



Atlantic Richfield Company
(a BP affiliated company)

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RECEIVED

1:16 pm, Jul 01, 2008

Alameda County
Environmental Health



27 June 2008

Re: Work Plan for On-Site Soil 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:

Paul Supple
Environmental Business Manager

**Work Plan for On-Site Soil
Investigation**

Atlantic Richfield Company Station No. 374
6407 Telegraph Avenue, Oakland, California
ACEHS Case No. RO0000078

Prepared for

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

Prepared by



1324 Mangrove Avenue, Suite 212
Chico, California 95926
(530) 566-1400
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27 June 2008

Project No. 06-08-602

27 June 2008

Job No. 06-08-602

Mr. Paul Supple
Environmental Business Manager
Atlantic Richfield Company
PO Box 1257
San Ramon, California 94583
Submitted via ENFOS

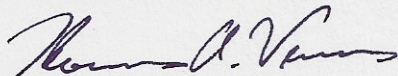
RE: Work Plan for On-Site Soil Investigation, Atlantic Richfield Company (a BP affiliated company) Station No. 374, 6407 Telegraph Avenue, Oakland, California;
ACEH Case No. RO0000078

Dear Mr. Supple,

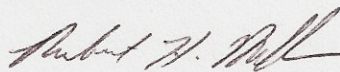
Broadbent & Associates, Inc. is pleased to present the enclosed *Work Plan for On-Site Soil Investigation* for additional source area soil characterization at the above-referenced facility. This work plan was prepared in response to a letter request from the Alameda County Environmental Health Services dated 30 April 2008. In accordance with that request, this work plan includes discussion of the site background, previous investigations, site geology and hydrogeology, the proposed scope of work, and schedule.

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

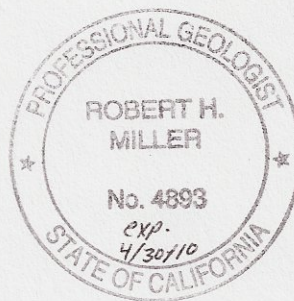
Sincerely,
BROADBENT & ASSOCIATES, INC.



Thomas A. Venus, P.E.
Senior Engineer



Robert H. Miller, P.G.
Principal Hydrogeologist



Enclosure

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

WORK PLAN FOR ON-SITE SOIL 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 30 April 2008. A copy of this letter is provided in Attachment A. Specifically, ACEH technical comments within the 30 April 2008 letter requested a proposal to characterize residual hydrocarbon contamination within soils at the source area (former underground storage tank (UST) excavation) in the southwestern portion of the property to verify effectiveness of past remediation activities at the Site. In accordance with the request of 30 April 2008, this work plan includes discussions on the site background and previous investigations, 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 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 two 12,000-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 western property boundary containing mature conifer trees.

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 Attachment 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 June 7 and 10, 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 Attachment B.

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.

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 Attachment C.

Bioremediation

On 14 November 1995, Pacific initiated a bioremediation enhancement program, utilizing oxygen releasing compound (ORC) manufactured by Regensis 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 Attachment D.

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 each quarter. Ground-water sampling is conducted in well MW-1 on a quarterly basis, wells 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 predominantly 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 ($\mu\text{g/L}$) in August 1990. The maximum concentrations of Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) were detected in well MW-4 at 8,700 $\mu\text{g/L}$ (August 1990), 4,200 $\mu\text{g/L}$ (August 1990), 1,000 $\mu\text{g/L}$ (June 2000), and 4,600 $\mu\text{g/L}$ (August 1990), respectively. The maximum concentration of Methyl tert-butyl ether (MTBE) was detected in well MW-1 at 4,000 $\mu\text{g/L}$ (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 2008 are provided in Attachment 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. In the southern end of the study area however, near the San Lorenzo Sub-Area, the direction of flow may not be this simple. According to information presented in *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, the small set of water level measurements available seemed to show that the ground water in the upper aquifers may be flowing south, with the deeper aquifers, the Alameda Formation, moving north. 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 5 to 11 feet bgs. Ground-water flow direction during the first quarter monitoring event on 22 February 2008 was to the southwest at a gradient of 0.03 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 silty and sandy clays with intervals also consisting of sands and gravels to 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 entire boring with gravels appearing at approximately eight feet bgs and 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 entire boring with gravels appearing at approximately eight feet bgs. The boring log for MW-3 indicates that silty clay is present throughout the entire boring with minor gravel appearing at approximately 18.5 feet bgs and 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 the boring logs for wells MW-1 through MW-4 prepared by AGS are provided in Attachment F.

4.0 PROPOSED SCOPE OF WORK

At the request of ACEH, the purpose of the proposed on-site soil investigation is to investigate the concentration of petroleum hydrocarbons in soil beneath the former location of the USTs, specifically Tank 4, in the southwestern portion of the Site at a depth of approximately 12 feet bgs. A copy of the site plan with former UST confirmation sample locations is provided in Attachment G. BAI proposes advancing one direct-push technology (DPT) boring to evaluate potential, residual petroleum hydrocarbon impacts to soil. One boring (B-1) is proposed approximately ten feet directly south of well MW-4 located along the southwestern property boundary of the Site. The proposed boring location is shown in Drawing 2. This location is situated to the southwest of the soil sample S-12-T4A2 collected on 9 June 1988, referenced in the ACEH letter (see Attachment A). The proposed boring location is to be positioned outside of the limits of the UST excavation to avoid sampling of backfill material. The actual location may vary due to the potential presence of underground utility conflicts and the location of a planter containing conifers not shown on Drawing 2.

Prior to initiating field activities, Stratus Environmental Inc. (Stratus) will obtain the necessary drilling permit from Alameda County; prepare a site health and safety plan (HASP) for the proposed work, clear the Site for subsurface utilities, and provide 72-hour advance 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 location. The borehole will be physically cleared to five feet bgs using hand auger or air knife methods.

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. The subcontractor(s) performing field activities will be provided with a copy of the HASP prior to initiating work. A safety tailgate meeting will also be conducted daily to review potential hazards and scope of work.

A Stratus field geologist will observe a California-licensed drilling company advance the soil boring using a Geoprobe or similar DPT drilling rig to a total approximate depth of 12.5 feet 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. Three soil samples will be collected at approximately 5 feet bgs, the capillary fringe, and 12.5 feet bgs. It may be necessary to continuously core the boring after five feet bgs to accurately determine the location of the capillary fringe. The core containing the capillary fringe sample should be removed prior to encountering the saturation zone to avoid sample contamination. Based on the boring log of nearby well MW-4, ground-water was encountered at approximately 12 feet bgs during drilling and later stabilized within the boring at approximately eight feet bgs. Recent depth-to-water level measurements within MW-4 have ranged from approximately six feet bgs to eight feet bgs. The soil sample to be collected at approximately 12.5 feet bgs could potentially be located within the saturation zone. The soil samples will be submitted to the laboratory for chemical analysis. Following sample collection, the boring will be grouted to the surface using neat cement, and the surface refinished to match the surrounding area.

The 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: Gasoline Range Organics (GRO, C6-C12), BTEX, 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.

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

Upon completion of field activities and receipt of a certified field data package (including copies of permits, field data sheets, boring log, and the laboratory analytical report with chain-of-custody documentation), BAI will prepare a Soil 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, laboratory analytical report with chain-of-custody documentation, discussion of findings, and conclusions. 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:

- On-Site Soil Investigation – Upon approval of this work plan and obtaining the necessary permits;
- On-Site Soil Investigation Report with Feasibility Study/Corrective Action Plan – Within 30 days after receipt of certified field data package following completion of fieldwork.

In addition, Second Quarter ground-water monitoring was completed on 24 May 2008. A ground-water monitoring report will be submitted within 30 days following the end of the Second Quarter 2008.

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 or 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).
- 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 and Associates, Inc., 9 April 2008. *First Quarter 2008 Ground-Water Monitoring Report, Atlantic Richfield Company Station No. 374, 6407 Telegraph Ave., Oakland, CA.*
- 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.*

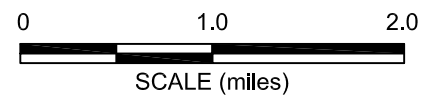
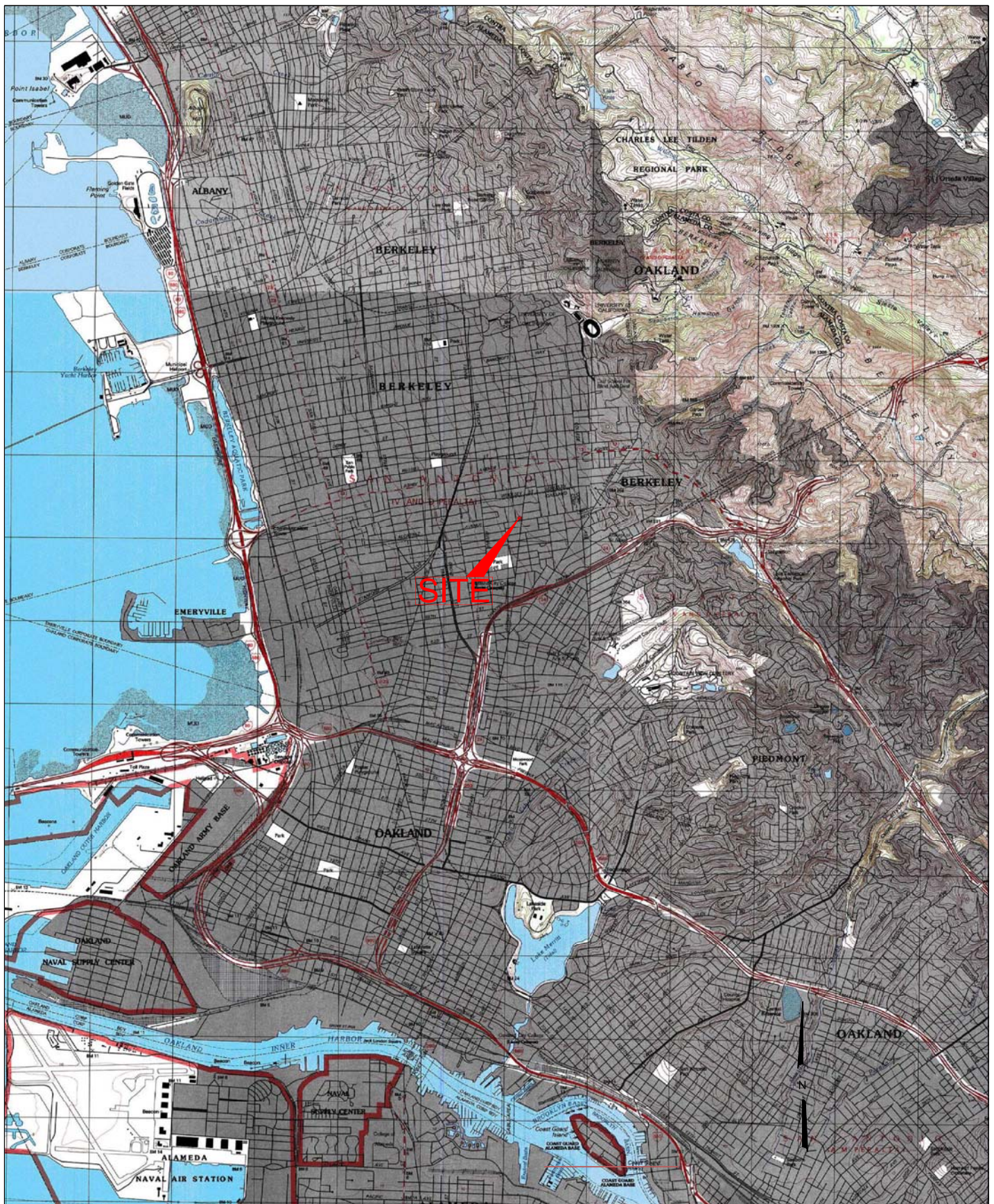
RESNA, 31 July 1991. *Report of Pumping and Recovery Test Results, ARCO Station No. 374, 6407 Telegraph Ave., Oakland, CA.*

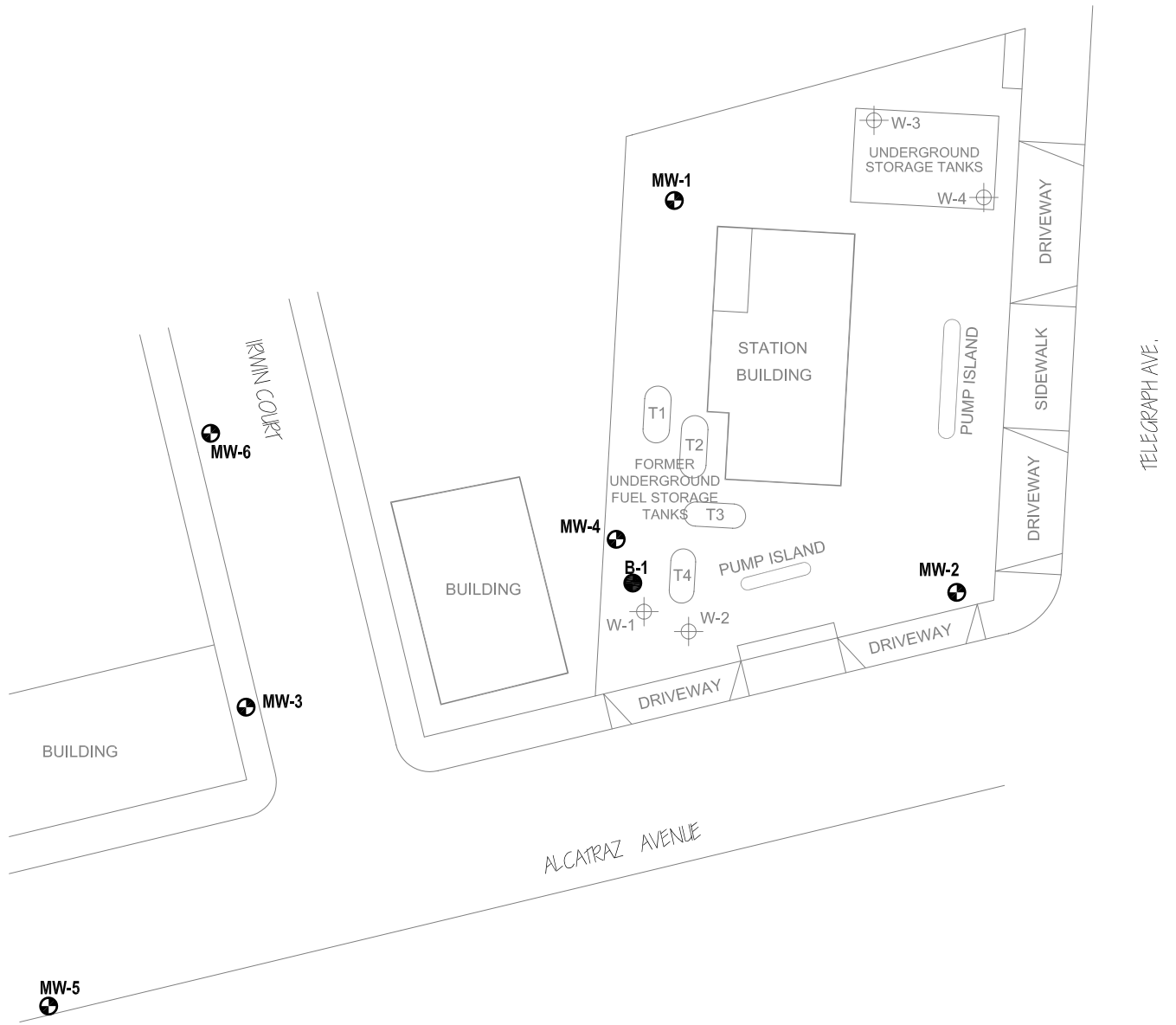
RESNA, 8 March 1994. *Letter Report, Quarterly Ground-Water and Remediation System Monitoring, Fourth Quarter 1993, ARCO Station No. 374, 6407 Telegraph Ave., Oakland, CA.*

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




LIST OF DRAWINGS

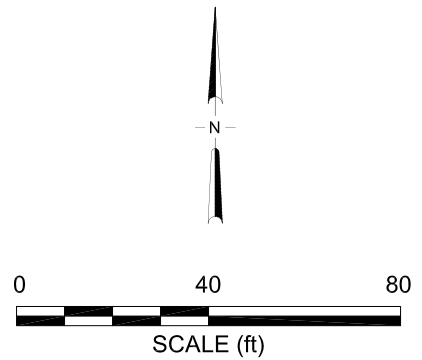
- Drawing 1. Site Location Map
- Drawing 2. Site Map with Proposed Soil Boring Location





LEGEND

-  MONITORING WELL
-  PROPOSED SOIL BORING
-  TANK PIT MONITORING WELL



NOTE: SITE MAP ADAPTED FROM IT CORPORATION FIGURES.
SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

ATTACHMENT A.
RECENT REGULATORY CORRESPONDENCE

ALAMEDA COUNTY
HEALTH CARE SERVICES

AGENCY
DAVID J. KEARS, Agency Director



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MAY - 7 2008
BY: _____

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

April 30, 2008

Paul Supple
Atlantic Richfield Company
(A BP Affiliated Company)
P.O. Box 1257
San Ramon, CA 94583

Subject: Fuel Leak Case No. RO0000078 and Geotracker Global ID T0600100106, ARCO
#0374, 6407 Telegraph Avenue, Oakland, CA 94609

Dear Mr. Supple:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the recently submitted document entitled, "Fourth Quarter 2007 Ground-Water Monitoring Report," dated January 25, 2008, which was prepared by Broadbent & Associates, Inc. (Broadbent) for the subject site. Based on our review, two 4,000-gallon, one 6,000-gallon, and one 8,000-gallon steel USTs were removed from the site circa June 1988. Soil sample analytical results detected 795 milligrams per kilogram (mg/kg) total petroleum hydrocarbons (TPH) as gasoline (g) and 23.1 mg/kg benzene in soil sample S-12-T4A2. On December 21, 1993, a groundwater extraction system began operation to remediate the site. In March 1996, the groundwater system operation was terminated and ORC socks were introduced in monitoring wells MW-3 and MW-4. Currently, only semi-annual groundwater sampling is being conducted.

At this time, we request that you address the following technical comments and send us a work plan and the technical reports requested below.

TECHNICAL COMMENTS

1. **Source Area Characterization / Post Remedial Confirmation Sampling** – As stated above, elevated concentration of hydrocarbons were detected in compliance soil samples collected during UST removal. A groundwater extraction system operated at the site from December 1993 to March 1996. To date, the vertical and lateral extent of soil contamination in the source area appears undefined and no confirmation soil samples have been collected to verify remediation system effectiveness. Please prepare a scope of work to address the above-mentioned concerns and submit a work plan by the date requested below.
2. **Feasibility Study** – According to the analytical data in the report, 2,900 micrograms per liter (µg/L) TPH-g, 630 µg/L benzene, and 100 µg/L methyl tertiary butyl ether (MtBE) were detected in groundwater samples collected from site monitoring wells during the most recent sampling event. The elevated concentrations of TPH-g and benzene have been consistently detected in monitoring well MW-4 since June 2000. Since concentrations of contaminants

appear to pose a risk to human health and the environment, corrective action appears warranted. To that end, please prepare an FS/CAP in accordance with Title 23, California Code of Regulations, Section 2725. 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 goals. These can be applicable and justified ESLs or calculated, site-specific risk-based cleanup goals.

The FS/CAP must evaluate at least three alternatives for remedying or mitigating the actual or potential adverse effects of the unauthorized release(s) in addition to the 'no action' and 'monitored natural attenuation' remedial alternatives. Each alternative shall be evaluated for cost-effectiveness and the Responsible Party must propose the most cost-effective corrective action. Please note that a Risk Based Corrective Action may be one of the options of the FS/CAP. Please prepare and submit an FS/CAP by the date requested below.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Paresh Khatri), according to the following schedule:

- **June 30, 2008** – Source Area Characterization Work Plan & FS/CAP
- **July 30, 2008** - Quarterly Monitoring Report (2nd Quarter 2008)
- **October 30, 2008** - Quarterly Monitoring Report (3rd Quarter 2008)
- **January 30, 2009** - Quarterly Monitoring Report (4th Quarter 2008)
- **April 30, 2009** - Quarterly Monitoring Report (1st Quarter 2009)

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

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. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program ftp site are provided on the attached "Electronic Report Upload (ftp) Instructions." Please do not submit reports as attachments to electronic mail.

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. Submission of reports to the Geotracker website does not fulfill the requirement to submit documents to the Alameda County ftp site. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for 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 monitor wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, electronic submittal of a complete copy of all necessary reports was required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/cleanup/electronic_reporting).

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.

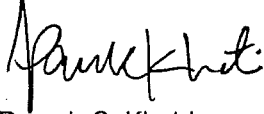
AGENCY OVERSIGHT

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.

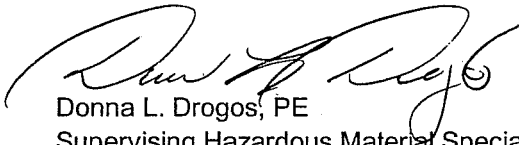
Mr. Supple
RO0000078
April 30, 2008, Page 4

If you have any questions, 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



Donna L. Drogos, PE
Supervising Hazardous Material Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Tom Venus, Broadbent & Associates, Inc., 1324 Mangrove Ave., Ste 212, Chico, CA 95926
Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA
94612-2032
Donna Drogos, ACEH
Paresh Khatri, ACEH
File

ATTACHMENT B.
HISTORIC SOIL ANALYTICAL DATA

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	Ethylbenzene	Total Xylenes
<u>April 1988 - Limited Environmental Site Assessment</u>					
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
<u>June 1988 - Excavation and Removal of USTs</u>					
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
<u>July 1989 - Limited Subsurface Investigation</u>					
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
<u>April 1, 1992 - Offsite Investigation</u>					
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.

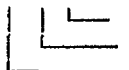
*: Signifies composite sample following aeration.

** : Resample area near sample T4A following additional excavation.

NA: Not analyzed.

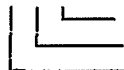
Sample designations:

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

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.								

ATTACHMENT 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			Benzene			Primary Carbon Loading (percent)
					Influent Concentration (µg/L)	Net Removed (lbs)	Removed to Date (lbs)	Influent Concentration (µg/L)	Net Removed (lbs)	Removed to Date (lbs)	
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	0.018	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	288	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 i,h	93,989	1,071	0.07	NS	0.006	2.61	NS	0.000	0.38	3.3

REPORTING PERIOD: 08/18/85 - 12/31/95 (i)

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: 2,467

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.

i. 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			Ethyl-benzene (µg/L)	Xylenes (µg/L)
		Gasoline (µg/L)	Benzene (µg/L)	Toluene (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

Well	Date Sampled	<u>Field Analyses</u>				<u>Laboratory Analyses</u>	
		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		* = Field measurements collected on November 2, 1995.					
deg F = Degrees Fahrenheit		† = DO measurement taken in office.					
µmhos = Micromhos							
mg/L = Milligrams per liter							

ATTACHMENT 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					Laboratory Analyses										
		Groundwater Temperature (deg F)	pH (units)	Conductivity (µmhos)	D.O. (mg/L)	Ferrous Iron (mg/L)	Total Alkalinity (mg CaCO ₃ /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	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

Well	Date Sampled	Field Analyses					Laboratory Analyses									
		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

Well	Date Sampled	<u>Field Analyses</u>					<u>Laboratory Analyses</u>								
		Groundwater Temperature (deg F)	pH (units)	Conductivity (µmhos)	D.O. (mg/L)	Ferrous Iron (mg/L)	Total Alkalinity (mg CaCO ₃ /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)
D.O. = Dissolved oxygen						µg/L	= Micrograms per liter								
B.O.D. = Biochemical oxygen demand						NM	= not measured								
C.O.D. = Chemical oxygen demand						NS	= Not sampled								
TPPH = Total purgeable petroleum hydrocarbons						ND	= Not detected								
BTEX = Benzene, toluene, ethylbenzene, and xylenes						N/A	= Not available								
deg F = Degrees Fahrenheit						*	Field measurements collected on November 2, 1995.								
µmhos = Micromhos						**	ORC installed								
mg/L = Milligrams per liter						†	From April 10, 1996 groundwater monitoring event.								

ATTACHMENT E.

HISTORICAL GROUND-WATER ELEVATION 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

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 (cont.)	02/23/95	<50	1.8	<0.50	<0.50	<0.50	NA	NA	
	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 (cont.)	10/13/93	16,000	3,500	800	470	1,800	670	NA	
	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							
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							
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							
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 msl)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet bgs)	Water Level Elevation (feet msl)	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	c	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	c	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 msl)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet bgs)	Water Level Elevation (feet msl)	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
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	--	--	--	--	--	--	--	--
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

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 msl)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet bgs)	Water Level Elevation (feet msl)	Concentrations in (µg/L)					DO (mg/L)	pH	
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes			MTBE
MW-2 Cont.															
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
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
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	--	--	--	--	--	--	--	--

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 msl)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet bgs)	Water Level Elevation (feet msl)	Concentrations in (µg/L)					DO (mg/L)	pH	
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes			MTBE
MW-3 Cont.															
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	--	--	--	--	--	--	--	--
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	--	--
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

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 msl)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet bgs)	Water Level Elevation (feet msl)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-4 Cont.															
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	163.25	7.00	27.0	7.02	156.23	--	--	--	--	--	--	--	--
8/24/2006	P	g	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	--		163.25	7.00	27.0	8.67	154.58	--	--	--	--	--	--	--	--
2/7/2007	NP		163.25	7.00	27.0	8.02	155.23	3,100	570	17	170	110	67	0.95	7.07
5/8/2007	--		163.25	7.00	27.0	7.03	156.22	--	--	--	--	--	--	--	--
8/8/2007	NP		163.25	7.00	27.0	8.60	154.65	2,900	630	22	67	57	72	0.93	6.79
11/14/2007	--		163.25	7.00	27.0	8.53	154.72	--	--	--	--	--	--	--	--
2/22/2008	P		163.25	7.00	27.0	6.25	157.00	3,900	880	39	180	92	70	2.31	6.87
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	--	--	--	--	--	--	--	--

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 msl)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet bgs)	Water Level Elevation (feet msl)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-5 Cont.															
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
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	151.33	10.00	23.0	7.52	143.81	--	--	--	--	--	--	--	--
8/24/2006	P	h	--	10.00	23.0	7.95	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.60	6.6
11/1/2006	--		151.33	10.00	23.0	8.32	143.01	--	--	--	--	--	--	--	--
2/7/2007	--		151.33	10.00	23.0	8.25	143.08	--	--	--	--	--	--	--	--
5/8/2007	--		151.33	10.00	23.0	7.60	143.73	--	--	--	--	--	--	--	--
8/8/2007	P		151.33	10.00	23.0	8.12	143.21	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.26	7.31
11/14/2007	--		151.33	10.00	23.0	9.10	142.23	--	--	--	--	--	--	--	--
2/22/2008	--		151.33	10.00	23.0	7.48	143.85	--	--	--	--	--	--	--	--
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	--	--	--	--	--	--	--	--
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	--		159.41	5.00	15.0	4.78	154.63	--	--	--	--	--	--	--	--

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 msl)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet bgs)	Water Level Elevation (feet msl)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-6 Cont.															
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	--	--	--	--	--	--	--	--

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 bgs
ft bgs = Feet below ground surface
ft MSL = Feet above mean sea level
GRO = Gasoline range organics
GWE = Groundwater elevation measured in ft MSL
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 MSL
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
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.

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.

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

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.

ATTACHMENT F.
SOIL BORING LOGS

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: Kviihaug 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.	
2				CL	Silty clay, dark brown, slightly damp, medium plasticity, very stiff, rootlets, minor iron staining.	
4	S-3.5	4 12 18	0			
6					Sandy clay, grading to clay with gravel, some mottling, slight plasticity, stiff, noticeable odor.	
8	S-8.5	3 5 12	110	▽		
10					Slightly green, hard.	
12				▽		
14	S-13.5	15 18 20	81			
16					Silty clay, some sand and gravel, light brown, moist, medium plasticity, very stiff.	
18	S-18.5	8 10 12	0			
20						

(Section continues downward)



LOG OF BORING B-1/MW-1
ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE

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PROJECT NO. 18039-3

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



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				CL	Sandy clay, dark brown, damp, slight plasticity, very stiff.	
2						
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)



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.	USGS Code	Description	Well Const.
-22	S-23	.3	0	CL	Silty clay with gravel, brown, moist, hard.	
-23		5				
-24		12				
-26	S-27	.10	0		Silty clay with sand, medium brown, slightly damp, slight plasticity, hard.	
-27		20				
-28		25				
-28 1/2						
-30	Total Depth = 28-1/2 feet.					
-32						
-34						
-36						
-38						
-40						
-42						
-44						
-46						
-48						
-50						



LOG OF BORING B-2/MW-2
ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE

7

PROJECT NO. 18039-3

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: Kvlihaug 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				CL	Silty clay, with sand and some gravel, medium brown, damp, slight plasticity, stiff, rootlets.	
4	S-3.5	3 10 10	0			
8	S-8.5	2 4 8	0		Damp.	
14	S-13.5	4 6 10	8.5		Some mottling, moist.	
18	S-18.5	.6 5 12	9.1		Silty clay, minor gravel, light to medium brown, damp, medium plasticity, stiff.	
20					(Section continues downward)	



LOG OF BORING B-3/MW-3
 ARCO Station No. 374
 6407 Telegraph Avenue
 Oakland, California

PLATE
8

PROJECT NO. 18039-3

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



LOG OF BORING B-3/MW-3

PLATE

**ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California**

9

PROJECT NO. 18039-3

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				CL	Silty clay, some sand and fine-grained gravel, very dark brown, slightly damp, slight plasticity, stiff.	
2		2				
4	3.5	3 8	0			
6						
8		3				
8.5		4 10	0			
10						
12		4			Sandy gravel, some silt, medium brown, very moist, medium dense, obvious odor.	
14	S-13.5	10 25	41.6			
16						
18		15			Wet, dense.	
18.5	S-18.5	15 20	0			
20						

(Section continues downward)



LOG OF BORING B-4/MW-4
ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE
10

PROJECT NO. 18039-3

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
				GM	Sandy gravel, some silt, medium brown, very moist, medium dense.	[Well Const. Diagram]
-22		6				
-24	S-23.5	12 15	0	CL	Silty clay, some sand and gravel, very stiff.	
-26		7 20				
-28	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						



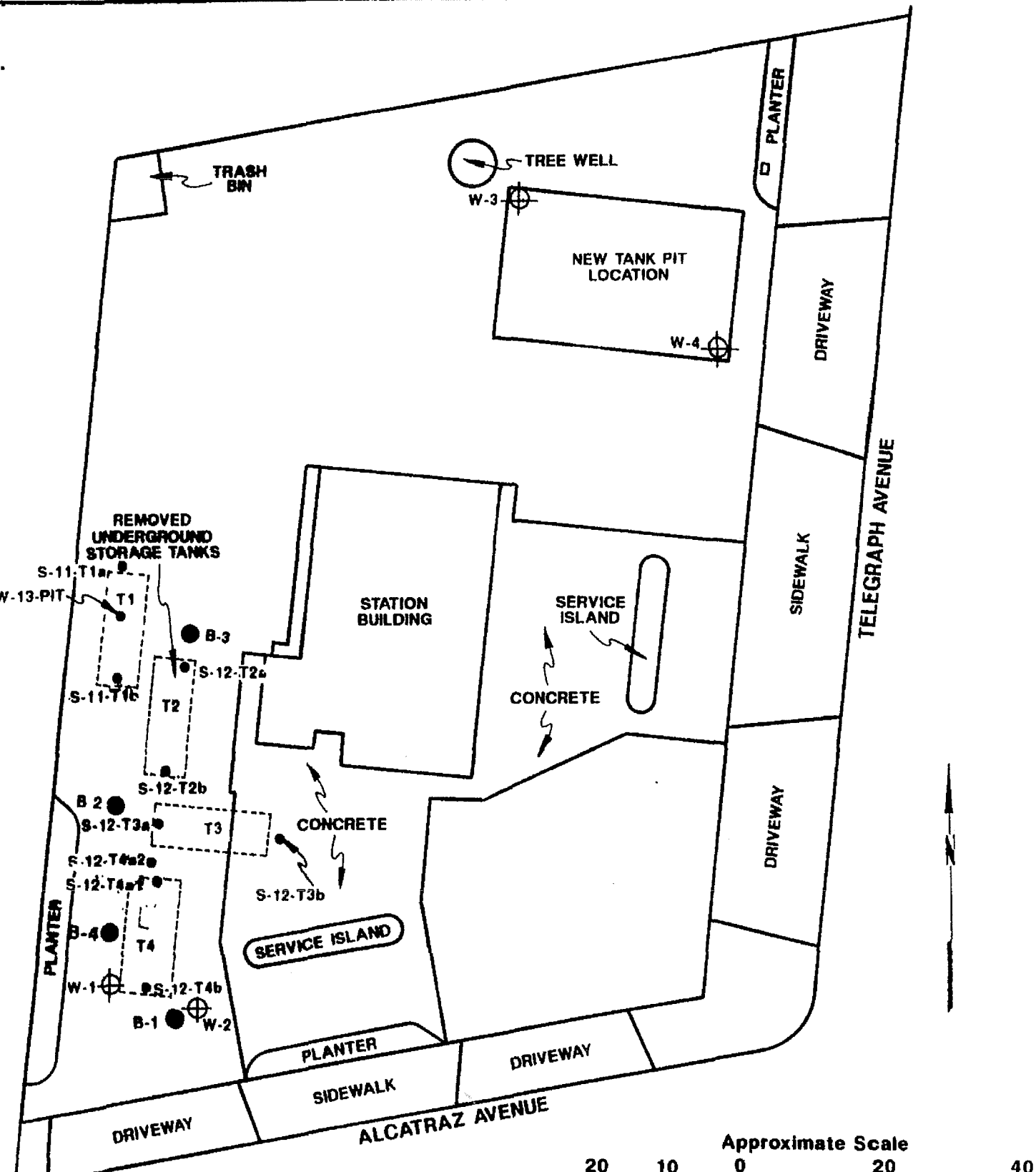
PROJECT NO. 18039-3

LOG OF BORING B-4/MW-4 PLATE
 ARCO Station No. 374
 6407 Telegraph Avenue
 Oakland, California

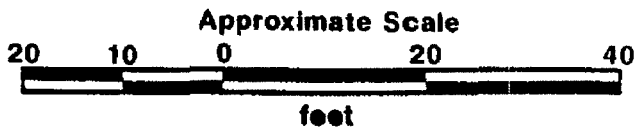
11

ATTACHMENT G.

SITE PLAN WITH FORMER UST CONFIRMATION SAMPLE LOCATIONS



- W-4 ⊕ = Tank-pit-well location
- = Soil sample location
- B-3 ● = Soil boring from previous investigation



Source: Modified from plan supplied by ARCO



Applied GeoSystems
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PROJECT NO. 18039-2

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

PLATE
P - 2