Atlantic Richfield Company

Chuck Carmel
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11 May 2010

Re: Work Plan for Soil & Ground-Water Investigation
Atlantic Richfield Company Station No. 374
6407 Telegraph Avenue, Oakland, California
ACEH Case No. RO0000078

"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,

Chuck Carmel
Environmental Business Manager

Attachment

WORK PLAN FOR SOIL AND GROUND-WATER INVESTIGATION
Atlantic Richfield Company Station No. 374
6407 Telegraph Avenue, Oakland, California
ACEH Case No. RO0000078

Prepared for

Mr. Chuck Carmel
Environmental Business Manager
Atlantic Richfield Company
P.O. Box 1257
San Ramon, California 94583

Prepared by

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

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11 May 2010

Project No. 06-88-602

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BROADBENT & ASSOCIATES, INC
ENVIRONMENTAL, WATER RESOURCES & ENGINEERING

11 May 2010

Job No. 06-88-602

Atlantic Richfield Company
PO Box 1257
San Ramon, California 94583
Submitted via ENFOS

Attn: Mr. Chuck Carmel

RE: Work Plan for Soil & Ground-Water Investigation, Atlantic Richfield Company
Station No. 374, 6407 Telegraph Avenue, Oakland, California;
ACEH Case No. RO0000078

Dear Mr. Carmel,

Broadbent & Associates, Inc. is pleased to present the attached *Work Plan for Soil & Ground-Water Investigation* for subsurface environmental characterization at Atlantic Richfield Company (a BP affiliated company) Station No. 374 located at 6407 Telegraph Avenue in Oakland, Alameda County, California. This work plan was prepared in response to a letter request from the Alameda County Environmental Health Services dated 12 March 2010. In accordance with that request, this work plan includes discussion of the site background, site geology and hydrogeology, the proposed scope of work, and proposed schedule.

Should you have any questions concerning this work plan, please do not hesitate to contact us at (530) 566-1400.

Sincerely,

BROADBENT & ASSOCIATES, INC.

Thomas A. Venus, P.E.
Senior Engineer

Attachment

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

WORK PLAN FOR SOIL AND GROUND-WATER INVESTIGATION
Atlantic Richfield Company Station No. 374
6407 Telegraph Avenue, Oakland, California

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WORK PLAN FOR SOIL AND GROUND-WATER INVESTIGATION
Atlantic Richfield Company Station No. 374
6407 Telegraph Avenue, Oakland, California

1.0 INTRODUCTION

On behalf of the Atlantic Richfield Company, RM – a BP affiliated company, Broadbent & Associates, Inc. (BAI) has prepared this Work Plan for On-Site Soil Investigation for additional soil characterization at the Atlantic Richfield Company Station No. 374, located at 6407 Telegraph Avenue, Oakland, California (Site). This work plan was prepared in response to a letter request from the Alameda County Environmental Health Services (ACEH) dated 12 March 2010. A copy of this letter is provided in Appendix A. The ACEH technical comments within the 12 March 2010 letter commented on the previously-submitted *On-Site Soil & Ground-Water Investigation Report* (BAI, 11/11/2009) that recommended installation of a boring to collect soil samples deeper than 8.5 feet, which subsequently would be converted into a ground-water monitoring well. Specifically, ACEH was not confident that the one additional boring (following the last three borings) would adequately define the extent of soil and ground-water contamination. This work plan includes discussions on the site background, regional and Site geology and hydrogeology, the proposed scope of work, and completion schedule.

2.0 SITE BACKGROUND

The Site is an active ARCO brand gasoline retail outlet located at 6407 Telegraph Avenue, on the northwestern corner of Telegraph and Alcatraz Avenues in Oakland, California (Drawing 1 and Drawing 2). The land use in the immediate vicinity of the Site is mixed commercial and residential. The Site consists of a service station building and three12,000-gallon gasoline underground storage tanks (USTs) with associated piping and dispensers. The Site is covered with asphalt or concrete surfacing except for planters along the northern and western property boundaries containing mature conifer trees.

2.1 Subsurface Investigations

In February 1988, a leak was detected in the vapor/vent line of the unleaded system during annual tank testing. In April 1988, a UST Unauthorized Release (Leak) Report addressing the vapor/vent line was filed with the Alameda County Public Health Service by Brown and Caldwell. In April 1988, Applied Geosystems (AGS) began a limited environmental site assessment at the Site which included drilling four soil borings (B-1 through B-4) near the USTs (AGS, 15 June 1988). The results of this investigation indicated total petroleum hydrocarbons as gasoline (TPHg) concentrations ranging from 48 to 930 milligrams per kilogram (mg/kg). Historical soil analytical data is provided in Appendix B. Ground-water was encountered at approximately 10 feet below ground surface (bgs). One inch of floating product was observed in a "grab" ground-water sample collected from boring B-1. Product sheen was observed in "grab" ground-water samples from borings B-2 and B-4 also.

Between 7-10 June 1988 the four gasoline USTs were removed from the Site (AGS, 1 August 1988). No holes were observed in the removed tanks; however, some of the protective asphaltic coating had dissolved around the fill ports of the tanks. Laboratory analyses of the soil samples collected beneath former tank T4 indicated TPHg concentrations ranging from 3 mg/kg to 1,097 mg/kg. The excavation was extended north of tank T4; a soil sample (S-12-T4A2) collected after this excavation indicated a TPHg concentration of 795 mg/kg. A soil sample

collected beneath the north end of tank T1 (S-11-T1A) indicated a TPHg concentration of 399 mg/kg. Ground water was observed seeping into the northwestern portion of the UST pit as a depth of approximately 12 feet. Analysis of a composite soil sample collected from the new UST pit excavation in the northeastern portion of the site indicated non-detectable concentrations of TPHg (<2 mg/kg). Observation wells W-1 and W-2 were installed in the former UST pit; observation wells W-3 and W-4 were installed in the new UST pit. Subjective analyses of the water from these wells indicated the presence of sheen in wells W-1 and W-2 in the former UST pit.

In December 1988, AGS collected a ground-water sample from well W-4 and analyzed for TPHg and the volatile gasoline constituents Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX). No detectable concentrations of TPHg or BTEX were reported (AGS, 5 January 1989).

In July 1989, AGS drilled four soil borings (also called B-1 through B-4) and installed four ground-water monitoring wells (MW-1 through MW-4) in the borings to further delineate the extent of gasoline-impacted soil and ground water (AGS, 27 March 1991). Monitoring wells MW-1, MW-2, and MW-4 were installed onsite, while well MW-3 was installed offsite on the west side of Irwin Court. The locations of the wells are depicted in Drawing 2. Concentrations of TPHg in the soil from the four borings ranged from non-detect to 60 mg/kg. Soils encountered in the borings consisted primarily of silty clay with some sand and gravel. A sandy gravel lens was found in boring B-4/MW-4 at depths of 13 to 22 feet bgs, underlain by silty clay.

On 1 April 1992, RESNA provided oversight for the drilling of borings B-5 and B-6 and the installation of wells MW-5 and MW-6 within these borings. Wells MW-5 and MW-6 were installed offsite, southwest and west of the Site, respectively. Concentrations of TPHg and BTEX in the soil samples collected from borings B-5 and B-6 were not detected above laboratory reporting limits.

In May 1992, RESNA performed a well survey, which identified environmental problem sites and activities within a one-mile radius of ARCO Station No. 374 to identify potential offsite secondary sources of petroleum hydrocarbons. A former Mobile Oil Service Station located at 6398 Telegraph Avenue was identified as a site with a listed leaking UST according to the Report on Releases of Hazardous Substances from Underground Storage Tanks (State Water Resources Control Board, January 1992). The leak was reported in March 1986 and was last reviewed, according to the Report, in June 1990. Based on research of the GeoTracker database and ACEH website, no action has been taken by the responsible party since the initial report of the leak, although recommendations in the Report included removal of free product and excavation and treatment of contaminated soil. The former Mobil Oil Service Station was located to the southeast of the Site.

On 21 September 1996, two islands, each with two dispensers, and the associated underground product lines were excavated and removed from the Site. Pacific Environmental Group, Inc. (Pacific) collected soil samples beneath both the dispenser islands and product lines. Beneath the product lines, Total Purgeable Petroleum Hydrocarbons as gasoline (TPPHg) was detected at concentrations ranging between 1.9 mg/kg and 65 mg/kg; benzene was detected in soil Sample TR-A-13 at 0.30 mg/kg. Total lead was detected in soil Sample TR-A-1 at a concentration of 15 mg/kg. Beneath the product dispensers, TPPH-g was detected at concentrations ranging

between 19 mg/kg and 140 mg/kg; Benzene was detected in two soil samples at 2.1 mg/kg (TR-A-14) and 0.0089 mg/kg (TR-A-15). Historical soil analytical results are provided in Appendix B.

On 12-13 November 2008, Stratus Environmental, Inc. (Stratus) conducted an on-site soil investigation as requested by ACEH in their directive letter dated 4 September 2008 in order to characterize residual hydrocarbon contamination within soils at the former UST area. Two soil borings, B-11 and B-12, were advanced in the vicinity of historic soil samples S-12-T4A1 and S-12-T4A2, respectively. Soil samples collected during boring activities were analyzed for Gasoline Range Organics (GRO, hydrocarbon chain lengths between C6-C12) by EPA Method 8015B; and for BTEX, Methyl Tert-Butyl Ether (MTBE), Ethyl Tert-Butyl Ether (ETBE), Tert-Amyl Methyl Ether (TAME), Di-Isopropyl Ether (DIPE), 1,2-Dichloroethane (1,2-DCA), 1,2-Dibromoethane (EDB), Tert-Butyl Alcohol (TBA), and Ethanol using EPA Method 8260B. The analytes were not detected above their respective reporting limits in the two soil samples submitted for laboratory analysis with the exception of minor concentrations of MTBE in samples B-11-15 and B-12-15.5 and TBA in sample B-12-15.5. The boring locations are depicted in Drawing 2. A more detailed summary of the field activities conducted and analytical results obtained during this investigation can be found in the *Soil Investigation Report* submitted on 26 December 2008 by BAI.

On 4 December 2008, Stratus collected compliance soil samples in conjunction with Paradiso Mechanical, Inc. (the contractor renovating the service station) and under the direction of City of Oakland Fire Department personnel during product line and fuel dispenser upgrades at the Site. Initially, a total of eleven soil samples were collected beneath the fuel dispensers and short pipeline stubs into the main product lines, which were not removed/replaced. Following review of the initial analytical results, Atlantic Richfield Company attempted to excavate additional soil from sampling locations D4-2.5' and PL3-3' due to their elevated hydrocarbon concentrations. Some additional soil was able to be excavated but the amount was limited due to constraints from the existing infrastructure. Additional soil samples (D-4 5' and PL-3 5') were collected on 9 December 2008 from approximately five feet bgs in an attempt to delineate the vertical extent of contamination at the two previous locations with elevated hydrocarbon concentrations. Additional soil sample PL-3 5' contained lower hydrocarbon concentrations than the original sample, while sample D-4 5' contained higher hydrocarbons concentrations than the original sample. A more detailed summary of the field activities conducted and analytical results obtained during this investigation can be found in the *Compliance Soil Sampling Report for Product Line/Fuel Dispenser Upgrades* submitted on 19 February 2009 by BAI.

On 21 September 2009, Stratus oversaw advancement of four on-site direct-push borings in the in the vicinity of the south end of the eastern pump island. This location was near the December 2008 pipeline and dispenser samples PL-3 and D-4, mentioned above. Four direct-push borings (B-13, B-14, B-14A, and B-15) were advanced to a maximum depth of 18 ft bgs. Tight clayey and silty soils were observed within the borings to the total depth explored to. Although no ground-water samples could be collected from temporary borings B-13, B-14, or B-14A, a ground-water sample was collected from within boring B-15. Soil samples from B-13 and B-15, the closest borings to the problem piping and dispenser locations, contained GRO up to 1,800 mg/kg and Benzene up to 8.2 mg/kg, but just trace concentrations of MTBE. Soil samples from boring B-14 to the south of the pump island contained GRO up to 390 mg/kg, Benzene up to

0.56 mg/kg, but no MTBE. It was noted that the highest concentrations in soil from borings B-13 and B-14 were from the sample collected at 8.5 ft bgs (possibly within the capillary fringe or smear zone?), whereas the highest concentrations in soil from boring B-15 on the western side of this pump island were from samples at 4.5 ft bgs. The ground-water sample collected from boring B-15 contained 19,000 µg/L GRO, 3,700 µg/L Benzene, and 250 µg/L MTBE. BAI recommended that a new well be installed just south of B-15 to monitoring ground-water conditions and potentially use as a remediation well in the vicinity to the nearby former pipeline release location. A more detailed summary of the field activities conducted and analytical results obtained during this investigation can be found in the *On-Site Soil and Ground-Water Investigation Report* submitted on 11 November 2009 by BAI.

2.2 Pump Test

On 11 April 1991, RESNA performed a step-drawdown test on well W-2 to determine the optimum pumping rate at which to perform the constant discharge test. It was decided to pump at the maximum capacity of the pump/discharge system as a way of de-watering the gravel backfill. On 25 and 26 April 1991, a 10.5 hour pump test and 20 hour recovery test was conducted (RESNA, 31 July 1991). Well W-2 was pumped at a rate of 9.0 gallons per minute (gpm). The hydraulic conductivity of the gravel backfill was calculated to be 2,780 feet per day (ft/d). The rate of inflow from the aquifer to the tank backfill was approximately 0.29 gpm, and thus the aquifer was estimated to be several orders of magnitude less permeable than the gravel backfill. An estimate of the hydraulic conductivity of the aquifer using Darcy's Law was approximately 0.37 ft/day.

2.3 Ground-Water Extraction

RESNA provided oversight for the onsite installation of a ground-water extraction (GWE) remediation system between October 1993 and December 1993. Initial operation of the GWE system began on 21 December 1993. The system utilized a submersible pneumatic pump installed in well W-2 to recover and treat dissolved-phase gasoline hydrocarbon bearing ground water from the Site. The extracted ground water was transferred through a bag filter and into a surge tank prior to passing through a final bag filter and three 400-pound liquid-phase activated carbon vessels before being discharged into the sanitary sewer. The GWE system was operational from 21 December 1993 to 13 October 1995. The system was shutdown following verbal approval from the ACEH. A total of 93,989 gallons of water were extracted during system operation with approximately 2.61 pounds of TPHg removed from the groundwater. GWE system performance data and analytical results are provided in Appendix C.

2.4 Bioremediation

On 14 November 1995, Pacific initiated a bioremediation enhancement program, utilizing oxygen releasing compound (ORC) manufactured by Regenesis Bioremediation Products. Twelve 2-inch diameter ORC socks were installed below the ground-water surface in well MW-3. ORC is a formulation of very fine, insoluble magnesium peroxide that releases oxygen at a slow, controlled rate when hydrated. On 29 September 1998, Pinnacle Environmental Solutions installed ORC socks in well MW-4. The bioremediation enhancement program ceased during the Second Quarter of 2000. Bioremediation evaluation and enhancement analytical data is provided in Appendix D.

2.5 Ground-Water Monitoring

Ground-water monitoring of wells MW-1 through MW-4 has been conducted since July 1989. Ground-water monitoring of wells MW-5 and MW-6 has been conducted since April 1992. Currently, ground-water monitoring is conducted in wells MW-1 through MW-6 on a semi-annual basis (during the first and third calendar quarters). Ground-water sampling is conducted in well MW-1, MW-2 and MW-4 on a semi-annual basis (first and third quarter), and wells MW-3, MW-5, and MW-6 on an annual basis (third quarter). Historic water-level elevations have yielded potentiometric ground-water flow directions very consistently to the southwest at hydraulic gradients ranging from 0.02 ft/ft to 0.09 ft/ft. The maximum TPH-G concentration was detected in well MW-4 at a concentration of 69,000 micrograms per liter (µg/L) in August 1990. The maximum concentrations of Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) were detected in well MW-4 at 8,700 µg/L (August 1990), 4,200 µg/L (August 1990), 1,000 µg/L (June 2000), and 4,600 µg/L (August 1990), respectively. The maximum concentration of Methyl Tert-Butyl Ether (MTBE) was detected in well MW-1 at 4,000 µg/L (February 2000). The wells have shown a decreasing trend with respect to TPH-G, BTEX, and MTBE concentrations since initial monitoring began in 1989. Historic ground-water elevation and analytical data through First Quarter 2010 are provided in Appendix E.

3.0 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 Oakland Sub-Area of the East Bay Plain of the San Francisco Basin. The Oakland Sub-Area contains a sequence of alluvial fans. The alluvial fill thickness ranges from 300 to 700 feet deep. There are no well-defined aquitards such as estuarine muds. The largest and deepest wells in this sub-area historically pumped one to two million gallons per day at depths greater than 200 feet. Overall, sustainable yields are low due in part to low recharge potential. The Merrit sand in West Oakland was an important part of the early water supply for the City of Oakland. It is shallow (up to 60 feet), but before the turn of the last century, septic systems contaminated the water supply wells.

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 ground-water flow is from east to west or from the Hayward Fault to the San Francisco Bay. Ground-water flow direction generally correlates to topography. Flow direction and velocity are also influenced by buried stream channels that typically are oriented in an east to west direction. The nearest natural drainage is Claremont Creek, located approximately 1.2 miles west-northwest of the Site. Claremont Creek flows generally east to west near the Site vicinity.

The Site elevation is approximately 163 feet above mean sea level. The water table fluctuates seasonally. Historically, depth-to-water measurements have ranged from approximately five to 11 feet bgs. Ground-water recovery is typically slow. Ground-water flow direction during the first quarter monitoring event on 19 February 2010 was to the west-southwest at a gradient of 0.05 ft/ft.

According to the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, the City of Oakland does 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." However, the RWQCB'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.

The Site is typically underlain by tight silty and sandy clays a total explored depth of approximately 28 feet bgs. The boring log for MW-1 indicates that intermittent layers of silty clay and sandy clay are present throughout the boring with some gravels appearing at approximately eight feet bgs and some sand appearing at approximately 18 feet bgs. The boring log for MW-2 indicates that intermittent layers of silty clay and sandy clay are present throughout the boring with some gravels appearing at approximately eight feet bgs and below 18 ft bgs. The boring log for MW-3 indicates that silty clay is present throughout the boring with minor gravel appearing at approximately 18.5 feet bgs and some sand appearing at approximately 27 feet bgs. The boring log for MW-4 indicates that silty clay is present from approximately ground surface to 13 feet bgs. Sandy gravel with some silt appears at 13 feet bgs and transitions into silty clay with some sand and gravel at approximately 22 feet bgs. Copies of soil boring logs are provided in Appendix F.

4.0 PROPOSED SCOPE OF WORK

4.1 Proposed Soil Boring/Well Installation Locations

The purpose of this proposed on-site investigation is to determine the vertical and lateral extent of petroleum hydrocarbon contamination in soil and ground-water in the vicinity of a recently documented release beneath the south end of the eastern dispenser island. To accommodate this objective, BAI proposes advancing four soil borings to ground water. Three of these boring will be converted to ground-water monitoring wells, while the fourth boring will be abandoned immediately after collecting a grab ground-water sample. Although their actual locations may vary due to the potential presence of unmapped underground utility conflicts, their proposed locations are described below and exhibited in Drawing 2:

- Boring B-16/MW-7 is proposed approximately 12 feet east-northeast of the northern end of the eastern dispenser island. This location is north-northeast of previous soil sample D-1. Its location serves to delineate the upgradient extent of the recently discovered release area at the south end of the eastern dispenser island. The boring will be located just onsite at the eastern property boundary. Advancing the boring further to the east is not feasible due to overhead electric power lines above the sidewalk, nor is advancing the boring out in Telegraph Avenue due to its busy traffic and the presence of a bus stop. Although located slightly within one of the station driveways, the boring will be an adequate separation distance (at least 10 feet) from the overhead electric lines above the sidewalk, and from the overhead canopy above the dispenser island (at least five feet).

- Boring B-17/MW-8 is proposed approximately 12 feet east-southeast of the south end of the eastern dispenser island. This location is east of previous soil sample D-4 and just slightly south and east of recent boring B-13. Its location is anticipated to delineate the

eastern extent of contamination to the soil not under the influence of ground water. The boring will be located just onsite at the eastern property boundary. Advancing the boring further to the east is not feasible due to overhead electric power lines above the sidewalk, nor is advancing the boring out in Telegraph Avenue due to its busy traffic and the presence of a bus stop. Although located slightly within one of the station driveways, the boring will be an adequate separation distance from the overhead electric lines above the sidewalk (at least 10 feet), and from the overhead canopy above the dispenser island (at least five feet).

- Boring B-18/MW-9 is proposed approximately 15 feet west-southwest of the south end of the eastern dispenser island. This location is southwest of previous soil samples D-4 and PL-3, and slightly southwest of recent boring B-15. Its location is anticipated to be near the newly recognized source area of soil and ground-water contamination. The boring location shall be an adequate separation distance from the buried underground product and vapor recovery pipelines (at least 10 feet), and from the overhead canopy above the dispenser island and station building (at least five feet from both).

- Boring B-19 is proposed approximately 20 feet south-southeast of the south end of the eastern dispenser island. This location is southeast of previous soil sample D-4 and slightly southeast of recent boring B-14. Its location is anticipated to delineate the southern extent of contamination to the soil not under the influence of ground water. The boring will be located approximately mid-way between boring B-17 described above, and existing well MW-2. Although located within one of the station driveways, the boring will be an adequate separation distance from the overhead electric lines above the sidewalk (approximately 20 feet), and from the buried underground product and vapor recovery pipelines (at least 10 feet) extending to the southern dispenser island.

4.2 Preliminary Activities, Local Permitting and Notification

Prior to initiating field activities, BAI will obtain the necessary drilling permit from Alameda County Public Works Agency; prepare a site health and safety plan (HASP) for the proposed work, prepare a Ground Disturbance Permit for BP, clear the Site for subsurface utilities, and provide a minimum 72-hour advance notification to ACEH prior to start of field activities. 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 the boring locations. The Site-specific HASP will be prepared for use by personnel implementing the work plan. A copy of the HASP will be available on-site during work. A safety tailgate meeting will also be conducted daily to review potential hazards and scope of work.

4.3 Proposed Soil Borings

A BAI field geologist will observe a California-licensed drilling company advance the soil borings. The borings will be advanced to a depth of 6.5 ft (approximately two meters) by hand auger and/or an air knife/vacuum-extraction rig in accordance with BP's Environmental Drilling/Ground Disturbance Procedures. During clearance to 6.5 ft bgs, soil samples will be collected at 3.0-3.5 ft bgs, 5-5.5 ft bgs, and 6.5-7.0 ft bgs from each boring using a hand auger.

Below 6.5 ft bgs, borings will be advanced by a hollow-stem auger drilling rig with soil samples collected at 1.5 ft intervals down to 20 ft bgs, the target total depth of each boring (i.e. samples from 8.0, 9.5, 11.0, 12.5, 14.0, 15.5, 17.0, 18.5, 20.0 ft bgs). Soils 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. A photo-ionization detector will be utilized to screen and record the concentrations of total volatile organic compounds. The soil samples collected above the initially-encountered ground-water levels will be submitted to the laboratory for chemical analysis. Soil samples collected below the initially-encountered ground-water levels will not be submitted to the laboratory for chemical analysis.

The soil samples will be submitted under chain-of-custody protocol to Calscience Environmental Laboratories, Inc. (Garden Grove), a California State-certified environmental laboratory. The soil samples will be analyzed for the following: GRO (C6-C12) by EPA Method 8015M; BTEX, MTBE, Ethyl-Tertiary Butyl Ether (ETBE), Tert Amyl Methyl Ether (TAME), Di-Isopropyl Ether (DIPE), 1,2-Dichloroethane (1,2-DCA), Ethylene Dibromide (EDB), Tert Butyl Alcohol (TBA), and Ethanol using EPA Method 8260B.

Investigation-derived residuals will be temporarily stored onsite in 55-gallon, DOT-approved drums, pending characterization for proper management. BAI will assist with arranging for the removal and transportation of surplus soils and liquids to appropriate California-regulated facilities.

4.4 Monitoring Well Construction

Following collection of a grab ground-water sample, boring B-19 will be grouted to the surface using neat cement, and the surface refinished to match the surrounding area. Borings B-16, B-17 and B-18 will be converted into ground-water monitoring wells MW-7, MW-8, and MW-9, respectively for ground-water sampling later. The wells will be constructed of 4-inch diameter, Schedule 40 PVC with 0.010-inch machine-cut slotted screens. The proposed monitoring wells MW-7, MW-8, and MW-9 will have screen intervals of 5.0 to 20.0 ft bgs, the total depth of each well. A filter pack consisting of No. 2/12 sorted sand will be installed from the total depth to one foot above the top of the well screen, which will be overlain by two feet of bentonite, and five-percent bentonite-cement grout to the surface. A traffic-rated locking well vault will be installed flush to the ground to protect each well head.

4.5 Monitoring Well Development, Surveying and Sampling

At least 48 hours after well installation the new wells will be developed. The well development process will consist of surging and bailing and/or pumping the well to remove fine-grained sediments from the well and sand filter pack. A minimum of three and a maximum of ten wetted casing volumes of ground water will be removed until the clarity of the water improves and water quality parameters have stabilized. Periodic measurements of the water quality parameters pH, temperature, conductivity, and turbidity will be recorded during the development to establish baseline values for ground water. Purge water generated during development activities will be handled according to BP protocols and procedures.

After well development, the monitoring wells will be surveyed. A California-licensed Professional Land Surveyor will be scheduled to survey the well heads for top of casing elevation with respect to the 1988 North American Vertical Datum (NAVD'88) and for lateral XY position in latitude and longitude and northings and eastings per the North American Datum for 1983 (NAD'83). Survey information will be uploaded to GeoTracker.

The wells will be sampled no sooner than 48 hours after well development. The sampling procedure for the wells consists of first measuring the water level and depth to bottom, and checking for the presence of separate phase hydrocarbons (free product) using an electronic oil-water interface probe. If the well does not contain free product, it will be purged of approximately three wetted casing volumes of water (or until dewatered) using a centrifugal pump, gas displacement pump, or bailer. During purging, temperature, pH, and electrical conductivity will be monitored to document that these parameters have stabilized prior to collecting samples. After purging, water levels will be allowed to partially (at least 80%) recover. Ground-water samples will be collected using a dedicated disposable bailer, placed into appropriate Environmental Protection Agency (EPA) approved containers, labeled, logged onto chain-of-custody records, and transported on ice to the laboratory. Sample labels will include sample name, sampling time and date, analytical methods, and sampler's initials. If the well contains free product, it will not be sampled and free product will be removed according to California Code of Regulations, Title 23, Division 3, Chapter 16, Section 2655, UST Regulations.

Ground-water samples will be submitted under chain-of-custody protocol to Calscience Environmental Laboratories, Inc. (Garden Grove)to be analyzed for the following: GRO (C6-C12) by EPA Method 8015M; BTEX, MTBE, ETBE, TAME, DIPE, 1,2-DCA, EDB, TBA, and Ethanol using EPA Method 8260B.

4.6 Soil & Ground-Water Investigation Report

Upon completion of field activities, BAI will prepare the Soil & Ground-Water Investigation Report. The report will document the results of the investigation, field activities, copies of required permit(s), copies of field notes, soil boring logs, well construction reports, laboratory analytical reports with chain-of-custody documentation, discussion of findings, conclusions, and recommendations if warranted. Deviations from the work plan or data inconsistencies will be discussed in the report.

5.0 PROPOSED SCHEDULE

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

- Soil & Ground-Water Investigation – Within 60 days following approval of this work plan;
- Soil & Ground-Water Investigation Report – Within 45 days following completion of fieldwork (i.e. within 105 days following approval of this work plan).

6.0 CLOSURE

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.

7.0 REFERENCES

ACEH, 30 April 2008. *Fuel Leak Case No. RO 0000078 and Geotracker Global ID T0600100106, ARCO #0374, 6407 Telegraph Ave., Oakland, CA 94609.* Letter from Mr. Paresh Khatri (ACEH) to Mr. Paul Supple (Atlantic Richfield Company).

ACEH, 20 May 2009. *Fuel Leak Case No. RO0000078 and Geotracker Global ID T0600100106, ARCO #0374, 6407 Telegraph Ave., Oakland, CA 94609.* Letter from Mr. Paresh Khatri (ACEH) to Mr. Paul Supple (Atlantic Richfield Company).

ACEH, 4 September 2009. *Fuel Leak Case No. RO0000078 and Geotracker Global ID T0600100106, ARCO #0374, 6407 Telegraph Ave., Oakland, CA 94609.* Letter from Mr. Paresh Khatri (ACEH) to Mr. Paul Supple (Atlantic Richfield Company).

ACEH, 12 March 2010. *Soil and Groundwater Investigation Work Plan for Fuel Leak Case No. RO0000078 and GeoTracker Global ID T0600100106, ARCO #0374, 6407 Telegraph Ave., Oakland, CA 94609.* Letter from Mr. Paresh Khatri (ACEH) to Mr. Chuck Carmel (Atlantic Richfield Company).

Applied Geosystems, 1 August 1988. *Environmental Investigation Related to Underground Storage Tank Removal, ARCO Service Station No. 374, Telegraph and Alcatraz Avenues, Oakland, CA.*

Applied Geosystems, 15 June 1988. *Report Environmental Investigation Related to Underground Storage Tank Removal, ARCO Service Station No. 374, Telegraph and Alcatraz Avenues, Oakland, CA.*

Applied Geosystems, 5 January 1989. *Letter Report No. 18039-4 on Purging and Sampling Tank-Pit Monitoring Well, ARCO Station No. 374, Telegraph and Alcatraz Avenues, Oakland, CA.*

Applied Geosystems, 27 March 1991. *Report Limited Subsurface Environmental Investigation, ARCO Station No. 374, 6407 Telegraph Ave., Oakland, CA.*

Broadbent & Associates, Inc., 27 June 2008. *Work Plan for On-Site Soil Investigation, Atlantic Richfield Company Station No. 374, 6407 Telegraph Ave., Oakland, California, ACEHS Case No. RO0000078.*

Broadbent & Associates, Inc., 26 December 2008. *Soil Investigation Report, Atlantic Richfield Company Station No. 374, 6407 Telegraph Ave., Oakland, California.*

Broadbent & Associates, Inc., 19 February 2009. *Compliance Soil Sampling Report for Product Line/Fuel Dispenser Upgrades, Atlantic Richfield Company Station No. 374, 6407 Telegraph Ave., Oakland, California.*

Broadbent & Associates, Inc., 11 November 2009. *On-Site Soil & Ground-Water Investigation Report, Atlantic Richfield Company Station No. 374, 6407 Telegraph Ave., Oakland, California, ACEH Case No.RO0000078.*

Broadbent & Associates, Inc., 30 April 2010. *First Quarter 2010 Semi-Annual Ground-Water Monitoring Report, Atlantic Richfield Company Station No. 374, 6407 Telegraph Ave., Oakland, California.*

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

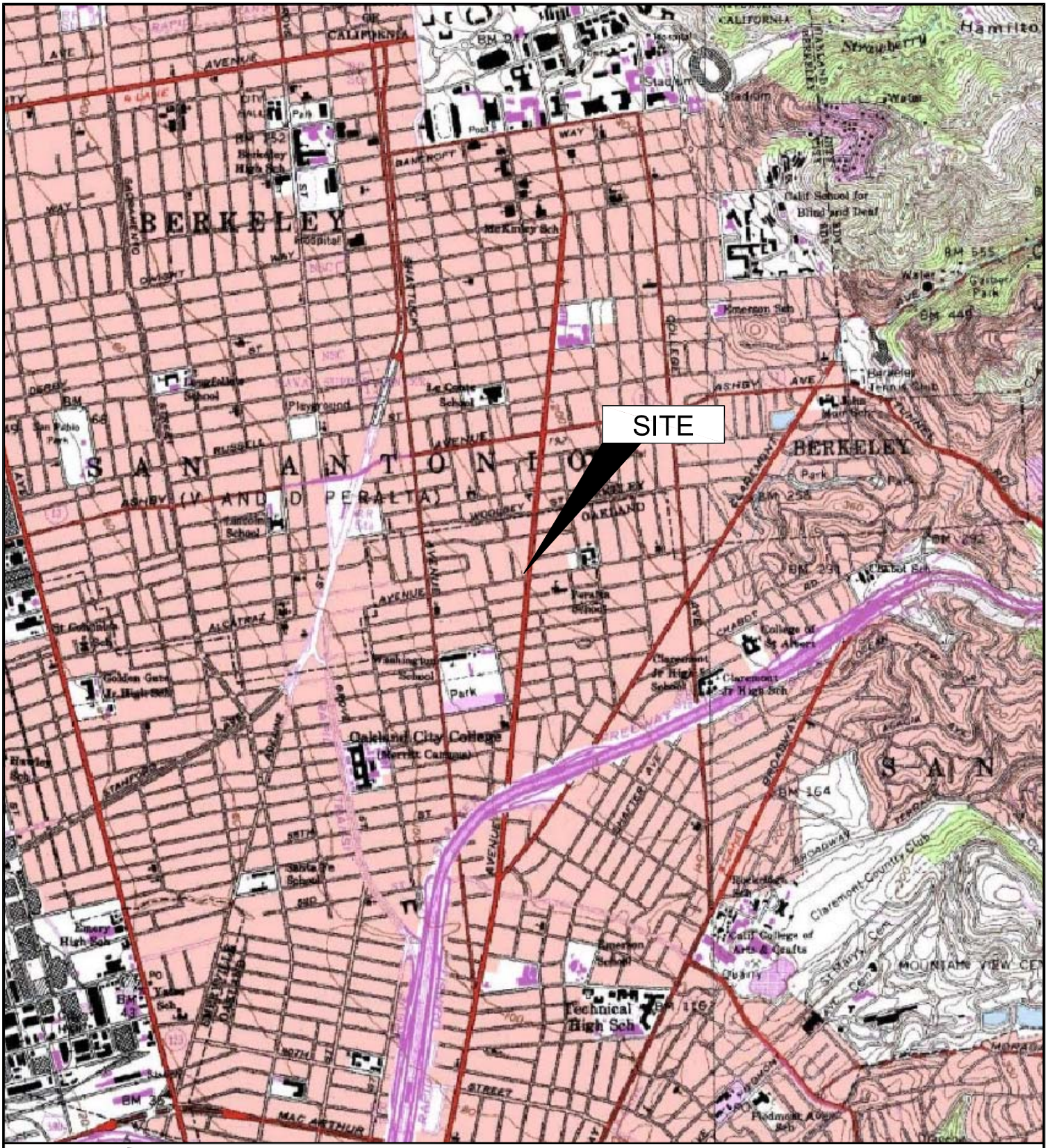
IT Corporation, 27 April 2000. *Quarterly Ground-Water Monitoring Report, First Quarter 2000, ARCO Station No. 374, 6407 Telegraph Ave., Oakland, CA.*

Pacific Environmental Group, 6 March 1996. *Quarterly Report – Fourth Quarter 1995, Remedial System Performance Evaluation, ARCO Station No. 374, 6407 Telegraph Ave., Oakland, CA.*

RESNA, 31 July 1991. *Report of Pumping and Recovery Test Results, ARCO Station No. 374, 6407 Telegraph Ave., Oakland, CA.*

RESNA, 8 March 1994. *Letter Report, Quarterly Ground-Water and Remediation System Monitoring, Fourth Quarter 1993, ARCO Station No. 374, 6407 Telegraph Ave., Oakland, CA.*

RESNA, 22 September 1992. *Report on Offsite Subsurface Environmental Investigation, ARCO Station No. 374, 6407 Telegraph Ave., Oakland, CA.*



N

0 2000 4000

APPROXIMATE SCALE (ft)

IMAGE SOURCE: USGS

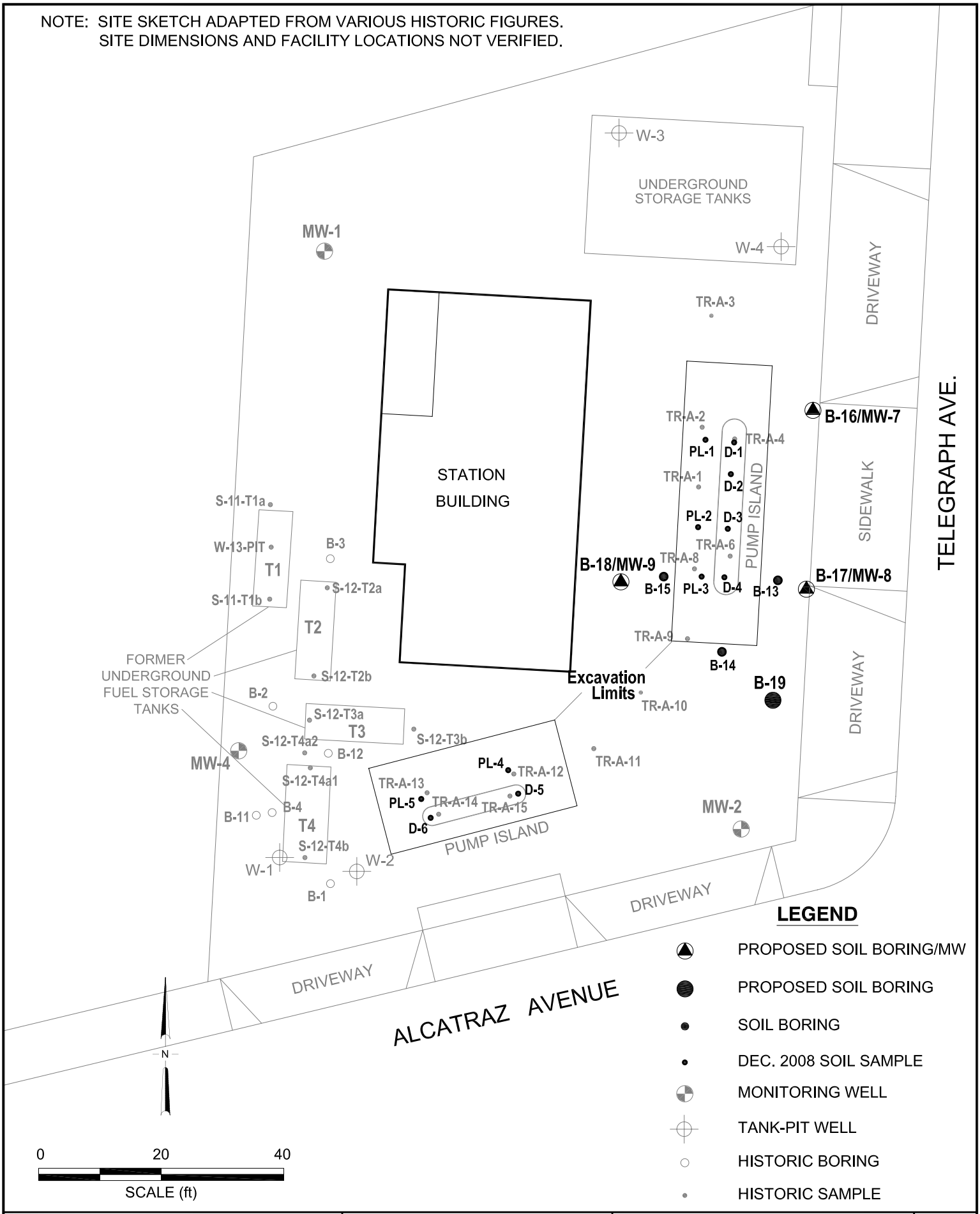
BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, CA 95926
Project No.: 06-88-602 Date: 10/30/09

Station #374
6407 Telegraph Ave.
Oakland, California

Site Location Map

Drawing
1

NOTE: SITE SKETCH ADAPTED FROM VARIOUS HISTORIC FIGURES.
SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.



LEGEND

- PROPOSED SOIL BORING/MW
- PROPOSED SOIL BORING
- SOIL BORING
- DEC. 2008 SOIL SAMPLE
- MONITORING WELL
- TANK-PIT WELL
- HISTORIC BORING
- HISTORIC SAMPLE

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California
Project No.: 06-88-602 Date: 05/03/10

Station #374
6407 Telegraph Ave.
Oakland, California

Site Layout Plan with
Proposed Soil Borings and
Monitoring Well Locations

Drawing
2

APPENDIX A

RECENT REGULATORY CORRESPONDENCE

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

March 12, 2010

Charles Carmel (*Sent via E-mail to: charles.carmel@bp.com*)
Atlantic Richfield Company
(A BP Affiliated Company)
P.O. Box 1257
San Ramon, CA 94583

Subject: Soil and Groundwater Investigation Work Plan for Fuel Leak Case No. RO0000078 and GeoTracker Global ID T0600100106, ARCO #0374, 6407 Telegraph Avenue, Oakland, CA 94609

Dear Mr. Carmel:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the recently submitted document entitled, "On-Site Soil & Ground-Water Investigation Report," dated November 11, 2009, which was prepared by Broadbent and Associates, Inc. (BAI) for the subject site. Based on a review of the above-mentioned report, elevated concentrations of petroleum hydrocarbons were detected in soil and groundwater samples collected from the site. Specifically, total petroleum hydrocarbons (TPH) as gasoline (g) and benzene were detected at concentrations as high as 1,800 milligrams per kilogram (mg/kg) and 8.2 mg/kg, respectively in soil samples collected at the site. "Grab" groundwater sample analytical results detected TPH-g and benzene at concentrations of 19,000 micrograms per liter (µg/L) and 3,700 µg/L, respectively. BAI recommends installation of a boring (to collect soil samples deeper than 8.5 feet bgs), which would be converted to a groundwater monitoring well.

ACEH is not certain the scope of work proposed would adequately characterize the site. ACEH requests that you address the following technical comments and send us the technical reports listed below.

TECHNICAL COMMENTS

1. **Soil and Groundwater Characterization** – As mentioned above, BAI recommends installation of one boring just south of previously installed boring B-15 to collect soil samples deeper than 8.5 feet bgs. The boring would then be utilized to install a groundwater monitoring well. It is important to note that significantly elevated concentration of petroleum hydrocarbons were detected in confirmation soil samples collected during dispenser upgrades as well as the most recent subsurface investigation conducted in September 2009. ACEH is not confident that one boring will adequately define the extent of soil and groundwater contamination. Please justify that the proposed boring/monitoring well location will adequately characterize the extent of soil and groundwater contamination or propose an alternate scope of work. ACEH recommends that direct-push borings are proposed to adequately characterize the site prior to installing permanent groundwater monitoring point(s). Please submit a work plan due by the date specified below.

2. **Potentially Completed Exposure Pathways & Feasiblity Study/Corrective Action Plan** – As noted above, elevated concentrations of petroleum hydrocarbons were detected in soil and groundwater samples indicating that the site may pose a potential risk to human health and the environment. Once site characterization is completed, please submit an FS/CAP, prepared in accordance with Title 23, California Code of Regulations, Section 2725, due by the date specified below.

   The FS/CAP must include a concise background of soil and groundwater investigations performed in connection with this case and an assessment of the residual impacts of the chemicals of concern (COCs) for the site and the surrounding area where the unauthorized release has migrated or may migrate. The FS/CAP should also include, but not limited to, a detailed description of site lithology, including soil permeability, and most importantly, contamination cleanup levels and cleanup goals, in accordance with the San Francisco Regional Water Quality Control Board (SFRWQCB) Basin Plan for the appropriate groundwater designation. Please note that soil cleanup levels should ultimately (within a reasonable timeframe) achieve water quality objectives (cleanup goals) for groundwater in accordance with the SFRWQCB Basin Plan. Please specify appropriate cleanup levels and cleanup goals in accordance with 23 CCR Section 2725, 2726, and 2727 in the FS/CAP.

   The FS/CAP must evaluate at least three viable alternatives for remedying or mitigating the actual or potential adverse effects of the unauthorized release(s) besides the 'no action' and 'monitored natural attenuation' remedial alternatives. Each alternative shall be evaluated not only for cost-effectiveness but also its timeframe to reach cleanup levels and cleanup goals, and ultimately the Responsible Party must propose the most cost-effective corrective action.

NOTIFICATION OF FIELDWORK ACTIVITIES

Please schedule and complete the fieldwork activities by the date specified below and provide ACEH with at least three (3) business days notification prior to conducting the fieldwork.

TECHNICAL REPORT REQUEST

Please submit technical reports to ACEH (Attention: Paresh Khatri), according to the following schedule:

- **May 11, 2010** – Soil and Water Investigation Work Plan
- **April 5 or 30, 2010** – Semi-annual Monitoring Report (1st Quarter 2010)
- **August 12, 2010** – Feasibility Study/Corrective Action Plan
- **October 5 or 30, 2010** – Semi-annual Monitoring Report (3rd Quarter 2010)

Thank you for your cooperation. Should you have any questions or concerns regarding this correspondence or your case, please call me at (510) 777-2478 or send me an electronic mail message at paresh.khatri@acgov.org.

Sincerely,

Paresh C. Khatri
Hazardous Materials Specialist

Attachment: Responsible Party(ies) Legal Requirements/Obligations

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Tom Venus, Broadbent and Associates, Inc., 1324 Mangrove Ave., Suite 212, Chico, CA 94926 (*Sent via E-mail to: tvenus@broadbentinc.com*)
Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032 (*Sent via E-mail to: lgriffin@oaklandnet.com*)
Donna Drogos, Chief, ACEH (*Sent via E-mail to: donna.drogos@acgov.org*)
Paresh Khatri, ACEH (*Sent via E-mail to: paresh.khatri@acgov.org*)
GeoTracker
File

Attachment 1
Responsible Party(ies) Legal Requirements/Obligations

REPORT REQUESTS

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

ELECTRONIC SUBMITTAL OF REPORTS

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

PERJURY STATEMENT

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

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

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

UNDERGROUND STORAGE TANK CLEANUP FUND

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

AGENCY OVERSIGHT

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

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**ISSUE DATE:** July 5, 2005
	REVISION DATE: March 27, 2009
	PREVIOUS REVISIONS: December 16, 2005, October 31, 2005
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

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

REQUIREMENTS

- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection**. (Please do not submit reports as attachments to electronic mail.)
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- Signature pages and perjury statements **must** be included and have either original or electronic signature.
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted**.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:
  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Additional Recommendations

- A separate copy of the tables in the document should be submitted by e-mail to your Caseworker in **Excel** format. These are for use by assigned Caseworker only.

Submission Instructions

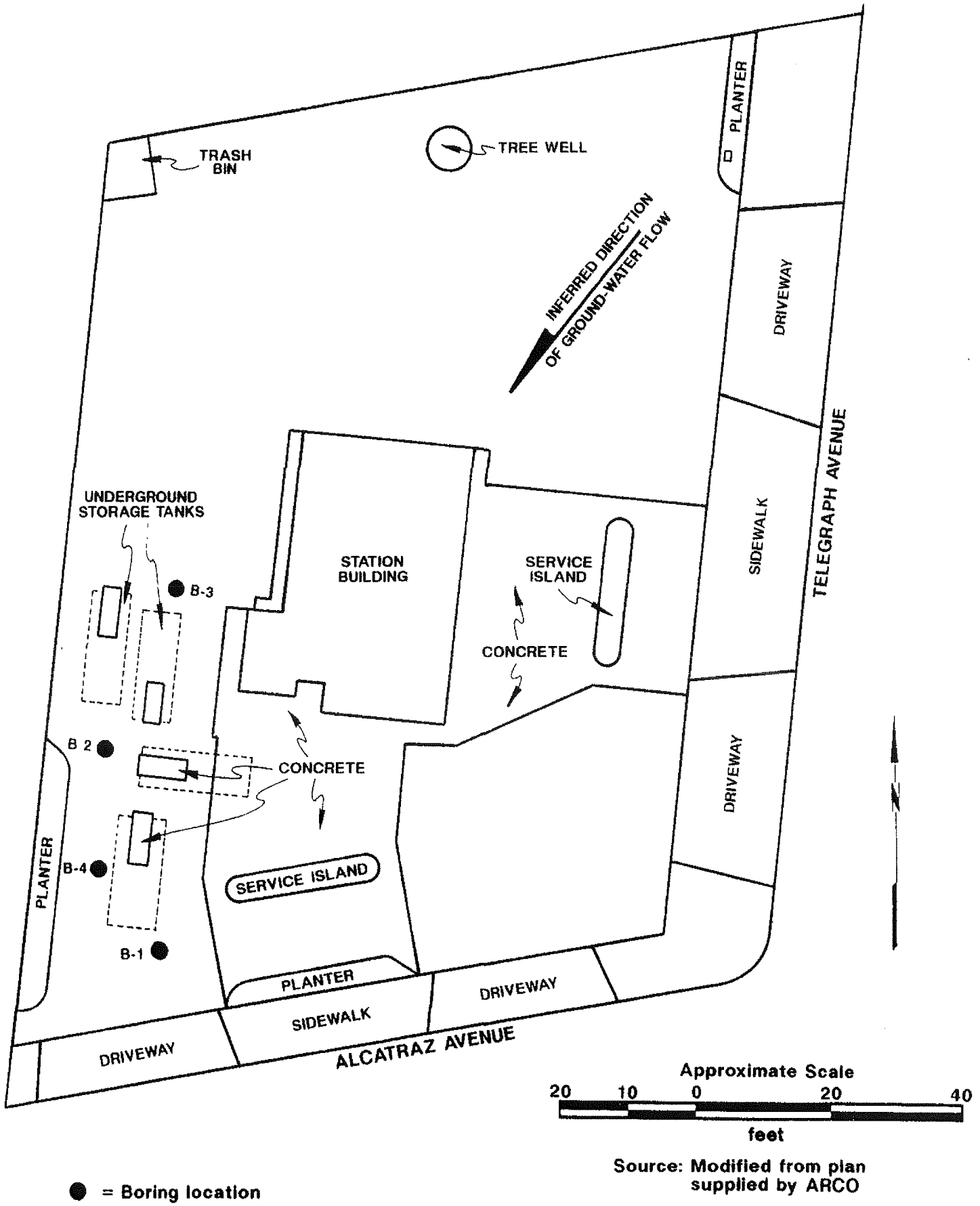
1) Obtain User Name and Password:
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to dehloptoxic@acgov.org
         Or
      ii) Send a fax on company letterhead to (510) 337-9335, to the attention of My Le Huynh.
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
      (i) Note: Netscape and Firefox browsers will not open the FTP site.
   b) Click on File, then on Login As.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to dehloptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO# use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

APPENDIX B

HISTORIC SOIL AND GROUND-WATER BORING SAMPLE DATA

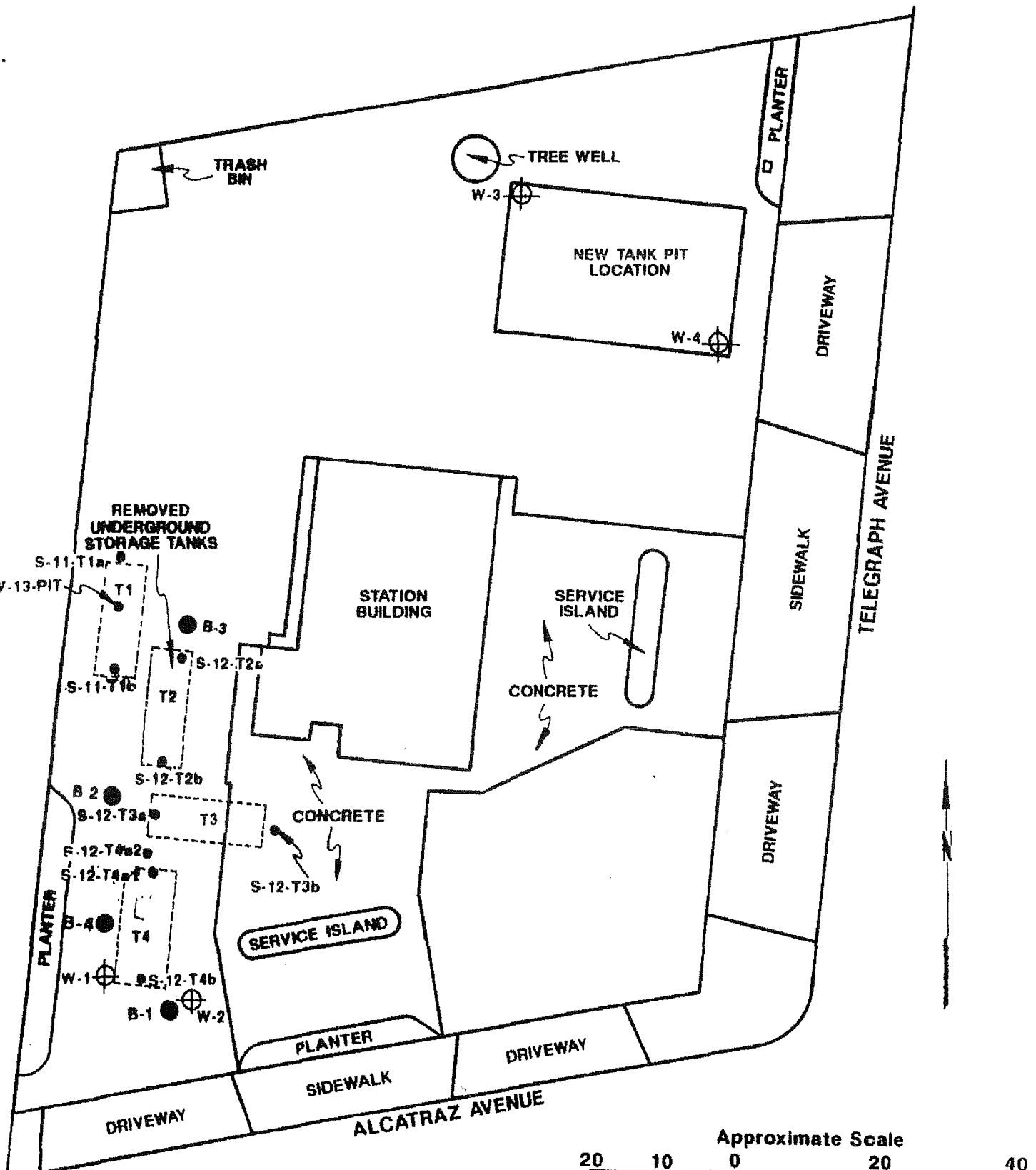


Applied GeoSystems
4125 Mission Blvd. Suite B Fremont, CA 94539 (415) 651-1906

PROJECT NO. 18039-1

GENERALIZED SITE PLAN
ARCO Station No. 374
Telegraph and Alcatraz Avenues
Oakland, California

PLATE
P - 2

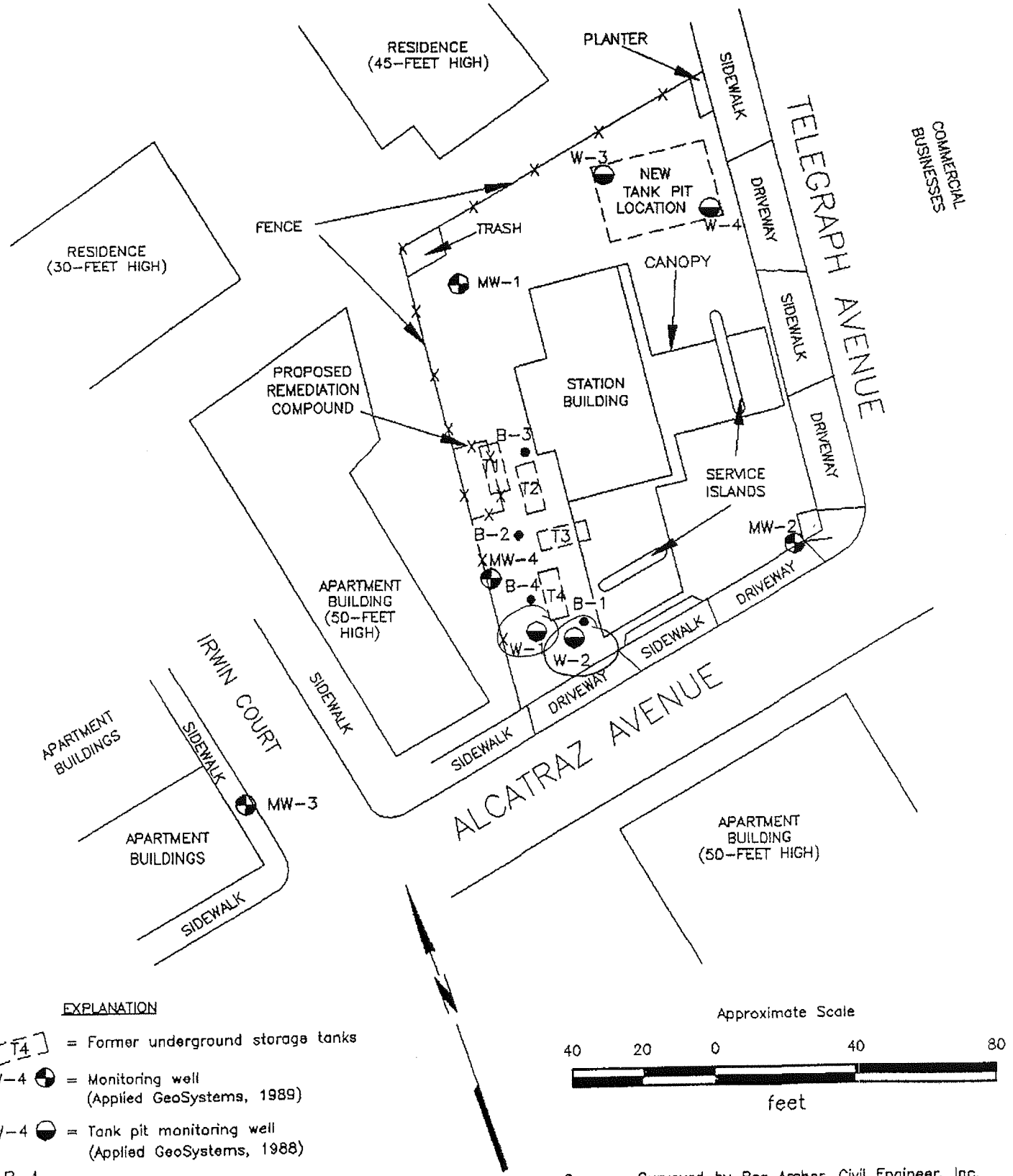


Applied GeoSystems

PROJECT NO. 18039-2

GENERALIZED SITE PLAN
ARCO Station No. 374
Telegraph and Alcatraz Avenues
Oakland, California

PLATE
P - 2



EXPLANATION

[T4] = Former underground storage tanks

MW-4 = Monitoring well (Applied GeoSystems, 1989)

W-4 = Tank pit monitoring well (Applied GeoSystems, 1988)

B-4 = Soil boring (Applied GeoSystems, 1988)

Approximate Scale

40 20 0 40 80

feet

Source: Surveyed by Ron Archer, Civil Engineer, Inc.

RESNA	GENERALIZED SITE PLAN AND AREA MAP ARCO Station 374 6407 Telegraph Avenue Oakland, California	PLATE 2
PROJECT 60025.08		

TABLE 1
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF SOIL SAMPLES
ARCO Station 374
6407 Telegraph Avenue
Oakland, California
(Page 1 of 2)

Sample Number	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes
April 1988 - Limited Environmental Site Assessment					
S-05-B1	165	NA	NA	NA	NA
S-10-B1	48	NA	NA	NA	NA
S-05-B2	260	NA	NA	NA	NA
S-8.5-B2	60	NA	NA	NA	NA
S-05-B3	64	NA	NA	NA	NA
S-09-B3	62	NA	NA	NA	NA
S-05-B4	389	NA	NA	NA	NA
S-8.5-B4	930	NA	NA	NA	NA
June 1988 - Excavation and Removal of USTs					
S-11-T1A	399	14.7	20.0	20.5	91.9
S-11-T1B	8	2.57	0.74	0.39	2.75
S-12-T2A	4	0.35	0.10	0.38	0.70
S-12-T2B	75	0.91	1.77	3.61	11.92
S-12-T3A	4	2.54	0.13	<0.05	0.13
S-12-T3B	<2	<0.05	<0.05	<0.05	<0.05
S-12-T4A	1,097	16.3	34.5	81.6	188.2
S-12-T4A2**	795	23.1	24.9	67.1	130.9
S-12-T4B	3	0.76	<0.05	<0.05	<0.05
S-13-PIT	3.6	0.738	0.038	0.154	0.566
July 1989 - Limited Subsurface Investigation					
S-3.5-B1/MW-1	<2	<0.05	<0.05	<0.05	<0.05
S-8.5-B1/MW-1	60	0.66	2.9	0.99	5.2
S-3.5-B2/MW-2	<2	<0.05	<0.05	<0.05	<0.05
S-13.5-B2/MW-2	<2	<0.05	<0.05	<0.05	<0.05
S-18.5-B2/MW-2	<2	<0.05	<0.05	<0.05	<0.05
S-3.5-B3/MW-3	<2	<0.05	<0.05	<0.05	<0.05
S-3.5-B4/MW-4	<2	<0.05	<0.05	<0.05	<0.05
S-13.5-B4/MW-4	<2	<0.05	<0.05	<0.05	<0.05
S-18.5-B4/MW-4	<2	<0.05	<0.05	<0.05	<0.05
S-0731-B4 (1a,b,c,d)*	21	<0.05	<0.05	<0.05	0.37
April 1, 1992 - Offsite Investigation					
S-5.5-B5	<1.0	<0.005	<0.005	<0.005	<0.005
S-14.5-B5	<1.0	<0.005	<0.005	<0.005	<0.005
S-5.5-B6	<1.0	<0.005	<0.005	<0.005	<0.005

See notes on Page 2 of 2.

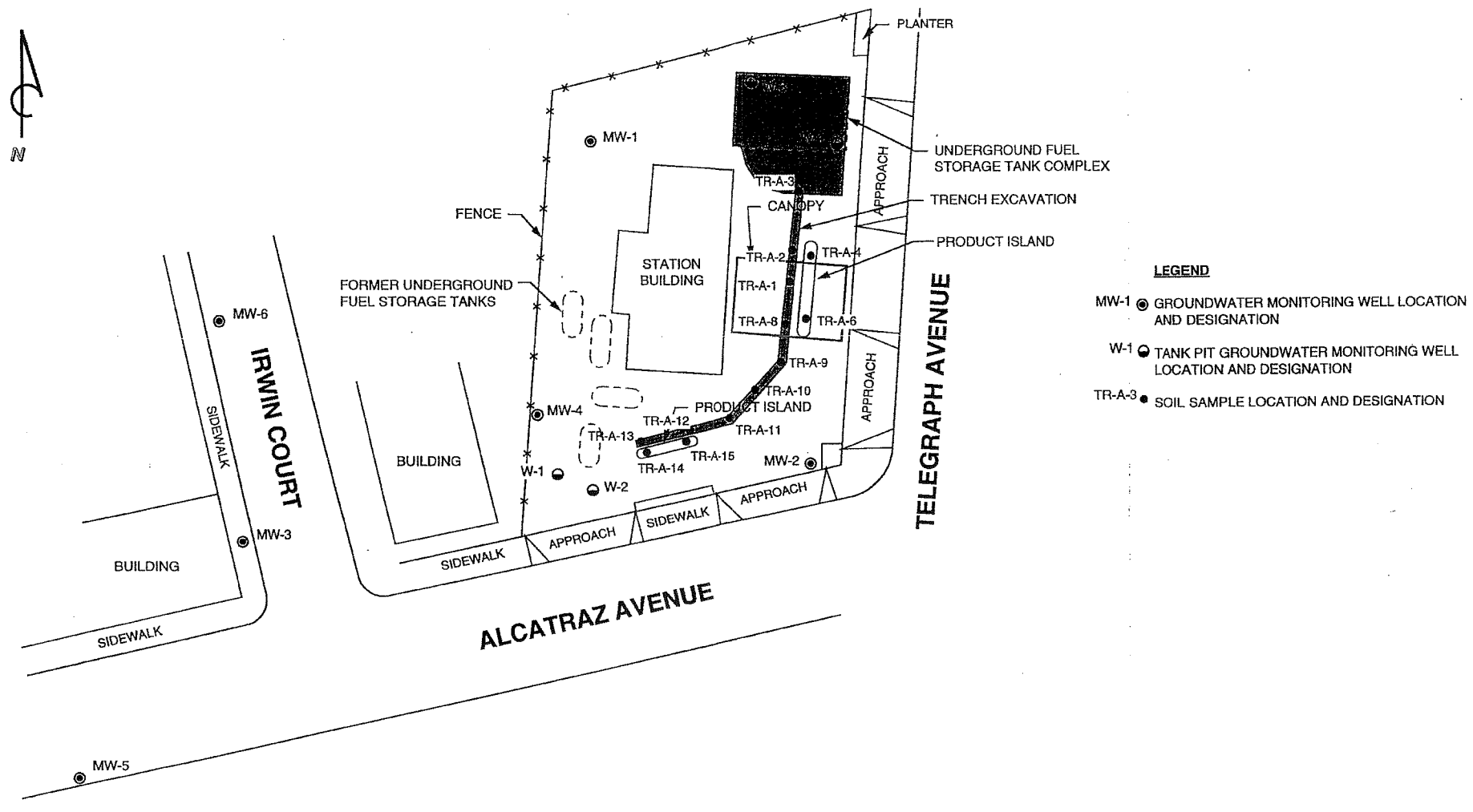
TABLE 1
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF SOIL SAMPLES
ARCO Station 374
6407 Telegraph Avenue
Oakland, California
(Page 2 of 2)

Results are in parts per million (ppm).
TPHg: Total petroleum hydrocarbons as gasoline.
<: Below the reporting limits of the analytical method.
*: Signifies composite sample following aeration.
**: Resample area near sample T4A following additional excavation.
NA: Not analyzed.

Sample designations:

S-5.5-B6
- Boring number
- Sample depth in feet
- Soil sample

S-12-T4B
- Tank number and location
- Sample depth in feet
- Soil sample



PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE
0 30 60 FEET

ARCO SERVICE STATION 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

SITE MAP

FIGURE:
2
PROJECT:
330-084.1B

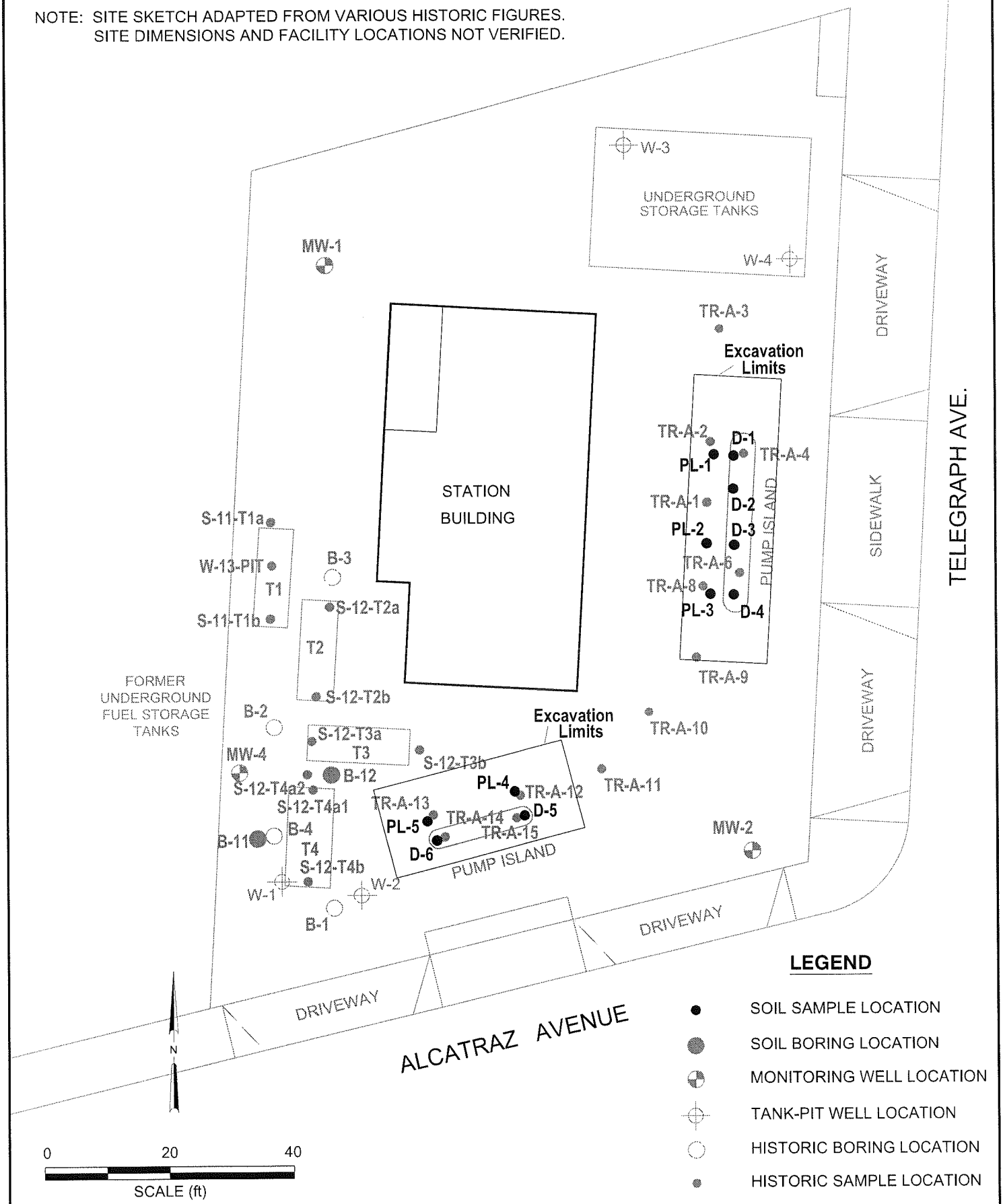
Table 1
Soil Analytical Data
Product Line and Dispenser Excavation
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, and Total Lead)

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Sample ID	Date Sampled	Sample Depth (feet)	TPPH as Gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylenes (ppm)	Total Lead (ppm)
Product Lines								
TR-A-1	9/21/95	3	NA	NA	NA	NA	NA	15
TR-A-2	9/21/95	3	<1	<0.0050	<0.0050	<0.0050	<0.0050	NA
TR-A-3	9/21/95	3	<1	<0.0050	<0.0050	<0.0050	<0.0050	NA
TR-A-8	9/21/95	3	65	<0.025	0.15	0.096	6.7	NA
TR-A-9	9/21/95	3	<1	<0.0050	<0.0050	<0.0050	<0.0050	NA
TR-A-10	9/21/95	3	<1	<0.0050	<0.0050	<0.0050	<0.0050	NA
TR-A-11	9/21/95	3	1.9	<0.0050	<0.0050	0.0050	<0.0050	NA
TR-A-12	9/21/95	3	6.2	<0.0050	<0.0050	0.0067	<0.0050	NA
TR-A-13	9/21/95	3	48	0.30	2.2	0.53	3.6	NA
Product Dispensers								
TR-A-4	9/21/95	3	<1	<0.0050	<0.0050	<0.0050	<0.0050	NA
TR-A-6	9/21/95	3	140	<0.50	1.1	0.80	1.5	NA
TR-A-14	9/21/95	3	89	2.1	8.5	1.7	9.4	NA
TR-A-15	9/21/95	3	19	0.0089	0.37	0.045	1.9	NA

ppm = Parts per million
NA = Not analyzed
< = Indicates the concentration is below the detection limit.

NOTE: SITE SKETCH ADAPTED FROM VARIOUS HISTORIC FIGURES.
SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.



BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California
Project No.: 06-08-602 Date: 1/29/09

Station #374
6407 Telegraph Ave.
Oakland, California

Site Layout Plan with
Soil Sample Locations

Drawing
2

Table 1. Soil Sampling Analytical Data
Atlantic Richfield Company Station #374
6407 Telegraph Avenue, Oakland, California

Soil Sample ID	Sampling Depth (feet bgs)	Sampling Date	Laboratory Analytical Results (mg/kg)													
			GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	TBA	DIPE	ETBE	TAME	Ethanol	1,2 DCA	EDB	Lead
D1-2.5'	2.5	12/4/2008	**120**	**0.15**	<0.10	**1.8**	**9.7**	<0.10	<1.0	<0.20	<0.20	<0.20	<10	<0.10	<0.10	**4.76**
D2-2.5'	2.5	12/4/2008	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.010	<0.0020	<0.0020	<0.0020	<0.10	<0.0010	<0.0010	**5.50**
D3-2.5'	2.5	12/4/2008	**17**	**0.46**	<0.10	**0.91**	**1.8**	<0.10	<1.0	<0.20	<0.20	<0.20	<10	<0.10	<0.10	**11.70**
D4-2.5'	2.5	12/4/2008	**1,500**	**3.6**	**0.12**	**3.6**	**2.9**	<0.10	<1.0	<0.20	<0.20	<0.20	<10	<0.10	<0.10	**8.65**
D-4 5'	5.0	12/9/2008	**5,300**	**19**	**1.1**	**23**	**31**	<0.50	<5.0	<1.0	<1.0	<1.0	<50	<0.50	<0.50	**11.2**
D5-2.5'	2.5	12/4/2008	**2.9**	<0.0010	**0.0019**	<0.0010	**0.0021**	**0.0038**	<0.010	<0.0020	<0.0020	<0.0020	<0.10	<0.0010	<0.0010	**5.38**
D6-2.5'	2.5	12/4/2008	**1.7**	**0.0054**	**0.015**	**0.0037**	**0.021**	**0.0055**	<0.010	<0.0020	<0.0020	<0.0020	**0.19**	<0.0010	<0.0010	**5.81**
PL1-3'	3.0	12/4/2008	**8.0**	<0.0010	<0.0010	<0.0010	<0.0010	**0.046**	**0.019**	<0.0020	<0.0020	**0.0027**	<0.10	<0.0010	<0.0010	**5.49**
PL2-3'	3.0	12/4/2008	<0.50	**0.0059**	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	<0.0020	<0.0020	<0.0020	<0.10	<0.0010	<0.0010	**6.03**
PL3-3'	3.0	12/4/2008	**6,500**	**18**	**0.74**	**25**	**12**	<0.20	<2.0	<0.40	<0.40	<0.40	<20	<0.20	<0.20	**12.20**
PL-3 5'	5.0	12/9/2008	**0.78**	**0.035**	<0.0010	**0.019**	**0.0021**	**0.012**	<0.010	<0.0020	<0.0020	<0.0020	<0.10	<0.0010	<0.0010	**5.43**
PL4-3'	3.0	12/4/2008	**26**	<0.10	<0.10	**0.35**	<0.10	**0.16**	<1.0	<0.20	<0.20	<0.20	<10	<0.10	<0.10	**5.16**
PL5-3'	3.0	12/4/2008	**15**	<0.10	<0.10	**0.36**	**0.10**	<0.10	<1.0	<0.20	<0.20	<0.20	<10	<0.10	<0.10	**4.89**
Soil Waste Composite 1	NA	12/4/2008	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.010	<0.0020	<0.0020	<0.0020	<0.10	<0.0010	<0.0010	**5.37**
Soil Waste Composite 2	NA	12/4/2008	77	**0.11**	**0.71**	**0.28**	**0.62**	<0.10	<1.0	<0.20	<0.20	<0.20	<10	<0.10	<0.10	**8.24**

NOTES:

Concentrations detected above laboratory reporting limits are in bold

bgs = Below ground surface

mg/kg = Milligrams per kilogram

NA = Not applicable

GRO = Gasoline Range Organics

MTBE = Methyl Tert-Butyl Ether

TBA = Tert-Butyl Alcohol

DIPE = Di-Isopropyl Ether

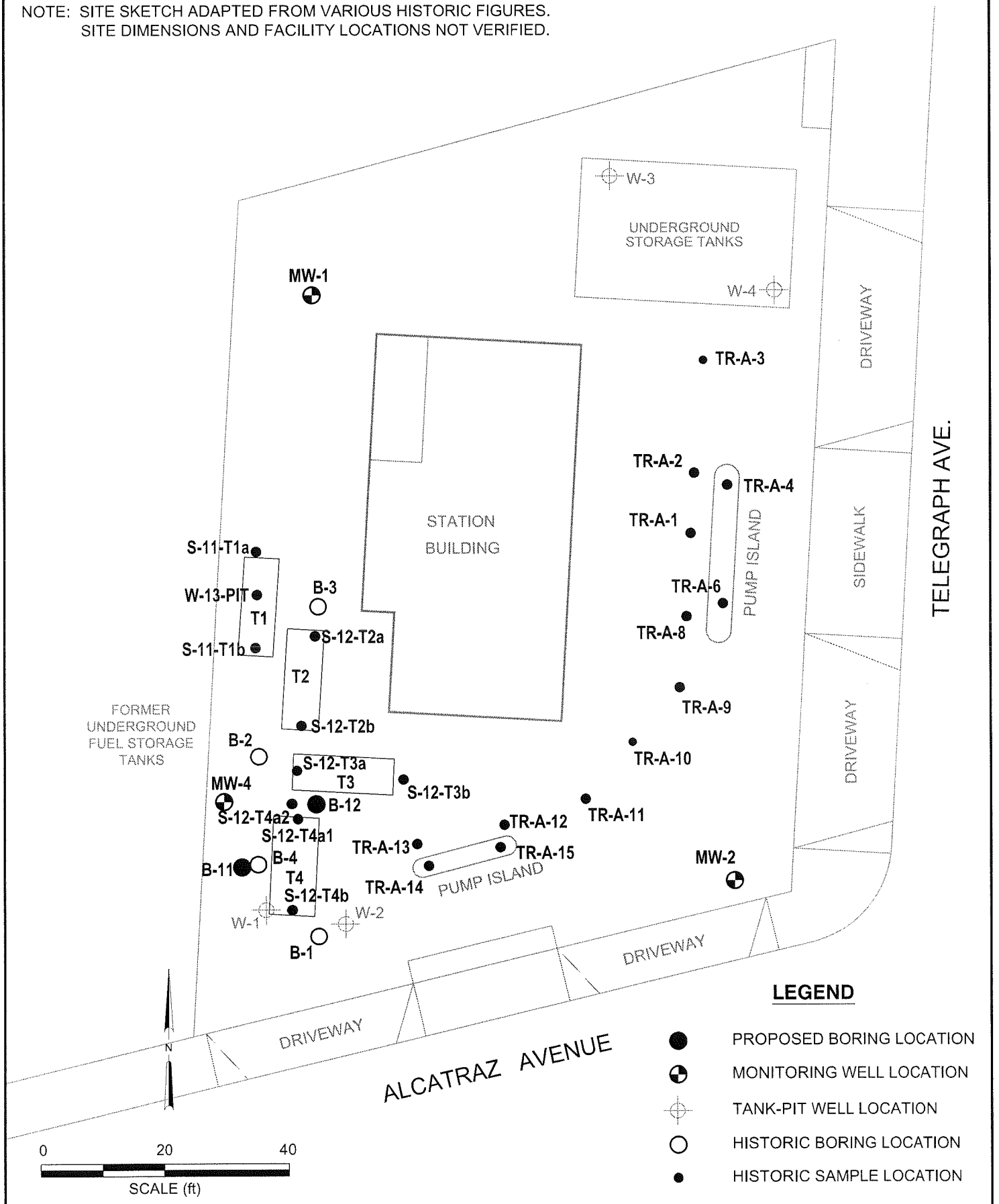
ETBE = Ethyl Tert-Butyl Ether

TAME = Tert-Amyl Methyl Ether

1,2-DCA = 1,2-Dichloroethane

EDB = 1,2-Dibromoethane

NOTE: SITE SKETCH ADAPTED FROM VARIOUS HISTORIC FIGURES.
SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.



BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California
Project No.: 06-08-602 Date: 9/16/08

Station #374
6407 Telegraph Ave.
Oakland, California

Site Sketch With Historic and Proposed Sample Locations

Drawing
2

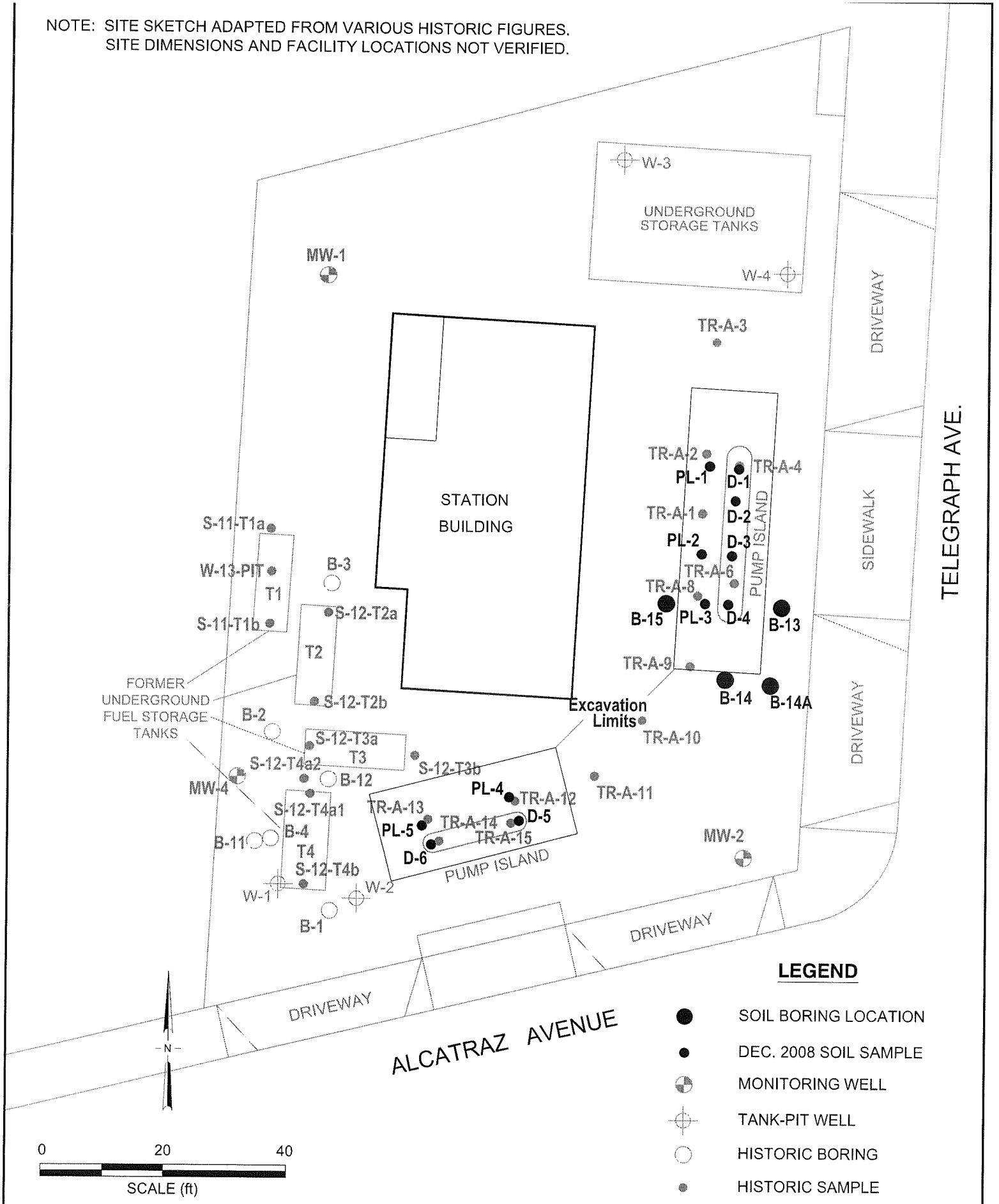
Laboratory Analytical Results from On-Site Soil Investigation, 13 November 2008
Atlantic Richfield Company Service Station #374, 6407 Telegraph Avenue, Oakland, California
ACEH Case #RO0000078

Soil Boring Samples
(Concentrations in milligrams per kilogram, mg/kg)

Sample ID	GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	ETBE	TAME	DIPE	1,2-DCA	EDB	TBA	Ethanol
B-11-15	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	0.014	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	<0.010	<0.10
B-12-15.5	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	0.0072	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	0.011	<0.10
Waste Comp.	NA	<0.0010	<0.0010	<0.0010	<0.0010	0.0084	<0.0020	<0.0020	<0.0020	NA	NA	<0.010	NA

Notes:
GRO: Gasoline Range Organics, hydrocarbon chain lengths C6-C12
MTBE: Methyl-tertiary Butyl Ether
ETBE: Ethyl Tert-Butyl Ether
TAME: Tert-Amyl Methyl Ether
DIPE: Di-Isopropyl Ether
1,2-DCA: 1,2-Dichloroethane
EDB: 1,2-Dibromomethane
TBA: Tert-Butyl Alcohol
<: Analyte not detected above the laboratory reporting limit given
NA: Analysis not requested or performed

NOTE: SITE SKETCH ADAPTED FROM VARIOUS HISTORIC FIGURES.
SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.



LEGEND

- SOIL BORING LOCATION
- DEC. 2008 SOIL SAMPLE
- MONITORING WELL
- TANK-PIT WELL
- HISTORIC BORING
- HISTORIC SAMPLE

BROADBENT & ASSOCIATES, INC. ENGINEERING, WATER RESOURCES & ENVIRONMENTAL 1324 Mangrove Ave. Suite 212, Chico, California Project No.: 06-08-602 Date: 5/19/09	Station #374 6407 Telegraph Ave. Oakland, California	Site Layout Plan with Soil Boring Locations

Drawing 2

Laboratory Analytical Results from On-Site Soil & Ground-Water Investigation, 21 September 2009
Atlantic Richfield Company Service Station #374, 6407 Telegraph Avenue, Oakland, California
ACEH Case #RO0000078

Soil Boring Samples
(Concentrations in milligrams per kilogram, mg/kg)

Sample ID	GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	ETBE	TAME	DIPE	1,2-DCA	EDB	TBA	Ethanol
B-13 4.5'	1.7	*0.048*	0.0017	0.036	0.019	*0.024*	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	0.052	<0.10
B-13 6.5'	67	***0.38***	<0.10	0.82	1.8	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<1.0	<10
B-13 8.5'	***1,800***	***8.2***	***71***	***32***	***190***	<1.0	<2.0	<2.0	<2.0	<1.0	<1.0	<10	<100
B-14 4.5'	<0.50	0.0018	<0.0010	<0.0010	<0.0010	0.012	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	0.014	<0.10
B-14 6.5'	0.73	0.011	<0.0010	0.0023	<0.0010	*0.025*	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	0.031	<0.10
B-14 8.5'	***390***	***0.56***	<0.10	***6.3***	0.70	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<1.0	<10
B-15 4.5'	***1,400***	***0.87***	<0.10	***4.3***	***3.0***	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<1.0	<10
B-15 6.5'	***170***	***0.91***	<0.10	***2.8***	***7.5***	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<1.0	<10
B-15 8.5'	***940***	***2.2***	<1.0	***13***	***52***	<1.0	<2.0	<2.0	<2.0	<1.0	<1.0	<10	<100
ESL - DW	83	0.044	2.9	2.3	2.3	0.023	NE	NE	NE	0.0045	0.0033	0.075	NE
ESL - NDW	100	0.12	9.3	2.3	11	8.4	NE	NE	NE	0.22	0.019	100	NE

Ground-Water Grab Sample
(Concentrations in micrograms per Liter, µg/L)

Sample ID	GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	ETBE	TAME	DIPE	1,2-DCA	EDB	TBA	Ethanol
B-15W	***19,000***	***3,700***	*54*	***840***	***1,600***	*250*	<20	<20	<20	<20	<20	<400	<12,000
ESL - DW	100	1.0	40	30	20	5.0	NE	NE	NE	0.5	0.05	12	NE
ESL - NDW	210	46	130	43	100	1,800	NE	NE	NE	200	150	18,000	NE

Notes for both tables:

GRO: Gasoline Range Organics, hydrocarbon chain lengths C6-C12
MTBE: Methyl-tertiary Butyl Ether
ETBE: Ethyl Tert-Butyl Ether
TAME: Tert-Amyl Methyl Ether
DIPE: Di-Isopropyl Ether
1,2-DCA: 1,2-Dichloroethane
EDB: 1,2-Dibromomethane
TBA: Tert-Butyl Alcohol
<: Analyte not detected above the laboratory reporting limit given
Conc: Concentration in *Italics* exceeds ESL-DW; Concentration in ***Bold Italics*** exceeds ESL-NDW
ESL - DW: Residential Environmental Screening Level (in soil or ground water, as approp.), for shallow soil, where ground water is potential drinking water resource
ESL - NDW: Residential Environmental Screening Level (in soil or ground water, as approp.), for shallow soil, where ground water is not potential drinking water resource
NE: ESL not established

APPENDIX C

GROUND-WATER EXTRACTION SYSTEM PERFORMANCE AND ANALYTICAL DATA

Table 5
Groundwater Extraction System Performance Data

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Sample I.D.	Date Sampled		Totalizer Reading (gallons)	Net Volume (gallons)	Average Flow Rate (gpm)	TPPH Influent Concentration (µg/L)	TPPH Net Removed (lbs)	TPPH Removed to Date (lbs)	Benzene Influent Concentration (µg/L)	Benzene Net Removed (lbs)	Benzene Removed to Date (lbs)	Primary Carbon Loading (percent)
INFL	12/21/93	a	22	22	0.21	NS	0.000	0.00	NS	0.000	0.00	0.0
INFL	12/23/93	a	4,855	4,833	1.6	9,300	0.380	0.38	1,200	0.024	0.02	0.5
INFL	12/27/93	a	6,871	2,016	0.36	5,700	0.130	0.51	820	0.017	0.04	0.6
INFL	12/29/93	a	7,192	321	0.13	5,800	0.016	0.53	950	0.002	0.04	0.7
INFL	01/03/94	a	7,925	733	0.10	6,500	0.010	0.54	860	0.006	0.05	0.7
INFL	01/05/94	a	8,162	237	0.08	5,200	0.010	0.55	970	0.002	0.05	0.7
INFL	01/11/94	a	8,907	745	0.08	6,300	0.030	0.58	900	0.006	0.06	0.7
INFL	01/13/94	a	9,175	268	0.09	8,600	0.019	0.60	950	0.002	0.06	0.7
INFL	01/24/94	a	9,306	131	0.08	NS	0.007	0.60	NS	0.001	0.06	0.8
INFL	02/24/94	a	14,555	5,249	0.21	4,200	0.280	0.88	520	0.011	0.07	1.1
INFL	03/24/94	a	23,723	9,168	0.24	6,200	0.400	1.40	1,100	0.062	0.13	1.8
INFL	04/26/94	b	29,543	5,820	0.12	6,400	0.150	1.55	1,400	0.061	0.19	1.9
INFL	05/24/94	c	35,082	5,539	0.14	NS	0.196	1.75	NS	0.043	0.24	2.2
INFL	11/17/94	d,e	35,507	425	N/A	2,100	0.004	1.75	460	0.001	0.24	2.2
INFL	01/10/95	f	36,493	986	0.01	1,100	0.013	1.76	180	0.003	0.24	2.2
INFL	02/07/95	g	41,399	4,906	0.12	3,500	0.094	1.86	370	0.011	0.25	2.3
INFL	03/03/95	h	53,290	11,891	0.34	NS	0.220	2.08	NS	0.035	0.29	2.6
INFL	04/03/95		62,582	9,292	0.21	5,000	0.194	2.27	1,000	0.039	0.32	2.8
INFL	05/01/95		69,809	7,227	0.18	580	0.168	2.44	40	0.031	0.36	3.0
INFL	06/09/95		75,254	5,445	0.10	1,400	0.045	2.48	420	0.010	0.37	3.1
INFL	07/05/95		81,540	6,286	0.17	750	0.056	2.54	41	0.012	0.38	3.2
INFL	08/10/95		86,868	5,328	0.10	610	0.030	2.57	29	0.002	0.38	3.2
INFL	09/18/95		91,532	4,664	0.08	600	0.024	2.59	10	0.001	0.38	3.2
INFL	10/02/95		92,918	1,386	0.07	790	0.008	2.60	52	0.000	0.38	3.3
INFL	10/13/95	l,h	93,989	1,071	0.07	NS	0.006	2.61	NS	0.000	0.38	3.3

REPORTING PERIOD: 09/18/95 - 12/31/95 (l)				
TOTAL POUNDS REMOVED:		**2.61**		**0.38**
TOTAL GALLONS REMOVED:		**0.43**		**0.05**
PERIOD POUNDS REMOVED:		**0.014**		**0.00**
PERIOD GALLONS REMOVED:		**0.002**		**0.00**
TOTAL GALLONS EXTRACTED:	**93,989**			
PERIOD GALLONS EXTRACTED:	**2,457**			
PERIOD AVERAGE FLOW RATE (gpm):	**0.07**			
PRIMARY BED CAPACITY REMAINING:	**96.7%**			

TPPH = Total purgeable petroleum hydrocarbons
gpm = Gallons per minute
µg/L = Micrograms per liter
lbs = Pounds
NS = Not sampled (prior concentrations assumed)
N/A = Not available or not applicable

a. All data prior to 9/1/94 provided by prior consultant.
b. Samples taken 4/21/94; totalizer reading from 4/26/94.
c. Last site visit by RESNA on 5/24/94.
d. Pacific Environmental Group, Inc. became consultant for the site 9/1/94.
e. System operated for two days in 4th quarter 1994; system down due to extensive repairs required for system and compound.
f. System started on January 10, 1995.
g. System auto shutdown 2/14/95; shut down 3/3/95 for repairs.
h. TPPH/benzene pounds removed estimated from previous data.
l. GWE system temporarily shut down 10/13/95.

System operation began December 21, 1993, under RESNA Industries, Inc.; system shut down 4/27/94 - 11/17/94.
Pounds of hydrocarbons removed to date through March 24, 1994 provided by prior consultant.
Benzene mass removal from 12/21/93 through 4/27/94 estimated from data provided by prior consultant.
Prior to June 1995, TPPH was reported as "TPH calculated as Gasoline".
Mass removed is an approximation calculated using averaged concentrations.
Carbon loading assumes an 8 percent isotherm. See certified analytical reports for detection limits.

Table 6
Groundwater Extraction System Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline and BTEX Compounds)

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Sample I.D.	Date Sampled	TPPH as Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)
Influent Samples						
SP-105	01/10/94	1,100	180	2.7	26	51
SP-105	02/07/94	3,500	370	120	67	230
SP-105	04/03/95	5,000	1,000	41	88	300
INFL	05/01/95	580	40	ND	1.2	17
SP-105	06/09/95	1,400	420	7	10	20
SP-105	07/05/95	750	41	ND	2.8	17
SP-105	08/10/95	610	29	0.64	3.4	16
SP-105	09/18/95	600	10	ND	ND	20
105	10/02/95	790	52	ND	8.4	67
Midpoint-1 Samples						
SP-106	01/10/94	ND	ND	ND	ND	ND
SP-106	02/07/94	ND	ND	ND	ND	ND
SP-106	04/03/95	ND	ND	ND	ND	ND
MID-1	05/01/95	ND	ND	ND	ND	ND
SP-106	06/09/95	ND	ND	ND	ND	ND
SP-106	07/05/95	ND	ND	ND	ND	ND
SP-106	08/10/95	ND	ND	ND	ND	ND
SP-106	09/18/95	ND	ND	ND	ND	ND
106	10/02/95	ND	ND	ND	ND	ND
Midpoint-2 Samples						
MID-2	11/17/94	ND	ND	ND	ND	ND
SP-107	01/10/94	ND	ND	ND	ND	ND
SP-107	02/07/94	ND	ND	ND	ND	ND
SP-107	04/03/95	ND	ND	ND	ND	ND
SP-107	06/09/94	ND	ND	ND	ND	ND
SP-107	09/18/95	ND	ND	ND	ND	ND
Effluent Samples						
SP-108	01/10/94	ND	ND	ND	ND	ND
SP-108	02/07/94	ND	ND	ND	ND	ND
SP-108	04/03/95	ND	ND	ND	ND	ND
EFFL	05/01/95	ND	ND	ND	ND	ND
SP-108	06/09/95	79	ND	ND	ND	ND
SP-108	07/05/95	ND	ND	ND	ND	ND
SP-108	08/10/95	ND	ND	ND	ND	ND
SP-108	09/18/95	ND	ND	ND	ND	ND
108	10/02/95	ND	ND	ND	ND	ND

µg/L = Micrograms per liter
ND = Not detected above detection limits
System startup on 12/21/93 by RESNA Industries, Inc.
Pacific Environmental Group, Inc. (PACIFIC) became consultant 9/01/94.
PACIFIC restarted system on 11/17/94.
See certified analytical reports for individual detection limits.

Table 7
Groundwater Biodegradation Study Field and Laboratory Data

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

		Field Analyses				Laboratory Analyses	
Well	Date Sampled	Groundwater Temperature (deg F)	pH (units)	Conductivity (µmhos)	DO (mg/L)	Nitrite as Nitrite (mg/L)	Nitrate as Nitrate (mg/L)
MW-3	11/14/95	65.5*	6.76*	508*	7.17†	<1.0	6.6

DO = Dissolved oxygen
deg F = Degrees Fahrenheit
µmhos = Micromhos
mg/L = Milligrams per liter

* = Field measurements collected on November 2, 1995.
† = DO measurement taken in office.

APPENDIX D

BIOREMEDIATION EVALUATION AND ENHANCEMENT ANALYTICAL DATA

Table D-1
Intrinsic Bioremediation Evaluation and Enhancement Data

ARCO Service Station 0374
6407 Telegraph Avenue, Oakland, California

Well	Date Sampled		Field Analyses: Groundwater Temperature (deg F)	pH (units)	Conductivity (µmhos)	D.O. (mg/L)	Ferrous Iron (mg/L)	Laboratory Analyses: Total Alkalinity (mg CaCO3/L)	B.O.D. (mg/L)	Carbon Dioxide (mg/L)	C.O.D. (mg/L)	Methane (%)	Nitrate as Nitrate (mg/L)	Nitrite as Nitrite (mg/L)	Sulfate (mg/L)	TPH as Gasoline (µg/L)	Total BTEX (µg/L)
MW-3	11/14/95	**	65.5*	6.76*	508*	7.17	N/A	NS	NS	NS	NS	NS	6.6	<1.0	NS	140	46
MW-3	06/06/96	**	66.2	7.38	700	12.28	N/A	NS	NS	NS	NS	NS	NS	NS	NS	84†	5.4†
MW-3	07/16/96		67.8	7.08	1,010	8.73	0.0	280	1.8	270	44	<0.020	<1.0	NS	78	<50	2.2
MW-3	01/21/97	**	59	N/A	N/A	11.15	0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW-3	08/12/97	**	74.4	6.65	600	6.7	1.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW-3	11/17/97		N/A	N/A	N/A	12.0	0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW-3	03/16/98		68.5	7.75	806	4.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-3	05/12/98		NM	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-3	07/27/98		68.1	6.81	904	1.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	74	ND
MW-3	09/29/98	**	ORC installed														
MW-3	10/15/98		NM	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-3	02/18/99		NM	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-3	05/24/99		66.2	7.24	799	6.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-3	07/26/99	**	ORC installed														
MW-3	08/27/99		69.0	7.97	782	16.57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-3	10/26/99		66.5	5.93	794	14.86	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-3	02/03/00		62.0	7.42	7,877	1.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-4	07/16/96		69.5	6.72	1,370	3.20	4.20	420	NS	470	NS	0.11	<1.0	NS	18	5,600	2,020
MW-4	03/16/98		66.2	6.89	1,411	1.50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-4	05/12/98		NM	NM	NM	NM	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-4	07/27/98		70.5	6.34	1,434	0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21,000	8,900
MW-4	09/29/98	**	ORC installed														
MW-4	10/15/98		NM	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-4	02/18/99		NM	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-4	05/24/99		67.6	6.72	1,509	1.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18,000	7,660
MW-4	07/26/99	**	ORC installed														

Table D-1
Intrinsic Bioremediation Evaluation and Enhancement Data

ARCO Service Station 0374
6407 Telegraph Avenue, Oakland, California

		Field Analyses					Laboratory Analyses									
Well	Date Sampled	Groundwater Temperature (deg F)	pH (units)	Conductivity (µmhos)	D.O. (mg/L)	Ferrous Iron (mg/L)	Total Alkalinity (mg CaCO3/L)	B.O.D. (mg/L)	Carbon Dioxide (mg/L)	C.O.D. (mg/L)	Methane (%)	Nitrate as Nitrate (mg/L)	Nitrite as Nitrite (mg/L)	Sulfate (mg/L)	TPH as Gasoline (µg/L)	Total BTEX (µg/L)
MW-4	08/27/99	70.5	7.09	1,469	1.32	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12,000	4,670
MW-4	10/26/99	66.8	7.05	1,565	1.39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12,000	4,360
MW-4	02/03/00	64.1	7.27	1,506	1.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9,300	3,626
MW-5	07/16/96	70.4	6.85	690	6.80	0.0	170	NS	180	NS	<0.020	<1.0	NS	35	<50	1.1
MW-5	03/16/98	69.5	7.19	584	1.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-5	05/12/98	65.9	7.04	619	2.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-5	07/27/98	73.6	7.39	569	1.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-5	10/15/98	65.8	6.88	626	3.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	0.6
MW-5	02/18/99	63.4	6.98	616	2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-5	05/24/99	66.7	6.70	591	2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-5	08/27/99	72.6	7.10	624	2.28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-5	10/26/99	70.4	5.95	601	1.99	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-5	02/03/00	62.1	7.31	6,072	1.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-6	06/06/96	N/A	N/A	N/A	3.47	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	03/16/98	N/A	N/A	N/A	N/A	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	05/12/98	NM	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	07/27/98	70.3	6.67	638	0.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-6	10/15/98	NM	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	02/18/99	NM	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	05/24/99	65.5	6.62	713	2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-6	08/27/99	73.0	7.12	589	1.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-6	10/26/99	NM	NM	NM	2.51	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	02/03/00	61.7	7.32	5,091	1.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND

Table D-1
Intrinsic Bioremediation Evaluation and Enhancement Data

ARCO Service Station 0374
6407 Telegraph Avenue, Oakland, California

		Field Analyses					Laboratory Analyses									
Well	Date Sampled	Groundwater Temperature (deg F)	pH (units)	Conductivity (µmhos)	D.O. (mg/L)	Ferrous Iron (mg/L)	Total Alkalinity (mg CaCO3/L)	B.O.D. (mg/L)	Carbon Dioxide (mg/L)	C.O.D. (mg/L)	Methane (%)	Nitrate as Nitrate (mg/L)	Nitrite as Nitrite (mg/L)	Sulfate (mg/L)	TPH as Gasoline (µg/L)	Total BTEX (µg/L)

D.O. = Dissolved oxygen
B.O.D = Biochemical oxygen demand
C.O.D = Chemical oxygen demand
TPPH = Total purgeable petroleum hydrocarbons
BTEX = Benzene, toluene, ethylbenzene, and xylenes
deg F = Degrees Fahrenheit
µmhos = Micromhos
mg/L = Milligrams per liter

µg/L = Micrograms per liter
NM = not measured
NS = Not sampled
ND = Not detected
N/A = Not available
* Field measurements collected on November 2, 1995.
** ORC installed
† From April 10, 1996 groundwater monitoring event.

APPENDIX E

HISTORICAL GROUND-WATER ELEVATIONS, FLOW DIRECTIONS, HORIZONTAL GRADIENTS, AND ANALYTICAL DATA

Table 3
Groundwater Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, TEPH as Diesel, and Oil and Grease)

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Well Number	Date Sampled		TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TEPH as Diesel (ppb)	Oil and Grease (ppb)
MW-1	07/21/89		33	0.77	1.6	15	5	NA	NA
	08/30/89		<20	<0.50	<0.50	<0.50	<0.50	NA	NA
	10/04/89		<20	<0.50	<0.50	<0.50	<0.50	NA	NA
	01/10/90		<20	<0.50	<0.50	<0.50	<0.50	NA	NA
	08/07/90		<20	<0.50	<0.50	<0.50	<0.50	NA	NA
	12/06/90		<50	3.6	2.7	0.60	5.8	NA	NA
	02/20/91		<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	07/08/91		<30	<0.30	<0.30	<0.30	<0.30	NA	NA
	09/25/91		<30	57	57	54	1.7	NA	NA
	11/20/91		57	9.2	3.7	0.63	25	NA	NA
	03/09/92		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	04/15/92		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	07/14/92		<50	<0.5	0.7	<0.5	1.3	NA	NA
	10/12/92		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	01/21/93		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	04/27/93		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	08/04/93		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	10/13/93		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/03/94		<50	1.4	2.1	<0.5	2	NA	NA
	04/29/94		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	08/02/94		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	11/12/94		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/23/95		<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	05/09/95		<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	08/07/95	a	<500	<5.0	<5.0	<5.0	<5.0	NA	NA
	11/02/95		<50	3.6	<0.50	<0.50	<0.50	NA	NA
MW-2	07/21/89		4,200	280	210	38	24	NA	NA
	08/30/89		4,200	160	260	45	240	NA	NA
	10/04/89		4,300	860	300	29	330	NA	NA
	01/10/90		8,000	890	710	120	760	NA	NA
	08/07/90		6,000	880	76	25	80	NA	NA
	12/06/90		1,600	330	69	18	63	NA	NA
	02/20/91		1,300	160	46	13	48	NA	NA
	07/08/91		310	76	18	7.7	24	NA	NA
	09/25/91		83	17	0.69	2.2	4.1	NA	NA
	11/20/91		180	46	6.1	3	8.7	NA	NA
	03/09/92		690	170	25	21	58	NA	NA
	04/15/92		86	20	2.3	3.8	85	NA	NA
	07/14/92		160	46	1.4	1.2	35	NA	NA
	10/12/92		230	59	7	55	11	NA	NA
	01/21/93		450	70	6.6	22	54	NA	NA
	04/27/93		<50	6.6	<0.5	0.7	1.1	NA	NA
	08/04/93		<50	2.1	<0.5	<0.5	<0.5	NA	NA
	10/13/93		<50	14	<0.5	<0.5	<0.5	NA	NA
	02/03/94		<50	4.4	<0.5	<0.5	0.8	NA	NA
	04/29/94		150	38	0.7	4.3	4.8	NA	NA
	08/02/94		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	11/12/94		95	28	0.7	2.5	7.5	NA	NA

Table 3 (continued)
Groundwater Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, TEPH as Diesel, and Oil and Grease)

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Well Number	Date Sampled	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TEPH as Diesel (ppb)	Oil and Grease (ppb)
MW-2	02/23/95	<50	1.8	<0.50	<0.50	<0.50	NA	NA
(cont.)	05/09/95	<50	1.9	<0.50	<0.50	<0.50	NA	NA
	08/07/95	<50	0.66	<0.50	<0.50	<0.50	NA	NA
	11/02/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
MW-3	07/21/89	430	9	4.8	<0.50	50	NA	NA
	08/30/89	1,200	85	46	84	55	NA	NA
	10/04/89	7,000	580	900	120	670	NA	NA
	01/10/90	940	130	59	21	73	NA	NA
	08/07/90	2,300	180	64	59	120	NA	NA
	12/06/90	460	52	55	14	39	350	NA
	02/20/91	470	36	30	9.3	31	<100	<5,000
	07/08/91	2500	240	470	74	320	NA	NA
	09/25/91	1,100	120	110	34	120	NA	NA
	11/20/91	1,000	180	140	43	140	NA	NA
	03/10/92	1,200	200	110	53	130	NA	NA
	04/15/92	1,600	200	13	110	81	NA	NA
	07/14/92	5,200	620	44	310	250	NA	NA
	10/12/92	850	150	5.2	55	46	NA	NA
	01/21/93	620	100	12	35	35	NA	NA
	04/27/93	1,700	180	83	64	100	NA	NA
	08/04/93	380	70	12	29	41	NA	NA
	10/13/93	780	90	6	40	31	NA	NA
	02/03/94	340	42	8.7	9.2	28	NA	NA
	04/29/94	830	150	38	27	48	NA	NA
	08/02/94	220	25	1.7	7.6	8.3	NA	NA
	11/12/94	160	6.0	<0.5	3.2	4.1	NA	NA
	02/23/95	120	1.3	<0.50	1.1	1.6	NA	NA
	05/09/95	190	20	6.6	8.9	20	NA	NA
	08/07/95	<50	2.3	0.51	0.51	0.57	NA	NA
	11/02/95	<50	2.3	<0.50	<0.50	0.94	NA	NA
MW-4	07/21/89	8,700	720	360	120	640	NA	NA
	08/30/89	7,300	630	220	N/A	320	NA	NA
	10/04/89	21,000	2,300	1,300	280	1,300	NA	NA
	01/10/90	4,300	470	250	63	430	NA	NA
	08/07/90	69,000	8,700	4,200	540	4,600	28,000	<5,000
	12/06/90	---------- Separate-Phase Hydrocarbon Sheen ----------						
	02/20/91	5,200	690	200	95	580	<100	<5,000
	07/08/91	1,700	280	68	37	170	NA	NA
	09/25/91	6,300	2,100	290	210	590	NA	NA
	11/20/91	2,700	1,200	200	110	320	NA	NA
	03/10/92	690	180	80	18	43	NA	NA
	04/15/92	8,500	2,100	750	280	1,000	NA	NA
	07/14/92	10,000	2,900	530	290	930	NA	NA
	10/12/92	19,000	5,200	1,600	490	1,800	690	NA
	01/21/93	22,000	4,400	1,300	580	2,200	1,400	NA
	04/27/93	21,000	4,800	1,200	630	2,400	1,100	NA
	08/04/93	23,000	6,600	1,700	770	2,600	1500	NA

Table 3 (continued)
Groundwater Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, TEPH as Diesel, and Oil and Grease)

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Well Number	Date Sampled	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TEPH as Diesel (ppb)	Oil and Grease (ppb)
MW-4	10/13/93	16,000	3,500	800	470	1,800	670	NA
(cont.)	02/03/94	850	140	84	7.9	59	59	NA
	04/29/94	68	1.1	<0.5	<0.5	1.7	<50	NA
	08/02/94	52	5.7	<0.5	1.2	1.9	<50	NA
	11/12/94	1,600	230	51	81	190	90	NA
	02/23/95	1,700	340	81	52	130	NA	NA
	05/09/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	08/07/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	11/02/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
MW-5	04/15/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	07/14/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	10/25/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	01/21/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	04/27/93	<50	0.5	1	<0.5	0.8	NA	NA
	08/05/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	10/14/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/03/94	<50	0.8	1.7	<0.5	15	NA	NA
	04/29/94	Well inaccessible						
	08/02/94	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	11/12/94	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/23/95	<50	<0.50	0.56	<0.50	0.50	NA	NA
	05/09/95	<50	<0.50	0.56	<0.50	0.50	NA	NA
	08/07/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	11/02/95	<50	<0.50	1.8	<0.50	<0.50	NA	NA
MW-6	04/15/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	07/15/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	10/25/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	01/21/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	04/27/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	08/05/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	10/13/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	04/29/94	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	08/02/94	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	11/12/94	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/23/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	05/09/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	08/07/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	11/02/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA

TEPH = Total extractable petroleum hydrocarbons
ppb = Parts per billion
NA = Not analyzed
a. Detection limits were raised due to analysis for MTBE
Prior to June 1995, TPPH as gasoline and TEPH as diesel were reported as TPH as gasoline and diesel, respectively.

Table 4
Groundwater Analytical Data
Total Methyl t-Butyl Ether

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Well Number	Date Sampled	Methyl t-Butyl Ether (ppb)
MW-1	08/07/95	510
MW-2	08/07/95	37
MW-3	08/07/95	<2.5
MW-4	08/07/95	<2.5
MW-5	08/07/95	<2.5
MW-6	08/07/95	160

ppb = Parts per billion
See certified analytical report for detection limit.

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

ARCO Service Station 0374
6407 Telegraph Avenue, Oakland, 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)	Total Xylenes (ppb)	MTBE (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
MW-1	01/31/96	158.91	6.34	152.57	Not Sampled: Well Sampled Annually							
MW-1	04/10/96	158.91	5.82	153.09	Not Sampled: Well Sampled Annually							
MW-1	07/16/96	158.91	7.23	151.68	<50	<0.5	<0.5	<0.5	<0.5	340	NM	
MW-1	10/14/96	158.91	8.34	150.57	Not Sampled: Well Sampled Annually							
MW-1	03/27/97	158.91	6.37	152.54	Not Sampled: Well Sampled Annually							
MW-1	05/27/97	158.91	7.30	151.61	Not Sampled: Well Sampled Annually							
MW-1	08/12/97	158.91	8.22	150.69	<50	<0.5	<0.5	<0.5	<0.5	620	NM	
MW-1	11/17/97	158.91	7.98	150.93	Not Sampled: Well Sampled Annually							
MW-1	03/16/98	158.91	4.94	153.97	Not Sampled: Well Sampled Annually							
MW-1	05/12/98	158.91	5.28	153.63	Not Sampled: Well Sampled Annually							
MW-1	07/27/98	158.91	6.84	152.07	<500	<5	<5	<5	<5	580	0.6	P
MW-1	10/15/98	158.91	7.32	151.59	Not Sampled: Well Sampled Annually							
MW-1	02/18/99	158.91	6.28	152.63	Not Sampled: Well Sampled Annually							
MW-1	05/24/99	158.91	6.45	152.46	<50	<0.5	<0.5	<0.5	<0.5	1,300	2.0	NP
MW-1	08/27/99	158.91	7.86	151.05	<50	<0.5	<0.5	<0.5	<0.5	1,500	1.65	NP
MW-1	10/26/99	158.91	8.43	150.48	Not Sampled: Well Sampled Annually						2.16	
MW-1	02/03/00	158.91	7.28	151.63	<50	<0.5	<0.5	<0.5	<1	4,000	1.0	NP
MW-2	01/31/96	157.92	6.51	151.41	Not Sampled: Well Sampled Annually							
MW-2	04/10/96	157.92	6.94	150.98	Not Sampled: Well Sampled Annually							
MW-2	07/16/96	157.92	7.73	150.19	<50	1.2	<0.5	<0.5	<0.5	33	NM	
MW-2	10/14/96	157.92	8.35	149.57	Not Sampled: Well Sampled Annually							
MW-2	03/27/97	157.92	7.40	150.52	Not Sampled: Well Sampled Annually							
MW-2	05/27/97	157.92	7.82	150.10	Not Sampled: Well Sampled Annually							
MW-2	08/12/97	157.92	8.29	149.63	<50	<0.5	<0.5	<0.5	<0.5	23	NM	
MW-2	11/17/97	157.92	8.05	149.87	Not Sampled: Well Sampled Annually							
MW-2	03/16/98	157.92	6.45	151.47	Not Sampled: Well Sampled Annually							

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

ARCO Service Station 0374
6407 Telegraph Avenue, Oakland, 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)	Total Xylenes (ppb)	MTBE (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
MW-2	05/12/98	157.92	6.93	150.99	Not Sampled: Well Sampled Annually							
MW-2	07/27/98	157.92	7.39	150.53	<50	<0.5	<0.5	<0.5	<0.5	<3	0.85	NP
MW-2	10/15/98	157.92	7.67	150.25	Not Sampled: Well Sampled Annually							
MW-2	02/18/99	157.92	6.63	151.29	Not Sampled: Well Sampled Annually							
MW-2	05/24/99	157.92	7.43	150.49	<50	6.3	<0.5	0.7	<0.5	29	3.0	P
MW-2	08/27/99	157.92	8.22	149.70	<50	<0.5	<0.5	<0.5	<0.5	<3	0.95	NP
MW-2	10/26/99	157.92	8.46	149.46	Not Sampled: Well Sampled Annually						1.71	
MW-2	02/03/00	157.92	7.75	150.17	<50	<0.5	<0.5	<0.5	<1	<3	1.0	NP
MW-3 *	01/31/96	153.64	7.02	146.62	140	20	0.87	11	14	NA	NM	
MW-3 *	04/10/96	153.64	7.82	145.82	84	2.4	<0.5	1.9	1.1	NA	NM	
MW-3 *	07/16/96	153.64	6.80	146.84	<50	2.2	<0.5	<0.5	<0.5	<2.5	NM	
MW-3 *	10/14/96	153.64	7.67	145.97	<50	1.2	<0.5	<0.5	0.81	2.9	NM	
MW-3 *	03/27/97	153.64	7.62	146.02	<50	0.94	<0.5	0.9	0.63	<2.5	NM	
MW-3 *	05/27/97	153.64	6.72	146.92	Not Sampled: Well Sampled Semiannually							
MW-3 *	08/12/97	153.64	8.20	145.44	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NM	
MW-3 *	11/17/97	153.64	7.64	146.00	Not Sampled: Well Sampled Semiannually						12.0	
MW-3 *	03/18/98	153.64	5.14	148.50	<50	<0.5	<0.5	<0.5	<0.5	<3	4.0	P
MW-3 *	05/12/98	153.64	5.53	148.11	Not Sampled: Well Sampled Semiannually							
MW-3 *	07/27/98	153.64	7.63	146.01	74	<0.5	<0.5	<0.5	<0.5	<3	1.7	NP
MW-3 *	10/15/98	153.64	7.46	146.18	Not Sampled: Well Sampled Semiannually							
MW-3 *	02/18/99	153.64	5.85	147.79	Not Sampled							
MW-3 *	05/24/99	153.64	7.00	146.64	<50	<0.5	<0.5	<0.5	<0.5	4	6.0	NP
MW-3 *	08/27/99	153.64	7.16	146.48	<50	<0.5	<0.5	<0.5	<0.5	<3	16.57	NP
MW-3 *	10/26/99	153.64	7.79	145.85	<50	<0.5	<0.5	<0.5	<1	<3	14.86	NP
MW-3 *	02/03/00	153.64	7.11	146.53	<50	<0.5	<0.5	<0.5	<1	<3	1.0	NP

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

ARCO Service Station 0374
6407 Telegraph Avenue, Oakland, 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)	Total Xylenes (ppb)	MTBE (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
MW-4	01/31/96	156.53	5.64	150.89	230	23	2.2	3.7	32	NA	NM	
MW-4	04/10/96	156.53	6.66	149.87	7,300	1,600	350	350	830	NA	NM	
MW-4	07/16/96	156.53	7.73	148.80	5,600	1,100	160	240	520	150	NM	
MW-4	10/14/96	156.53	8.55	147.98	4,500	860	72	160	340	<62	NM	
MW-4	03/27/97	156.53	7.15	149.38	25,000	5,200	760	850	2,600	<250	NM	
MW-4	05/27/97	156.53	7.75	148.78	Not Sampled: Well Sampled Semiannually							
MW-4	08/12/97	156.53	8.46	148.07	4,800	950	40	140	210	170	NM	
MW-4	11/17/97	156.53	8.24	148.29	Not Sampled: Well Sampled Semiannually							
MW-4	03/16/98	156.53	5.32	151.21	<50	<0.5	<0.5	<0.5	<0.5	<3	1.5	P
MW-4	05/12/98	156.53	6.38	150.15	Not Sampled: Well Sampled Semiannually							
MW-4	07/27/98	156.53	7.36	149.17	21,000	6,100	390	810	1,600	<300	0.5	NP
MW-4 *	10/15/98	156.53	8.30	148.23	Not Sampled: Well Sampled Semiannually							
MW-4 *	02/18/99	156.53	4.39	152.14	Not Sampled							
MW-4 *	05/24/99	156.53	7.45	149.08	18,000	5,600	350	410	1,300	<300	1.0	NP
MW-4 *	08/27/99	156.53	8.07	148.46	12,000	3,200	170	490	810	65	1.32	NP
MW-4 *	10/26/99	156.53	8.72	147.81	12,000	3,100	130	450	680	12	1.39	NP
MW-4 *	02/03/00	156.53	7.41	149.12	9,300	2,800	96	330	400	73	1.0	NP
MW-5	01/31/96	151.33	8.64	142.69	<50	<0.5	<0.5	<0.5	<0.5	NA	NM	
MW-5	04/10/96	151.33	N/A	--	<50	<0.5	<0.5	<0.5	<0.5	NA	NM	
MW-5	07/16/96	151.33	8.15	143.18	<50	0.79	1.3	<0.5	<0.5	<2.5	NM	
MW-5	10/14/96	151.33	7.92	143.41	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NM	
MW-5	03/27/97	151.33	7.75	143.58	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NM	
MW-5	05/27/97	151.33	8.16	143.17	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NM	
MW-5	08/12/97	151.33	---------- Well Inaccessible ----------									
MW-5	11/17/97	151.33	8.75	142.58	<50	<0.5	<0.5	<0.5	<0.5	<2.5	4.0	NP
MW-5	03/16/98	151.33	6.90	144.43	<50	<0.5	<0.5	<0.5	<0.5	<3	1.5	P

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

ARCO Service Station 0374
6407 Telegraph Avenue, Oakland, 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)	Total Xylenes (ppb)	MTBE (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
MW-5	05/12/98	151.33	7.24	144.09	<50	<0.5	<0.5	<0.5	<0.5	<3	2.2	P
MW-5	07/27/98	151.33	7.91	143.42	<50	<0.5	<0.5	<0.5	<0.5	<3	1.3	P
MW-5	10/15/98	151.33	8.31	143.02	<50	<0.5	<0.5	<0.5	0.6	<3	3.0	P
MW-5	02/18/99	151.33	7.25	144.08	<50	<0.5	<0.5	<0.5	<0.5	<3	2.0	P
MW-5	05/24/99	151.33	7.52	143.81	<50	<0.5	<0.5	<0.5	<0.5	<3	2.0	NP
MW-5	08/27/99	151.33	8.31	143.02	<50	<0.5	<0.5	<0.5	<0.5	<3	2.28	P
MW-5	10/26/99	151.33	8.61	142.72	<50	<0.5	<0.5	<0.5	<1	<3	1.99	P
MW-5	02/03/00	151.33	10.09	141.24	<50	<0.5	<0.5	<0.5	<1	<3	1.0	NP
MW-6	01/31/96	153.84	5.15	148.69	Not Sampled: Well Sampled Annually							
MW-6	04/10/96	153.84	4.58	149.26	Not Sampled: Well Sampled Annually							
MW-6	07/16/96	153.84	4.96	148.88	<50	<0.5	<0.5	<0.5	<0.5	150	NM	
MW-6	10/14/96	153.84	6.15	147.69	Not Sampled: Well Sampled Annually							
MW-6	03/27/97	153.84	4.40	149.44	Not Sampled: Well Sampled Annually							
MW-6	05/27/97	153.84	4.90	148.94	Not Sampled: Well Sampled Annually							
MW-6	08/12/97	153.84	5.43	148.41	<50	<0.5	<0.5	<0.5	<0.5	39	NM	
MW-6	11/17/97	153.84	5.87	147.97	Not Sampled: Well Sampled Annually							
MW-6	03/16/98	153.84	4.52	149.32	Not Sampled: Well Sampled Annually							
MW-6	05/12/98	153.84	4.42	149.42	Not Sampled: Well Sampled Annually							
MW-6	07/27/98	153.84	4.75	149.09	<50	<0.5	<0.5	<0.5	<0.5	18	0.9	P
MW-6	10/15/98	153.84	5.75	148.09	Not Sampled: Well Sampled Annually							
MW-6	02/18/99	153.84	3.93	149.91	Not Sampled: Well Sampled Annually							
MW-6	05/24/99	153.84	4.32	149.52	<50	<0.5	<0.5	<0.5	<0.5	6	2.0	NP
MW-6	08/27/99	153.84	5.72	148.12	<50	<0.5	<0.5	<0.5	<0.5	8	1.02	NP
MW-6	10/26/99	153.84	5.94	147.90	Not Sampled: Well Sampled Annually						2.51	
MW-6	02/03/00	153.84	5.44	148.40	<50	<0.5	<0.5	<0.5	<1	<3	1.0	NP

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

ARCO Service Station 0374
6407 Telegraph Avenue, Oakland, 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)	Total Xylenes (ppb)	MTBE (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)

MSL = Mean sea level.
TOC = Top of casing.
TPPH = Total purgeable petroleum hydrocarbons by modified EPA method 8015.
BTEX = Benzene, toluene, ethylbenzene, total xylenes by EPA method 8021B. (EPA method 8020 prior to 10/26/99).
MTBE = Methyl tert -Butyl Ether by EPA method 8021B (EPA method 8020 prior to 10/26/99).
ppb = Parts per billion.
ppm = Parts per million.
< = Less than laboratory detection limit stated to the right.
NA = Not analyzed.
NM = Not measured.
N/A = Not available.
* = ORCs installed in well MW-3 beginning 11/14/95 and in well MW-4 beginning 09/29/98. Please refer to Appendix D for details.

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

Station #374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	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
								GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-1															
6/20/2000	--		158.91	7.00	**27.0**	6.86	152.05	--	--	--	--	--	--	--	--
9/28/2000	--		158.91	7.00	**27.0**	7.50	151.41	--	--	--	--	--	--	--	--
12/17/2000	--		158.91	7.00	**27.0**	7.49	151.42	--	--	--	--	--	--	--	--
3/23/2001	--		158.91	7.00	**27.0**	5.90	153.01	<50	<0.5	<0.5	<0.5	<0.5	2,710	--	--
6/21/2001	--		158.91	7.00	**27.0**	7.45	151.46	--	--	--	--	--	--	--	--
9/23/2001	--		158.91	7.00	**27.0**	8.46	150.45	--	--	--	--	--	--	--	--
12/31/2001	--		158.91	7.00	**27.0**	5.50	153.41	--	--	--	--	--	--	--	--
3/21/2002	--		158.91	7.00	**27.0**	4.71	154.20	<5,000	<50	<50	<50	<50	2,000	--	--
4/17/2002	--		158.91	7.00	**27.0**	5.54	153.37	--	--	--	--	--	--	--	--
8/12/2002	--		158.91	7.00	**27.0**	7.77	151.14	--	--	--	--	--	--	--	--
12/6/2002	--		158.91	7.00	**27.0**	7.65	151.26	--	--	--	--	--	--	--	--
1/29/2003	--	b	158.91	7.00	**27.0**	5.88	153.03	--	--	--	--	--	--	--	--
5/23/2003	--		158.91	7.00	**27.0**	5.62	153.29	<10,000	<100	<100	<100	<100	1,600	1.3	7.1
9/4/2003	--		158.91	7.00	**27.0**	7.85	151.06	--	--	--	--	--	--	--	--
11/20/2003	P		158.91	7.00	27.0	8.17	150.74	1,600	<10	<10	<10	<10	1,500	1.7	6.7
02/02/2004	P	f	164.57	7.00	27.0	6.71	157.86	--	--	--	--	--	--	1.0	--
05/14/2004	P		164.57	7.00	27.0	7.08	157.49	<2,500	<25	<25	<25	<25	1,200	1.4	6.6
09/02/2004	P		164.57	7.00	27.0	8.12	156.45	580	<5.0	<5.0	<5.0	<5.0	660	3.8	6.7
11/04/2004	P		164.57	7.00	27.0	7.38	157.19	1,700	<10	<10	<10	<10	580	6.0	6.5
02/08/2005	P		164.57	7.00	27.0	6.60	157.97	<1,000	<10	<10	<10	<10	610	0.71	6.5
05/09/2005	P	e	164.57	7.00	27.0	6.84	157.73	540	<5.0	<5.0	<5.0	5.5	620	3.12	6.6
08/11/2005	P		164.57	7.00	27.0	7.36	157.21	540	<2.5	<2.5	<2.5	4.0	390	0.8	6.6
11/18/2005	P	e	164.57	7.00	27.0	8.02	156.55	350	<2.5	<2.5	<2.5	<2.5	340	2.6	6.7
02/16/2006	P	e	164.57	7.00	27.0	6.44	158.13	350	<2.5	<2.5	<2.5	<2.5	340	1.6	6.7
5/30/2006	P		164.57	7.00	**27.0**	6.87	157.70	270	<2.5	<2.5	<2.5	<2.5	420	4.73	6.4
8/24/2006	P		164.57	7.00	27.0	7.75	156.82	95	<5.0	<5.0	<5.0	<5.0	180	0.65	6.9
11/1/2006	P		164.57	7.00	27.0	8.28	156.29	120	<5.0	<5.0	<5.0	<5.0	220	1.65	7.07
2/7/2007	NP	e	164.57	7.00	27.0	7.40	157.17	120	<5.0	<5.0	<5.0	<5.0	190	1.88	7.45
5/8/2007	P		164.57	7.00	27.0	6.50	158.07	<500	<5.0	<5.0	<5.0	<5.0	420	1.21	6.94
8/8/2007	NP	e	164.57	7.00	27.0	8.17	156.40	82	<0.50	<0.50	<0.50	<0.50	110	1.16	7.00
11/14/2007	NP		164.57	7.00	27.0	8.01	156.56	170	<2.5	<2.5	<2.5	<2.5	210	1.92	6.49

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

Station #374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	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
								GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-1 Cont.															
2/22/2008	P		164.57	7.00	27.0	6.00	158.57	<50	<0.50	<0.50	<0.50	<0.50	250	2.57	6.65
5/24/2008	NP		164.57	7.00	27.0	7.58	156.99	<50	<5.0	<5.0	<5.0	<5.0	380	2.28	6.81
8/21/2008	NP		164.57	7.00	27.0	8.60	155.97	<50	<2.5	<2.5	<2.5	<2.5	170	2.16	6.98
11/19/2008	NP		164.57	7.00	27.0	8.88	155.69	<50	<0.50	<0.50	<0.50	<0.50	30	2.12	7.27
2/23/2009	P		164.57	7.00	27.0	6.40	158.17	78	<2.5	<2.5	<2.5	<2.5	240	2.19	6.03
5/14/2009	P		164.57	7.00	27.0	6.67	157.90	53	<0.50	<0.50	<0.50	<0.50	200	1.75	6.69
8/20/2009	NP	i (GRO)	164.57	7.00	27.0	8.25	156.32	150	<2.0	<2.0	<2.0	<2.0	170	2.14	6.25
2/19/2010	**P**		**164.57**	**7.00**	**27.0**	**6.07**	**158.50**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**170**	**0.92**	**6.66**
MW-2															
6/20/2000	--		157.92	7.00	27.0	7.67	150.25	--	--	--	--	--	--	--	--
9/28/2000	--		157.92	7.00	27.0	8.51	149.41	--	--	--	--	--	--	--	--
12/17/2000	--		157.92	7.00	27.0	8.14	149.78	--	--	--	--	--	--	--	--
3/23/2001	--		157.92	7.00	27.0	7.21	150.71	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
6/21/2001	--		157.92	7.00	27.0	7.99	149.93	--	--	--	--	--	--	--	--
9/23/2001	--		157.92	7.00	27.0	8.52	149.40	--	--	--	--	--	--	--	--
12/31/2001	--		157.92	7.00	27.0	6.01	151.91	--	--	--	--	--	--	--	--
3/21/2002	--		157.92	7.00	27.0	5.95	151.97	<50	<0.5	<0.5	<0.5	<0.5	45	--	--
4/17/2002	--		157.92	7.00	27.0	6.45	151.47	--	--	--	--	--	--	--	--
8/12/2002	--		157.92	7.00	27.0	8.08	149.84	--	--	--	--	--	--	--	--
12/6/2002	--		157.92	7.00	27.0	8.29	149.63	--	--	--	--	--	--	--	--
1/29/2003	--	b	157.92	7.00	27.0	7.22	150.70	--	--	--	--	--	--	--	--
5/23/2003	--		157.92	7.00	27.0	6.85	151.07	<50	<0.50	<0.50	<0.50	<0.50	55	1.4	7.2
9/4/2003	--		157.92	7.00	27.0	7.94	149.98	--	--	--	--	--	--	--	--
11/20/2003	--		157.92	7.00	27.0	8.05	149.87	--	--	--	--	--	--	--	--
02/02/2004	P	f	163.46	7.00	27.0	7.00	156.46	74	<0.50	<0.50	<0.50	<0.50	37	1.1	8.9
05/14/2004	--		163.46	7.00	27.0	7.97	155.49	--	--	--	--	--	--	--	--
09/02/2004	P		163.46	7.00	27.0	8.19	155.27	<250	<2.5	<2.5	<2.5	<2.5	67	2.7	6.9
11/04/2004	--		163.46	7.00	27.0	7.54	155.92	--	--	--	--	--	--	--	--
02/08/2005	P		163.46	7.00	27.0	6.72	156.74	<50	<0.50	<0.50	<0.50	<0.50	30	0.86	6.7
05/09/2005	--		163.46	7.00	27.0	7.16	156.30	--	--	--	--	--	--	--	--

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

Station #374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	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
								GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-2 Cont.															
08/11/2005	P		163.46	7.00	27.0	7.85	155.61	<50	<0.50	<0.50	<0.50	<0.50	35	1.0	6.6
11/18/2005	--		163.46	7.00	27.0	8.23	155.23	--	--	--	--	--	--	--	--
02/16/2006	P		163.46	7.00	27.0	6.82	156.64	<50	<0.50	<0.50	<0.50	<0.50	39	1.3	7.0
5/30/2006	--		163.46	7.00	27.0	7.23	156.23	--	--	--	--	--	--	--	--
8/24/2006	P		163.46	7.00	27.0	8.00	155.46	60	<0.50	<0.50	<0.50	<0.50	25	0.90	6.8
11/1/2006	--		163.46	7.00	27.0	8.38	155.08	--	--	--	--	--	--	--	--
2/7/2007	NP		163.46	7.00	27.0	7.88	155.58	<50	0.50	<0.50	<0.50	<0.50	7.2	0.94	7.39
5/8/2007	--		163.46	7.00	27.0	7.28	156.18	--	--	--	--	--	--	--	--
8/8/2007	NP		163.46	7.00	27.0	8.38	155.08	88	3.2	<0.50	<0.50	<0.50	7.2	0.94	7.75
11/14/2007	--		163.46	7.00	27.0	8.10	155.36	--	--	--	--	--	--	--	--
2/22/2008	P		163.46	7.00	27.0	6.75	156.71	<50	<0.50	<0.50	<0.50	<0.50	24	2.18	7.02
5/24/2008	--		163.46	7.00	27.0	7.98	155.48	--	--	--	--	--	--	--	--
8/21/2008	NP		163.46	7.00	27.0	8.58	154.88	<50	2.6	<0.50	<0.50	<0.50	4.9	2.20	7.11
11/19/2008	--		163.46	7.00	27.0	8.66	154.80	--	--	--	--	--	--	--	--
2/23/2009	P		163.46	7.00	27.0	6.67	156.79	74	1.0	<0.50	<0.50	<0.50	24	2.25	6.16
5/14/2009	--		163.46	7.00	27.0	7.02	156.44	--	--	--	--	--	--	--	--
8/20/2009	NP		163.46	7.00	27.0	8.41	155.05	82	2.4	<0.50	<0.50	<0.50	8.4	2.19	6.37
2/19/2010	**NP**		**163.46**	**7.00**	**27.0**	**7.36**	**156.10**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**22**	**0.81**	**6.90**
MW-3															
6/20/2000	--		153.64	7.00	27.0	6.42	147.22	<50	<0.5	<0.5	<0.5	<1.0	<10	--	--
9/28/2000	--		153.64	7.00	27.0	7.31	146.33	--	--	--	--	--	--	--	--
12/17/2000	--		153.64	7.00	27.0	6.45	147.19	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/23/2001	--		153.64	7.00	27.0	6.01	147.63	--	--	--	--	--	--	--	--
6/21/2001	--		153.64	7.00	27.0	6.80	146.84	110	5.5	<0.5	5.4	4.1	2.5	--	--
9/23/2001	--		153.64	7.00	27.0	7.32	146.32	--	--	--	--	--	--	--	--
12/31/2001	--		153.64	7.00	27.0	4.48	149.16	<50	<0.5	<0.5	<0.5	<0.5	4.9	--	--
3/21/2002	--		153.64	7.00	27.0	4.36	149.28	--	--	--	--	--	--	--	--
4/17/2002	--		153.64	7.00	27.0	5.31	148.33	<50	<0.5	<0.5	<0.5	<0.5	8.7	--	--
8/12/2002	--		153.64	7.00	27.0	7.00	146.64	--	--	--	--	--	--	--	--
12/6/2002	--		153.64	7.00	27.0	7.32	146.32	<50	<0.5	<0.5	<0.5	<0.5	6.2	1.4	6.7

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

Station #374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	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
								GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-3 Cont.															
1/29/2003	--	b	153.64	7.00	**27.0**	6.07	147.57	--	--	--	--	--	--	--	--
5/23/2003	--		153.64	7.00	**27.0**	6.45	147.19	<50	<0.50	<0.50	<0.50	<0.50	1.6	0.9	7.7
9/4/2003	--	c	153.64	7.00	**27.0**	6.93	146.71	--	--	--	--	--	--	--	--
11/20/2003	--	c	153.64	7.00	27.0	7.04	146.60	--	--	--	--	--	--	--	--
02/02/2004	--	f	159.21	7.00	27.0	5.92	153.29	--	--	--	--	--	--	--	--
05/14/2004	--		159.21	7.00	27.0	7.52	151.69	--	--	--	--	--	--	--	--
09/02/2004	P		159.21	7.00	27.0	7.19	152.02	<50	<0.50	<0.50	<0.50	<0.50	6.5	9.3	8.9
11/04/2004	--		159.21	7.00	27.0	6.40	152.81	--	--	--	--	--	--	--	--
02/08/2005	--		159.21	7.00	27.0	6.01	153.20	--	--	--	--	--	--	--	--
05/09/2005	--		159.21	7.00	27.0	6.74	152.47	--	--	--	--	--	--	--	--
08/11/2005	P		159.21	7.00	27.0	6.77	152.44	<50	<0.50	<0.50	<0.50	<0.50	11	1.9	6.5
11/18/2005	--		159.21	7.00	27.0	7.83	151.38	--	--	--	--	--	--	--	--
02/16/2006	--		159.21	7.00	27.0	7.26	151.95	--	--	--	--	--	--	--	--
5/30/2006	--		159.21	7.00	**27.0**	5.82	153.39	--	--	--	--	--	--	--	--
8/24/2006	P		159.21	7.00	27.0	7.00	152.21	<50	<0.50	<0.50	<0.50	<0.50	7.6	1.15	6.4
11/1/2006	--		159.21	7.00	27.0	7.50	151.71	--	--	--	--	--	--	--	--
2/7/2007	--		159.21	7.00	27.0	6.90	152.31	--	--	--	--	--	--	--	--
5/8/2007	--		159.21	7.00	27.0	5.95	153.26	--	--	--	--	--	--	--	--
8/8/2007	NP		159.21	7.00	27.0	7.47	151.74	<50	<0.50	<0.50	<0.50	<0.50	1.2	1.21	6.93
11/14/2007	--		159.21	7.00	27.0	7.05	152.16	--	--	--	--	--	--	--	--
2/22/2008	--		159.21	7.00	27.0	5.50	153.71	--	--	--	--	--	--	--	--
5/24/2008	--		159.21	7.00	27.0	7.03	152.18	--	--	--	--	--	--	--	--
8/21/2008	NP		159.21	7.00	27.0	7.80	151.41	<50	<0.50	<0.50	<0.50	<0.50	3.1	2.11	6.84
11/19/2008	--		159.21	7.00	27.0	7.69	151.52	--	--	--	--	--	--	--	--
2/23/2009	--		159.21	7.00	27.0	7.28	151.93	--	--	--	--	--	--	--	--
5/14/2009	--		159.21	7.00	27.0	6.17	153.04	--	--	--	--	--	--	--	--
8/20/2009	NP		159.21	7.00	27.0	7.38	151.83	<50	<0.50	<0.50	<0.50	<0.50	2.2	2.05	7.01
2/19/2010	--		**159.21**	**7.00**	**27.0**	**5.31**	**153.90**	--	--	--	--	--	--	--	--
MW-4															
6/20/2000	--	c	156.53	7.00	**27.0**	7.50	149.03	20,000	5,100	440	1,000	1,700	<250	--	--

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

Station #374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	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
								GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-4 Cont.															
9/28/2000	--		156.53	7.00	**27.0**	8.20	148.33	--	--	--	--	--	--	--	--
12/17/2000	--		156.53	7.00	**27.0**	8.11	148.42	4,320	1,240	<20	27.2	249	<100	--	--
3/23/2001	--		156.53	7.00	**27.0**	6.69	149.84	--	--	--	--	--	--	--	--
6/21/2001	--		156.53	7.00	**27.0**	8.01	148.52	2,800	470	16	19	160	130	--	--
9/23/2001	--		156.53	7.00	**27.0**	8.91	147.62	--	--	--	--	--	--	--	--
12/31/2001	--		156.53	7.00	**27.0**	4.42	152.11	4,600	1,500	100	160	210	160	--	--
3/21/2002	--		156.53	7.00	**27.0**	4.98	151.55	--	--	--	--	--	--	--	--
4/17/2002	--		156.53	7.00	**27.0**	6.23	150.30	7,100	2,200	110	290	450	<250	--	--
8/12/2002	--		156.53	7.00	**27.0**	8.24	148.29	--	--	--	--	--	--	--	--
12/6/2002	--	a	156.53	7.00	**27.0**	8.42	148.11	1,500	410	6.8	20	29	43	1.1	6.7
1/29/2003	--	b	156.53	7.00	**27.0**	7.20	149.33	--	--	--	--	--	--	--	--
5/23/2003	--		156.53	7.00	**27.0**	7.18	149.35	<5,000	1,300	89	210	260	<50	1.4	6.9
9/4/2003	--	c	156.53	7.00	**27.0**	8.15	148.38	--	--	--	--	--	--	--	--
11/20/2003	--	c	156.53	7.00	27.0	8.73	147.80	--	--	--	--	--	--	--	--
02/02/2004	P	c, f, g	163.25	7.00	27.0	6.25	157.00	980	280	21	29	38	29	1.4	10.6
05/14/2004	--	g	163.25	7.00	27.0	8.38	154.87	--	--	--	--	--	--	--	--
09/02/2004	P	g	163.25	7.00	27.0	8.36	154.89	260	11	<1.0	5.5	14	28	2.4	7.4
11/04/2004	--	c, g	163.25	7.00	27.0	7.71	155.54	--	--	--	--	--	--	--	--
02/08/2005	P	g	163.25	7.00	27.0	6.27	156.98	7,500	1,700	320	480	920	45	0.65	6.5
05/09/2005	--	g	163.25	7.00	27.0	5.90	157.35	--	--	--	--	--	--	--	--
08/11/2005	P	g	163.25	7.00	27.0	7.96	155.29	3,100	1,100	41	160	110	32	0.6	6.5
11/18/2005	--	g	163.25	7.00	27.0	8.57	154.68	--	--	--	--	--	--	--	--
02/16/2006	P	g	163.25	7.00	27.0	6.28	156.97	9,400	1,800	130	600	420	35	0.5	6.8
5/30/2006	--	g	162.47	7.00	**27.0**	7.02	155.45	--	--	--	--	--	--	--	--
8/24/2006	P		162.47	7.00	27.0	8.26	154.21	3,600	1,400	21	110	70	39	1.00	6.8
11/1/2006	--		162.47	7.00	27.0	8.67	153.80	--	--	--	--	--	--	--	--
2/7/2007	NP		162.47	7.00	27.0	8.02	154.45	3,100	570	17	170	110	67	0.95	7.07
5/8/2007	--		162.47	7.00	27.0	7.03	155.44	--	--	--	--	--	--	--	--
8/8/2007	NP		162.47	7.00	27.0	8.60	153.87	2,900	630	22	67	57	72	0.93	6.79
11/14/2007	--		162.47	7.00	27.0	8.53	153.94	--	--	--	--	--	--	--	--
2/22/2008	P		162.47	7.00	27.0	6.25	156.22	3,900	880	39	180	92	70	2.31	6.87

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

Station #374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	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
								GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-4 Cont.															
5/24/2008	--	d	162.47	7.00	27.0	--	--	--	--	--	--	--	--	--	--
8/21/2008	NP		162.47	7.00	27.0	8.96	153.51	3,700	1,100	26	85	130	53	2.26	6.80
11/19/2008	--		162.47	7.00	27.0	9.20	153.27	--	--	--	--	--	--	--	--
2/23/2009	P		162.47	7.00	27.0	6.35	156.12	3,000	220	9.1	23	19	39	2.21	6.51
5/14/2009	--		162.47	7.00	27.0	7.00	155.47	--	--	--	--	--	--	--	--
8/20/2009	NP		162.47	7.00	27.0	8.05	154.42	5,700	1,100	35	110	100	23	2.17	6.81
2/19/2010	**P**	**i**	**162.47**	**7.00**	**27.0**	**5.71**	**156.76**	**12,000**	**1,200**	**120**	**230**	**390**	**<5.0**	**0.81**	**6.70**
MW-5															
6/20/2000	--		151.33	10.00	**23.0**	7.84	143.49	<50	<0.5	<0.5	<0.5	<1.0	<10	--	--
9/28/2000	--		151.33	10.00	**23.0**	8.37	142.96	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
12/17/2000	--		151.33	10.00	**23.0**	8.36	142.97	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/23/2001	--		151.33	10.00	**23.0**	7.55	143.78	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
6/21/2001	--		151.33	10.00	**23.0**	8.20	143.13	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
9/23/2001	--		151.33	10.00	**23.0**	8.68	142.65	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
12/31/2001	--		151.33	10.00	**23.0**	7.57	143.76	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/21/2002	--		151.33	10.00	**23.0**	6.12	145.21	<50	<0.5	<0.5	<0.5	<0.5	3.2	--	--
4/17/2002	--		151.33	10.00	**23.0**	6.61	144.72	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
8/12/2002	--		151.33	10.00	**23.0**	8.14	143.19	<50	<0.5	<0.5	<0.5	<0.5	<2.5	4.1	7.6
12/6/2002	--		151.33	10.00	**23.0**	8.65	142.68	<50	<0.5	<0.5	<0.5	<0.5	<2.5	1.1	6.8
1/29/2003	--	b	151.33	10.00	**23.0**	7.22	144.11	<50	<0.5	<0.5	<0.5	<0.5	<0.5	1	6.6
5/23/2003	--		151.33	10.00	**23.0**	7.31	144.02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.1	6.6
9/4/2003	--		151.33	10.00	**23.0**	9.50	141.83	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.2	6.7
11/20/2003	--		151.33	10.00	23.0	8.31	143.02	--	--	--	--	--	--	--	--
02/02/2004	--	c, f, h	151.33	10.00	23.0	6.92	144.41	--	--	--	--	--	--	--	--
05/14/2004	--	h	151.33	10.00	23.0	8.56	142.77	--	--	--	--	--	--	--	--
09/02/2004	P	h	151.33	10.00	23.0	8.79	142.54	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.5	6.8
11/04/2004	--	c, h	151.33	10.00	23.0	8.33	143.00	--	--	--	--	--	--	--	--
02/08/2005	--	h	151.33	10.00	23.0	7.28	144.05	--	--	--	--	--	--	--	--
05/09/2005	--	h	151.33	10.00	23.0	8.19	143.14	--	--	--	--	--	--	--	--
08/11/2005	P	h	151.33	10.00	23.0	8.39	142.94	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.2	6.6

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

Station #374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	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
								GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-5 Cont.															
11/18/2005	--	h	151.33	10.00	23.0	11.25	140.08	--	--	--	--	--	--	--	--
02/16/2006	--	h	151.33	10.00	23.0	9.22	142.11	--	--	--	--	--	--	--	--
5/30/2006	--	h	--	10.00	**23.0**	7.52	--	--	--	--	--	--	--	--	--
8/24/2006	P		--	10.00	23.0	7.95	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.60	6.6
11/1/2006	--		--	10.00	23.0	8.32	--	--	--	--	--	--	--	--	--
2/7/2007	--		--	10.00	23.0	8.25	--	--	--	--	--	--	--	--	--
5/8/2007	--		--	10.00	23.0	7.60	--	--	--	--	--	--	--	--	--
8/8/2007	P		--	10.00	23.0	8.12	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.26	7.31
11/14/2007	--		--	10.00	23.0	9.10	--	--	--	--	--	--	--	--	--
2/22/2008	--		--	10.00	23.0	7.48	--	--	--	--	--	--	--	--	--
5/24/2008	--		--	10.00	23.0	8.12	--	--	--	--	--	--	--	--	--
8/21/2008	P		--	10.00	23.0	8.65	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.14	6.54
11/19/2008	--		--	10.00	23.0	11.86	--	--	--	--	--	--	--	--	--
2/23/2009	--		--	10.00	23.0	10.20	--	--	--	--	--	--	--	--	--
5/14/2009	--		--	10.00	23.0	9.63	--	--	--	--	--	--	--	--	--
8/20/2009	P		--	10.00	23.0	8.52	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.01	6.47
2/19/2010	--	**d**	--	**10.00**	**23.0**	--	--	--	--	--	--	--	--	--	--
MW-6															
6/20/2000	--		153.84	5.00	**15.0**	4.79	149.05	--	--	--	--	--	--	--	--
9/28/2000	--		153.84	5.00	**15.0**	5.39	148.45	--	--	--	--	--	--	--	--
12/17/2000	--		153.84	5.00	**15.0**	4.71	149.13	--	--	--	--	--	--	--	--
3/23/2001	--		153.84	5.00	**15.0**	4.69	149.15	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
6/21/2001	--		153.84	5.00	**15.0**	5.22	148.62	--	--	--	--	--	--	--	--
9/23/2001	--		153.84	5.00	**15.0**	5.40	148.44	--	--	--	--	--	--	--	--
12/31/2001	--		153.84	5.00	**15.0**	3.95	149.89	--	--	--	--	--	--	--	--
3/21/2002	--		153.84	5.00	**15.0**	2.94	150.90	<50	<0.5	<0.5	<0.5	<0.5	5.2	--	--
4/17/2002	--		153.84	5.00	**15.0**	5.11	148.73	--	--	--	--	--	--	--	--
8/12/2002	--		153.84	5.00	**15.0**	5.23	148.61	--	--	--	--	--	--	--	--
12/6/2002	--		153.84	5.00	**15.0**	5.29	148.55	--	--	--	--	--	--	--	--
1/29/2003	--	b	153.84	5.00	**15.0**	4.79	149.05	--	--	--	--	--	--	--	--

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

Station #374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	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
								GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-6 Cont.															
5/23/2003	--		153.84	5.00	**15.0**	4.31	149.53	<50	<0.50	<0.50	<0.50	<0.50	9.4	1	6.7
09/04/03	--	d	153.84	5.00	**15.0**	--	--	--	--	--	--	--	--	--	--
11/20/2003	--		153.84	5.00	15.0	6.31	147.53	--	--	--	--	--	--	--	--
02/02/2004	--	f	159.41	5.00	15.0	4.78	154.63	--	--	--	--	--	--	--	--
05/14/2004	--		159.41	5.00	15.0	6.29	153.12	--	--	--	--	--	--	--	--
09/02/2004	--	d	159.41	5.00	15.0	5.79	153.62	--	--	--	--	--	--	--	--
11/04/2004	--	d	159.41	5.00	15.0	--	--	--	--	--	--	--	--	--	--
02/08/2005	--		159.41	5.00	15.0	5.13	154.28	--	--	--	--	--	--	--	--
05/09/2005	--		159.41	5.00	15.0	4.52	154.89	--	--	--	--	--	--	--	--
08/11/2005	P		159.41	5.00	15.0	5.02	154.39	<50	<0.50	<0.50	<0.50	<0.50	7.9	2.1	6.6
11/18/2005	--		159.41	5.00	15.0	6.31	153.10	--	--	--	--	--	--	--	--
02/16/2006	--		159.41	5.00	15.0	4.24	155.17	--	--	--	--	--	--	--	--
5/30/2006	--		159.41	5.00	**15.0**	4.45	154.96	--	--	--	--	--	--	--	--
8/24/2006	P		159.41	5.00	15.0	5.18	154.23	<50	<0.50	<0.50	<0.50	<0.50	12	3.4	6.8
11/1/2006	--		159.41	5.00	15.0	6.05	153.36	--	--	--	--	--	--	--	--
2/7/2007	--		159.41	5.00	15.0	5.00	154.41	--	--	--	--	--	--	--	--
5/8/2007	--		159.41	5.00	15.0	4.30	155.11	--	--	--	--	--	--	--	--
8/8/2007	NP		159.41	5.00	15.0	5.51	153.90	<50	<0.50	<0.50	<0.50	<0.50	0.57	2.94	6.87
11/14/2007	--		159.41	5.00	15.0	5.38	154.03	--	--	--	--	--	--	--	--
2/22/2008	--		159.41	5.00	15.0	4.70	154.71	--	--	--	--	--	--	--	--
5/24/2008	--		159.41	5.00	15.0	5.25	154.16	--	--	--	--	--	--	--	--
8/21/2008	NP		159.41	5.00	15.0	6.14	153.27	<50	<0.50	<0.50	<0.50	<0.50	1.9	1.99	7.13
11/19/2008	--		159.41	5.00	15.0	5.94	153.47	--	--	--	--	--	--	--	--
2/23/2009	--		159.41	5.00	15.0	5.00	154.41	--	--	--	--	--	--	--	--
5/14/2009	--		159.41	5.00	15.0	4.60	154.81	--	--	--	--	--	--	--	--
8/20/2009	NP		159.41	5.00	15.0	5.65	153.76	<50	<0.50	<0.50	<0.50	<0.50	2.0	1.98	6.81
2/19/2010	--		**159.41**	**5.00**	**15.0**	**7.28**	**152.13**	--	--	--	--	--	--	--	--

SYMBOLS AND ABBREVIATIONS:
-- = Not analyzed/applicable/measured/available
< = Not detected at or above laboratory reporting limit
DO = Dissolved oxygen
DTW = Depth to water in ft below TOC
ft bgs = Feet below ground surface
GRO = Gasoline range organics
GWE = Groundwater elevation measured in ft
mg/L = Milligrams per liter
MTBE = Methyl tert-butyl ether
NP = Well was not purged prior to sampling
P = Well was purged prior to sampling
TOC = Top of casing measured in ft
TPH-g = Total petroleum hydrocarbons as gasoline
µg/L = Micrograms per liter
BTEX = Benzene, toluene, ethylbenzene and xylenes

FOOTNOTES:
a = Chromatogram pattern: Gasoline C6-C10 for GRO/TPH-g.
b = Beginning this quarter, groundwater samples were analyzed by EPA method 8260B for TPH-g, BTEX, and fuel oxygenates.
c = Wells gauged with ORC sock in well.
d = Well inaccessible
e = The hydrocarbon result for GRO was partly due to individual peaks in the quantitative range.
f = Well resurveyed on 1/27/2004 to NAVD88
g = Upon review of survey data (1/27/2004), TOC elevation for MW-4 is actually 162.47 ft.
h = Upon review of survey data (1/27/2004), MW-5 was not surveyed from the TOC. MW-5 was surveyed from the pavement due to inaccessibility to the TOC. Therefore, survey data for MW-5 from the TOC is unavailable. Historic data prior to 5/30/2006 (change in consultant) not modified.
i = Quantitation of unknown hydrocarbon(s) in sample based on gasoline.

NOTES:
Beginning in the fourth quarter 2003, the laboratory modified the reported analyte list. TPH-g was changed to GRO. The resulting data may be impacted by the potential of non-TPH-g 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.

Values for DO and pH were obtained through field measurements.

The DTW's and TOC's for wells MW-5 and MW-6 were taken from Delta Environmental sampling sheets because the well logs were not available.

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.

Note: 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

Station #374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
5/23/2003	<20,000	<4,000	1,600	<100	<100	<100	--	--	
11/20/2003	<2,000	<400	1,500	<10	<10	<10	--	--	a
05/14/2004	<5,000	<1,000	1,200	<25	<25	<25	<25	<25	
09/02/2004	<1,000	<200	660	<5.0	<5.0	<5.0	<5.0	<5.0	
11/04/2004	<2,000	<400	580	<10	<10	<10	<10	<10	
02/08/2005	<2,000	<400	610	<10	<10	<10	<10	<10	
05/09/2005	<1,000	<200	620	<5.0	<5.0	<5.0	<5.0	<5.0	a
08/11/2005	<500	250	390	<2.5	<2.5	2.6	<2.5	<2.5	a
11/18/2005	<500	<100	340	<2.5	<2.5	<2.5	<2.5	<2.5	a
02/16/2006	<1,500	<100	340	<2.5	<2.5	<2.5	<2.5	<2.5	
5/30/2006	<1,500	<100	420	<2.5	<2.5	<2.5	<2.5	<2.5	a
8/24/2006	<3,000	<200	180	<5.0	<5.0	<5.0	<5.0	<5.0	
11/1/2006	<3,000	<200	220	<5.0	<5.0	<5.0	<5.0	<5.0	a
2/7/2007	<3,000	<200	190	<5.0	<5.0	<5.0	<5.0	<5.0	
5/8/2007	<3,000	<200	420	<5.0	<5.0	<5.0	<5.0	<5.0	
8/8/2007	<300	<20	110	<0.50	<0.50	<0.50	<0.50	<0.50	
11/14/2007	<1,500	<100	210	<2.5	<2.5	<2.5	<2.5	<2.5	
2/22/2008	<300	<10	250	<0.50	<0.50	1.5	<0.50	<0.50	
5/24/2008	<3,000	<100	380	<5.0	<5.0	<5.0	<5.0	<5.0	
8/21/2008	<1,500	<50	170	<2.5	<2.5	<2.5	<2.5	<2.5	
10/19/2008	<300	<10	30	<0.50	<0.50	<0.50	<0.50	<0.50	
2/23/2009	<1,500	<50	240	<2.5	<2.5	<2.5	<2.5	<2.5	
5/14/2009	<300	<10	200	<0.50	<0.50	1.3	<0.50	<0.50	
8/20/2009	<1,200	<40	170	<2.0	<2.0	<2.0	<2.0	<2.0	
2/19/2010	**<300**	**<10**	**170**	**<0.50**	**<0.50**	**1.2**	**<0.50**	**<0.50**	
MW-2									
5/23/2003	<100	<20	55	<0.50	<0.50	0.53	--	--	
02/02/2004	<100	<20	37	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<500	<100	67	<2.5	<2.5	<2.5	<2.5	<2.5	
02/08/2005	<100	<20	30	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	35	<0.50	<0.50	<0.50	<0.50	<0.50	a

Table 2. Summary of Fuel Additives Analytical Data

Station #374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-2 Cont.									
02/16/2006	<300	<20	39	<0.50	<0.50	<0.50	<0.50	<0.50	
8/24/2006	<300	<20	25	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2007	<300	<20	7.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	7.2	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2008	<300	<10	24	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	4.9	<0.50	<0.50	<0.50	<0.50	<0.50	
2/23/2009	<300	<10	24	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	8.4	<0.50	<0.50	<0.50	<0.50	<0.50	
2/19/2010	**<300**	**<10**	**22**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
MW-3									
5/23/2003	<100	<20	1.6	<0.50	<0.50	<0.50	--	--	
09/02/2004	<100	<20	6.5	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	11	<0.50	<0.50	<0.50	<0.50	<0.50	a
8/24/2006	<300	<20	7.6	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	3.1	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	2.2	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-4									
5/23/2003	<10,000	<2,000	<50	<50	<50	<50	--	--	
02/02/2004	<500	<100	29	<2.5	<2.5	2.6	<2.5	<2.5	
09/02/2004	<200	<40	28	<1.0	<1.0	<1.0	<1.0	<1.0	
02/08/2005	<5,000	<1,000	45	<25	<25	<25	<25	<25	
08/11/2005	<2,000	<400	32	<10	<10	<10	<10	<10	
02/16/2006	<6,000	<400	35	<10	<10	<10	<10	<10	
8/24/2006	<1,500	<100	39	<2.5	<2.5	<2.5	<2.5	<2.5	
2/7/2007	<6,000	<400	67	<10	<10	<10	<10	<10	
8/8/2007	<6,000	<400	72	<10	<10	<10	<10	<10	
2/22/2008	<6,000	<200	70	<10	<10	<10	<10	<10	
8/21/2008	<12,000	<400	53	<20	<20	<20	<20	<20	
2/23/2009	<3,000	<100	39	<5.0	<5.0	<5.0	<5.0	<5.0	

Table 2. Summary of Fuel Additives Analytical Data

Station #374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-4 Cont.									
8/20/2009	<12,000	<400	23	<20	<20	<20	<20	<20	
2/19/2010	**<3,000**	**<100**	**<5.0**	**<5.0**	**<5.0**	**<5.0**	**<5.0**	**<5.0**	
MW-5									
1/29/2003	<40	<20	<0.50	<0.50	<0.50	<0.50	--	--	
5/23/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	--	--	
9/4/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/24/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-6									
5/23/2003	<100	<20	9.4	<0.50	<0.50	<0.50	--	--	
08/11/2005	<100	<20	7.9	<0.50	<0.50	<0.50	<0.50	<0.50	a
8/24/2006	<300	<20	12	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	0.57	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	

SYMBOLS AND ABBREVIATIONS:
-- = Not analyzed/applicable/measured/available
< = Not detected at or above the laboratory reporting limi
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
µg/L = Micrograms per Liter

FOOTNOTES:
a = The continuing calibration verification for ethanol was outside of client contractual limits, however, it was within method acceptance limits. The data should still be useful for its intended purpose.

NOTES:
All volatile organic compounds analyzed using EPA Method 8260B.

Note: 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 Ground-Water Flow Direction and Gradient

Station #374, 6407 Telegraph Ave., Oakland, CA

Date Sampled	Approximate Flow Direction	Approximate Hydraulic Gradient
1/31/1996	Southwest	0.04
4/10/1996	Southwest	0.04
7/16/1996	Southwest	0.03
10/14/1996	Southwest	0.03
3/27/1997	Southwest	0.04
5/27/1997	Southwest	0.03
8/12/1997	Southwest	0.04
11/17/1997	Southwest	0.03
3/16/1998	Southwest	0.03
5/12/1998	Southwest	0.04
7/27/1998	Southwest	0.04
10/15/1998	Southwest	0.02
2/18/1999	Southwest	0.05
5/24/1999	Southwest	0.03
8/27/1999	Southwest	0.03
10/26/1999	Southwest	0.03
2/3/2000	Southwest	0.047
6/20/2000	Southwest	0.035
9/28/2000	Southwest	0.034
12/17/2000	Southwest	0.032
3/23/2001	Southwest	0.034
6/21/2001	Southwest	0.032
9/23/2001	Southwest	0.029
12/31/2001	Southwest	0.043
3/21/2002	Southwest	0.038
4/17/2002	Southwest	0.031
8/12/2002	Southwest	0.032
12/6/2002	Southwest	0.020
1/29/2003	Southwest	0.027
5/23/2003	Southwest	0.039
9/4/2003	Southwest	0.033
11/20/2003	Southwest	0.029
2/2/2004	Southwest	0.043 (a)
5/14/2004	Southwest	0.037 (a)
9/2/2004	Southwest	0.027 (a)
11/4/2004	Southwest	0.034 (a)
2/8/2005	Southwest	0.061 (a)
5/9/2005	Southwest	0.08 (a)
8/11/2005	Southwest	0.06 (a)
11/18/2005	Southwest	0.07 (a)
2/16/2006	Southwest	0.09 (a)
5/30/2006	Southwest	0.06 (a)

Table 3. Historical Ground-Water Flow Direction and Gradient

Station #374, 6407 Telegraph Ave., Oakland, CA

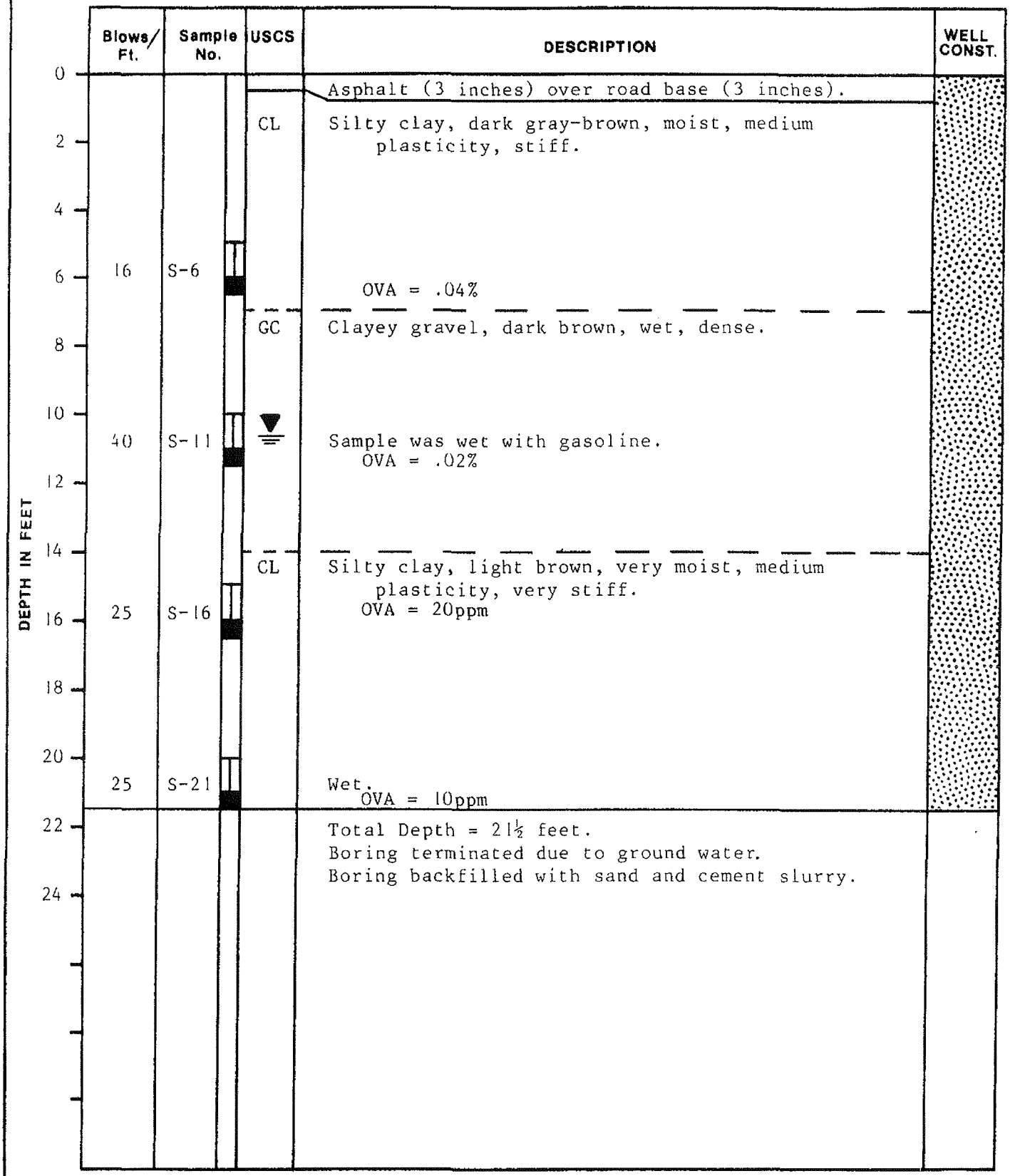
Date Sampled	Approximate Flow Direction	Approximate Hydraulic Gradient
8/24/2006	Southwest	0.03
11/1/2006	Southwest	0.02
2/7/2007	Southwest	0.03
5/8/2007	Southwest	0.03
8/8/2007	Southwest	0.03
11/14/2007	Southwest	0.03
2/22/2008	Southwest	0.03
5/24/2008	Southwest	0.03
8/21/2008	Southwest	0.03
11/19/2008	Southwest	0.03
2/23/2009	Southwest	0.04
5/14/2009	Southwest	0.03
8/20/2009	Southwest	0.03
2/19/2010	**West-Southwest**	**0.05**

a = Gradients potentially suspect due to error in MW-4 and MW-5 TOC measuring point elevations discovered third quarter 2006.

Note: 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 F

SOIL BORING AND WELL CONSTRUCTION LOGS



Applied GeoSystems
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PROJECT NO. 18039-1

LOG OF BORING B - 1

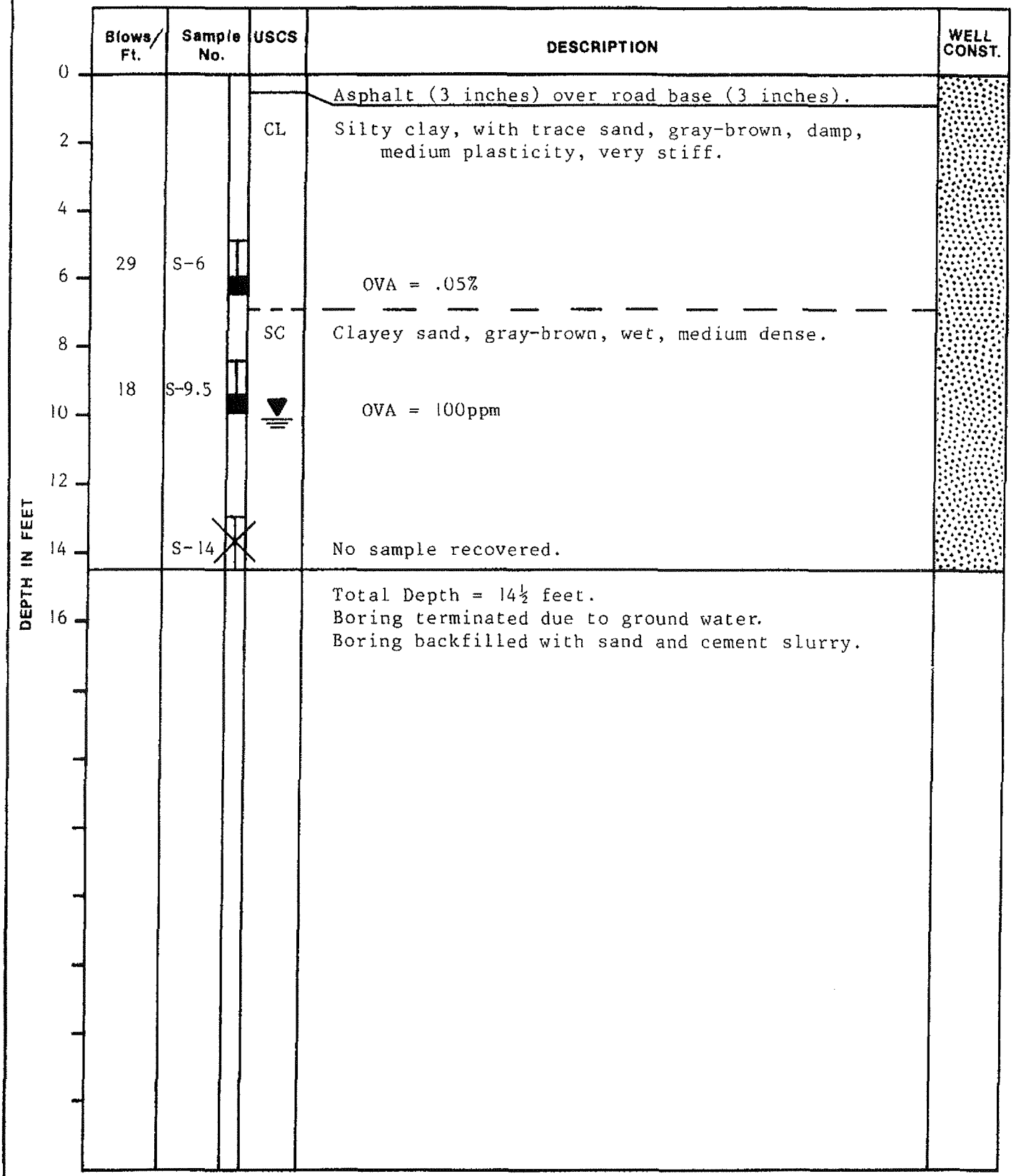
ARCO Station No. 374

Telegraph and Alcatraz Avenues

Oakland, California

PLATE

P-4



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PROJECT NO. 18039-1

LOG OF BORING B - 2

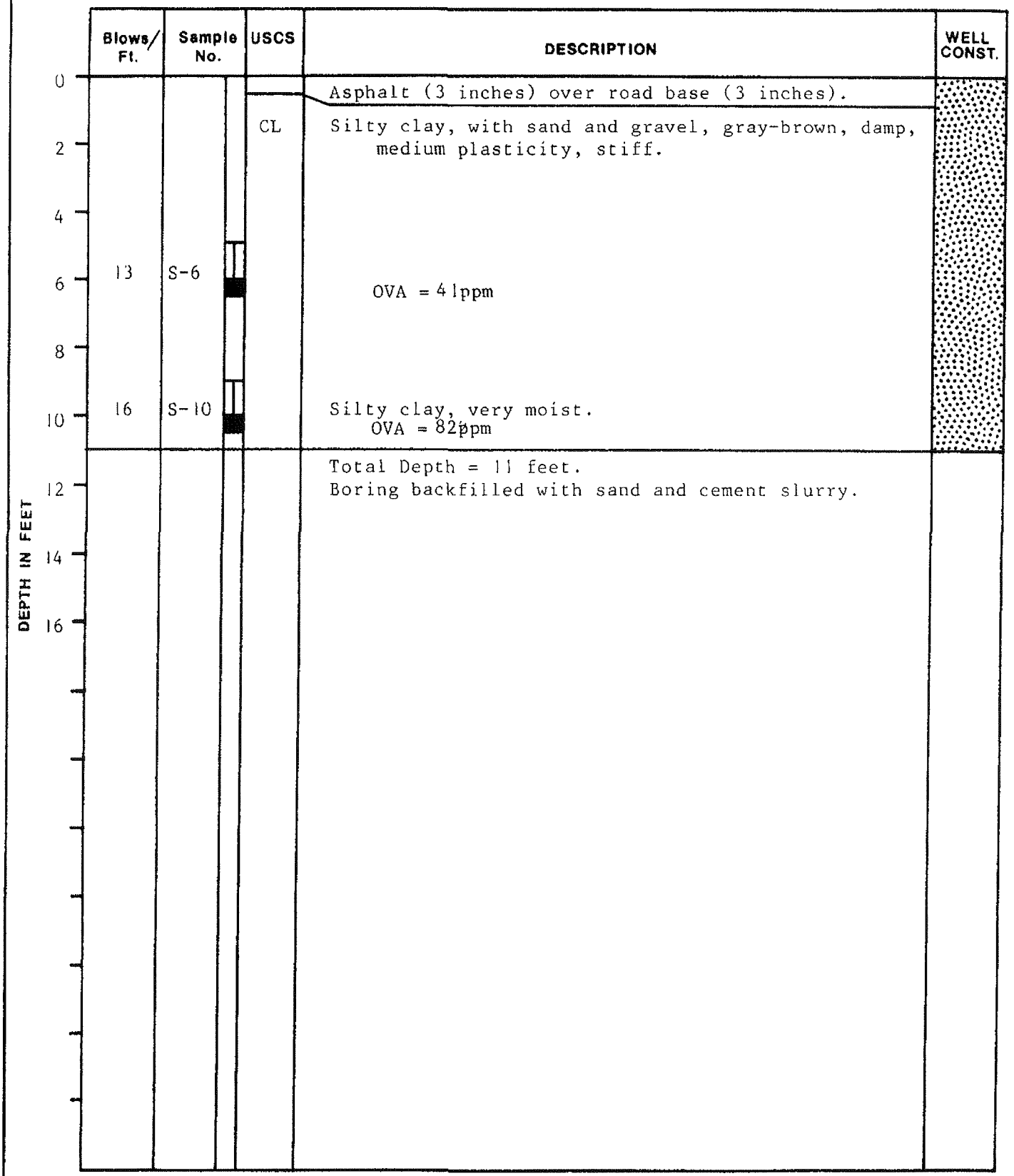
ARCO Station No. 374

Telegraph and Alcatraz Avenues

Oakland, California

PLATE

P-5



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PROJECT NO. 18039-1

LOG OF BORING B - 3

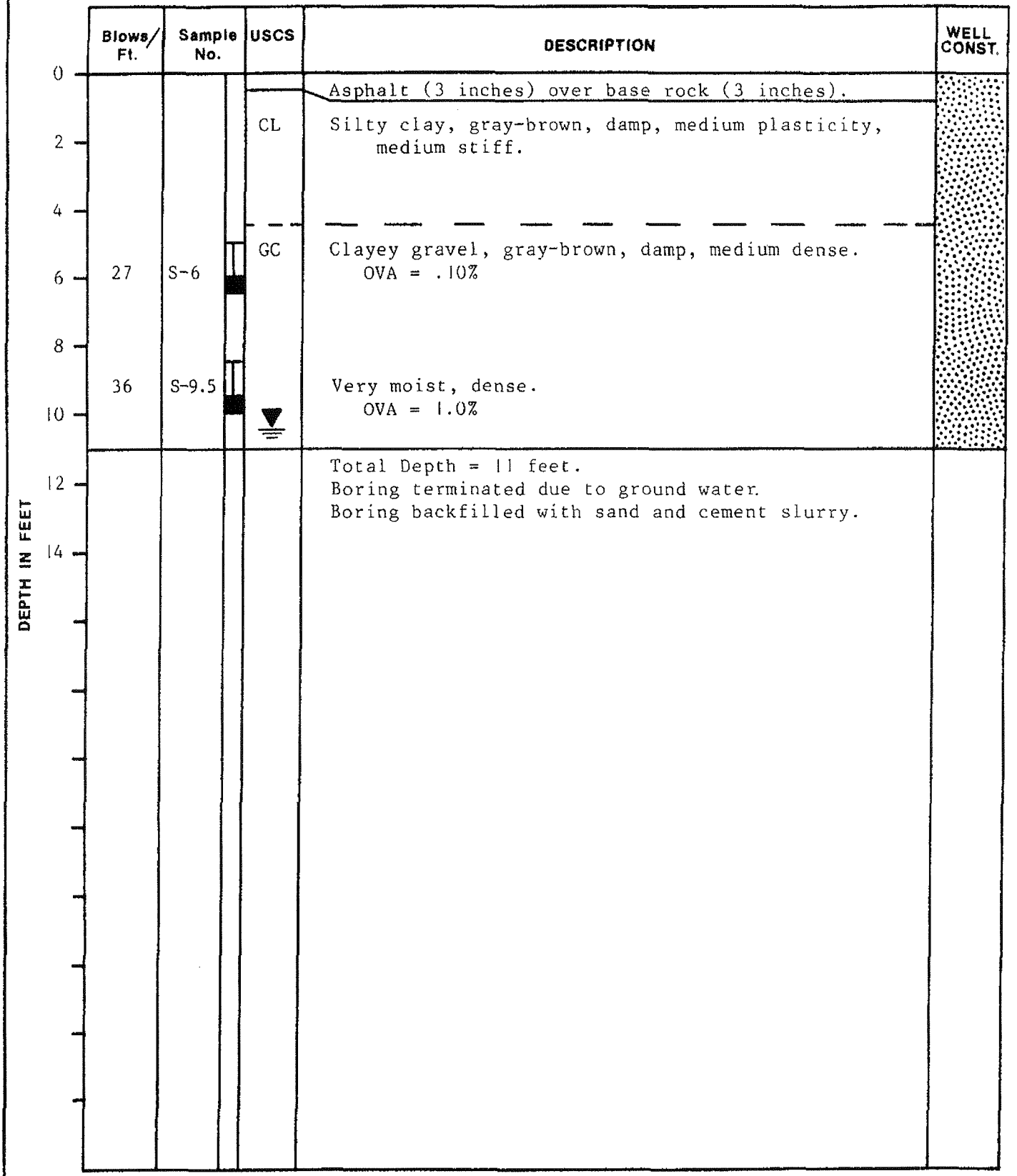
ARCO Station No. 374

Telegraph and Alcatraz Avenues

Oakland, California

PLATE

P-6



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PROJECT NO. 18039-1

LOG OF BORING B - 4

ARCO Station No. 374

Telegraph and Alcatraz Avenues

Oakland, California

PLATE

P-7

Total depth of boring: 28-1/2 feet **Diameter of boring:** 11 inches **Date drilled:** 7-6-89

Casing diameter: 4 inches **Length:** 27 feet **Slot size:** 0.020-inch

Screen diameter: 4 inches **Length:** 20 feet **Material type:** Sch 40 PVC

Drilling Company: Kvilhaug Drilling Company, Inc. **Driller:** Rod and Leroy

Method Used: Hollow-Stem Auger **Field Geologist:** Becky and Keith

Signature of Registered Professional: _____

Registration No.: _____ **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt.	
				CL	Silty clay, dark brown, slightly damp, medium plasticity, very stiff, rootlets, minor iron staining.	
2		4				
		12				
4	S-3.5	18	0			
6						
8		3		▼		
		5				
	S-8.5	12	110		Sandy clay, grading to clay with gravel, some mottling, slight plasticity, stiff, noticeable odor.	
10						
12				▽		
		15				
		18				
14	S-13.5	20	81		Slightly green, hard.	
16						
		8				
18		10				
	S-18.5	12	0		Silty clay, some sand and gravel, light brown, moist, medium plasticity, very stiff.	
20						

(Section continues downward)

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PROJECT NO. 18039-3

LOG OF BORING B-1/MW-1

ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE 4

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
				CL	Silty clay, some sand and gravel, light brown, moist, medium plasticity, stiff.	
22		3 4				
	S-23	7	0		Trace gravel.	
24						
26						
		3 5				
28	S-27	7	0			
					Total Depth = 28-1/2 feet.	
30						
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						

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PROJECT NO. 18039-3

LOG OF BORING B-1/MW-1

ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE 5

Total depth of boring: 28-1/2 feet **Diameter of boring:** 11 inches **Date drilled:** 7-6-89

Casing diameter: 4 inches **Length:** 27 feet **Slot size:** 0.020-inch

Screen diameter: 4 inches **Length:** 20 feet **Material type:** Sch 40 PVC

Drilling Company: Kvilhaug Drilling Company, Inc. **Driller:** Rod and Leroy

Method Used: Hollow-Stem Auger **Field Geologist:** Becky and Keith

Signature of Registered Professional: _____

Registration No.: _____ **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
2				CL	Sandy clay, dark brown, damp, slight plasticity, very stiff.	
4	S-3.5	6 10 12	0			
6						
8	S-8.5	7 20 25	0		Silty clay, with some gravel, light brown, damp, hard.	
10						
12						
14	S-13.5	5 7 15	0		Very stiff.	
16						
18	S-18.5	7 20 25	0		Silty clay with gravel, brown, moist, hard.	
20					(Section continues downward)	

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PROJECT NO. 18039-3

LOG OF BORING B-2/MW-2

ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE 6

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
				CL	Silty clay with gravel, brown, moist, hard.	
22		3				
		5				
	S-23	12	0		Silty clay, some fine gravel, dark brown, stiff.	
24						
26						
		10				
		20			Silty clay with sand, medium brown, slightly damp, slight plasticity, hard.	
28	S-27	25	0			
					Total Depth = 28-1/2 feet.	
30						
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						

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PROJECT NO. 18039-3

LOG OF BORING B-2/MW-2

ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE 7

Total depth of boring: 28-1/2 feet **Diameter of boring:** 11 inches **Date drilled:** 7-7-89

Casing diameter: 4 inches **Length:** 27 feet **Slot size:** 0.020-inch

Screen diameter: 4 inches **Length:** 20 feet **Material type:** Sch 40 PVC

Drilling Company: Kvilhaug Drilling Company, Inc. **Driller:** Rod and Leroy

Method Used: Hollow-Stem Auger **Field Geologist:** Becky and Keith

Signature of Registered Professional: _____

Registration No.: _____ **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Concrete (4 inches) over baserock (6 inches).	
2		3		CL	Silty clay, with sand and some gravel, medium brown, damp, slight plasticity, stiff, rootlets.	
		10				
4	S-3.5	10	0			
6						
8		2				
		4				
	S-8.5	8	0		Damp.	
10						
12		4				
		6				
14	S-13.5	10	8.5		Some mottling, moist.	
16						
18		6				
		5				
	S-18.5	12	9.1		Silty clay, minor gravel, light to medium brown, damp, medium plasticity, stiff.	
20					(Section continues downward)	

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PROJECT NO. 18039-3

LOG OF BORING B-3/MW-3

ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE 8

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
				CL	Silty clay, minor gravel, light to medium brown, damp, medium plasticity, stiff.	
22		6				
		8				
	S-23	12	0		Very stiff.	
24						
26						
		5				
		10				
28	S-27	12			Silty clay with sand, slight plasticity.	
					Total Depth = 28-1/2 feet.	
30						
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						

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PROJECT NO. 18039-3

LOG OF BORING B-3/MW-3

ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE 9

Total depth of boring: 27-1/2 feet **Diameter of boring:** 11 inches **Date drilled:** 7-7-89

Casing diameter: 4 inches **Length:** 27 feet **Slot size:** 0.020-inch

Screen diameter: 4 inches **Length:** 20 feet **Material type:** Sch 40 PVC

Drilling Company: Kvilhaug Drilling Company, Inc. **Driller:** Rod and Leroy

Method Used: Hollow-Stem Auger **Field Geologist:** Becky and Keith

Signature of Registered Professional: _____

Registration No.: _____ **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
2		2 3		CL	Silty clay, some sand and fine-grained gravel, very dark brown, slightly damp, slight plasticity, stiff.	
4	3.5	8	0			
6						
8		3 4				
10	8.5	10	0			
12		4				
14	S-13.5	10 25	41.6	GM	Sandy gravel, some silt, medium brown, very moist, medium dense, obvious odor.	
16						
18	S-18.5	15 15 20	0		Wet, dense.	
20					(Section continues downward)	

Applied GeoSystems

PROJECT NO. 18039-3

LOG OF BORING B-4/MW-4

ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE 10

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
				GM	Sandy gravel, some silt, medium brown, very moist, medium dense.	
22						
		6		CL	Silty clay, some sand and gravel, very stiff.	
		12				
	S-23.5	15	0			
24						
26		7				
		20				
	S-27	20	0		Grades more gravelly.	
28					Total Depth = 27-1/2 feet.	
30						
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 18039-3

LOG OF BORING B-4/MW-4

ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE 11

Depth of boring: 25-1/2 feet Diameter of boring: 10 inches Date drilled: 4/1/92

Well depth: 23 feet Material type: Sch 40 PVC Casing diameter: 4 inches

Screen interval: 10 to 23 feet Slot size: 0.020-inch

Drilling Company: Gregg Drilling Driller: Steve Stone

Method Used: Hollow-Stem Auger Field Geologist: Rob Campbell

Signature of Registered Professional:

Registration No.: RCE 044600 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
					Paved street: Alcatraz Avenue	
0					Asphalt (6 inches).	
				SW	Gravelly sand, gray, damp, very dense: Fill (Baserock).	
2				CL	Silty clay with trace of coarse-grained sand, dark blue-gray, damp, medium plasticity, very stiff.	
4					Color change to light brown at 4 feet.	
6	S-5.5	7 18 22	0		Color change to light brown mottled with green, hard; caliche nodules present.	
8					Color change to green at 7-1/2 feet. (Water level - 4/9/92).	
10	S-10	5 10 20	0		Color change to dark green at 10 feet, moist.	
12						
					Color change to light brown at 13 feet.	
14	S-14.5	6 14 29	0	CL	Sandy clay with silt, light brown, very moist, medium plasticity, hard.	
16				CL	Gravelly clay with sand, light brown, very moist, low plasticity, hard.	
18				CL	Silty clay with sand, light brown, very moist, low plasticity, very stiff.	
20	S-19	8 10 12	0	SC	Clayey sand, brown, wet, medium dense.	
				CH	Silty clay, light brown, very moist, high plasticity, hard.	

(Section continues downward)

RESNA
Working to Restore Nature

PROJECT: 60025.05

LOG OF BORING B-5/MW-5
ARCO Station 374
6407 Telegraph Avenue
Oakland, California

PLATE 4

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
22				CH	Silty clay, light brown, very moist, high plasticity, hard.	
24	S-24.5	10 22 35	0	ML	Sandy silt with clay, brown, moist, low plasticity, hard.	
26					Total depth = 25-1/2 feet.	
28						
30						
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						

RESNA
Working to Restore Nature

PROJECT 60025.05

LOG OF BORING B-5/MW-5
ARCO Station 374
6407 Telegraph Avenue
Oakland, California

PLATE
5

Depth of boring: 17 feet Diameter of boring: 10 inches Date drilled: 4/1/92

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

Screen interval: 5 to 15 feet Slot size: 0.020-inch

Drilling Company: Gregg Drilling Driller: Steve Stone

Method Used: Hollow-Stem Auger Field Geologist: Rob Campbell

Signature of Registered Professional:

Registration No.: RCE 044600 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
					Paved Street: Irwin Court.	
0					Asphalt (7 inches).	
				SW	Gravelly sand, gray, damp, very dense: Fill (baserock).	
2				CL	Silty clay, dark brown mottled with green, moist, medium plasticity, stiff.	
4		4			Color change to light brown at 3-1/2 feet. (Water level - 4/9/92)	
	S-5.5	6 9	0	CL	Sandy clay with silt, light brown, moist, low plasticity, stiff; some organic fragments and root holes.	
6						
8		11		GP	Sandy gravel with some silt, light brown, wet, dense.	
10	S-10	18 25	0			
		4 8				
12		16	0			
14		6 12				
	S-15	18	0			
16		11 25		CL	Silty clay with gravel, light brown, very moist, medium plasticity, hard.	
		32	0			
18					Total depth = 17 feet.	
20						

RESNA
Working to Restore Nature

PROJECT: 60025.05

LOG OF BORING B-6/MW-6

ARCO Station 374
6407 Telegrapf Avenue
Oakland, California

PLATE 6

SOIL BORING LOG **Boring No. B-11** **Sheet: 1 of 1**

Client	ARCO 374	Date	November 13, 2008
Address	6407 Telegraph Avenue	Drilling Co.	RSI rig type: Geoprobe GH-40
	Oakland, CA	Driller	Juan Morales
Project No.	E374	Method	Direct Push borehole diameter: 3"
Logged By:	Scott Bittinger	Sampler:	Acetate Liner
Well Pack	grout: 16 ft. to 0 ft.		

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1		Airknife to 5' bgs.	
						2		mixed fill material (fine grained soil, sand, and gravel mixtures) with plastic and other debris	
						3			
						4			
						5	CL	SILTY CLAY fill material, olive brown to greenish gray, dry to moist	
						6			
						7			
						8			
						9	GP	GRAVEL (crushed rock fill material), fine gravel particle size, very wet	
						10			
						11			
						12			
						13			
						14			
						15			
S	B11-15		9:03			16	CL	SILTY CLAY, grayish brown (13.5' to 15'), light olive brown with orange iron oxide stains (15'-16'), wet (13.5'-15'), moist (15'-16'), stiff	4.2
						17			
						18			
						19			
						20			

Recovery

Sample

Comments: total depth = 16'

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. B-12** **Sheet: 1 of 1**

Client	ARCO 374	Date	November 13, 2008
Address	6407 Telegraph Avenue	Drilling Co.	RSI rig type: Geoprobe GH-40
	Oakland, CA	Driller	Juan Morales
Project No.	E374	Method	Direct Push borehole diameter: 3"
Logged By:	Scott Bittinger	Sampler:	Acetate Liner
Well Pack	grout: 16 ft. to 0 ft.		

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1		Airknife to 5' bgs.	
						2		mixed fill material (fine grained soil, sand, and gravel mixtures) with plastic and other debris	
						3			
						4			
						5	CL	SILTY CLAY fill material, olive brown to greenish gray, dry to moist	
						6			
						7			
						8			
						9			
						10	GP	GRAVEL (crushed rock fill material), fine gravel particle size, very wet	
						11			
						12			
						13			
						14			
						15			
S	B12-15.5		9:50			16	CL	SILTY CLAY, light olive brown, damp to moist, stiff	6.3
						17			
						18			
						19			
						20			

Recovery

Sample

Comments: total depth = 16'

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG — Boring No. B-13 — Sheet: 1 of 1

Client	ARCO 374	Date	September 21, 2009
Address	6407 Telegraph Avenue	Drilling Co.	RSI Drilling rig type: Powerprobe 6600
	Oakland, CA	Driller	Gilberto
Project No.	E374	Method	Geoprobe Hole Diameter: 2 inches
Logged By:	Collin Fischer	Sampler:	Continuous Core

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
					1	CL	Cleared to 6.5' bgs with air knife.	
					2			
					3		Silty clay with sand, CL, (0'-5.5'), dark gray, moist, medium plasticity 60% clay, 30% silt, 10% medium grained sand	
					4			
S	B-13 4.5'	N/A	1120	100	5			18
					6	SC		
S	B-13 6.5'	N/A	1130	100	7		Clayey sand with silt and gravel, SC, (5.5'-7.5'), dark gray, moist, HC odor 50% medium grained sand, 25% clay, 15% silt, 10% medium gravel	48
					8	ML		
S	B-13 8.5'	N/A	1515	100	9		Clayey silt, ML, (7.5'-8.5'), dark gray, moist, medium plasticity, HC odor 60% silt, 40% clay	3800
					10	SC		
					11		Clayey sand with silt and gravel, SC, (8.5'-12.5'), dark gray, moist to wet 50% coarse grained sand, 25% clay, 15% silt, 10% coarse gravel	
					12			
					13			
					14			
					15	CL	Silty clay with gravel, CL, (12.5'-18'), dark yellowish brown, moist, medium plasticity 70% clay 30% silt	
					16			
					17			
					18			
					19			
					20			

Recovery

Sample

Comments: Failed water sample from temporary screen interval from 8'-18' bgs.

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG — Boring No. B-14 — Sheet: 1 of 1

Client	ARCO 374	Date	September 21, 2009
Address	6407 Telegraph Avenue	Drilling Co.	RSI Drilling rig type: Powerprobe 6600
	Oakland, CA	Driller	Gilberto
Project No.	E374	Method	Geoprobe Hole Diameter: 2 inches
Logged By:	Collin Fischer	Sampler:	Continuous Core

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
					1	CL	Cleared to 6.5' bgs with air knife.	
					2			
					3		Silty clay with sand, CL, (0'-5.5'), dark gray, moist, medium plasticity 60% clay, 30% silt, 10% medium grained sand	
					4			
S	B-14 4.5'	N/A	0940	100	5			0
					6			
S	B-14 6.5'	N/A	0950	100	7	ML	Clayey silt, ML, (5.5'-7'), dark gray, moist, medium plasticity, HC odor 60% silt 40% clay	0
					8			
S	B-14 8.5'	N/A	1100	100	9		Clayey silt with sand and gravel, ML, (7'-11'), dark gray, moist, medium plasticity HC odor, 50% silt, 30% clay, 10% fine grained sand, 10% medium gravel	62
					10			
					11			
					12	SC		
					13			
					14			
					15		Clayey sand with silt and gravel, SC, dark yellowish brown, wet 50% coarse grained sand, 25% clay, 15% silt, 10% coarse gravel	
					16			
					17			
					18			
					19			
					20			

Recovery

Sample

Comments: Failed water sample from temporary screen intervals from 4.5'-14.5' and 8'-18' bgs.

STRATUS ENVIRONMENTAL, INC.

SOIL BORING LOG **Boring No. B-15** **Sheet: 1 of 1**

Client	ARCO 374	Date	September 21, 2009
Address	6407 Telegraph Avenue	Drilling Co.	RSI Drilling rig type: Powerprobe 6600
	Oakland, CA	Driller	Gilberto
Project No.	E374	Method	Geoprobe Hole Diameter: 2 inches
Logged By:	Collin Fischer	Sampler:	Continuous Core

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
					1	CL	Cleared to 6.5' bgs with air knife.	
					2			
					3		Silty clay with sand, CL, (0'-5.5'), dark gray, moist, medium plasticity 60% clay, 30% silt, 10% medium grained sand	
					4			
S	B-15 4.5'	N/A	1015	100	5			163
					6	ML		
S	B-15 6.5'	N/A	1025	100	7			82
					8		Clayey silt, ML, (5.5'-9.5'), dark gray, moist, medium plasticity, HC odor 60% silt, 40% clay	
S	B-15 8.5'	N/A	1210	100	9			146
					10	SC		
					11		Clayey sand with silt and gravel, SC, (9.5'-11.5'), dark gray, wet, HC odor 50% medium grained sand, 25% clay, 15% silt, 10% coarse gravel	
					12			
					13			
					14		Clayey sand with silt and gravel, SC, (11.5'-15'), dark yellowish brown, moist 50% medium to coarse grained sand, 25% clay, 15% silt, 10% coarse gravel	
					15			
					16	CL		
					17		Silty clay, CL, (15'-18'), dark yellowish brown, moist, medium plasticity 70% clay, 30% silt	
					18			
					19			
					20			

Recovery

Sample

Comments: Water sample taken from temporary screen interval (8'-18') bgs.

STRATUS ENVIRONMENTAL, INC.

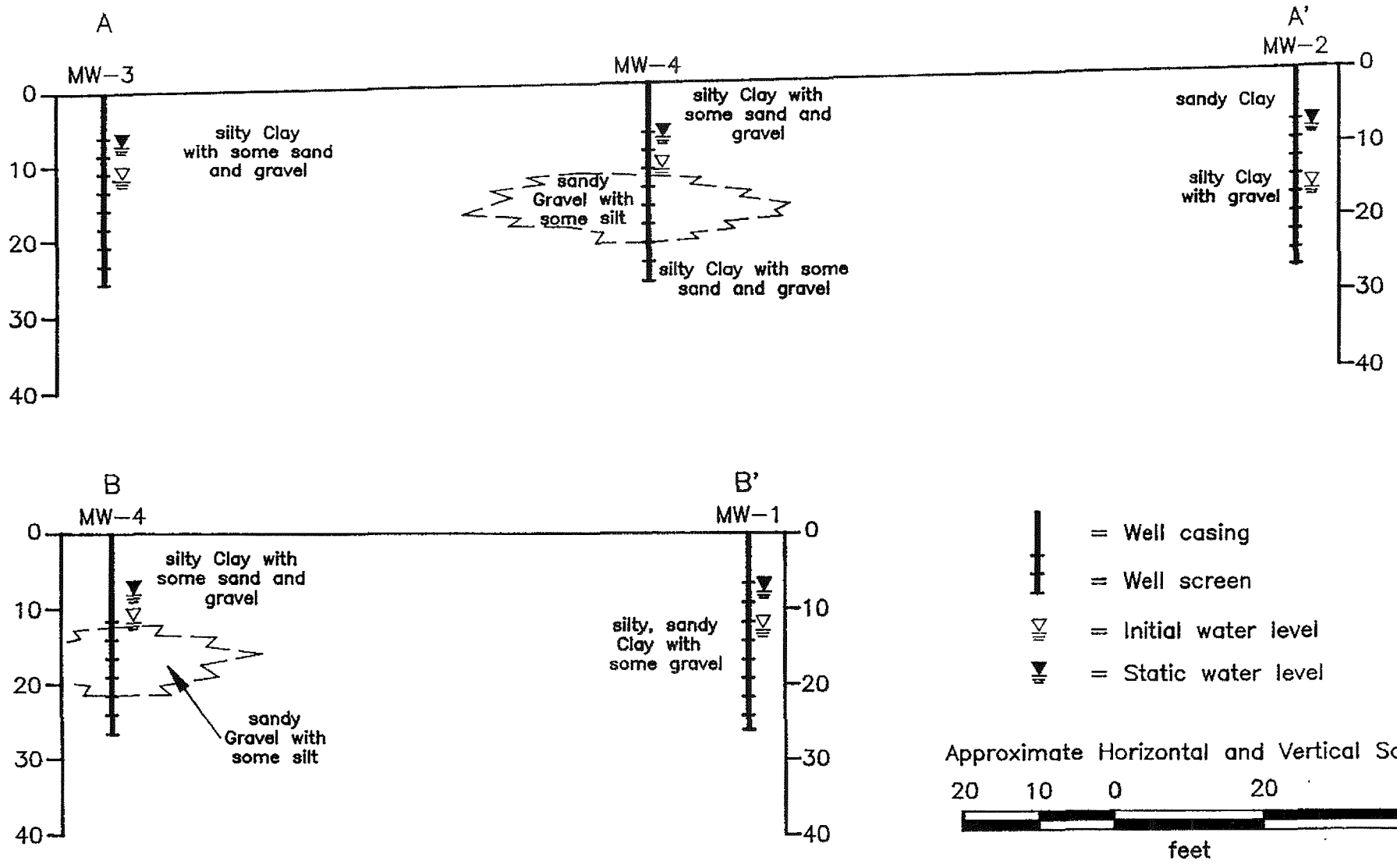

PLATE 12	GEOLOGIC CROSS SECTIONS ARCO Station No. 374 6407 Telegraph Avenue Oakland, California	Applied GeoSystems PROJECT NO. 18039-3