	87	1.6	7.4	
10/08/2003	P		8.00	15.00	8.59	21.71	<50	<0.50	<0.50	<0.50	<0.50	25	0.9	--	
01/15/2004	P		8.00	15.00	7.90	22.40	<50	<0.50	<0.50	<0.50	<0.50	9.8	2.9	7.3	
04/05/2004	P	32.89	8.00	15.00	7.61	25.28	<50	<0.50	<0.50	<0.50	<0.50	15	1.5	7.0	
07/12/2004	P		8.00	15.00	8.45	24.44	<50	<0.50	<0.50	<0.50	<0.50	7.3	1.6	6.9	
10/19/2004	P		8.00	15.00	8.95	23.94	<50	<0.50	<0.50	<0.50	<0.50	5.0	0.96	7.1	
01/11/2005	P		8.00	15.00	7.27	25.62	<50	<0.50	<0.50	<0.50	<0.50	2.3	--	7.2	
04/14/2005	P		8.00	15.00	7.10	25.79	<50	<0.50	<0.50	<0.50	1.5	5.6	2.0	7.2	
08/01/2005	P		8.00	15.00	7.71	25.18	<50	<0.50	<0.50	<0.50	<0.50	5.2	1.18	7.0	
7/31/2006	P		8.00	15.00	7.64	25.25	<50	<0.50	<0.50	<0.50	<0.50	4.3	--	6.8	
6/12/2009	P	32.88	8.00	15.00	8.36	24.52	<50	0.75	<0.50	<0.50	<0.50	0.53	0.61	7.45	
11/6/2009	P		8.00	15.00	8.58	24.30	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.51	7.17	
6/4/2010	P		8.00	15.00	7.60	25.28	<50	<0.50	<0.50	<0.50	<0.50	1.9	0.69	7.4	
11/19/2010	NP		8.00	15.00	8.63	24.25	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.69	7.0	
5/19/2011	**P**		**8.00**	**15.00**	**7.22**	**25.66**	**56**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**2.1**	**0.83**	**9.2**	
MW-4															
6/20/2000	--	30.39	10.00	18.00	8.87	21.52	--	--	--	--	--	--	--	--	
9/29/2000	--		10.00	18.00	9.61	20.78	<50	1.02	<0.5	<0.5	<0.5	12.2	--	--	
12/17/2000	--		10.00	18.00	9.17	21.22	<50	<0.5	<0.5	<0.5	<0.5	5.81	--	--	

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Well and Sample Date	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-4 Cont.															
3/23/2001	--	30.39	10.00	18.00	8.70	21.69	<50	<0.5	<0.5	<0.5	<0.5	3.04	--	--	
6/20/2001	--		10.00	18.00	9.51	20.88	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
9/22/2001	--		10.00	18.00	10.06	20.33	<50	<0.5	<0.5	<0.5	<0.5	5.2	--	--	
12/28/2001	--		10.00	18.00	8.86	21.53	<50	<0.5	<0.5	<0.5	<0.5	4.3	--	--	
3/14/2002	--		10.00	18.00	8.52	21.87	<50	<0.5	<0.5	<0.5	<0.5	5.1	--	--	
4/18/2002	--		10.00	18.00	8.76	21.63	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
7/19/2002	NP		10.00	18.00	9.39	21.00	<50	<0.5	<0.5	<0.5	<0.5	30	1.8	7.8	
10/9/2002	NP		10.00	18.00	10.08	20.31	<50	<0.5	<0.5	<0.5	<0.5	28	1.0	8.0	
03/28/2003	NP		10.00	18.00	8.88	21.51	<50	<0.50	1.3	<0.50	<0.50	4.4	0.98	7.2	c
4/7/2003	NP		10.00	18.00	8.78	21.61	<50	<0.50	<0.50	<0.50	<0.50	14	1.1	7.0	
7/9/2003	NP		10.00	18.00	9.14	21.25	<50	<0.50	<0.50	<0.50	<0.50	1.8	1.6	7.4	
10/08/2003	NP		10.00	18.00	9.77	20.62	<50	<0.50	<0.50	<0.50	<0.50	3.1	2.6	6.4	
01/15/2004	P		10.00	18.00	8.68	21.71	<50	1.4	0.84	<0.50	1.5	6.6	2.9	7.1	
04/05/2004	NP	33.97	10.00	18.00	8.77	25.20	<50	<0.50	<0.50	<0.50	<0.50	1.3	1.2	7.0	
07/12/2004	NP		10.00	18.00	9.46	24.51	<50	<0.50	<0.50	<0.50	<0.50	1.0	2.5	6.6	
10/19/2004	NP		10.00	18.00	9.91	24.06	<50	<0.50	<0.50	<0.50	<0.50	4.4	1.21	7.9	
01/11/2005	P		10.00	18.00	7.80	26.17	59	2.0	<0.50	<0.50	<0.50	11	0.9	7.1	
04/14/2005	NP		10.00	18.00	8.07	25.90	<50	<0.50	<0.50	<0.50	<0.50	0.64	2.8	7.4	
08/01/2005	NP		10.00	18.00	8.58	25.39	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.48	5.7	
7/31/2006	P		10.00	18.00	8.75	25.22	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	6.7	
6/12/2009	P		10.00	18.00	9.51	24.46	<50	0.68	<0.50	<0.50	<0.50	<0.50	0.70	7.51	
11/6/2009	P		10.00	18.00	9.74	24.23	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.15	7.15	
6/4/2010	P		10.00	18.00	8.71	25.26	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.70	7.24	
11/19/2010	P		10.00	18.00	9.83	24.14	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.09	7.1	
5/19/2011	**P**		**10.00**	**18.00**	**8.24**	**25.73**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**0.88**	**7.5**	
MW-5															
6/12/2009	NP	33.96	8.00	16.00	9.25	24.71	85	<0.50	<0.50	<0.50	<0.50	<0.50	0.59	7.50	
11/6/2009	P		8.00	16.00	9.49	24.47	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.56	7.1	
6/4/2010	NP		8.00	16.00	8.42	25.54	67	<0.50	<0.50	<0.50	<0.50	<0.50	1.24	7.65	
11/19/2010	NP		8.00	16.00	9.58	24.38	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.72	7.3	

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ARCO Service Station #2162, 15135 Hesperian Blvd., San Leandro, CA

Well and Sample Date	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-5 Cont.															
5/19/2011	**NP**	**33.96**	**8.00**	**16.00**	**8.02**	**25.94**	**52**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**2.17**	**9.1**	
MW-6															
6/12/2009	NP	33.48	8.00	16.00	9.02	24.46	1,800	4.9	<0.50	2.8	<0.50	59	0.68	7.39	
11/6/2009	P		8.00	16.00	9.21	24.27	880	1.7	<0.50	0.77	<0.50	37	0.43	6.9	
6/4/2010	NP		8.00	16.00	8.22	25.26	6,200	15	1.6	8.2	1.2	190	0.87	7.16	
11/19/2010	NP		8.00	16.00	9.30	24.18	5,600	8.0	1.2	9.9	<1.0	130	0.78	6.8	
5/19/2011	**P**		**8.00**	**16.00**	**7.77**	**25.71**	**7,100**	**4.0**	**<2.0**	**7.9**	**<2.0**	**76**	**1.40**	**8.2**	

Symbols & Abbreviations:
--- = Not analyzed/applicable/measured/available
< = Not detected at or above laboratory reporting limit
DO = Dissolved oxygen
DTW = Depth to water in feet below ground surface
ft bgs = feet below ground surface
GRO = Gasoline Range Organics, range C4-C12
GWE = Groundwater elevation measured in feet
mg/L = Milligrams per liter
MTBE = Methyl tert butyl ether
NP = Well not purged prior to sampling
P = Well purged prior to sampling
TOC = Top of casing measured in feet above mean sea level
TPH-g = Total petroleum hydrocarbons as gasoline
ug/L = Micrograms per liter

Footnotes:
a = Well not accessable - car parked over.
b = Hydrocarbon pattern is present in the requested fuel quantitation range but does not represent the pattern of the requested fuel
c =TPH-g, BTEX and MTBE analyzed by EPA method 8260 beginning on 1st Quarter 2003 sampling event (3/28/03)
d = Guaged with stinger in well
e = Well casing lowered 0.06 feet during well repairs on 9/17/2003

Notes:
Beginning in the fourth quarter 2003, the laboratory modified the reported analyte list. TPHg was changed to GRO. The resulting data may be impacted by the potential of non-TPHg analytes within the requested fuel range resulting in a higher concentration being reported

Beginning in the second quarter 2004, the carbon range for GRO was changed from C6-C10 to C4-C12

Wells were originally surveyed to NAVD'88 datum by URS Corporation on February 23, 2004

Wells were resurveyed to NAVD'88 datum by Wood Rodgers Surveying on May 11, 2009

Values for DO and pH were obtained through field measurements

GRO analysis was completed by EPA method 8260B (C4-C12) for samples collected from the time period April 2006 through February 4, 2008. The analysis for GRO was changed to EPA method 8015B (C6-C12) for samples collected from the time period February 5, 2008 through the present

The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

Table 2. Summary of Fuel Additives Analytical Data

ARCO Service Station #2162, 15135 Hesperian Blvd., San Leandro, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
6/20/2000	--	--	<10	--	--	--	--	--	
9/29/2000	--	--	<2.5	--	--	--	--	--	
12/17/2000	--	--	<2.5	--	--	--	--	--	
3/23/2001	--	--	<2.5	--	--	--	--	--	
6/20/2001	--	--	<2.5	--	--	--	--	--	
9/22/2001	--	--	<2.5	--	--	--	--	--	
12/28/2001	--	--	<2.5	--	--	--	--	--	
3/14/2002	--	--	170	--	--	--	--	--	
7/19/2002	--	--	11	--	--	--	--	--	
4/7/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/9/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
07/12/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/12/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/4/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
5/19/2011	**<300**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
MW-2									
9/29/2000	--	--	<2.5	--	--	--	--	--	
12/17/2000	--	--	<2.5	--	--	--	--	--	
3/23/2001	--	--	<2.5	--	--	--	--	--	
6/20/2001	--	--	<2.5	--	--	--	--	--	
9/22/2001	--	--	<2.5	--	--	--	--	--	
12/28/2001	--	--	<2.5	--	--	--	--	--	
3/14/2002	--	--	<2.5	--	--	--	--	--	
7/19/2002	--	--	<2.5	--	--	--	--	--	
10/9/2002	--	--	<2.5	--	--	--	--	--	
03/28/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
4/7/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/9/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
07/12/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/12/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/4/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 2. Summary of Fuel Additives Analytical Data

ARCO Service Station #2162, 15135 Hesperian Blvd., San Leandro, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-2 Cont.									
5/19/2011	**<300**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
MW-3									
9/29/2000	--	--	128	--	--	--	--	--	
12/17/2000	--	--	46.7	--	--	--	--	--	
3/23/2001	--	--	26.8	--	--	--	--	--	
6/20/2001	--	--	30	--	--	--	--	--	
9/22/2001	--	--	12	--	--	--	--	--	
12/28/2001	--	--	6.2	--	--	--	--	--	
3/14/2002	--	--	47	--	--	--	--	--	
7/19/2002	--	--	330	--	--	--	--	--	
10/9/2002	--	--	61	--	--	--	--	--	
03/28/2003	<100	<20	45	<0.50	<0.50	0.73	<0.50	<0.50	
4/7/2003	<100	<20	56	<0.50	<0.50	0.72	<0.50	<0.50	
7/9/2003	<1,000	<200	87	<5.0	<5.0	<5.0	<5.0	<5.0	
10/08/2003	<100	<20	25	<0.50	<0.50	<0.50	<0.50	<0.50	
01/15/2004	<100	<20	9.8	<0.50	<0.50	<0.50	<0.50	<0.50	a (TBA and EDB)
04/05/2004	<100	<20	15	<0.50	<0.50	<0.50	<0.50	<0.50	
07/12/2004	<100	<20	7.3	<0.50	<0.50	<0.50	<0.50	<0.50	
10/19/2004	<100	<20	5.0	<0.50	<0.50	<0.50	<0.50	<0.50	
01/11/2005	<100	<20	2.3	<0.50	<0.50	<0.50	<0.50	<0.50	b
04/14/2005	<100	<20	5.6	<0.50	<0.50	<0.50	<0.50	<0.50	
08/01/2005	<100	<20	5.2	<0.50	<0.50	<0.50	<0.50	<0.50	b
7/31/2006	<300	<20	4.3	<0.50	<0.50	<0.50	<0.50	<0.50	c
6/12/2009	<300	<10	0.53	<0.50	<0.50	<0.50	<0.50	<0.50	
11/6/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/4/2010	<300	<10	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
11/19/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
5/19/2011	**<300**	**<10**	**2.1**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**d**
MW-4									
9/29/2000	--	--	12.2	--	--	--	--	--	

Table 2. Summary of Fuel Additives Analytical Data

ARCO Service Station #2162, 15135 Hesperian Blvd., San Leandro, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-4 Cont.									
12/17/2000	--	--	5.81	--	--	--	--	--	
3/23/2001	--	--	3.04	--	--	--	--	--	
6/20/2001	--	--	<2.5	--	--	--	--	--	
9/22/2001	--	--	5.2	--	--	--	--	--	
12/28/2001	--	--	4.3	--	--	--	--	--	
3/14/2002	--	--	5.1	--	--	--	--	--	
7/19/2002	--	--	30	--	--	--	--	--	
10/9/2002	--	--	28	--	--	--	--	--	
03/28/2003	<100	<20	4.4	<0.50	<0.50	<0.50	<0.50	<0.50	
4/7/2003	<100	<20	14	<0.50	<0.50	<0.50	<0.50	<0.50	
7/9/2003	<100	<20	1.8	<0.50	<0.50	<0.50	<0.50	<0.50	
10/08/2003	<100	<20	3.1	<0.50	<0.50	<0.50	<0.50	<0.50	
01/15/2004	<100	<20	6.6	<0.50	<0.50	<0.50	<0.50	<0.50	a (TBA and EDB)
04/05/2004	<100	<20	1.3	<0.50	<0.50	<0.50	<0.50	<0.50	
07/12/2004	<100	<20	1.0	<0.50	<0.50	<0.50	<0.50	<0.50	
10/19/2004	<100	<20	4.4	<0.50	<0.50	<0.50	<0.50	<0.50	
01/11/2005	<100	<20	11	<0.50	<0.50	<0.50	<0.50	<0.50	b
04/14/2005	<100	<20	0.64	<0.50	<0.50	<0.50	<0.50	<0.50	
08/01/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
7/31/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	c
6/12/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/6/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/4/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/19/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
5/19/2011	**<300**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
MW-5									
6/12/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/6/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/4/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/19/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
5/19/2011	**<300**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**d**

Table 2. Summary of Fuel Additives Analytical Data

ARCO Service Station #2162, 15135 Hesperian Blvd., San Leandro, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-6									
6/12/2009	<300	<10	59	<0.50	<0.50	5.2	<0.50	<0.50	
11/6/2009	<300	24	37	<0.50	<0.50	<0.50	<0.50	<0.50	
6/4/2010	<300	17	190	<0.50	<0.50	17	<0.50	<0.50	
11/19/2010	<600	<20	130	<1.0	<1.0	<1.0	<1.0	<1.0	
5/19/2011	**<1,200**	**<40**	**76**	**<2.0**	**<2.0**	**6.1**	**<2.0**	**<2.0**	

Symbols & Abbreviations:
< = Not detected at or above specified laboratory reporting limit
--- = Not analyzed/applicable/measured/available
1,2-DCA = 1,2-Dichloroethane
DIPE = Di-isopropyl ether
EDB = 1,2-Dibromoethane
ETBE = Ethyl tert-butyl ether
MTBE = Methyl tert-butyl ether
TAME = Tert-amyl methyl ether
TBA = Tert-butyl alcohol
ug/L = Micrograms per liter

Footnotes:
a = The result was reported with a possible high bias due to the continuing calibration verification falling outside acceptance criteria
b = The calbration verification for ethanol was within method limits but outside contract limits
c = LCS rec. above meth. control limits. Analyte ND. Data not impacted
d = Quantitated against gasoline

Notes:
All fuel oxygenate compounds analyzed using EPA Method 8260B

The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

Table 3. Historical Groundwater Gradient - Direction and Magnitude

ARCO Service Station #2162, 15135 Hesperian Blvd., San Leandro, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
3/23/2001	Southwest	0.011
6/20/2001	Southwest	0.013
9/22/2001	Southwest	0.012
12/28/2001	Southwest	0.010
3/14/2002	Southwest	0.011
4/18/2002	Southwest	0.012
7/19/2002	Southwest	0.012
10/9/2002	Southwest	0.013
3/28/2003	Southwest	0.013
4/7/2003	Southwest	0.011
7/9/2003	Southwest	0.010
10/8/2003	Southwest	0.010
1/15/2004	Southwest	0.008
4/5/2004	South-Southwest	0.004
7/12/2004	South and Southwest	0.003 and 0.005
10/19/2004	Southwest	0.004
1/11/2005	Southwest (a) to Southeast (b)	0.005 to 0.004
4/14/2005	Southeast	0.004
8/1/2005	Southwest	0.002
7/31/2006	South-Southwest	0.003
6/12/2009	South	0.003
11/6/2009	South-Southwest	0.003
6/4/2010	South-Southwest	0.004
11/19/2010	South-Southwest	0.003
5/19/2011	**South-Southeast**	**0.003**

Footnotes:
a = Direction at underground storage tanks
b = Direction at dispensers

Notes:
The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

APPENDIX B.

SOIL BORING AND MONITORING WELL CONSTRUCTION LOGS

ROUX

Project: ARCO FACILITY NUMBER 2162 15135 Hesperian Blvd, San Leandro, CA		Log of Soil Boring No. B1	
Logged By: Jon Florez	Checked By: L.E.	Date Started: 6/5/91	Date Completed: 6/5/91
Drilling Co: Gregg Drilling		Drill Bit Diameter: 6 inches	Total Depth: 11.5 ft
Driller: S. Stone		Backfill Material: Bentonite Grout	from 0 ft to 11.5 ft
Drilling Method: Hollow Stem Auger		Sampler: CA Modified Split-spoon	
Drilling Equipment: Mobile B-53		Depth to Water at Time of Drilling: 9.5 ft	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sample	Blow Counts	OVM (ppm)	REMARKS
	Asphalt & baserock Pea gravel					
	CLAY, Silty, black-brown.	OL				
	CLAY, Silty, brown.	CL				
5	CLAY, Silty, green-grey, little medium(-) sand, slight hydrocarbon odor	OL		6-9-12		No Recovery For OVM
		SM ▽				
10	SAND, medium Silty, green-brown, some fine gravel, wet, strong hydrocarbon odor.			2-3-4	3.3	
15						

ROUX

Project: ARCO FACILITY NUMBER 2162 15135 Hesperian Blvd, San Leandro, CA		Log of Soil Boring No. B1A	
Logged By: Jon Florez	Checked By: L.E.	Date Started: 6/5/91	Date Completed: 6/5/91
Drilling Co: Gregg Drilling		Drill Bit Diameter: 6 inches	Total Depth: 9.0 ft
Driller: S. Stone		Backfill Material: Bentonite Grout	from 0 ft to 9.0 ft ft
Drilling Method: Hollow Stem Auger		Sampler: CA Modified Split-spoon	
Drilling Equipment: Mobile B-53		Depth to Water at Time of Drilling:	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sample	Blow Counts	OVM (ppm)	REMARKS
	Asphalt & baserock					
	Pea gravel					
	CLAY, Silty, black-brown.	OL				
	CLAY, Silty, brown.	CL				
5	CLAY, Silty, green-grey, little medium(-) sand, slight hydrocarbon odor.	OL				
	SILT, clayey, dark brown, light brown mottling, moderate to strong hydorcarbon odor.	MH		6-9-12		OVM Malfunction
10						
15						

ROUX

Project: ARCO FACILITY NUMBER 2162 15135 Hesperian Blvd, San Leandro, CA		Log of Soil Boring No. B2	
Logged By: Jon Florez	Checked By: L.E.	Date Started: 6/5/91	Date Completed: 6/5/91
Drilling Co: Gregg Drilling		Drill Bit Diameter: 6 inches	Total Depth: 9.5 ft
Driller: S. Stone		Backfill Material: Bentonite Grout	from 0 ft to 9.5 ft ft
Drilling Method: Hollow Stem Auger		Sampler: CA Modified Split-spoon	
Drilling Equipment: Mobile B-53		Depth to Water at Time of Drilling: 9.0 ft	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sample	Blow Counts	OVM (ppm)	REMARKS
	Asphalt & baserock Pea gravel					
	CLAY, Silty, black.	OL				
5	SILT, Sandy, brown-green with orange mottling, damp, few rootlets, mild hydrocarbon odor.	ML		4-7-10	76.7	
		SP		5-4-10	10.5	
	SAND, medium to fine(+), green, and fine(-) gravel, moist, mild hydrocarbon odor.					
10						
15						

ROUX

Project: ARCO FACILITY NUMBER 2162 15135 Hesperian Blvd, San Leandro, CA		Log of Soil Boring No. B3	
Logged By: Jon Florez	Checked By: L.E.	Date Started: 6/5/91	Date Completed: 6/5/91
Drilling Co: Gregg Drilling		Drill Bit Diameter: 6 inches	Total Depth: 10.5 ft
Driller: S. Stone		Backfill Material: Bentonite Grout	from 0 ft to 10.5 ft ft
Drilling Method: Hollow Stem Auger		Sampler: CA Modified Split-spoon	
Drilling Equipment: Mobile B-53		Depth to Water at Time of Drilling: 10.0 ft	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sample	Blow Counts	OVM (ppm)	REMARKS
	Asphalt & baserock					
	GRAVEL, Sandy, with lens of white medium sand.					
	SILT, Clayey, black, organic odor? SILT, brown-orange , trace lenses of fine gravel. SILT, Clayey, black, with piece of glass.	OL				
5	SILT, greenish-black to dark brown, trace shell fragments, trace medium sand, very slight odor.			4-7-12	10.5	
		CL				
	CLAY, silty, green-brown, 1-2 inch lense of green sand at top of sampler, moist, trace of separate phase petroleum hydrocarbon.			3-6-8	207.5	
	SAND, medium(+), green, little silt, wet.	SW		4-6-10		No Recovery For OVM
10						
15						

ROUX

Project: ARCO FACILITY NUMBER 2162 15135 Hesperian Blvd, San Leandro, CA		Log of Soil Boring No. B4	
Logged By: Jon Florez	Checked By: L.E.	Date Started: 6/5/91	Date Completed: 6/5/91
Drilling Co: Gregg Drilling		Drill Bit Diameter: 6 inches	Total Depth: 15.0 ft
Driller: S. Stone		Backfill Material: Bentonite Grout	from 0 ft to 15.0 ft ft
Drilling Method: Hollow Stem Auger		Sampler: CA Modified Split-spoon	
Drilling Equipment: Mobile B-53		Depth to Water at Time of Drilling: 9.5 ft	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sample	Blow Counts	OVM (ppm)	REMARKS
	Asphalt & baserock SAND, medium, yellow. SILT, Clayey, black.					
	SILT, Sandy, brown-green, and gravel.					
	SILT, black, trace fine gravel.					
	SILT, green with brown mottling, trace fine sand, trace rootlets, slight hydrocarbon odor.	OL		4-6-8	10.5	
5						
	SILT, green-grey, moist, strong hydrocarbon odor, trace dark brown to black separate phase petroleum hydrocarbon.			4-8-8	992	
	1/2-inch thick lens of medium to fine, green-grey gravel					
	SAND, fine, green-grey, wet.	SM		4-3-8		
	GRAVEL, medium to fine, green-grey, and fine sand, wet, trace brown separate phase petroleum hydrocarbon.	GP				
10	GRAVEL, medium, green-grey, wet, trace brown separate phase petroleum hydrocarbon.					
	SAND, fine, wet, separate phase petroleum hydrocarbon noted.	SM		7-17-5		
	GRAVEL, fine, green, wet, separate phase petroleum hydrocarbon noted.	GP				
	SAND, medium, brown, and fine gravel, wet, separate phase petroleum hydrocarbon noted.	SP				
	GRAVEL, medium to fine, green-grey, and fine sand, wet, slight hydrocarbon odor.	GM		2-3-5		
	SILT, brown-orange with dark brown mottling, moist, no odor noted.	ML				
	SILT, brown, trace medium flecks of black organic matter, damp.			3-4-6		
15						

ROUX

Project: ARCO FACILITY NUMBER 2162 15135 Hesperian Blvd, San Leandro, CA	Log of Well No. VW1
Date Started: 6/5/91 Completed: 6/5/91	Measuring Point Elevation: 30 ft Total Depth: 10.5 ft
Logged By: Jonathan Florez Checked By: L.E.	Water Level During Drilling: 10.0 ft Stabilized: ft
Drilling Co: Gregg Drilling Driller: S. Stone	Casing: 2" sched. 40 PVC Drill Bit Diameter: 6 inches
Drilling Method: Hollow Stem Auger	Perforation: 0.020 Slotted PVC from 8.7 ft to 3.7 ft
Drilling Equipment: Mobile B-53	Pack: #3 Monterey Sand from 9.0 ft to 3.3 ft
Sampler: CA Modified Split-spoon	Seal: Bentonite Chips from 3.3 ft to 2.3 ft
	Cement/Bentonite Grout from 2.3 ft to 0 ft

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Monitoring Well Construction	Sample	Blow Counts	OVM (ppm)	REMARKS
	Asphalt & baserock						
	SAND, medium to fine, brown, and medium to fine(+) gravel.						
	SILT, Clayey, black, trace fine sand.	OL					
	SILT, Clayey, black, trace 2mm. brown needles.				5-13-16		OVM Malfunction
5	SILT, Sandy, green, moist, rootlet fragments.						
					6-8-7		OVM Malfunction
	SAND, coarse to fine(+), green, little fine gravel, moist.	SW					
	SAND, Silty(+) to clayey, green, moist.	SM					
					3-6-8		OVM Malfunction
10							1.5-foot thick bentonite seal below vapor extraction well
15							

ROUX

Project: ARCO FACILITY NUMBER 2162 15135 Hesperian Blvd, San Leandro, CA	Log of Well No. VW2
Date Started: 6/5/91 Completed: 6/5/91	Measuring Point Elevation: 30 ft Total Depth: 9.8 ft
Logged By: Jonathan Florez Checked By: L.E.	Water Level During Drilling: 9.8 ft Stabilized: ft
Drilling Co: Gregg Drilling Driller: S. Stone	Casing: 2" sched. 40 PVC Drill Bit Diameter: 6 inches
Drilling Method: Hollow Stem Auger	Perforation: 0.020 Slotted PVC from 9 ft to 4 ft
Drilling Equipment: Mobile B-53	Pack: #3 Monterey Sand from 9.3 ft to 3.7 ft
Sampler: Cuttings	Seal: Bentonite Chips from 3.7 ft to 2.7 ft
	Cement/Bentonite Grout from 2.7 ft to 0 ft

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Monitoring Well Construction	Sample	Blow Counts	OVM (ppm)	REMARKS
	Asphalt & basecrock						
	SAND, medium to fine, brown, and fine gravel.						
	SILT, Clayey, black.	OL					
5							
	SILT, Clayey, green.						
							0.5-foot thick bentonite seal below vapor extraction well
10							
15							

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

Depth of boring: 18–1/2 feet Diameter of boring: 12 inches Date drilled: 09/08/92

Well depth: 16 feet Material type: Sch 40 PVC Casing diameter: 4 inches

Screen interval: 8 to 16 feet Filter pack: #3 Sand Slot size: 0.020–inch

Drilling Company: Exploration GeoServices Driller: John and Dennis

Method Used: Hollow–Stem Auger Field Geologist: Lou Leet

Signature of Registered Professional:

Registration No.: CEG 1463 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
					Asphalt–covered surface.	
0				GW	Asphalt (4 inches).	
					Sandy gravel, fine to coarse gravel, fine– to coarse–grained sand, brown, damp, medium dense; shell fragments: baserock.	
2				ML	Clayey silt with sand, fine– to medium–grained sand, black, damp, medium plasticity, very stiff.	
4	S–4.5	7 10 18				
6						
8	S–8.5	3 4 5	12	ML	Sandy silt with clay, fine– to medium–grained sand, gray–brown, very moist, low to medium plasticity, stiff; product odor.	
10	S–10		126		Water at 10–1/2 feet.	
		2	3		Lost sample.	
12		4 6 3 4 4				
14		2 3 5 2 3 5		SM	Silty sand with gravel, fine– to medium–grained sand, fine to coarse gravel, brown, moist, medium dense.	
16			0			
		4 6 11		CL	Silty clay, dark brown, damp, medium plasticity, very stiff.	
18					Total depth = 18–1/2 feet.	
20						

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LOG OF BORING B–5/MW–1
ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California

PLATE 4

Depth of boring: 18-1/2 feet Diameter of boring: 12 inches Date drilled: 09/08/92

Well depth: 16 feet Material type: Sch 40 PVC Casing diameter: 4 inches

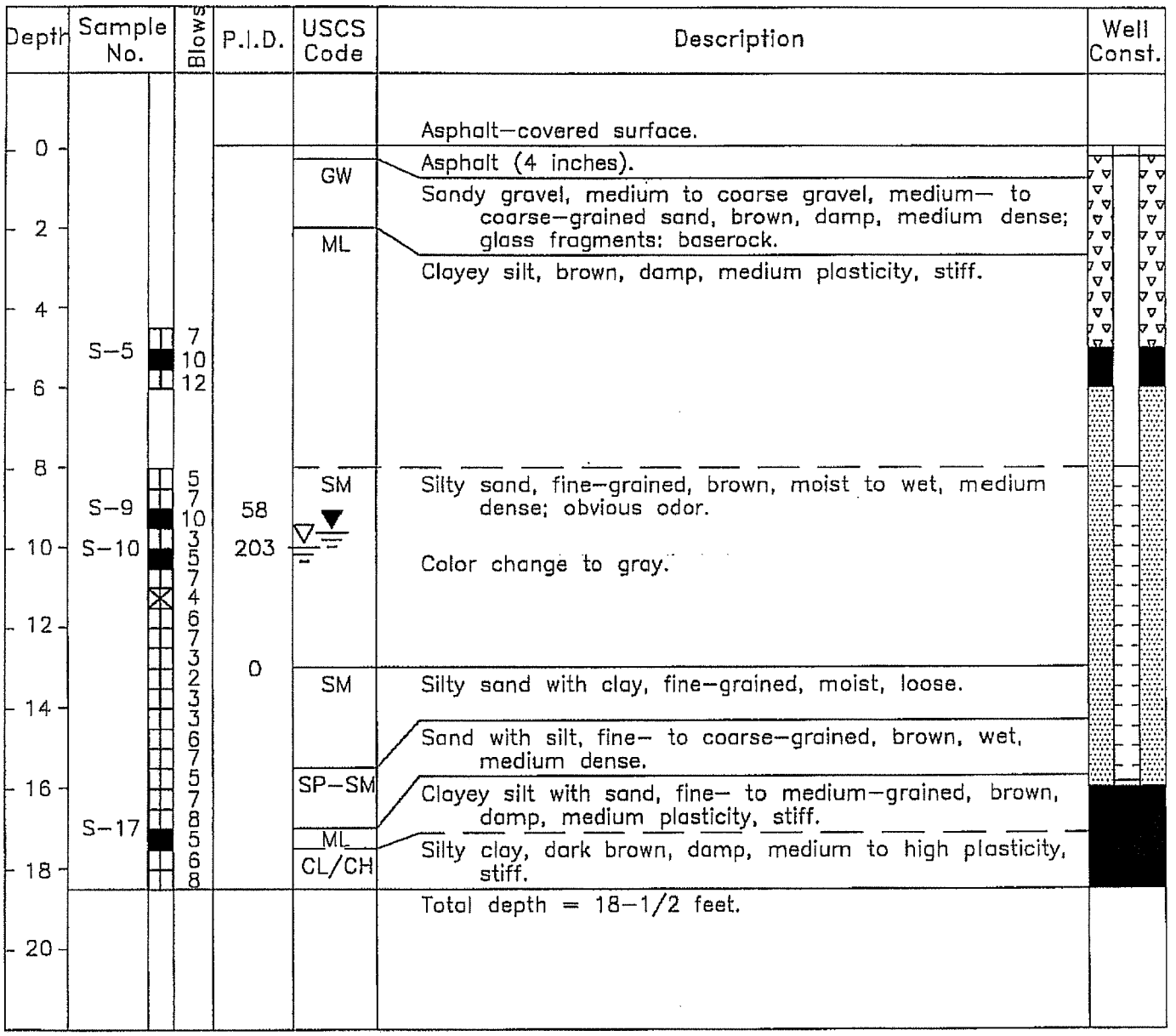
Screen interval: 8 to 16 feet Filter pack: #3 Sand Slot size: 0.020-inch

Drilling Company: Exploration GeoServices Driller: John and Dennis

Method Used: Hollow-Stem Auger Field Geologist: Lou Leet

Signature of Registered Professional:

Registration No.: CEG 1463 State: CA



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LOG OF BORING B-6/MW-2
ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California

PLATE 5

Depth of boring: 19 feet Diameter of boring: 12 inches Date drilled: 09/08/92

Well depth: 15 feet Material type: Sch 40 PVC Casing diameter: 4 inches

Screen interval: 8 to 15 feet Filter pack: #3 Sand Slot size: 0.020-inch

Drilling Company: Exploration GeoServices Driller: John and Dennis

Method Used: Hollow-Stem Auger Field Geologist: Lou Leet

Signature of Registered Professional:

Registration No.: CEG 1463 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
					Asphalt-covered surface.	
0				SM	Asphalt (4 inches).	
					Silty sand, fine- to medium-grained, brown, damp, medium dense.	
2				ML	Clayey silt, black, moist, medium plasticity, very stiff.	
4	S-5	5 7 11	0		Color change to brown at 5-1/2 feet.	
6	S-7.5	5 5 10	0			
8		5 6 6			Silty sand with clay, fine- to medium-grained, brown, very moist, medium dense.	
10	S-10	5 6 7	0	SM	Silty sand, fine- to medium-grained, brown, wet, medium dense.	
		10 6 6		SM	Sandy gravel, fine to medium gravel, fine- to coarse-grained sand, brown, wet, medium dense.	
12		5 4 4	0	GW	Silty sand, fine- to medium-grained, brown, wet, medium dense.	
		3 3 5		SM	Sandy silt with clay, fine-grained, brown, wet, low plasticity, stiff.	
14		3 4 6	0	ML	Silty sand, fine-grained, brown, very moist, loose.	
		7 10 12	0	SM	Clayey silt with sand, fine-grained, brown, damp to moist medium stiff.	
16	S-16.5		0	ML	Silty sand, fine- to medium-grained, brown, damp, medium dense.	
			0	SM	Clayey silt with sand, fine-grained, dark brown, damp, low plasticity, very stiff.	
18				ML	Total depth = 19 feet.	
20						

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PROJECT 62019.02

LOG OF BORING B-7/MW-3
ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California

PLATE 6

SOIL BORING LOG **Boring No. CB-1** **Sheet: 1 of 1**

Client	ARCO Station 2162	Date	July 17, 2007
Address	15135 Hesperian Boulevard	Drilling Co.	RSI rig type: Direct Push
	San Leandro, CA	Driller	Jose Velasco
Project No.	E2162-01	Method	Direct Push Hole Diameter: 2 inches
Logged By:	Collin Fischer	Sampler:	Continuous Casing
Well Pack	sand: N/A	Well Construction	Casing Material: N/A Screen Interval: N/A
	bent.: N/A		Casing Diameter: N/A. Screen Slot Size: N/A
	grout: N/A	Depth to GW:	▽ first encountered = 10 feet ▼ static = N/A

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1	Air Knife Fill		
						2			
						3			
						4			
						5		Silty Clay, CL, (5Y 2.5/1), black, dry, non plastic, hard, 85% clay 15% silt.	
						6	CL		
						7		Silty Sand with Clay, SM, (2.5Y 4/3), olive brown, moist, fine grained	
S	CB-1	N/A	0954	80%		8	SM	medium dense, 70 % sand 20% silt 10% clay.	
	7.5'-8'					9	CL	Silty Clay, CL, (2.5Y 4/3), olive brown, moist, medium plasticity, hard 80% clay 20% silt	
						10	▽	Silty Sand trace Clay, SM, (5Y 3/2), dark olive grey, wet	
						11	SM	medium-fine grained, soft, 70% sand 30% silt trace clay	
S	CB-1	N/A	0956	100%		12		Silty Sand with Gravel, SM, (2.5Y 4/3), olive brown, wet	
	11.5'-12'					13		medium-fine grained sand, medium grained gravel, dense 60% sand 30 % silt 10% gravel.	
						14	CL	Silty Clay, (2.5Y 4/3), olive brown, wet, low plasticity, soft, 80% clay 20% silt.	
						15			
S	CB-1	N/A	0958	100%		16			
	15.5'-16'					17			
						18			
						19			
						20			

Comments: Continuously sampled starting at 5 feet bgs.

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. CB-2** **Sheet: 1 of 1**

Client	ARCO Station 2162	Date	July 17, 2007
Address	15135 Hesperian Boulevard	Drilling Co.	RSI rig type: Direct Push
	San Leandro, CA	Driller	Jose Velasco
Project No.	E2162-01	Method	Direct Push Hole Diameter: 2 inches
Logged By:	Collin Fischer	Sampler:	Continuous Casing
Well Pack	sand: N/A	Well Construction	Casing Material: N/A Screen Interval: N/A
	bent.: N/A		Casing Diameter: N/A. Screen Slot Size: N/A
	grout: N/A	Depth to GW:	▽ first encountered = 10 feet ▼ static = N/A

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1	Air Knife Fill		
						2			
						3			
						4			
						5		No Recovery	
						6			
						7			
S	CB-2	N/A	N/A	0%		8		Silty Sand with Clay, SM, (5Y 2.5/2), black, moist, coarse grained, dense	
	7.5'-8'					9	SM	80% sand 15% silt 5% clay.	
						10		Clay with Silt, CL, (5Y 3/1), very dark grey, moist, medium plasticity, firm	
						11	CL	hydrocarbon staining, hydrocarbon odor, 95% clay 5% silt.	
S	CB-2	N/A	0836	80%		12		Silty Sand with Clay, SM, (5Y 4/1), dark grey, wet, medium-fine grained medium dense, hydrocarbon odor, 60% sand 35% silt 5% clay.	
	11.5'-12'					13	SM		
						14		Silty Sand with Gravel trace Clay, SM, (5Y 3/2), dark olive grey, wet coarse grained, loose, hydrocarbon odor	
						15		60% sand 30% silt 10% gravel trace clay.	
S	CB-2	N/A	0839	80%		16	ML	Clayey Silt, ML, (2.5Y 4/2), dark grayish brown, wet, non plastic, soft 60% silt 40% clay.	
	15.5'-16'					17			
						18			
						19			
						20			

Comments: Continuously sampled starting at 5 feet bgs.

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. CB-3** **Sheet: 1 of 1**

Client	ARCO Station 2162	Date	July 17, 2007
Address	15135 Hesperian Boulevard	Drilling Co.	RSI rig type: Direct Push
	San Leandro, CA	Driller	Jose Velasco
Project No.	E2162-01	Method	Direct Push Hole Diameter: 2 inches
Logged By:	Collin Fischer	Sampler:	Continuous Casing
Well Pack	sand: N/A	Well Construction	Casing Material: N/A Screen Interval: N/A
	bent.: N/A		Casing Diameter: N/A. Screen Slot Size: N/A
	grout: N/A	Depth to GW:	▽ first encountered = 11 feet ▼ static = N/A

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1	Air Knife Fill		
						2			
						3			
						4			
						5			
						6			
						7	ML	Clayey Silt with Sand, ML, (5Y 3/2), dark olive grey, dry, low plasticity stiff, 70% silt 20% clay 10% sand.	
S	CB-3 7.5'-8'	N/A	0730	50%		8			
						9			
						10		Clay trace Silt, CL, (5Y 4/1), dark grey, moist, medium plasticity, stiff hydrocarbon staining, hydrocarbon odor, 97% clay 3% silt.	
						11	CL		
S	CB-3 11.5'-12'	N/A	0736	100%		12		Silty sand trace Clay, SM, (5Y 3/2), dark olive grey, wet, medium-fine grained medium dense, hydrocarbon odor, hydrocarbon staining 80% sand 17% silt 3% clay	
						13			
						14	SM		
						15		Silty Sand with Clay, SM, (5Y 4/4), dark yellowish brown, moist medium-fine grained, medium dense, 70% sand 20% silt 10% clay.	
S	CB-3 15.5'-16'	N/A	0738	100%		16			
						17			
						18			
						19			
						20			

Comments: Continuously sampled starting at 5 feet bgs.

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. CB-4** **Sheet: 1 of 1**

Client	ARCO Station 2162	Date	July 17, 2007
Address	15135 Hesperian Boulevard	Drilling Co.	RSI rig type: Direct Push
	San Leandro, CA	Driller	Jose Velasco
Project No.	E2162-01	Method	Direct Push Hole Diameter: 2 inches
Logged By:	Collin Fischer	Sampler:	Continuous Casing
Well Pack	sand: N/A	Well Construction	Casing Material: N/A Screen Interval: N/A
	bent.: N/A		Casing Diameter: N/A. Screen Slot Size: N/A
	grout: N/A	Depth to GW:	▽ first encountered = 11 feet ▼ static = N/A

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1	Air Knife Fill		
						2			
						3			
						4			
						5			
						6			
						7		Silty Clay, CL, (10YR 3/4), dark yellowish brown, dry, low plasticity stiff, 65% caly 35% silt	
S	CB-4	N/A	1122	70%		8			
	7.5'-8'					9	CL		
						10			
						11	▽	Clay with Silt, CL, (10YR 3/3), dark brown, dry, high plasticity, stiff 90% clay 10% silt	
S	CB-4	N/A	1124	75%		12		Silty Sand with clay, SM, (2.5Y 3/2), very dark grayish brown, wet	
	11.5'-12'					13	SM	fine grained, medium dense, hydrocarbon staining, hydrocarbon odor 60% sand 30% silt 10% clay.	
						14		Sand with Silt, Gravel and Clay, SM, (5Y 3/2), dark olive grey, wet	
						15		medium grained, loose, hydrocarbon staining, hydrocarbon odor 70% sand 10% silt 7.5% gravel 7.5% clay	
S	CB-4	N/A	1127	90%		16		Clay, CL, (2.5Y 4/4), olive brown, moist, high plasticity, hard	
	15.5'-16'					17	CL	hydrocarbon staining, slight hydrocarbon odor, 100% clay	
						18			
						19			
						20			

Comments: Continuously sampled starting at 5 feet bgs.

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. CB-4** **Sheet: 1 of 1**

Client	ARCO Station 2162	Date	July 17, 2007
Address	15135 Hesperian Boulevard	Drilling Co.	RSI rig type: Direct Push
	San Leandro, CA	Driller	Jose Velasco
Project No.	E2162-01	Method	Direct Push Hole Diameter: 2 inches
Logged By:	Collin Fischer	Sampler:	Continuous Casing
Well Pack	sand: N/A	Well Construction	Casing Material: N/A Screen Interval: N/A
	bent.: N/A		Casing Diameter: N/A. Screen Slot Size: N/A
	grout: N/A	Depth to GW:	▽ first encountered = 11 feet ▼ static = N/A

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1	Air Knife Fill		
						2			
						3			
						4			
						5			
						6			
						7		Silty Clay, CL, (10YR 3/6), dark yellowish brown, dry, low plasticity hard, 65% caly 35% silt	
S	CB-5	N/A	1207	100%		8			
	7.5'-8'					9	CL	Clay with Silt, CL, (2.5Y 4/2), dark grayish brown, dry, low plasticity, firm 90% clay 10% silt	
						10			
						11	▽	Clay with Silt, CL, (2.5Y 3/3), dark olive brown, dry, low plasticity, firm hydrocarbon staining, hydrocarbon odor, 90% clay 10% silt	
S	CB-5	N/A	1209	100%		12		Silty Sand trace gravel, SM, (2.5Y 2.5/1), black, wet, medium grained, loose	
	11.5'-12'					13		hydrocarbon staining, hydrocarbon odor, 70% sand 30% silt	
						14	SM	Silty Sand, SM, (2.5Y 2.5/1), black, wet, medium grained, loose	
						15		hydrocarbon staining, hydrocarbon odor, 70% sand 30% silt	
S	CB-5	N/A	1212	100%		16		Clay, CL, (10YR 3/4), dark yellowish brown, moist, high plasticity, firm	
	15.5'-16'					17	CL	100 % clay	
						18			
						19			
						20			

Comments: Continuously sampled starting at 5 feet bgs.

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-5** **Sheet: 1 of 1**

Client	Arco 2162	Date	April 24, 2009
Address	15135 Hesperian Boulevard	Drilling Co.	RSI Drilling rig type: Geoprobe 6600
	San Leandro, CA	Driller	Fernando
Project No.	E2162	Method	Hollow Stem Auger Hole Diameter: 10 inches
Logged By:	Collin Fischer	Sampler:	1 1/4" geoprobe tubing
Well Pack	sand: 6 ft. to 16 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 8 ft. to 16 ft.
	bent.: 3 ft. to 6 ft.		Casing Diameter: 4 in. Screen Slot Size: 0.010-in.
	grout: 0 ft. to 3 ft.	Depth to GW:	▽ first encountered 10.5' bgs static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1		Cleared to 6.5' bgs. with air knife	
						2			
						3			
						4			
						5	CL		
						6			
						7			
			0530	100		8		Sandy clay, CL, (6.5'-8.5' bgs), dark grayish brown, moist, medium plasticity 70% clay, 30% fine to medium grained sand	
						9			
						10		Silty clay, CL, (8.5'-10.5' bgs), dark grayish brown, moist, medium plasticity 80% clay, 20% silt	
			0540	100		11	▽	Silty sand with clay, SM, (10.5'-12' bgs), dark grayish brown, wet	
						12	SM	60% medium grained sand, 25% silt, 10% clay, 5% fine gravel Silty sand with clay, SM, (12'-13.5' bgs), dark yellowish brown, wet 60% medium grained sand, 25% silt, 10% clay, 5% fine gravel	
			0555	100		13		Silty sand with clay, SM, (12'-13.5' bgs), dark yellowish brown, wet 60% medium grained sand, 30% silt, 20% clay	
						14			
						15			
						16	ML	Clayey silt, ML, (15'-16' bgs), dark yellowish brown, moist, medium plasticity 60% silt, 40% clay	
						17			
						18			
						19			
						20			

Recovery

Sample

Comments: Boring sampled to 16' bgs with geoprobe, then drilled to 16' bgs with 10" hollow stem augers.

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. MW-6** **Sheet: 1 of 1**

Client	Arco 2162	Date	April 24, 2009
Address	15135 Hesperian Boulevard	Drilling Co.	RSI Drilling rig type: Geoprobe 6600
	San Leandro, CA	Driller	Fernando
Project No.	E2162	Method	Hollow Stem Auger Hole Diameter: 10 inches
Logged By:	Collin Fischer	Sampler:	1 1/4" geoprobe tubing
Well Pack	sand: 6 ft. to 16 ft	Well Construction	Casing Material: Schedule 40 PVC Screen Interval: 8 ft. to 16 ft.
	bent.: 3 ft. to 6 ft.		Casing Diameter: 4 in. Screen Slot Size: 0.010-in.
	grout: 0 ft. to 3 ft.	Depth to GW:	▽ first encountered 10' bgs static ▼

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1		Cleared to 6.5' bgs. with air knife	
						2			
						3			
						4			
						5	CL		
						6			
						7			
			0730	100		8		Sandy clay, CL, (6.5'-8.5' bgs), dark yellowish brown, moist medium plasticity, 70% clay, 30% fine to medium grained sand	
						9			
						10 ▽		Silty clay, CL, (8.5'-10' bgs), dark grayish brown, moist, medium plasticity 100% clay	
			0740	100		11			
						12	SM	Silty sand with gravel, SM, (10'-13.5' bgs), dark grayish brown, wet 60% medium to coarse grained sand, 30% silt, 10% fine gravel	
						13			
			0755	100		14			
						15		Silty sand with clay, SM, (13.5'-15.5' bgs), dark yellowish brown, wet 50% fine to medium grained sand, 30% silt, 20% clay	
						16	CL	Clay, CL, (15.5'-16' bgs), dark yellowish brown, moist, medium plasticity 100% clay	
						17			
						18			
						19			
						20			

Recovery

Sample

Comments: Boring sampled to 16' bgs with geoprobe, then drilled to 16' bgs with 10" hollow stem augers.

STRATUS ENVIRONMENTAL, INC.

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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