Atlantic Richfield Company
(a BP affiliated company)

P.O. Box 1257
San Ramon, California 94583
Phone: (925) 275-3801
Fax: (925) 275-3815

12 December 2008

Re: Work Plan for On-Site Soil Investigation
Atlantic Richfield Company Station #2112
1260 Park Street
Alameda, California
ACEH Case #RO0000044

"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. 2112
1260 Park Street, Alameda, California
ACEH Case No. RO0000044

Prepared for

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

Prepared by

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

1324 Mangrove Avenue, Suite 212
Chico, California 95926
(530) 566-1400
www.broadbentinc.com

12 December 2008

Project No. 06-08-616

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

BROADBENT & ASSOCIATES, INC
ENVIRONMENTAL, WATER RESOURCES & ENGINEERING

12 December 2008

Job No. 06-08-616

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. 2112, 1260 Park Street, Alameda, California;
ACEH Case No. RO0000044

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 (ACEH) dated 16 October 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 proposed schedule.

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

Sincerely,
BROADBENT & ASSOCIATES, INC.

Thomas A. Venus, P.E.
Senior Engineer

Robert H. Miller, P.G., C.HG.
Principal Hydrogeologist

PROFESSIONAL GEOLOGIST
ROBERT H. MILLER
No. 561
CERTIFIED HYDROGEOLOGIST
exp. 4-30-10
STATE OF CALIFORNIA

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. 2112
1260 Park Street, Alameda, California
ACEH Fuel Leak Case No. RO0000044

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ATTACHMENTS

APPENDICES

WORK PLAN FOR ON-SITE SOIL INVESTIGATION
Atlantic Richfield Company Station No. 2112
1260 Park Street, Alameda, California
ACEH Fuel Leak Case No. RO0000044

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. 2112, located at 1260 Park Street, Alameda, California (Site). This work plan was prepared in response to a letter request from the Alameda County Environmental Health Services (ACEH) dated 16 October 2008. A copy of this letter is provided in Appendix A. Specifically, ACEH technical comments within the 16 October 2008 letter requested a proposal to characterize residual hydrocarbon contamination within soils at the source area (former underground storage tank excavation) in the southeastern portion of the property to verify effectiveness of past remediation activities at the Site. In accordance with the request of 16 October 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-branded gasoline retail outlet located on the southern corner of Park Street and Encinal Avenue in Alameda, 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 four gasoline underground storage tanks (USTs) with associated piping and dispensers. The Site is covered with asphalt or concrete surfacing except for planters along the northwest, northeast, and southeast property boundaries containing mature trees.

On 15 May 1987, a waste oil tank was removed from the Site by Crosby & Overton Environmental. Laboratory analytical tests performed on soil samples (9310-1, 9310-2, and 9347-1) collected beneath the waste oil tank indicated the presence of diesel and motor oil contamination. Contaminated soil from the tank excavation was removed and transported offsite for disposal. The tank pit was reportedly backfilled with clean sand. A summary of the analytical results and site map depicting the previous location of the waste oil tank is provided in Appendix B.

On 22 and 29 January 1990, a soil investigation was conducted by Applied GeoSystems Inc. to assess soil conditions prior to the removal and replacement of the existing gasoline USTs. The investigation included the advancement of five soil borings (B1-B5) in the vicinity of the then-existing gasoline USTs, and one boring (B6) in the location of the new UST complex. Total boring depths ranged from 11.5 to 13 feet below ground surface (ft bgs) with the exception of boring B1, which was advanced to a total depth of 25 ft bgs. Ground water was encountered at approximately 12 ft bgs. Petroleum hydrocarbon contaminants were detected above laboratory reporting limits in samples collected from borings B1 through B5. Hydrocarbon constituents were not detected above laboratory reporting limits in the samples collected from boring B6. A summary of analytical results and a map depicting boring locations are provided in Appendix B.

The removal and replacement of the gasoline USTs and product piping took place at the Site between 27 July and 30 September 1990. During excavation activities, soil samples were

collected by GeoStrategies, Inc. from the sidewalls and bottom of each tank complex excavation, the new UST complex location, and within the product line trenches. The existing UST complex was excavated to approximately 13 ft bgs and soil samples (AX1-1 through AX1-11) were collected between six and 12 ft bgs. Product line trenches were excavated to a depth of three ft bgs except in locations of observed contamination in which the trenches were extended to a depth of 9.5 ft bgs. Soil samples AT-1 through AT-33 were collected at an approximate ratio of one sample per 20 lineal feet of trench during excavation of the product lines. Approximately 1,950 cubic yards of soil was removed from the Site and transported to a licensed offsite facility for disposal. Historic soil sampling locations and a summary of laboratory analytical results are presented in Appendix B.

Between September 1991 and June 1992, four on-site (A-1 through A-4) and one off-site (A-5) ground-water monitoring wells, two ground-water recovery wells (AR-1 and AR-2), and seven vapor extraction wells (AV-1 through AV-7) were installed at the Site by GeoStrategies, Inc. These wells were installed to further evaluate the vertical and horizontal extent of petroleum hydrocarbon contamination associated with the Site and provide extraction wells for use with interim soil vapor and ground-water remediation systems. Well locations are presented in Drawing 2.

A vapor extraction pilot test was conducted in October 1991. Step-drawdown and constant rate aquifer pumping tests were performed in December 1991.

During the Fourth Quarter of 1992, soil vapor and ground-water extraction systems were installed at the Site. The ground-water remedial system consisted of the two existing recovery wells (AR-1 and AR-2) and an on-site treatment facility. Each well contained a pneumatic total fluids pump, which transferred extracted ground water to the on-site treatment facility consisting of a surge tank, particulate filter, and two 180-pound activated carbon vessels connected in series. The ground-water extraction system reportedly became operational on 5 January 1993. The soil vapor extraction system consisted of eight vapor extraction wells (AV-1 through AV-7 and A-1). Extracted vapors were routed through a particulate filter and three 2,000-pound carbon vessels connected in series. The vapor extraction system reportedly began operation on 7 January 1993.

In August 1995, both the ground-water and soil vapor extraction systems were shutdown due to low influent concentrations of Total Purgeable Petroleum Hydrocarbons as gasoline (TPPHg). The systems were decommissioned and removed from the Site in 1997. Ground-water and soil vapor extraction system performance data are included in Appendix C.

A Case Closure Summary was prepared and submitted by Pacific Environmental Group, Inc. on 20 November 1996. This report stated that “remediation and site assessment are complete.”

On 31 July 2001, Delta Environmental Consultants, Inc. conducted soil sampling during product line and dispenser removal and upgrade activities. Soil samples were collected beneath the dispensers following their removal (PL-1 through PL-4) and along the product line trenches at depths ranging from 3.6 to 4.8 ft bgs (DP-1 through DP-4). At the request of ACEH, UST soil samples were collected on the east side of the current UST pit at approximately three ft bgs (UST-1 and UST-2). Petroleum hydrocarbon concentrations were detected above laboratory reporting limits in samples PL-3, DP-3, UST-1, and UST-2. Following receipt of the analytical

results, approximately seven cubic yards of soil was over-excavated in the area of sample PL-3. A confirmation soil sample was collected from the base of the over-excavation at approximately nine ft bgs. No soil was excavated immediately adjacent to the locations of the UST samples due to the proximity of the USTs. Approximately 9.8 cubic yards of soil was removed from the Site during product line and dispenser upgrades and transported to an appropriate facility for disposal. Soil sampling locations and a summary of analytical results are provided in Appendix B.

Quarterly ground-water monitoring and sampling of Site wells began in October 1991. Currently, ground-water monitoring and sampling is not conducted on-site. As requested by ACEH in their letter dated 20 June 2006, wells associated with the Site were redeveloped and sampled during the Third Quarter 2006. Detected concentrations during this sampling event were consistent with results previously reported prior to and following the site closure request. Historic ground-water elevation and analytical data through Third Quarter 2006 are provided in Appendix D.

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, June 1999), the Site is located within the Central Sub-Area of the East Bay Plain of the San Francisco Basin. The Central Sub-Area extends beneath the San Francisco Bay. The boundaries of the sub area are based on the Young Bay Mud. The Young Bay Mud has a sharp "edge" in some areas, and in other areas, the boundary is less well-defined. Alameda and Bay Farm Islands are located along the northeastern edge of the sub area. Historically there were artesian wells in the sub area that produced from gravels below the Yerba Buena Mud, but saltwater intrusion shut down these wells. Single-family residences historically relied on the Merrit Sand for water supply. However, contamination from septic systems and some saltwater intrusion resulted in localized contamination. More recently, deep wells (700 to 1000 feet deep) were drilled at the Alameda City Golf Course. Production rates were lower than expected but this is believed due to drilling problems. Water quality was satisfactory for irrigation.

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 (RWQCB, 1999).

The Site elevation is approximately 30 feet above mean sea level. The water table fluctuates seasonally. Historically, depth-to-water measurements have ranged from 6 to 18 ft bgs. Ground-water flow direction during the third quarter monitoring event on 17 July 2006 was to the west-southwest at a gradient of 0.01 ft/ft. The nearest body of water is the San Francisco Bay, located approximately 0.75 miles southwest of the Site.

According to the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, the single-most important ground-water quality parameter directly influencing a beneficial use determination is the Total Dissolved Solids (TDS) concentration. Resolution 89-39, Sources of Drinking Water, exempts the Municipal and Domestic (MUN) Supply Beneficial Use designations for ground waters with TDS concentrations greater than 3,000 mg/l and are not reasonably expected by the RWQCB to supply a public water system (note that the United States Environmental Protection Agency uses the 10,000 mg/l TDS value in determining potential drinking water sources). In 1996, RWQCB staff reviewed the General Plans for the East Bay Plain Cities of Alameda, Albany, El Cerrito, Berkeley, Emeryville, Hayward, Oakland, Piedmont, Richmond, and San Leandro, along with the Alameda County Resource Conservation District, the Alameda County Flood Control and Water Conservation District, the North Richmond Shoreline, and Alameda County. None of these cities had "any plans to develop local groundwater 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 MUN, industrial process supply (PROC), industrial service supply (IND), and agricultural supply (AGR) for the East Bay Plain ground-water basin (RWQCB, 1999).

The Site is typically underlain by sand and clayey sand to a total explored depth of approximately 25 ft bgs based on boring logs from the soil investigation conducted by Applied GeoSystems in January 1990. Boring logs for on-site monitoring and extraction wells were unavailable. The general geology consists of a sandy layer between ground surface and a maximum depth of approximately eight ft bgs. A clayey sand layer was typically observed from between five and eight ft bgs to 25 ft bgs, the total depth explored. Copies of the boring logs for borings B-1 through B-6 and a geologic cross-section prepared by Applied GeoSystems are provided in Appendix E.

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 in the southeastern corner of the Site. A copy of the site plan with former UST sample locations is provided in Appendix B. BAI proposes advancing three direct-push technology (DPT) borings to evaluate potential residual petroleum hydrocarbon impacts to soil. One boring (B-1) is proposed approximately five feet east-southeast of well AV-1 located along the southwestern property boundary of the Site. Boring B-2 is proposed on the back side of the Station building in the vicinity of the former waste oil UST. Boring B-3 is proposed on the northeast end of the former UST pit in the vicinity of well AV-2. The proposed boring locations are shown in Drawing 2. It should be noted that the sample S-11-B4 (22 January 1990), referenced in the ACEH letter, was collected prior to UST removal and is now located within the excavation pit (backfill material) of the former UST complex. The proposed boring locations are to be positioned outside of the limits of the UST excavation to avoid sampling of backfill material. The actual locations may vary due to the potential presence of underground utility conflicts.

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 ft 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 borings using a Geoprobe or similar DPT drilling rig to a total approximate depth of 14 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. Soil samples will be collected at three-foot intervals beginning at five feet bgs until a total depth of approximately 14 feet has been reached. The soil samples to be collected below approximately ten ft 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 – Within 60 days after receipt of certified field data package following completion of fieldwork.

6.0 CLOSURE

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

7.0 REFERENCES

ACEH, 20 June 2006. Fuel Leak Case No. RO 0000044 and Geotracker Global ID T0600100083, ARCO #2112, 1260 Park Street, Alameda, CA 94501. Letter from Mr. Steven Plunkett (ACEH) to Mr. Paul Supple (Atlantic Richfield Company).

ACEH, 16 October 2008. Fuel Leak Case No. RO 0000044 and Geotracker Global ID T0600100083, ARCO #2112, 1260 Park Street, Alameda, CA 94501. Letter from Mr. Paresh Khatri (ACEH) to Mr. Paul Supple (Atlantic Richfield Company).

Applied GeoSystems, Inc., 20 February 1990. *Limited Environmental Site Assessment, ARCO Service Station No. 2112, 1260 Park Street, Alameda, California.*

Broadbent & Associates, Inc., 13 October 2006. *Third Quarter 2006 Ground-Water Monitoring Report, Atlantic Richfield Company Station No. 2112, 1260 Park Street, Alameda, California.*

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

Delta Environmental Consultants, Inc., 20 November 2001. *Product Line and Dispenser Island Sampling Results, ARCO Station No. 2112, 1260 Park Street, Alameda, California.*

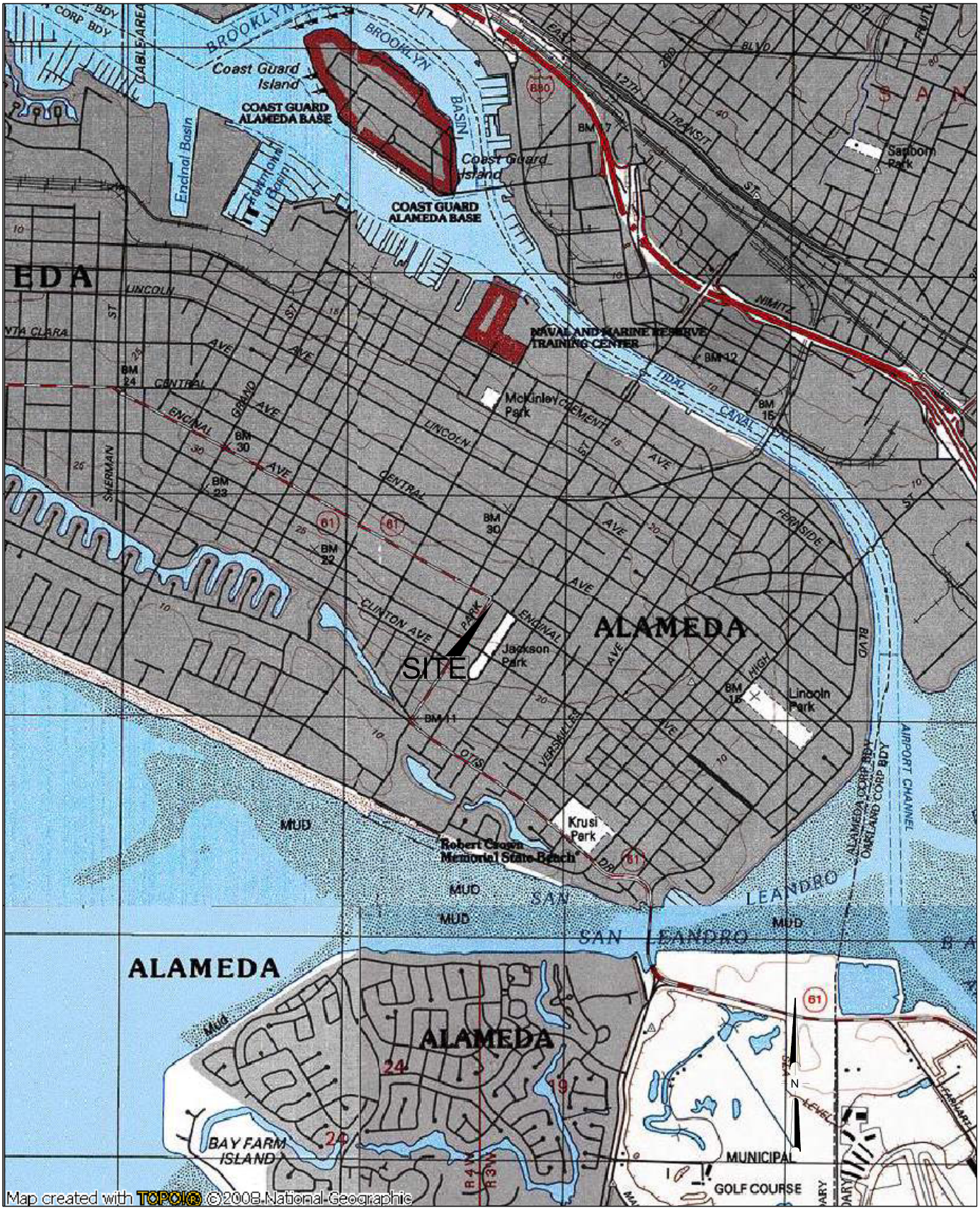
GeoStrategies, Inc., 7 November 1990. *Tank Replacement Observation Report, ARCO Service Station No. 2112, 1260 Park Street, Alameda, California.*

GeoStrategies, Inc., 5 November 1993. *Quarterly Monitoring/Recovery System Evaluation Report – Third Quarter 1993, ARCO Service Station No. 2112, 1260 Park Street, Alameda, California.*

Pacific Environmental Group, Inc., 20 November 1996. *Case Closure Summary, ARCO Service Station No. 2112, 1260 Park Street at Encinal Avenue, Alameda, California.*

Pacific Environmental Group, Inc., 14 July 1997. *Quarterly Ground-Water Monitoring Report and Remedial System Performance Evaluation – First Quarter 1997, ARCO Service Station No. 2112, 1260 Park Street at Encinal Avenue, Alameda, California.*

LIST OF DRAWINGS



0 2,000 4,000

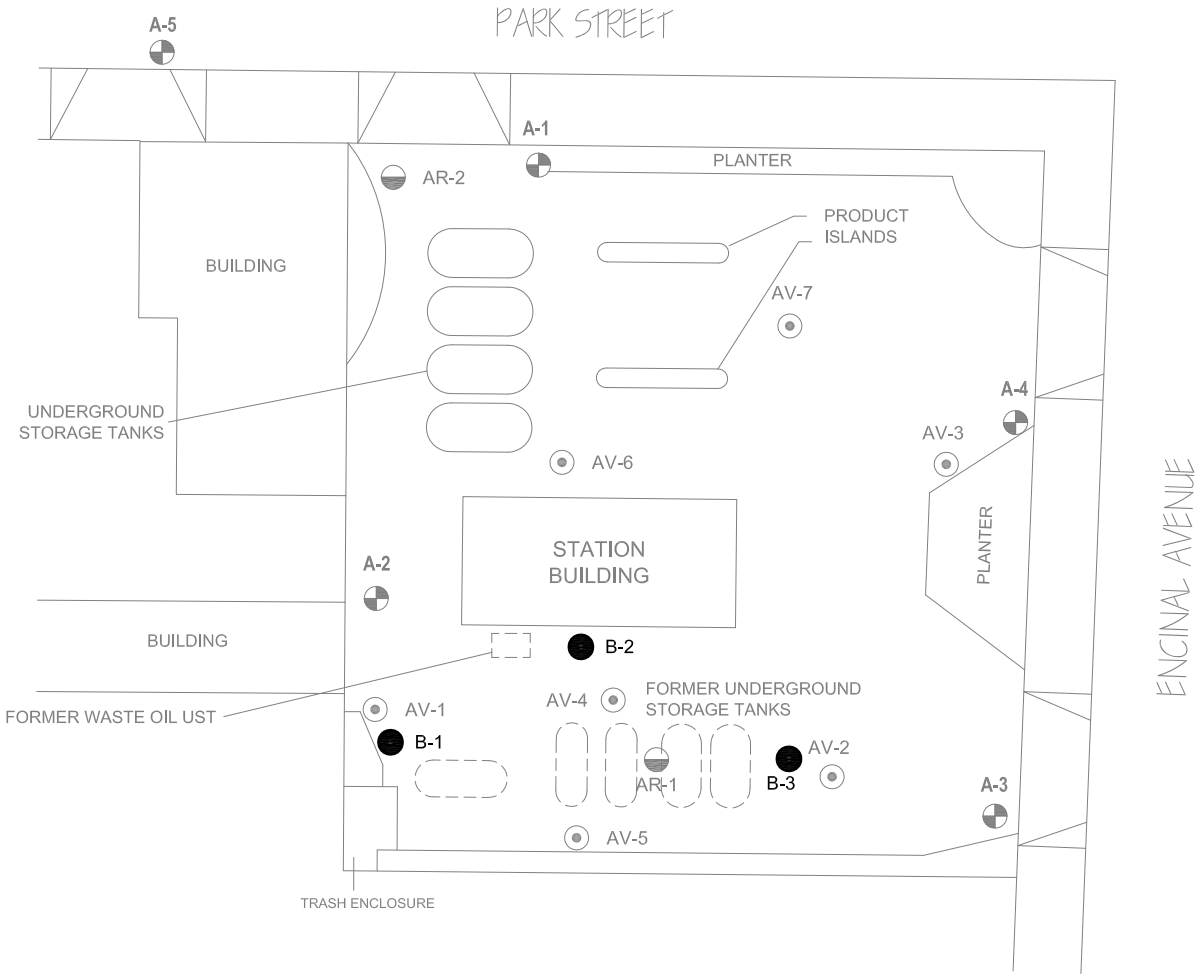
SCALE (feet)

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California
Project No.: 06-08-616 Date: 11/17/08

Station #2112
1260 Park Street
Alameda, California

Site Location Map

Drawing
1



LEGEND:

A-1	MONITORING WELL LOCATION
AR-1	GROUND-WATER EXTRACTION WELL LOCATION
AV-1	VAPOR EXTRACTION WELL LOCATION
B-3	PROPOSED BORING LOCATION

N

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

0 40 80

SCALE (ft)

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California 95926

Project No.: 06-08-616 Date: 09/11/06

Station #2112
1260 Park Street
Alameda, California

Site Map with Proposed
Soil Boring Locations

Drawing
2

APPENDIX A.

RECENT REGULATORY CORRESPONDENCE

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

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

October 16, 2008

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

Subject: Fuel Leak Case No. RO0000044 and Geotracker Global ID T0600100083, ARCO #2112, 1260 Park Street, Alameda, CA 94501

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, "Third Quarter 2006 Ground-Water Monitoring Report," dated October 13, 2006 and the "Second Quarter 2008 Status Report," dated July 18, 2008, which were prepared by Broadbent & Associates, Inc. (BAI) for the subject site. Based on a review of the case file, it appears that in January 1990, GeoStrategies, Inc. (GSI) installed six borings to assess site conditions in the areas of the former and current UST complexes. Soil sample analytical results detected total petroleum hydrocarbons (TPH) as gasoline (g) and benzene at concentrations of 21,000 mg/kg and 210 mg/kg, respectively in soil sample S-11-B4 collected approximately 11 feet below the ground surface (bgs) in the vicinity of the former UST complex. In July 1990, the USTs were removed from site and new USTs were relocated to the northwest corner of the property. Soil sample analytical results detected TPH-g and benzene at concentrations of 23,000 mg/kg and 150 mg/kg, respectively in excavation confirmation soil sample AX1-3-12 collected at 12 feet bgs. In October 1992, groundwater recovery and vapor extraction systems were installed at the site. The treatment systems ceased operations in 1997 with ACEH approval.

According to BAI, case closure was requested by BP on June 4, 2004. ACEH responded in our June 20, 2006 correspondence requesting more recent groundwater monitoring data with additional sampling parameters for fuel oxygenates, ethanol, and lead scavengers. According to BAI, concentrations of contaminants detected in groundwater are similar to those previously detected and requests case closure. Although groundwater sample analytical data is consistent with historical sampling results, confirmation soil samples do not appear to have been collected to verify remediation system effectiveness. Since data gaps have been identified, ACEH cannot consider case closure at this time. This decision to deny closure is subject to appeal to the State Water Resources Control Board (SWRCB), pursuant to Section 25299.39.2(b) of the Health and Safety Code (Thompson-Richter Underground Storage Tank Reform Act - Senate Bill 562). Please contact the SWRCB Underground Storage Tank Program at (916) 341-5851 for information regarding the appeal process.

ACEH requests that you address the following technical comments and send us the technical reports requested below.

TECHNICAL COMMENTS

1. **Confirmation Soil Sampling & Contaminant Source Area Characterization** – As mentioned above, significantly elevated concentrations of TPH-g and benzene were detected in soil prior to and following the UST removals in 1990. Although a soil vapor extraction system operated at the site, adequate system design and site details (i.e. depths and screened intervals of wells, radius of influence, estimated contaminant mass in the subsurface, total contaminant mass removed, confirmation soil sampling to evaluate system effectiveness, etc.) were not available in our case file. Additionally, significantly elevated concentrations of TPH (23,000 mg/kg) and benzene (210 mg/kg) were detected at 12 feet and 11 feet, respectively. Therefore, the vertical extent of soil impact appears undefined and the elevated contaminant concentrations may pose a potential vapor intrusion risk. Please propose a scope of work to address the above-mentioned concerns and submit a work plan by the date specified below.

REQUEST FOR INFORMATION

ACEH's case file for the subject site contains the following electronic reports as listed on our website (http://www.acgov.org/aceh/lop/ust.htm). You are requested to submit copies of all other reports related to environmental investigations for this property (including Remediation System Installation Reports, Monitoring Well Installation Reports, etc.) by **November 14, 2008**.

TECHNICAL REPORT REQUEST

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

- **December 15, 2008** – Soil and Water Investigation Work Plan

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

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board

(SWRCB) Geotracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml.

PERJURY STATEMENT

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

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

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

UNDERGROUND STORAGE TANK CLEANUP FUND

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

AGENCY OVERSIGHT

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

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 Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Tom Venus, Broadbent & Associates, Inc., 1324 Mangrove Ave., Ste 212, Chico, CA 95926
Donna Drogos, ACEH
Paresh Khatri, ACEH
File

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

Effective **January 31, 2006**, the Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

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

Additional Recommendations

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

Submission Instructions

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

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

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to dehloptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name at acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload)

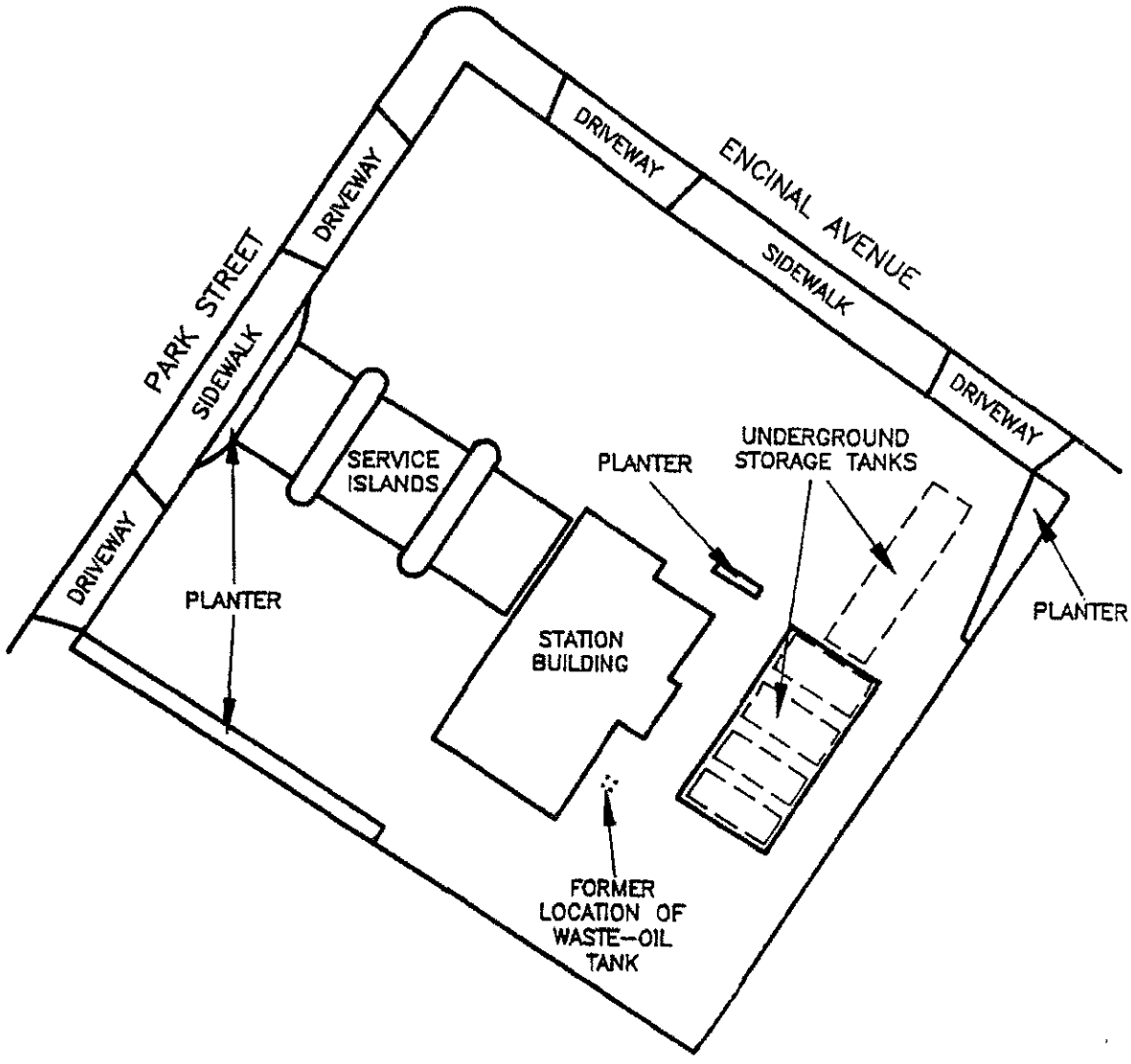
APPENDIX B.

HISTORIC SOIL ANALYTICAL DATA

TABLE 1
RESULTS OF CHEMICAL ANALYSES
ON SOIL SAMPLES
Arco Service Station No. 2112
1260 Park Street/Encinal Avenue
Alameda, California

Sample Number	Date Sampled	TEH (as diesel fuel)	TEH (as motor oil)
9310-1 (bottom of tank)	5/14/87	430	2,400
9310-2 (west side of tank)	5/15/87	<10	<10
9347-1 (6-foot depth)	5/21/87	NA	<10

Results in milligrams/kilogram (mg/kg) = parts per million (ppm)
TEH: Total extractable hydrocarbons
NA: Not analyzed
Sampled by Crosby and Overton.



N

Approximate Scale

40 20 0 40 80

feet

Source: Based on ARCO site plan dated 1983

Applied GeoSystems

PROJECT NO. 19011-1

GENERALIZED SITE PLAN
ARCO Station No. 2112
1260 Park Street
Alameda, California

PLATE
P - 1

TABLE 1
RESULTS OF LABORATORY ANALYSIS OF SOIL SAMPLES
ARCO Station 2112
1260 Park Street
Alameda, California

Sample Number	TPHg	B	T	E	X
S-6-B1	12	0.16	0.34	0.14	1.3
S-10-B1	1,700	15	72	22	180
S-6-B2	<2.0	<0.050	<0.050	<0.050	<0.050
S-11-B2	570	3.9	13	11	82
S-6-B3	<2.0	0.097	<0.050	<0.050	0.20
S-11-B3	10,000	47	350	120	940
S-6-B4	<2.0	0.063	0.096	<0.050	0.20
S-11-B4	21,000	210	1,100	320	2,600
S-6-B5	3.7	<0.050	0.081	<0.050	0.18
S-11-B5	5,400	8.8	27	66	160
S-5.5-B6	<2.0	<0.050	<0.050	<0.050	<0.050
S-10-B6	<2.0	<0.050	<0.050	<0.050	<0.050

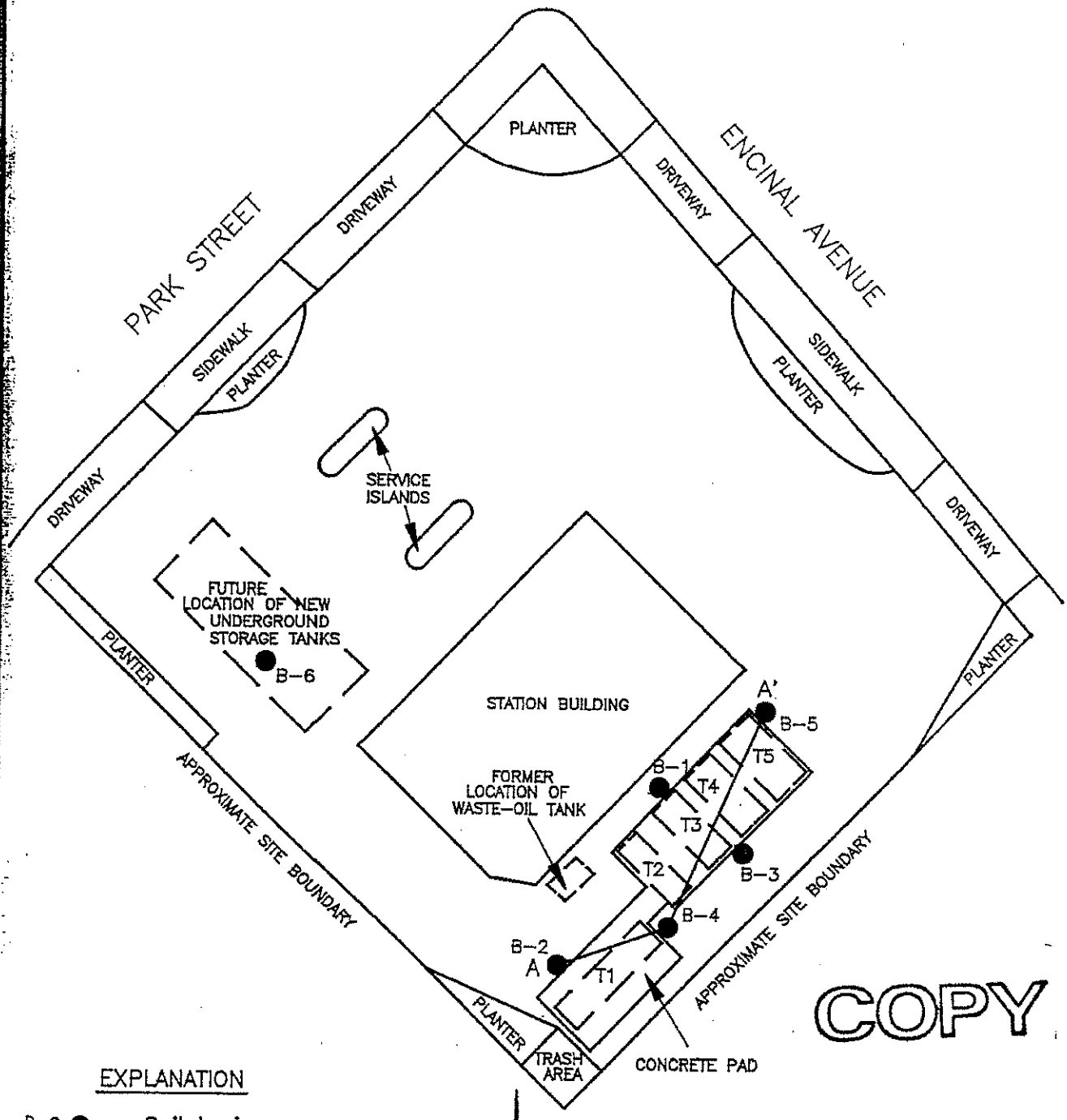
Results in milligrams per kilogram or parts per million

TPHg = Total petroleum hydrocarbons as gasoline
B = benzene E = ethylbenzene T = toluene X = total xylene isomers
< = indicates less than the reported limit

Sample identification:

S-10-B6
- Boring number
- Approximate sample depth in feet
- Soil sample

COPY



COPY

EXPLANATION

B-6 ● = Soil boring (Applied GeoSystems, January 23, 1990)

T5 = Existing underground storage tanks

A' = Cross Section

A

N

Approximate Scale

30 15 0 30 60

feet

Source: Modified from plan supplied by ARCO.

Applied GeoSystems

PROJECT 69048-1

GENERALIZED SITE PLAN
ARCO Station 2112
1260 Park Street
Alameda, California

PLATE
2

TABLE 1

SOIL ANALYTICAL DATA
(EXCAVATIONS)

SAMPLE I.D.	SAMPLE DATE	ANALYZED DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
AX1-1-6	26-Jul-90	26-Jul-90	14	<0.005	<0.005	<0.005	1
AX1-1-10	10-Aug-90	21-Aug-90	27.	0.12	1.1	0.7	4.4
AX1-2-6	26-Jul-90	26-Jul-90	1700	<0.005	16	4.8	76
AX1-2*-10	10-Aug-90	19-Aug-90	7700.	60.	360.	150.	930.
AX1-3-6	26-Jul-90	26-Jul-90	<1	<0.005	<0.005	<0.005	<0.005
AX1-3-10	09-Aug-90	21-Aug-90	15000.	130.	850.	330.	1900.
AX1-3-12	26-Jul-90	26-Jul-90	23000	150	490	940	2700
AX1-4-6	26-Jul-90	31-Jul-90	<1	<0.005	<0.005	<0.005	<0.005
AX1-4-12	26-Jul-90	26-Jul-90	1.2	<0.005	0.011	0.018	0.062
AX1-5-6	26-Jul-90	26-Jul-90	<1	0.019	<0.005	<0.005	0.032
AX1-6-6	26-Jul-90	26-Jul-90	<1	0.067	0.011	0.042	0.055
AX1-6-10	10-Aug-90	18-Aug-90	1000.	2.0	24.	18.	110.
AX1-7-6	26-Jul-90	27-Jul-90	50	<0.005	<0.005	<0.005	<0.005
AX1-7*-10	10-Aug-90	21-Aug-90	9400.	96.	570.	200.	1200.

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline
PPM = Parts Per Million

Notes: 1. All data shown as <x are reported as ND (NONE DETECTED).
2. BTEX data analyzed on July 26, 27 and 31, 1990 by NET are reported in micrograms per kilogram.
3. The last number of the Sample I.D. corresponds to the approximate depth below existing grade that the sample was collected.
4. For sample locations, see Plate 3.
5. TPH-G concentration for AX1-8-10' appear to be the more volatile constituents of diesel.

TABLE 1

SOIL ANALYTICAL DATA
(EXCAVATIONS)

SAMPLE I.D.	SAMPLE DATE	ANALYZED DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
AX1-8-10	27-Jul-90	27-Jul-90	7,300	20	130	98	650
AX1-8*-10	10-Aug-90	18-Aug-90	320.	<0.4	<0.4	3.8	12.
AX1-9-10	27-Jul-90	27-Jul-90	<1	0.014	<0.005	0.020	0.017
AX1-9*-10	10-Aug-90	18-Aug-90	1.6	0.037	0.057	0.01	0.051
AX1-10-10	27-Jul-90	27-Jul-90	2,700	36	51	180	320
AX1-10*-10	10-Aug-90	18-Aug-90	120.	0.56	4.3	2.5	15.
AX1-11-10	27-Jul-90	27-Jul-90	<1	12	6	14	35
AX2-1-6	31-Jul-90	31-Jul-90	<1	<0.005	<0.005	0.007	0.007
AX2-1-12	31-Jul-90	31-Jul-90	2.0	0.024	0.073	0.048	0.110
AX2-2-11	31-Jul-90	31-Jul-90	2.0	0.470	0.180	0.005	0.013
AX2-3-6	31-Jul-90	31-Jul-90	<1	<0.005	<0.005	<0.005	<0.005
AX2-3-11.5	31-Jul-90	31-Jul-90	<1	<0.005	<0.005	<0.005	<0.005
AX2-4-6	31-Jul-90	31-Jul-90	<1	<0.005	<0.005	<0.005	<0.005
AX2-4-11	31-Jul-90	31-Jul-90	<1	<0.005	<0.005	<0.005	<0.005
AX2-5-6	31-Jul-90	31-Jul-90	<1	<0.005	<0.005	<0.005	<0.005
AX2-5-11	31-Jul-90	31-Jul-90	<1	<0.005	<0.005	<0.005	<0.005
AX2-6-11	31-Jul-90	31-Jul-90	<1	0.013	0.011	<0.005	<0.005
AX2-7-11	31-Jul-90	31-Jul-90	<1	<0.005	<0.005	<0.005	<0.005

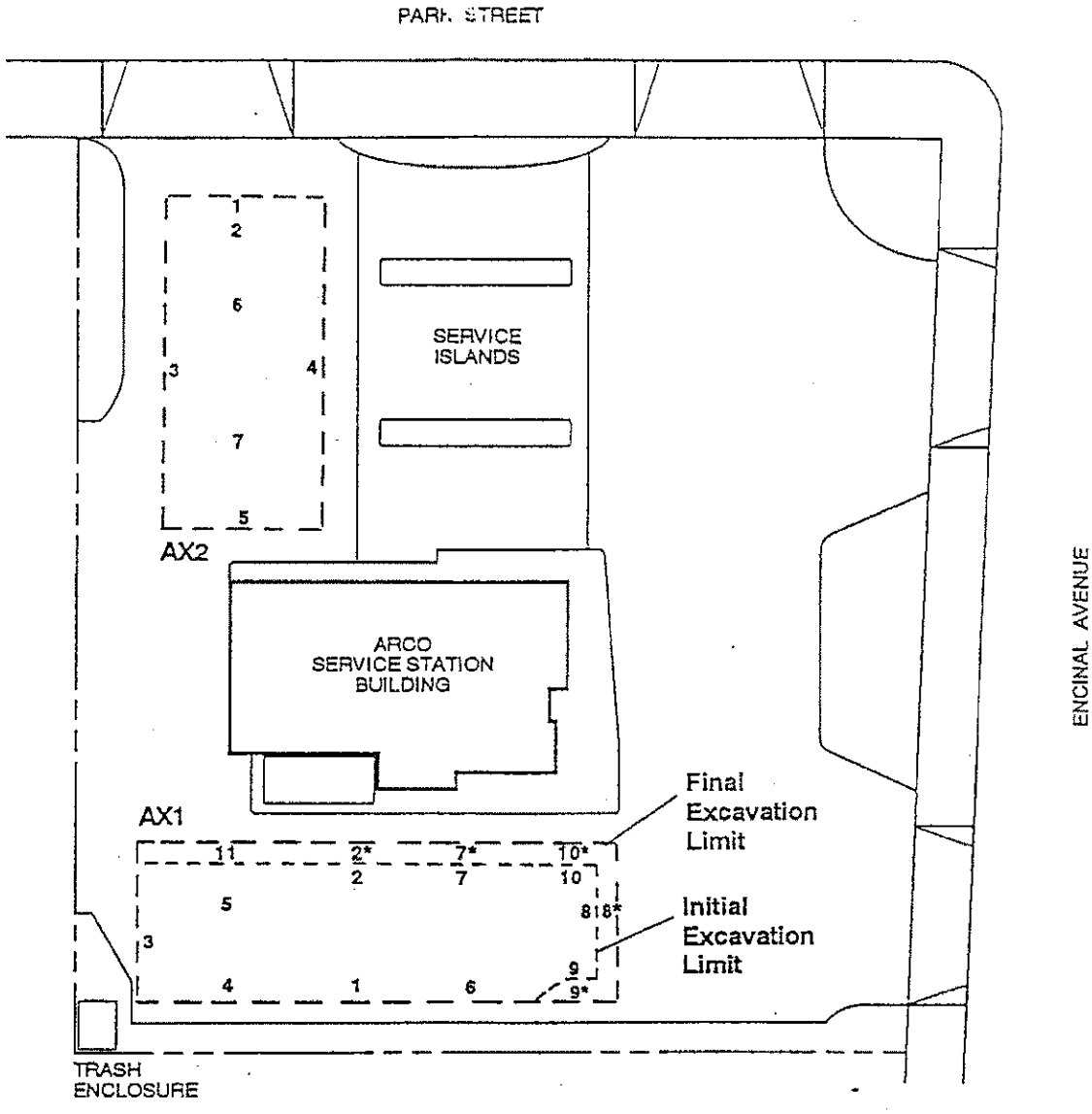
TABLE 2

SOIL ANALYTICAL DATA
(TRENCHING)

SAMPLE I.D.	SAMPLE DATE	ANALYZED DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
AT-1	17-Aug-90	20-Aug-90	2000.	<0.8	23.	28.	210.
AT-2	17-Aug-90	20-Aug-90	6.7	0.023	0.088	0.11	0.84
AT-3	17-Aug-90	20-Aug-90	<1.	<0.005	<0.005	<0.005	<0.005
AT-4	17-Aug-90	20-Aug-90	5.8	0.034	0.12	0.057	0.52
AT-7-2	08-Aug-90	16-Aug-90	2.0	0.008	0.017	0.008	0.061
AT-8-2.5	08-Aug-90	16-Aug-90	14.	0.11	0.15	0.28	1.6
AT-9-9.5	20-Aug-90	29-Aug-90	<1.	<0.01	<0.01	<0.01	<0.01
AT-10-2.5	15-Aug-90	17-Aug-90	<1	<0.003	<0.003	<0.003	<0.003
AT-10-9.5	20-Aug-90	28-Aug-90	<1.	<0.005	<0.005	0.008	0.014
AT-11-2.5	15-Aug-90	17-Aug-90	<1	<0.003	<0.003	<0.003	<0.003
AT-12-2.5	15-Aug-90	17-Aug-90	<1	<0.003	<0.003	<0.003	<0.003

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline
PPM = Parts Per Million

Notes: 1. All data shown as <x are reported as ND (none detected).
2. BTEX data analyzed on August 17, 1990 by Superior are reported in micrograms per kilograms.
3. The last number of the Sample I.D. corresponds to the approximate depth below existing grade that the sample was collected. AT-1 and AT-3 were collected at 3.5 feet below existing grade. AT-2 and AT-4 were collected at 2.5 feet below existing grade.
4. For sample locations, see Plate 4.

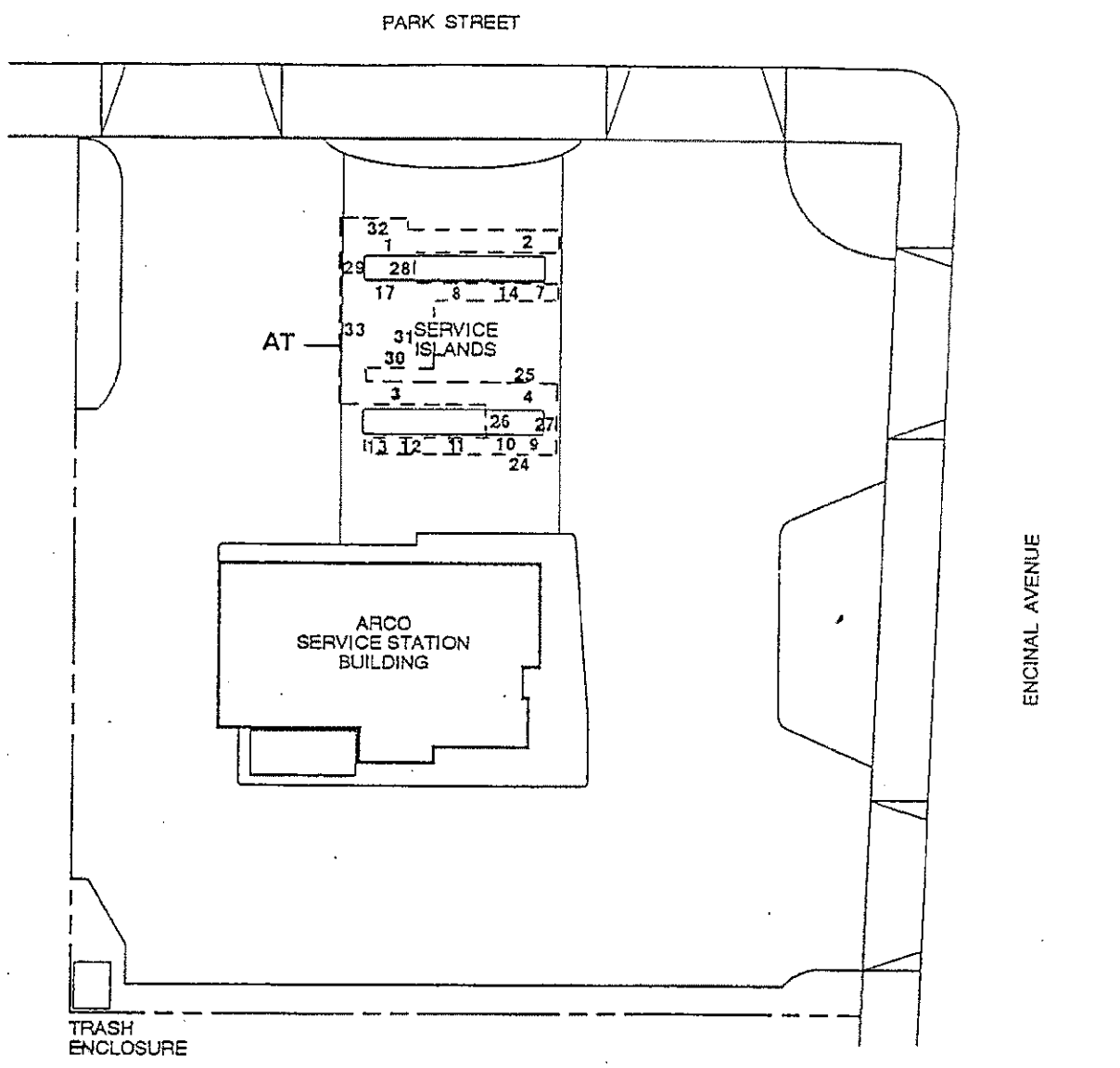


GeoStrategies Inc.

Excavation Soil Sample Map
ARCO Service Station #2112
1260 Park Street
Alameda, California

PLATE **3**

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7920	RG CEG 12/92	10/90		



EXPLANATION

AT — Trench excavation and designation

1 — Sample location and designation

N

COPY

0 30 60

Scale in Feet

GeoStrategies Inc.

Trench Soil Sample Map
ARCO Service Station #2112
1260 Park Street
Alameda, California

PLATE 4

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7920	CWP CEG 1262	10/90		

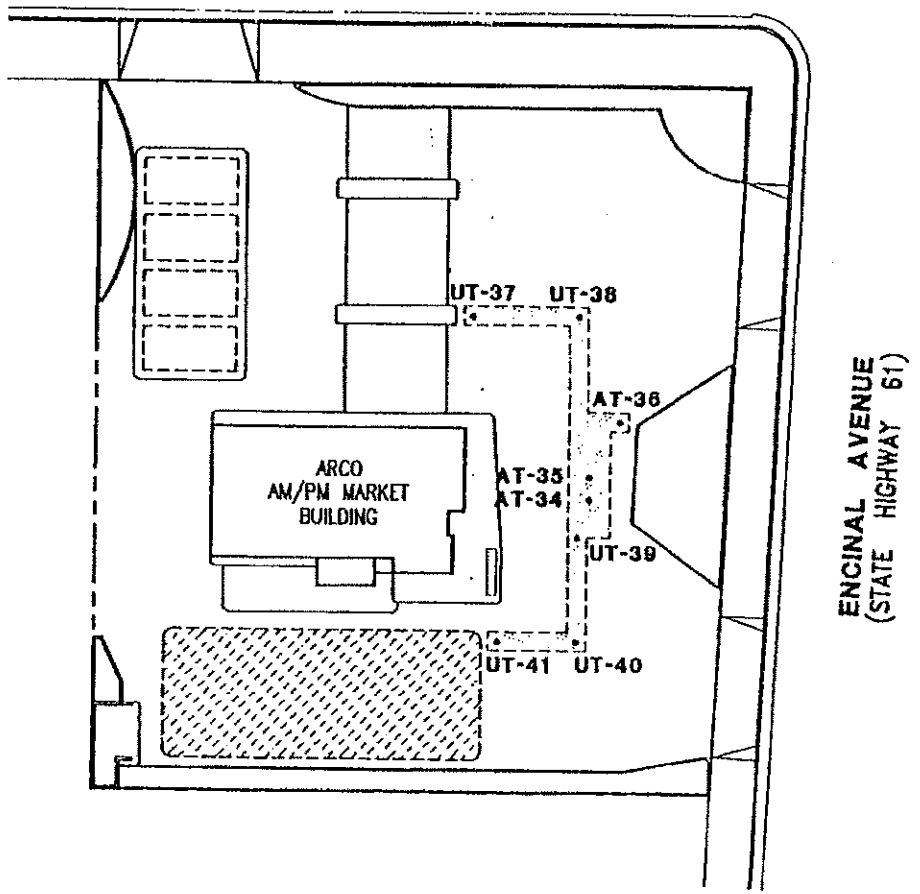
TABLE 1

SOIL ANALYTICAL DATA
(Trench Samples)

SAMPLE NO	DEPTH (FT)	SAMPLE DATE	ANALYSIS DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
AT-34	3.0	25-Oct-90	25-Oct-90	<1.0	<0.003	<0.003	<0.003	<0.003
AT-35	3.0	25-Oct-90	25-Oct-90	<1.0	<0.003	<0.003	<0.003	<0.003
AT-36	3.0	25-Oct-90	25-Oct-90	15000	71	710	200	1300
UT-37	4.0	05-Mar-91	08-Mar-91	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
UT-38	4.0	05-Mar-91	08-Mar-91	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
UT-39	4.0	05-Mar-91	08-Mar-91	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
UT-40	3.5	05-Mar-91	08-Mar-91	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
UT-41	3.5	05-Mar-91	08-Mar-91	<1.0	<0.0050	<0.0050	<0.0050	<0.0050

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline
PPM = Parts Per Million

Notes: 1. BTEX for samples AT-34 through AT-36 were reported in parts per billion (ppb).
2. All data shown as <x are reported as ND (none detected).



EXPLANATION

- Trench Samples
- Approximate location of trench
- Soil Stockpile

COPY

Base Map: ARCO Site Plans dated 3-19-86 and 2-21-90

0 40

Scale in Feet

GeoStrategies Inc.

SOIL SAMPLING MAP
ARCO Service Station #2112
1260 Park Street
Alameda, California

PLATE 3

JOB NUMBER 792001-3

REVIEWED BY DHP

DATE 3/91

REVISED DATE

TABLE 1

SOIL ANALYSES DATA

SAMPLE NO	SAMPLE DATE	ANALYZED DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
AV-1-5.5	23-Sep-91	04-Oct-91	<1.0	<0.005	<0.005	<0.005	<0.005
AV-1-11	23-Sep-91	05-Oct-91	2,900	<5.0	12	6.0	34
AV-2-6	24-Sep-91	04-Oct-91	<1.0	<0.005	<0.005	<0.005	<0.005
AV-2-11	24-Sep-91	04-Oct-91	<1.0	<0.005	<0.005	<0.005	<0.005
AV-3-6.5	25-Sep-91	05-Oct-91	<1.0	<0.005	<0.005	<0.005	<0.005
AV-3-11.5	25-Sep-91	05-Oct-91	540	5.3	12	7.6	35
A-1-5	25-Sep-91	04-Oct-91	<1.0	<0.005	<0.005	<0.005	<0.005
A-1-11	25-Sep-91	05-Oct-91	730	6.4	24	11	56
A-2-12	24-Sep-91	04-Oct-91	<1.0	0.038	0.038	0.038	0.038
A-3-11.5	24-Sep-91	04-Oct-91	<1.0	<0.005	<0.005	<0.005	<0.005
A-4-11	25-Sep-91	04-Oct-91	<1.0	<0.005	<0.005	<0.005	<0.005

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline
PPM = Parts Per Million

Note: 1. All data shown as <x are reported as ND (none detected).

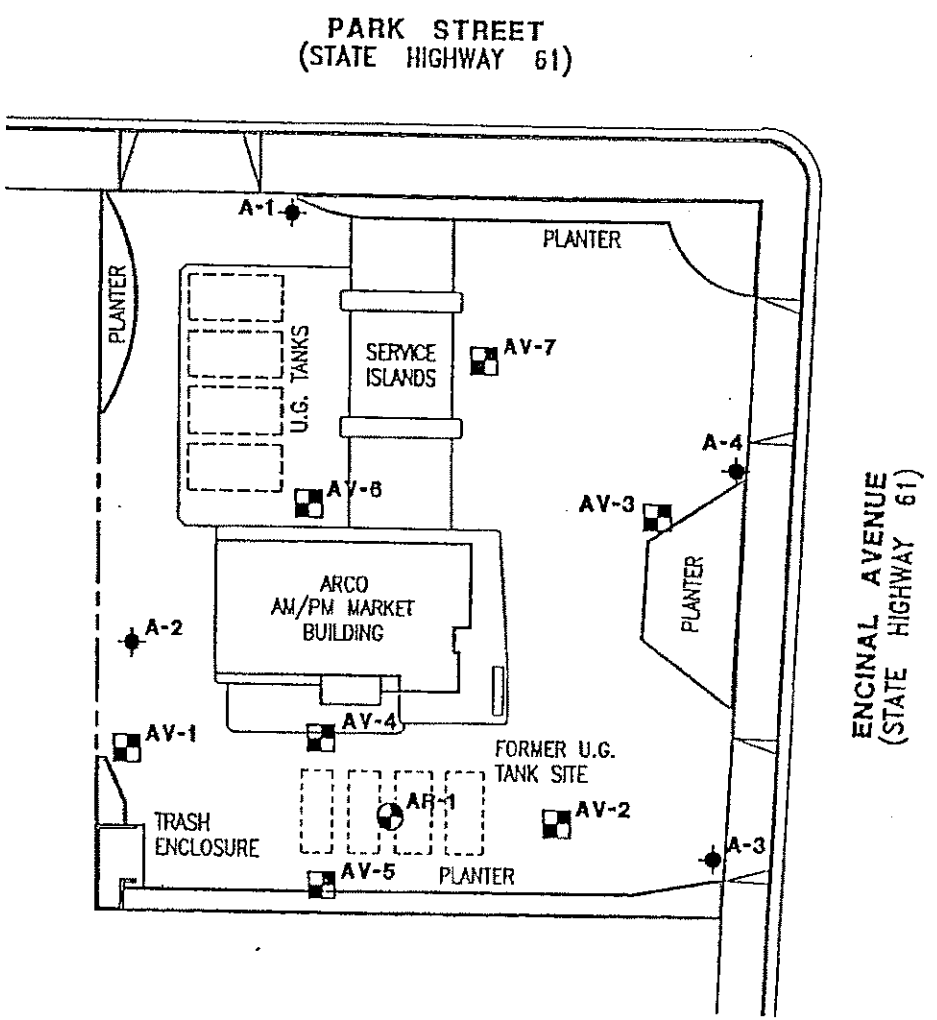
TABLE 2

SOIL ANALYSES DATA

SAMPLE NO	SAMPLE DATE	ANALYZED DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
AV-4-10.5	02-Jan-92	06-Jan-92	21,000	190	860	290	1,700
AV-5-10.5	02-Jan-92	06-Jan-92	<1	0.0070	0.018	0.0060	0.031
AV-6-10.5	02-Jan-92	06-Jan-92	<1	<0.0050	<0.0050	<0.0050	<0.0050
AV-7-10.5	02-Jan-92	06-Jan-92	<1	<0.0050	<0.0050	<0.0050	<0.0050

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline
PPM = Parts Per Million

Note: 1. All data shown as <x are reported as ND (not detected).



EXPLANATION

- Ground-water monitoring well
- Ground-water recovery well
- Vapor extraction well

COPY

Base Map: ARCO Site Plans dated 3-19-86 and 2-21-90

0 40

Scale in Feet

GeoStrategies Inc.

SITE PLAN
ARCO Service Station #2112
1260 Park Street
Alameda, California

PLATE 2

JOB NUMBER 792005-5

REVIEWED BY

DATE 2/92

REVISED DATE

TABLE 1

SOIL SAMPLE ANALYTICAL RESULTS

ARCO Service Station No. 2112
1260 Park Street
Alameda, California

Sample ID	Date Sampled	Depth (ft)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	TPHg (mg/kg)	MTBE (mg/kg)	Lead (mg/kg)
Product Line Samples									
PL-1	07/31/01	3.7	<0.025	<0.025	<0.025	<0.025	<5.0	<0.25	<10
PL-2	07/31/01	4.6	<0.025	<0.025	<0.025	<0.025	<5.0	<0.25	<10
PL-3	07/31/01	4.8	0.32	15	15	94.0	1400	2.6	<10
PL-4	07/31/01	3.6	<0.025	<0.025	<0.025	<0.025	<5.0	<0.25	<10
									<10
Dispenser Samples									
DP-1	07/31/01	3.3	<0.025	<0.025	<0.025	<0.025	<5.0	<0.25	<10
DP-2	07/31/01	4.3	<0.025	<0.025	<0.025	<0.025	<5.0	<0.25	<10
DP-3	07/31/01	4.6	<0.025	<0.025	<0.025	0.120	<5.0	0.58	<10
DP-4	07/31/01	3.5	<0.025	<0.025	<0.025	<0.025	<5.0	<0.25	<10
UST Samples									
UST-1	07/31/01	3	2.4	31	17	110	1400	11	<10
UST-2	07/31/01	3	<0.025	0.060	0.036	0.32	6.3	<0.25	<10
Over-excavation									
PL-3	08/07/01	9	<0.050	0.075	0.072	0.45	<10	11	<10
Soil Stockpile Results									
SP-1,2,3,4	07/31/01		<0.025	0.050	0.05	0.47	11	NA	11
SP-5,6,7,8	08/07/01		0.070	0.16	0.14	5.2	35	NA	<10

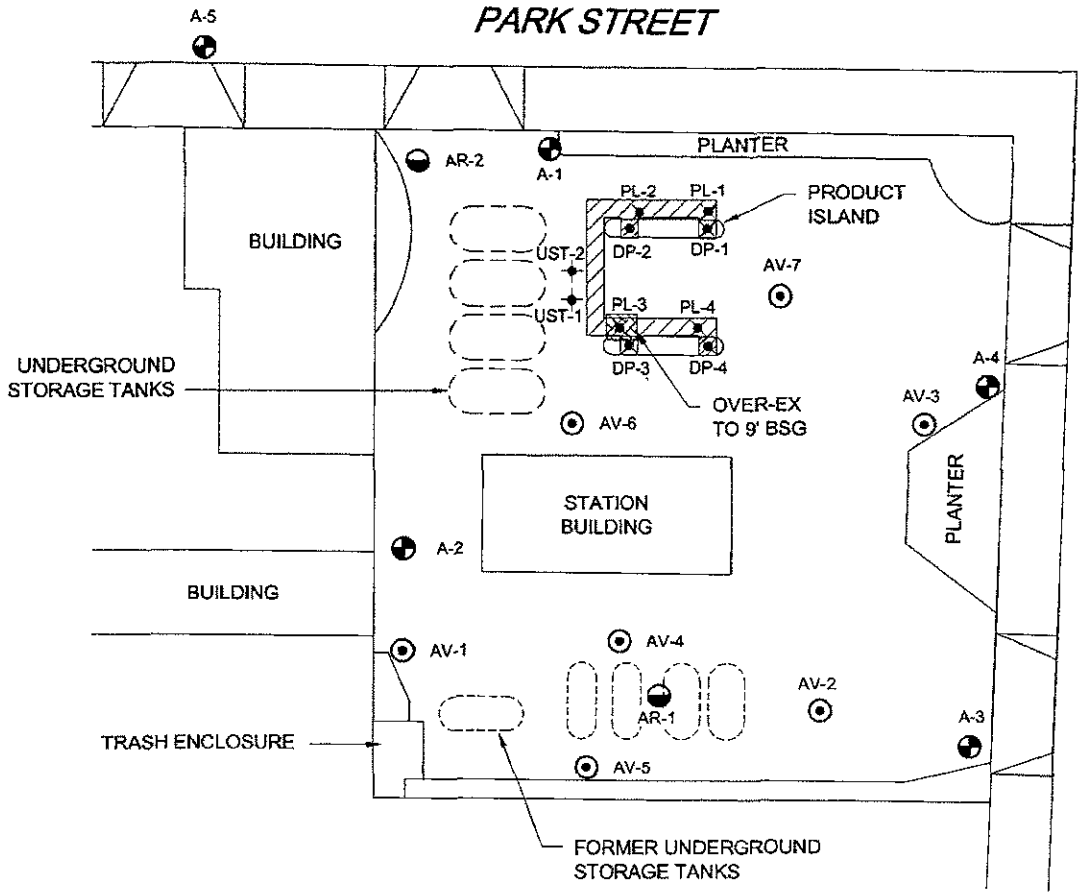
TPHg = Total Petroleum Hydrocarbons as gasoline (C6-C12)

MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8021B unless otherwise noted

µg/L = Micrograms per liter

NA = Not Analyzed

N/A = Not Applicable



DISPENSER PUMP & PRODUCT LINES

SAMPLE I.D.	SAMPLE DEPTH
DP-1	3.3 FEET
DP-2	4.3 FEET
DP-3	4.6 FEET
DP-4	3.5 FEET
PL-1	3.7 FEET
PL-2	4.6 FEET
PL-3	4.8 FEET
PL-4	3.6 FEET
UST-1	3 0 FEET
UST-2	3 0 FEET

LEGEND:

- A-1 — MONITORING WELL LOCATION
- AR-1 — GROUND WATER EXTRACTION WELL LOCATION
- AV-1 — VAPOR EXTRACTION WELL LOCATION
- UST-1 — TANK BASIN SOIL SAMPLE LOCATIONS
- PL-1 — FORMER PRODUCT LINE/ DISPENSER PUMP SOIL SAMPLE LOCATIONS
- PRODUCT LINE EXCAVATION TRENCH

FIGURE 2
SOIL SAMPLE LOCATION MAP

ARCO SERVICE STATION NO. 2112
1260 PARK STREET
ALAMEDA, CALIFORNIA

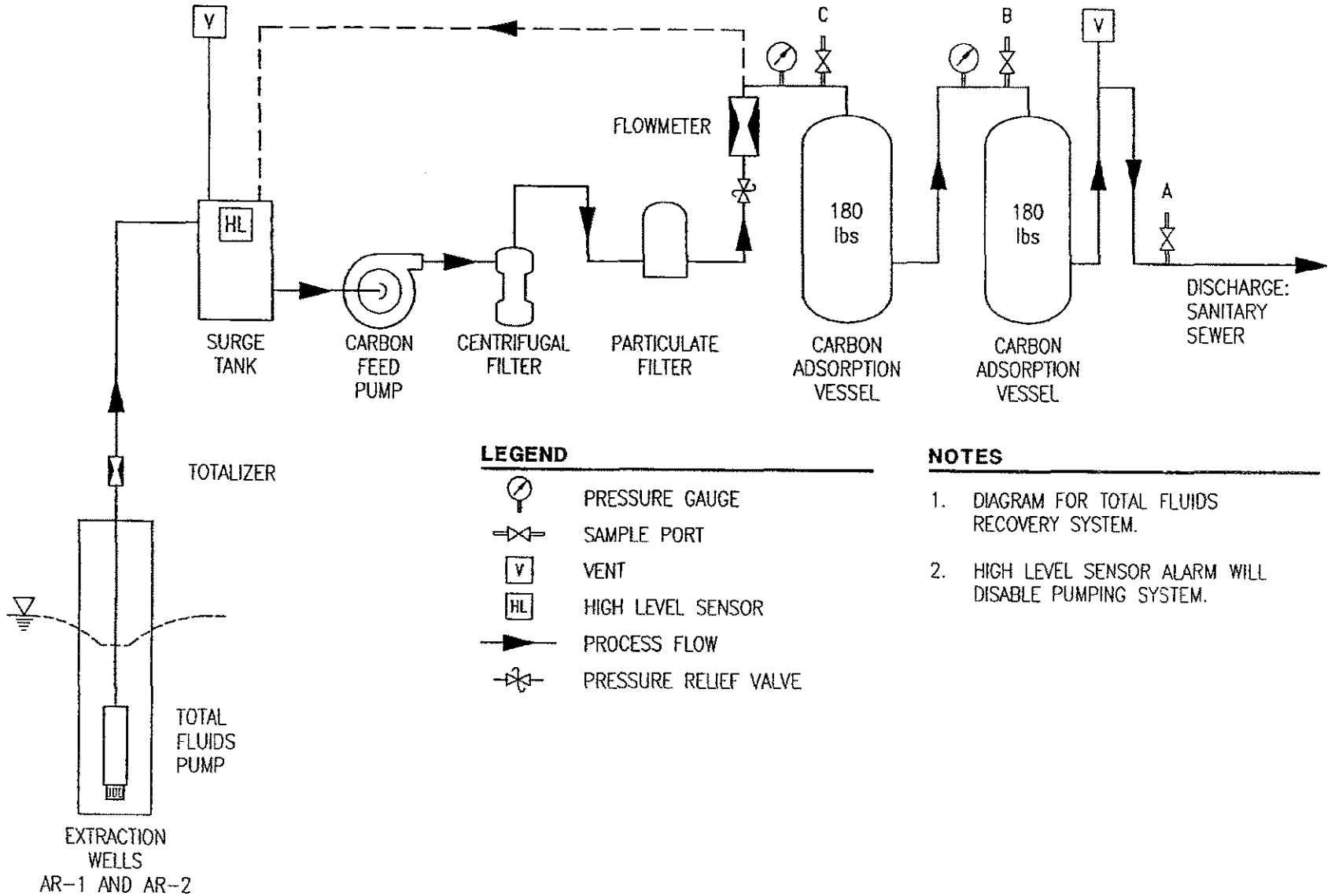
PROJECT NO 0000-307	DRAWN BY TLA 9/24/01
FILE NO. 2112-1	PREPARED BY TLA
REVISION NO 2	REVIEWED BY

Delta Environmental Consultants, Inc.

\\Sacramento\CAD Files\Sacramento\ARCO\2112\2112-1.dwg

APPENDIX C.

GROUND WATER AND SOIL VAPOR EXTRACTION PERFORMANCE DATA



LEGEND

- PRESSURE GAUGE
- SAMPLE PORT
- V — VENT
- HL — HIGH LEVEL SENSOR
- PROCESS FLOW
- PRESSURE RELIEF VALVE

NOTES

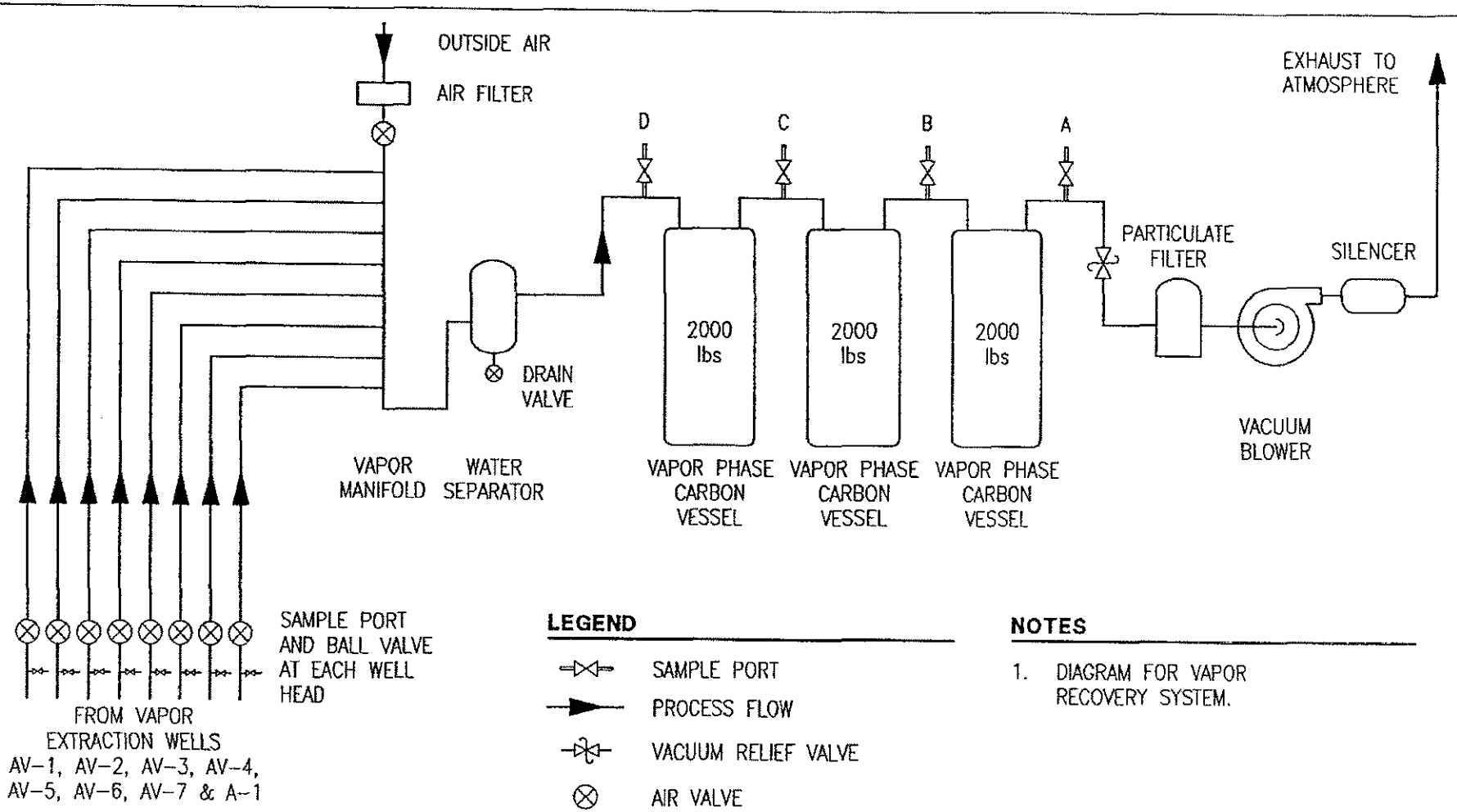
1. DIAGRAM FOR TOTAL FLUIDS RECOVERY SYSTEM.
2. HIGH LEVEL SENSOR ALARM WILL DISABLE PUMPING SYSTEM.

GeoStrategies Inc.

GROUNDWATER SYSTEM PROCESS FLOW DIAGRAM
ARCO Service Station #2112
1260 Park Street
Alameda, California

PLATE **3**

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7920	BS	6/93	



GeoStrategies Inc.

VAPOR SYSTEM PROCESS FLOW DIAGRAM
ARCO Service Station #2112
1260 Park Street
Alameda, California

PLATE **4**

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7920		6/93	

TABLE 4
GROUNDWATER TREATMENT SYSTEM SAMPLING DATA
ARCO Station 2112
Alameda, California

SAMPLE POINT	SAMPLE DATE	SAMPLE TIME	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)	pH	CONDUCTIVITY (umhos)	TEMP. (C)
A	15-Jul-93	14:02	<50	<0.50	<0.50	<0.50	<0.50	---	---	---
A	23-Aug-93	12:15	<50	<0.50	<0.50	<0.50	<0.50	6.80	832	28.6
A	15-Sep-93	14:20	<50	<0.50	<0.50	<0.50	<0.50	7.20	1000	22.6
B	15-Jul-93	14:05	<50	<0.50	<0.50	<0.50	<0.50	---	---	---
B	23-Aug-93	12:20	<50	<0.50	<0.50	<0.50	<0.50	6.69	835	31.8
B	15-Sep-93	14:25	<50	<0.50	<0.50	<0.50	<0.50	7.25	1070	23.5
C	15-Jul-93	14:08	58	7.5	0.57	3.0	5.1	---	---	---
C	23-Aug-93	12:25	<50	<0.50	<0.50	<0.50	<0.50	6.98	840	26.0
C	15-Sep-93	14:30	<50	3.5	<0.50	1.7	2.3	7.28	1060	23.0
TB	15-Jul-93	---	<50	<0.50	<0.50	<0.50	<0.50	---	---	---
TB	23-Aug-93	---	<50	<0.50	<0.50	<0.50	<0.50	---	---	---
TB	15-Sep093	---	<50	<0.50	<0.50	<050	<0.50	---	---	---

TPH-G = Total Petroleum Hydrocarbons Calculated as Gasoline
PPB = Parts Per Billion.
A = Effluent sample
B = Sample collected between carbon vessels
C = Influent sample
TB = Trip Blank

TABLE 5
GROUNDWATER TREATMENT SYSTEM FLOW/RECOVERY DATA
ARCO Station 2112
Alameda California

Reading Date	Flow Meter Reading (gallons)	Average Flowrates		Laboratory Results			Periodic Dissolved Hydrocarbon Recovery (lb)
		(gal/day)	(gal/min)	Port A TPH-G (ug/l)	Port B TPH-G (ug/l)	Port C TPH-G (ug/l)	
13-Jun-93	412,174	1204	0.84				
15-Jul-93	482,409	2195	1.52	<50	<50	58	0 03
23-Aug-93	525,121	1095	0.76	<50	<50	<50	0 01
15-Sep-93	551,379	1142	0.79	<50	<50	<50	0 00
Averages		1409	0.98				
Totals	139,205						0.04

Notes:
1. Flowrates based on flow meter readings and the number of days between readings.
2 TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline.
3. ug/l = micrograms per liter per billion (ppb).

TABLE 6
VAPOR TREATMENT SYSTEM SAMPLING DATA
ARCO Station 2112
Alameda, California

SAMPLE POINT	SAMPLE DATE	TPH-G (PPMV)	BENZENE (PPMV)	TOLUENE (PPMV)	ETHYLBENZENE (PPMV)	XYLENES (PPMV)
S-1 (Influent, Port D)	07-Sep-93	110	1.7	2.7	0.37	3.0
A1/A2 (Port C)	07-Sep-93	<2.3	<0.019	<0.016	<0.014	<0.014
A2/A3 (Port B)	07-Sep-93	<2.3	<0.019	<0.016	<0.014	<0.014
A-3 (Effluent, Port A)	07-Sep-93	<2.3	<0.019	<0.016	<0.014	<0.014

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline.
PPMV = Parts Per Million by Volume.

Carbon Adsorption
ARCO Station 2112
1260 Park St./Encinal
Alameda, CA

Table 7
Vapor Extraction System Performance

Date	Cumulative hours	Vapor Flow			Hydrocarbon Concentrations				Periodic Hydrocarbon Recovery			Total Periodic Flow
		Temp (F)	Delta P (in H2O)	Flow (SCFM)	Port A3 (PPMV)	Port A2/A3 (PPMV)	Port A1/A2 (PPMV)	Port S-1 (PPMV)	Vessels A1 (pounds)	Vessels A2 (pounds)	Vessels A3 (pounds)	(SCF)
7-Jan-93	0	50	0.9	199	0	0	0	150	0.00	0.00	0.00	0
8-Jan-93	5	50	1.0	210	0	0	0	180	1.91	0.00	0.00	62,957
11-Jan-93	77	50	1.2	230	0	0	0	120	20.07	0.00	0.00	993,107
12-Jan-93	101	50	1.0	210	0	0	0	130	6.62	0.00	0.00	302,193
13-Jan-93	125	53	1.0	209	0	0	0	120	6.09	0.00	0.00	301,308
14-Jan-93	149	54	1.1	219	0	0	0	100	5.32	0.00	0.00	315,707
15-Jan-93	173	54	1.1	219	0	0	0	120	6.38	0.00	0.00	315,707
18-Jan-93	245	50	1.0	210	0	0	0	70	10.69	0.00	0.00	906,579
19-Jan-93	269	52	1.0	209	0	0	0	50	2.54	0.00	0.00	301,602
20-Jan-93	293	54	1.0	209	0	0	0	50	2.53	0.00	0.00	301,015
21-Jan-93	317	55	1.1	219	0	0	0	85	4.51	0.00	0.00	315,400
22-Jan-93	341	55	1.0	209	0	0	0	40	2.03	0.00	0.00	300,722
5-Feb-93	605	58	0.95	203	0	0	0	55	29.77	0.00	0.00	3,214,837
18-Feb-93	917	58	1.0	208	0	0	0	37	24.29	0.00	0.00	3,898,054
12-Mar-93	1445	62	1.1	218	0	14	30	50	23.21	18.57	16.25	6,892,124
25-Mar-93	1446	63	1.05	212	0	0	0	79	0.17	0.00	0.00	12,741
20-May-93	1998	64	0.85	179	0	0	0	26	25.99	0.00	0.00	5,937,228
3-Sep-93	1998	70	0.82	174	0	0	0	300	0.00	0.00	0.00	0
7-Sep-93	2094	72	0.82	177	0	0	0	110	18.84	0.00	0.00	1,017,296
3rd Quarter 1993	96								18.84	0.00	0.00	1,017,296
Total	2094								190.96	18.57	16.25	25,388,576
Averages				206				99				

PPMV = parts per million by volume.
SCFM = standard cubic feet per minute.

Notes:
1) Cumulative hours calculated from dates given on field logs.
2) Total hydrocarbons captured by all three carbon vessels = 225.8 pounds
3) A molecular weight of 65 was used to calculate hydrocarbon recovery.

Table D-1
Groundwater Extraction System Performance Data

ARCO Service Station 2112
1260 Park Street at Encinal Avenue
Alameda, California

Sample I.D.	Date Sampled	Totalizer Reading (gallons)	Net Volume (gallons)	Average Flow Rate (gpm)	TPPH as Gasoline: Influent Concentration (µg/L)	TPPH as Gasoline: Net Removed (lbs)	TPPH as Gasoline: Removed to Date (lbs)	Benzene: Influent Concentration (µg/L)	Benzene: Net Remove (lbs)	Benzene: Removed to Date (lbs)	Primary Carbon Loading (percent)
INFL	06/28/94	741,520	N/A	1.3	ND	0.00	0.80	ND	0.000	0.133	1.0
INFL	11/04/94 a	782,881	41,361	N/A	ND	0.00	0.80	ND	0.000	0.133	1.0
INFL	03/07/95 b	804,954	22,073	N/A	NS	0.00	0.80	NS	0.000	0.133	1.0
INFL	04/20/95	826,131	21,177	0.3	ND	0.00	0.80	ND	0.000	0.133	1.0
INFL	05/03/95	836,000	9,869	0.5	NS	0.00	0.80	NS	0.000	0.133	1.0
INFL	06/06/95	898,000	62,000	1.3	NS	0.00	0.80	NS	0.000	0.133	1.0
INFL	07/06/95 c	945,200	47,200	1.1	74	0.01	0.81	13	0.003	0.135	1.0
INFL	08/03/95 d	945,200	0	0.0	ND	0.00	0.81	3.5	0.000	0.135	1.0
REPORTING PERIOD: 01/01/96 - 03/31/96											
TOTAL POUNDS REMOVED:							**0.81**			**0.135**	
TOTAL GALLONS REMOVED:							**0.13**			**0.018**	
PERIOD POUNDS REMOVED:						**0.00**			**0.000**		
PERIOD GALLONS REMOVED:						**0.00**			**0.000**		
TOTAL GALLONS EXTRACTED:					**945,200**						
PERIOD GALLONS EXTRACTED:					**0**						
PERIOD AVERAGE FLOW RATE (gpm):					**N/A**						

TPPH = Total purgeable petroleum hydrocarbons
gpm = Gallons per minute
µg/L = Micrograms per liter
lbs = Pounds
N/A = Not available or not applicable
ND = Not detected above the detection limit
NS = Not sampled (system influent sampled quarterly in January, April, July, and August)
a. System shut down for repair by Pacific Environmental Group, Inc. on November 4, 1994.
b. System restarted March 7, 1995; continuous operation began on this date.
c. GWE system shut down for pulsing.
d. GWE system re-started for sampling, then temporarily shut down August 3, 1995.
Mass removed is an approximation calculated using averaged concentrations.
Pounds of hydrocarbons removed to date provided by prior consultant, GeoStrategies Incorporated.
Prior to June 1995, TPPH as gasoline was reported as TPH as gasoline.
See certified analytical reports for detection limits.

Table D-2
Soil Vapor Extraction System Performance Data

ARCO Service Station 2112
1260 Park Street at Encinal Avenue
Alameda, California

Sample I.D.	Date Sampled	Hourmeter Reading (hours)	Hours of Operation (hours)	Vacuum (" H20)	Flow Rate (scfm)	TPPH as Gasoline: Influent Concentration (ppmv)	TPPH as Gasoline: Removal Rate (lbs/day)	TPPH as Gasoline: Removed to Date (lbs)	Benzene: Influent Concentration (ppmv)	Benzene: Removal Rate (lbs/day)	Benzene: Removed to Date (lbs)
INFL	11/04/94 a	N/A	N/A	N/A	210	N/A	N/A	276.7	N/A	N/A	0.18
INFL	11/14/94 a	N/A	15	66	210	36	3.0	278.6	0.72	0.05	0.22
INFL	11/16/94	N/A	38	42	210	54	4.3	284.4	0.89	0.06	0.30
INFL	11/17/94	N/A	12	42	290	43	4.7	286.7	0.46	0.04	0.32
INFL	11/30/94	N/A	39	40	240	28	2.6	292.6	0.37	0.03	0.38
INFL	12/02/94 b	N/A	36	50	240	28	2.6	295.4	ND	0.00	0.40
INFL	01/11/95 c	N/A	0	27	100	11	0.4	296.4	ND	0.00	0.40
INFL	02/02/95 d	N/A	528	36.5	170	20	0.3	304.2	ND	0.00	0.40
INFL	04/12/95 e	N/A	0	3.5 f	190	26	1.9	304.2	0.22	0.01	0.40
INFL	04/20/95	N/A	192	3.0 f	200	3.3	0.3	312.7	ND	0.00	0.45
INFL	05/03/95	0.0 g	312	4.0 f	200	ND	0.0	314.3	ND	0.00	0.45
INFL	06/06/95	764.0	764	44	210	5.9	0.5	321.6	0.092	0.01	0.55
INFL	07/06/95 h	1,201.7	438	45	210	12	0.9	334.6	0.092	0.01	0.66
INFL	08/03/95 i	1,203.3	2	43	215	11	0.9	334.6	0.18	0.01	0.66
REPORTING PERIOD: 01/01/66 - 03/31/96											
TOTAL POUNDS REMOVED:								**334.6**			**0.66**
TOTAL GALLONS REMOVED:								**54.9**			**0.09**
PERIOD POUNDS REMOVED:							**0.0**			**0.00**	
PERIOD GALLONS REMOVED:							**0.0**			**0.00**	
PERIOD AVERAGE FLOW RATE:					**N/A**						
TOTAL HOURS OF OPERATION:					**2,375**						

TPPH = Total purgeable petroleum hydrocarbons
" H20 = Inches of water
scfm = Standard cubic feet per minute
ppmv = Parts per million by volume
lbs = Pounds
N/A = Not available or not applicable
ND = Not detected

a. System started, run approx. 7 hours 11/4/94 by PACIFIC; restarted on 11/14/94.
b. System shut down pending the BAAQMDs approval of a monthly monitoring schedule.
c. System restarted with BAAQMD's approval to monitor the system on a monthly basis.
d. System down; performance values estimated by averaging two previous values.
e. System restarted on 4/12/95.
f. Vacuum measured in inches of mercury rather than inches of water.
g. Hourmeter installed 5/3/95 (initial reading = 0.0 hours).
h. SVE system shut down for pulsing.
i. SVE system restarted for sampling, then temporarily shut down 8/3/95.

Mass removed is an approximation calculated using averaged instantaneous mass removal rates.
Pounds of hydrocarbons removed to date provided by prior consultant, GeoStrategies Incorporated.
Timer disconnected on November 15, 1994; continuous operation during week initiated, shutdown weekends.
Prior to June 1995, TPPH as gasoline was reported as TPH calculated as gasoline.
See certified analytical reports for detection limits.

Table D-3
Soil Vapor Extraction Well Data

ARCO Service Station 2112
1260 Park Street at Encinal Avenue
Alameda, California

Date System Monitored	Well Number: A-1 Status (O/C)	A-1 Vacuum (" H20) M	A-1 Vacuum (" H20) W	A-1 TPPH as Gasoline (ppmv)	A-1 Benzene (ppmv)	AV-1 Status (O/C)	AV-1 Vacuum (" H20) M	AV-1 Vacuum (" H20) W	AV-1 TPPH as Gasoline (ppmv)	AV-1 Benzene (ppmv)	AV-2 Status (O/C)	AV-2 Vacuum (" H20) M	AV-2 Vacuum (" H20) W	AV-2 TPPH as Gasoline (ppmv)	AV-2 Benzene (ppmv)	AV-3 Status (O/C)	AV-3 Vacuum (" H20) M	AV-3 Vacuum (" H20) W	AV-3 TPPH as Gasoline (ppmv)	AV-3 Benzene (ppmv)
11/15/94	O	68	68	180 *	N/A *	O	68	68	20 *	N/A *	O	68	66	ND *	N/A *	O	64	60	4.0 *	N/A *
11/16/94	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A
11/17/94	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A
12/01/95	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A
12/02/95	O	40	N/A	200 *	N/A *	O	40	N/A	70 *	N/A *	O	40	N/A	15 *	N/A *	O	40	N/A	10 *	N/A *
01/11/95	O	37	N/A	6.1 +	0.06 +	O	37	N/A	ND +	ND +	O	36	N/A	ND +	ND +	O	36	N/A	ND +	ND +
04/20/95	O	48	48	14 +	0.15 +	O	48	48	ND +	ND +	O	48	48	ND +	ND +	O	48	48	ND +	ND +
05/03/95	O	55	48	35 *	N/A *	O	55	50	ND *	N/A *	O	55	50	ND *	N/A *	O	55	50	ND *	N/A *
06/06/95	O	43	40	55 *	N/A *	O	43	42	65 *	N/A *	O	43	42	6 *	N/A *	O	43	42	5.5 *	N/A *
07/06/95	O	45	41	50 +	ND +	O	45	43	6 +	0.03 +	O	45	43	ND +	ND +	O	45	43	18 +	0.2 +
08/03/95 a	O	43	39	11 *	N/A *	O	43	42	12 *	N/A *	O	43	42	10 *	N/A *	O	43	41	6 *	N/A *

Date System Monitored	Well Number: AV-4 Status (O/C)	AV-4 Vacuum (" H20) M	AV-4 Vacuum (" H20) W	AV-4 TPPH as Gasoline (ppmv)	AV-4 Benzene (ppmv)	AV-5 Status (O/C)	AV-5 Vacuum (" H20) M	AV-5 Vacuum (" H20) W	AV-5 TPPH as Gasoline (ppmv)	AV-5 Benzene (ppmv)	AV-6 Status (O/C)	AV-6 Vacuum (" H20) M	AV-6 Vacuum (" H20) W	AV-6 TPPH as Gasoline (ppmv)	AV-6 Benzene (ppmv)	AV-7 Status (O/C)	AV-7 Vacuum (" H20) M	AV-7 Vacuum (" H20) W	AV-7 TPPH as Gasoline (ppmv)	AV-7 Benzene (ppmv)
11/15/94	O	64	62	300 *	N/A *	O	68	68	150 *	N/A *	O	64	64	60 *	N/A *	O	64	60	50 *	N/A *
11/16/94	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A
11/17/94	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A
12/01/95	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A	O	40	N/A	N/A	N/A
12/02/95	O	40	N/A	175 *	N/A *	O	40	N/A	10 *	N/A *	O	40	N/A	15 *	N/A *	O	40	N/A	30 *	N/A *
01/11/95	O	33	N/A	3.7 +	0.22 +	O	36	N/A	0.03 +	ND +	O	35	N/A	3.0 +	0.31 +	O	35	N/A	165.5 +	ND +
04/20/95	O	48	N/A	26 +	0.04 +	O	48	48	ND +	ND +	O	48	46	ND +	ND +	O	48	46	5.9 +	ND +
05/03/95	O	55	N/A	N/A *	N/A *	O	55	47	ND *	N/A *	O	55	46	ND *	N/A *	O	55	48	10 *	N/A *
06/06/95	O	43	N/A	150 *	N/A *	O	43	40	20 *	N/A *	O	43	39	8 *	N/A *	O	43	40	8 *	N/A *
07/06/95	O	45	N/A	95 +	0.43 +	O	45	41	284 +	2 +	O	45	41	ND +	0.07 +	O	45	41	4 +	0.03 +
08/03/95 a	O	43	N/A	192 *	N/A *	O	43	40	21 *	N/A *	O	43	38	2 *	N/A *	O	43	39	3 *	N/A *

TPPH = Total purgeable petroleum hydrocarbons
O = Valve open
C = Valve closed
" H20 = Inches of water
ppmv = Parts per million by volume; converted from micrograms per liter.
Pacific Environmental Group, Inc. startup 11/4/94; prior consultant was GeoStrategies Inc.
Prior to June 1995, TPPH as gasoline was reported as TPH as gasoline.

M = Vacuum measured at manifold
W = Vacuum measured at well head
* = Concentration readings obtained by flame-ionization detector (FID).
+ = Air bag sampled analyzed by EPA Method 8015/8020.
N/A = Not available or not applicable
ND = Not detected above the detection limit
a. Remediation systems temporarily shut down 8/3/95.

Figure D-1
Groundwater Extraction System Mass Removal Trend

ARCO Service Station 2112
1260 Park Street at Encinal Avenue
Alameda, California

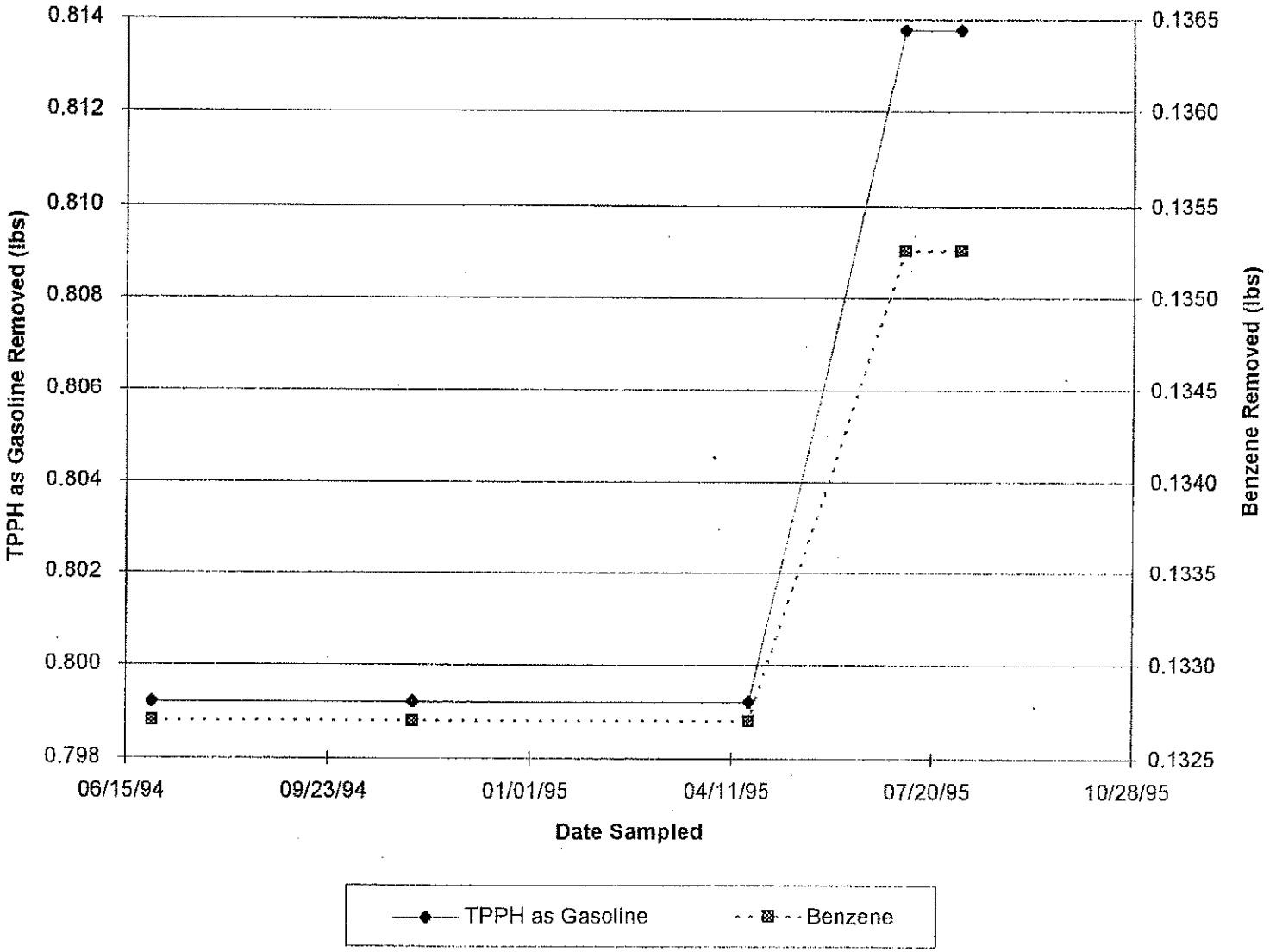


Figure D-2
Groundwater Extraction System Hydrocarbon Concentrations

ARCO Service Station 2112
1260 Park Street at Encinal Avenue
Alameda, California

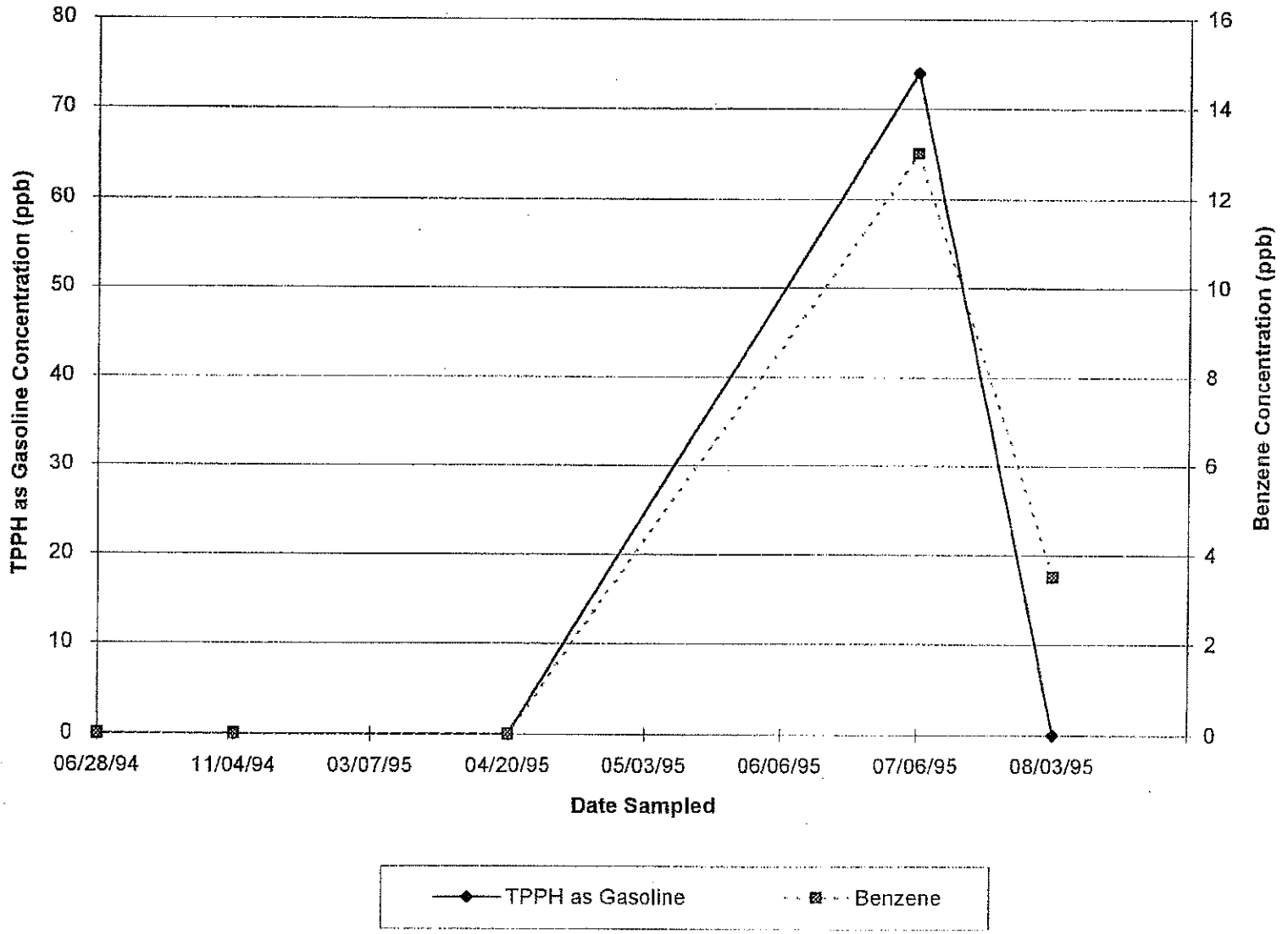


Figure D-3
Soil Vapor Extraction System Mass Removal Trend

ARCO Service Station 2112
1260 Park Street at Encinal Avenue
Alameda, California

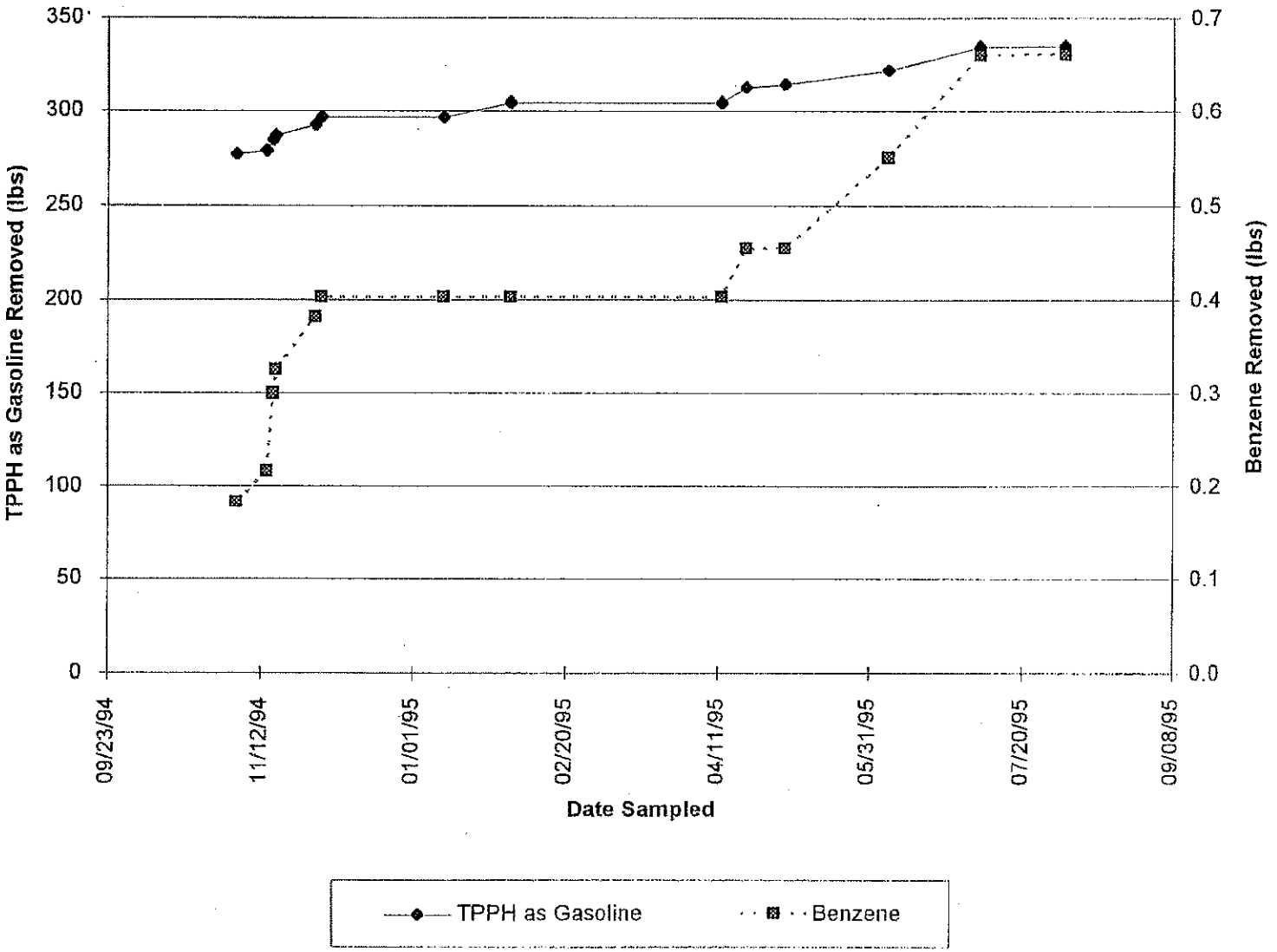
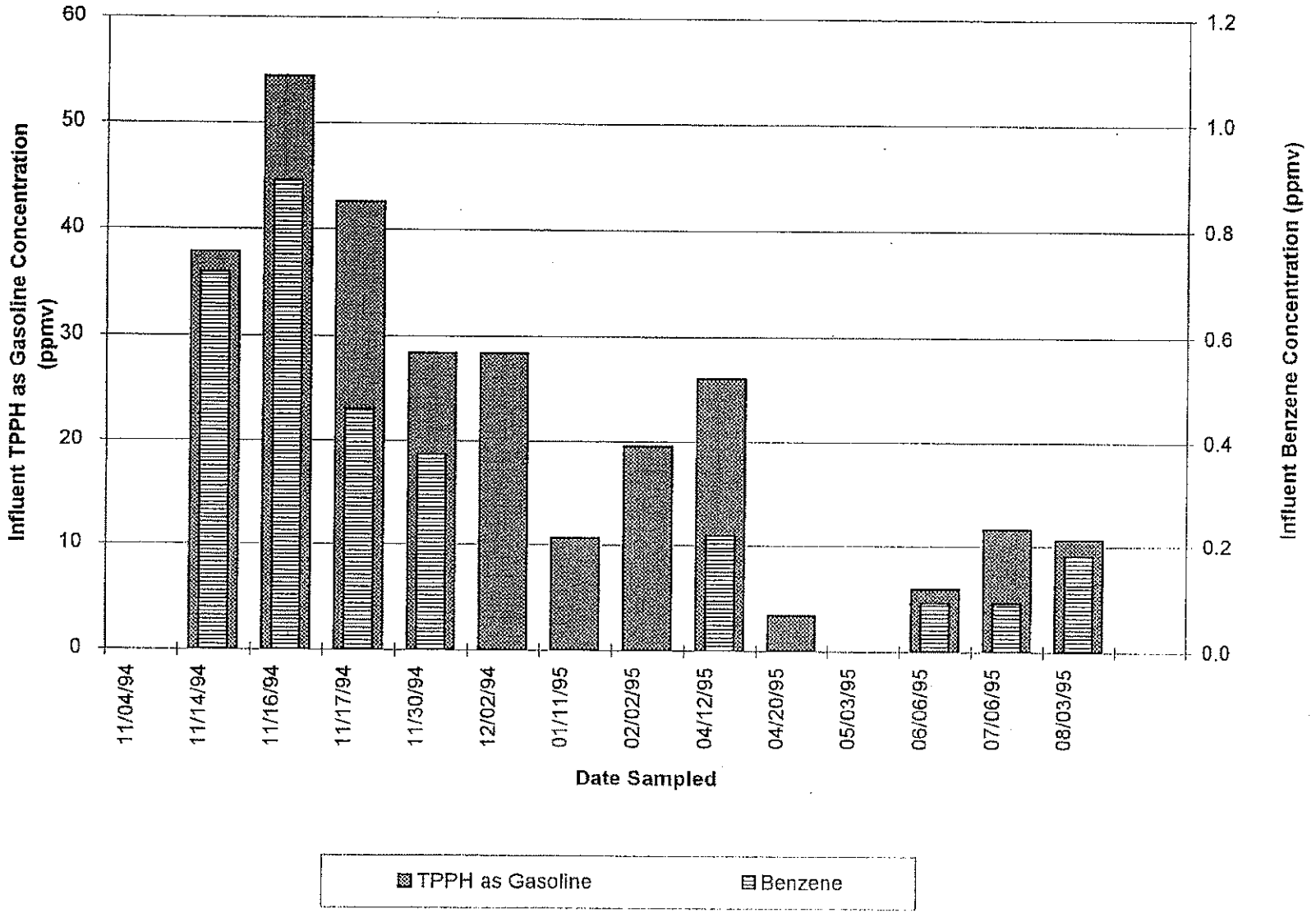


Figure D-4
Soil Vapor Extraction System Hydrocarbon Concentrations

ARCO Service Station 2112
1260 Park Street at Encinal Avenue
Alameda, California



APPENDIX D.

HISTORIC GROUND-WATER ELEVATION AND ANALYTICAL DATA

Table A-1
Historical Groundwater Elevation Data

ARCO Service Station 2112
1260 Park Street at Encinal Avenue
Alameda, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOB)	Groundwater Elevation (feet, MSL)
A-1	10/07/91	28.39	16.47	11.92
	02/18/92		17.16	11.23
	05/22/92		17.14	11.25
	08/14/92		16.63	11.76
	10/23/92		16.28	12.11
	01/28/93		17.34	11.05
	02/24/93		18.43	9.96
	04/28/93		17.71	10.68
	05/28/93		17.18	11.21
	06/16/93		16.63	11.76
	07/27/93		16.60	11.79
	08/24/93		16.44	11.95
	09/28/93		16.66	11.73
	10/22/93		16.67	11.72
	11/16/93		16.56	11.83
	12/16/93		16.96	11.43
	02/07/94		17.62	10.77
	05/02/94		17.17	11.22
	08/05/94		11.40	16.99
	11/30/94		9.43	18.96
	02/22/95		10.76	17.63
	05/23/95		9.25	19.14
	08/09/95		11.33	17.06
	11/16/95		12.11	16.28
A-2	10/07/91	29.28	12.74	16.54
	02/18/92		11.55	17.73
	05/22/92		11.71	17.57
	08/14/92		12.54	16.74
	10/23/92		12.64	16.64
	01/28/93		10.29	18.99
	02/24/93		11.05	18.23
	04/28/93		10.91	18.37
	05/28/93		11.27	18.01
	06/16/93		12.20	17.08
	07/27/93		11.27	18.01
	08/24/93		12.25	17.03
	09/28/93		12.36	16.92
	10/22/93		12.18	17.10
	11/16/93		12.34	16.94
	12/16/93		11.74	17.54
	02/07/94		10.56	18.72
	05/02/94		11.48	17.80
	08/05/94		12.26	17.02
	11/30/94		10.93	18.35
	02/22/95		10.55	18.73
	05/23/95		11.05	18.23
	08/09/95		11.70	17.58
	11/16/95		12.64	16.64
A-3	10/07/91	27.87	10.55	17.32
	02/18/92		9.12	18.75
	05/22/92		9.41	18.46
	08/14/92		10.31	17.56
	10/23/92		10.57	17.30
	01/28/93		7.66	20.21
	02/24/93		8.28	19.59
	04/28/93		6.76	21.11

Table A-1 (continued)
Historical Groundwater Elevation Data

ARCO Service Station 2112
1260 Park Street at Encinal Avenue
Alameda, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOB)	Groundwater Elevation (feet, MSL)
A-3	05/28/93		8.98	18.89
(cont.)	06/16/93		9.69	18.18
	07/27/93		9.66	18.21
	08/24/93		9.85	18.02
	09/28/93		10.21	17.66
	10/22/93		10.05	17.82
	11/16/93		11.20	16.67
	11/16/93		9.42	18.45
	02/07/94		8.29	19.58
	05/02/94		9.08	18.79
	08/05/94		10.02	17.85
	11/30/94		8.53	19.34
	02/22/95		7.90	19.97
	05/23/95		8.60	19.27
	08/09/95		9.30	18.57
	11/16/95		NM	--
A-4	10/07/91	28.54	11.40	17.14
	02/18/92		10.52	18.02
	05/22/92		10.45	18.09
	08/14/92		11.22	17.32
	10/23/92		11.44	17.10
	01/28/93		9.12	19.42
	02/24/93		9.91	18.63
	04/28/93		8.29	20.25
	05/28/93		9.92	18.62
	06/16/93		10.64	17.90
	07/27/93		10.81	17.73
	08/24/93		10.98	17.56
	09/28/93		11.08	17.46
	10/22/93		11.06	17.48
	11/16/93		10.27	18.27
	12/16/93		10.64	17.90
	02/07/94		9.42	19.12
	05/02/94		10.33	18.21
	08/05/94		10.94	17.60
	11/30/94		9.89	18.65
	02/22/95		9.44	19.10
	05/23/95		9.80	18.74
	08/09/95		10.39	18.15
	11/16/95		NM	--
A-5	06/26/92	27.29	10.77	16.52
	08/14/92		11.04	16.25
	10/23/92		11.12	16.17
	01/28/93		9.94	17.35
	02/24/93		10.63	16.66
	04/28/93		10.70	16.59
	05/28/93		10.35	16.94
	06/16/93		10.76	16.53
	07/27/93		10.78	16.51
	08/24/93		10.97	16.32
	09/28/93		10.90	16.39
	10/22/93		10.82	16.47
	11/16/93		10.98	16.31
	12/16/93		10.70	16.59
	02/07/94		9.96	17.33
	05/02/94		10.59	16.70

Table A-1 (continued)
Historical Groundwater Elevation Data

ARCO Service Station 2112
1260 Park Street at Encinal Avenue
Alameda, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOB)	Groundwater Elevation (feet, MSL)
A-5	08/05/94		10.91	16.38
(cont.)	11/30/94		10.69	16.60
	02/22/95		10.71	16.58
	05/23/95		10.75	16.33
	08/09/95		10.78	16.30
	11/16/95		11.33	15.96
AR-1	10/07/91	29.08	12.09	16.99
	02/18/92		11.11	17.97
	05/22/92		10.10	18.98
	08/14/92		11.86	17.22
	10/23/92		12.12	16.96
	01/28/93		9.85	19.23
	02/24/93		14.80	14.28
	04/28/93		9.74	19.34
	05/28/93		13.52	15.56
	06/16/93		15.12	13.96
	06/27/93		13.48	15.60
	08/24/93		13.52	15.56
	09/28/93		13.90	15.18
	10/22/93		13.19	15.89
	11/16/93		12.72	16.36
	12/16/93		12.13	16.95
	02/07/94		10.03	19.05
	05/02/94		10.82	18.26
	08/05/94		12.63	16.45
	11/30/94		10.23	18.85
	02/22/95		9.90	19.18
	05/23/95		10.40	18.68
	08/09/95		11.00	18.08
	11/16/95		11.94	17.14
AR-2	06/26/92	28.20	11.54	16.66
	08/14/92		11.76	16.44
	10/23/92		11.85	16.35
	01/28/93		19.70	8.50
	02/24/93		19.58	8.62
	04/28/93		12.27	15.93
	05/28/93		14.93	13.27
	06/16/93		16.45	11.75
	07/27/93		11.65	16.55
	08/24/93		17.02	11.18
	09/28/93		11.65	16.55
	10/22/93		10.61	17.59
	11/16/93		11.63	16.57
	12/16/93		14.33	13.87
	02/07/94		10.51	17.69
	05/02/94		11.16	17.04
	05/03/94		12.03	16.17
	08/05/94		11.59	16.61
	11/30/94		9.56	18.64
	02/22/95		10.60	17.60
	05/23/95		10.95	17.25
	08/09/95		11.84	16.36
	11/16/95		11.30	16.90

MSL = Mean sea level
TOB = Top of box
NM = Not measured

Table A-2
Historical Groundwater Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline and BTEX Compounds)

ARCO Service Station 2112
1260 Park Street at Encinal Avenue
Alameda, California

Well Number	Date Sampled	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)
A-1	10/07/91	470	48	34	7.5	82
	02/18/92	<30	5.4	0.82	<0.3	<0.3
	05/22/92	38	15	0.92	1.3	0.51
	08/14/92	<50	14	<0.5	1.5	<0.5
	10/23/92	66	22	4.6	2	4.3
	01/28/93	750	120	120	16	96
	04/28/93	6,700	1,900	1,700	240	1,300
	08/24/93	1,800	230	88	34	160
	10/22/93	2,500	79	<10	<10	160
	02/07/94	61	24	<0.5	2.1	0.8
	05/02/94	58	17	0.7	2.2	4.2
	08/05/94	<50	5.1	1.4	0.6	2.5
	11/30/94	130	16	8.4	0.6	27
	02/22/95	<50	1.2	<0.50	<0.50	<0.50
	05/23/95	<50	4.9	0.95	0.61	3.9
	08/09/95	<50	2.3	<0.50	<0.50	0.53
	11/16/95	<50	3.3	1.5	<0.50	1.9
A-2	10/07/91	31	7.4	0.39	<0.3	0.93
	02/18/92	490	120	< 1.5	< 1.5	17
	05/22/92	100	2.4	<0.3	<0.3	0.89
	08/14/92	110	5	<0.5	<0.5	<0.5
	10/23/92	<50	<0.5	<0.5	<0.5	<0.5
	01/28/93	280	130	<2.5	<2.5	<2.5
	04/28/93	210	32	0.89	5.2	2.3
	08/24/93	<50	<0.5	<0.5	<0.5	<0.5
	10/22/93	<50	<0.5	<0.5	<0.5	<0.5
	02/07/94	<50	<0.5	<0.5	<0.5	<0.5
	05/02/94	<50	<0.5	<0.5	<0.5	<0.5
	08/05/94	<50	<0.5	<0.5	<0.5	<0.5
	11/30/94	<50	<0.5	<0.5	<0.5	<0.5
	02/22/95	<50	0.68	1.3	<0.50	0.52
	05/23/95	<50	<0.50	<0.50	<0.50	<0.50
	08/09/95	<50	<0.50	<0.50	<0.50	<0.50
	11/16/95	<50	<0.50	<0.50	<0.50	<0.50
A-3	10/07/91	<30	<0.3	<0.3	<0.3	<0.3
	02/18/92	<30	<0.3	<0.3	<0.3	<0.3
	05/22/92	<30	<0.3	<0.3	<0.3	<0.3
	08/14/92	<50	<0.5	<0.5	<0.5	<0.5
	10/23/92	<50	<0.5	<0.5	<0.5	<0.5
	01/28/93	<50	<0.5	<0.5	<0.5	<0.5
	04/28/93	<50	<0.5	<0.5	<0.5	<0.5
	08/24/93	<50	<0.5	<0.5	<0.5	<0.5
	10/22/93	<50	<0.5	<0.5	<0.5	<0.5
	02/07/94	<50	<0.5	<0.5	<0.5	<0.5
	05/02/94	<50	<0.5	<0.5	<0.5	<0.5
	08/05/94	<50	<0.5	<0.5	<0.5	<0.5
	11/30/94	<50	<0.5	<0.5	<0.5	<0.5
	02/22/95	<50	<0.50	<0.50	<0.50	<0.50
	05/23/95	<50	<0.50	<0.50	<0.50	<0.50
	08/09/95	<50	<0.50	<0.50	<0.50	<0.50
	11/16/95	----------	----------	Well Sampled Annually	----------	----------

Table A-2 (continued)
Historical Groundwater Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline and BTEX Compounds)

ARCO Service Station 2112
1260 Park Street at Encinal Avenue
Alameda, California

Well Number	Date Sampled	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)
A-4	10/07/91	<30	0.32	0.69	<0.3	1.1
	02/18/92	<30	<0.3	<0.3	<0.3	<0.3
	05/22/92	<30	<0.3	<0.3	<0.3	<0.3
	08/14/92	<50	<0.5	<0.5	<0.5	<0.5
	10/23/92	<50	<0.5	<0.5	<0.5	<0.5
	01/28/93	<50	<0.5	<0.5	<0.5	<0.5
	04/28/93	<50	<0.5	<0.5	<0.5	<0.5
	08/24/93	<50	<0.5	<0.5	<0.5	<0.5
	10/22/93	<50	<0.5	<0.5	<0.5	<0.5
	02/07/94	<50	<0.5	<0.5	<0.5	<0.5
	05/02/94	<50	<0.5	<0.5	<0.5	<0.5
	08/05/94	<50	<0.5	<0.5	<0.5	<0.5
	11/30/94	<50	<0.5	<0.5	<0.5	<0.5
	02/22/95	<50	<0.50	<0.50	<0.50	<0.50
	05/23/95	<50	<0.50	0.59	<0.50	<0.50
	08/09/95	<50	<0.50	<0.50	<0.50	<0.50
	11/16/95		----------Well Sampled Annually----------			
A-5	06/26/92	<50	<0.5	<0.5	<0.5	<0.5
	08/14/92	<50	<0.5	<0.5	<0.5	<0.5
	10/23/92	<50	<0.5	<0.5	<0.5	<0.5
	01/28/93	<50	<0.5	<0.5	<0.5	<0.5
	04/28/93	<50	<0.5	<0.5	<0.5	<0.5
	08/24/93	<50	<0.5	<0.5	<0.5	<0.5
	10/22/93	<50	<0.5	<0.5	<0.5	<0.5
	02/07/94	<50	<0.5	0.9	<0.5	0.7
	05/02/94	<50	<0.5	<0.5	<0.5	<0.5
	08/05/94	<50	<0.5	<0.5	<0.5	<0.5
	11/30/94	<50	<0.5	<0.5	<0.5	<0.5
	02/22/95	<50	<0.50	<0.50	<0.50	<0.50
	05/23/95	<50	<0.50	<0.50	<0.50	<0.50
	08/09/95	<50	<0.50	<0.50	<0.50	<0.50
	11/16/95	<50	<0.50	<0.50	<0.50	<0.50
AR-1	10/07/91	<30	<0.3	<0.3	<0.3	<0.3
	02/18/92	<30	<0.3	<0.3	<0.3	<0.3
	05/22/92	<30	<0.3	<0.3	<0.3	<0.3
	08/14/92	<50	<0.5	<0.5	<0.5	<0.5
	10/23/92	<50	<0.5	<0.5	<0.5	<0.5
	10/22/93	150	29	2.3	7.9	7.4
	02/07/94	<50	1.3	<0.5	1	<0.5
	05/02/94	120	24	<0.5	1.9	2.7
	08/05/94	980	200	<2.5 a	55	21
	11/30/94	60	7.7	<0.5	1.2	<0.5
	02/22/95	<50	<0.50	<0.50	<0.50	<0.50
	05/23/95	310	47	1.3	11	4.4
	08/09/95	<50	8.3	<0.50	0.97	<0.50
	11/16/95	<50	<0.50	<0.50	<0.50	<0.50
AR-2	06/26/92	<50	<0.5	<0.5	<0.5	<0.5
	08/14/92	<50	<0.5	<0.5	<0.5	<0.5
	10/23/92	110	0.15	0.27	<0.5	0.56
	02/07/94	<50	<0.5	<0.5	<0.5	<0.5
	05/02/94	<50	<0.5	<0.5	<0.5	<0.5
	08/05/94	<50	<0.5	<0.5	<0.5	<0.5
	11/30/94	<50	<0.5	<0.5	<0.5	<0.5

Table A-2 (continued)
Historical Groundwater Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline and BTEX Compounds)

ARCO Service Station 2112
1260 Park Street at Encinal Avenue
Alameda, California

Well Number	Date Sampled	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)
AR-2	02/22/95	<50	<0.50	<0.50	<0.50	<0.50
(cont.)	05/23/95	<50	4.2	<0.50	<0.50	<0.50
	08/09/95	<50	<0.50	<0.50	<0.50	<0.50
	11/16/95	<50	<0.50	<0.50	<0.50	<0.50

ppb = Parts per billion
a. Laboratory raised MRL due to high analyte concentration requiring sample dilution.
Prior to June 1995, TPPH as gasoline was reported as TPH as gasoline.

Table A-3
Historical Groundwater Analytical Data
Total Methyl t-Butyl Ether

ARCO Service Station 2112
1260 Park Street at Encinal Avenue
Alameda, California

Well Number	Date Sampled	Methyl t-Butyl Ether (ppb)
A-1	08/09/95	<2.5
A-2	08/09/95	<2.5
A-3	08/09/95	<2.5
A-4	08/09/95	<2.5
A-5	08/09/95	<2.5
A-6	08/09/95	<2.5
AR-1	08/09/95	<2.5
AR-2	08/09/95	<2.5

ppb = Parts per billion

Table 2
Groundwater Elevation and Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, and MtBE)

ARCO Service Station 2112
1260 Park Street at Encinal Avenue
Alameda, California

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOB)	Groundwater Elevation (feet, MSL)	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	MtBE (ppb)
A-1	01/15/96	28.39	11.18	17.21	<50	<0.50	<0.50	<0.50	<0.50	NA
	04/08/96		10.61	17.78	<50	<0.50	<0.50	<0.50	<0.50	NA
	07/02/96		11.28	17.11	<50	<0.50	<0.50	<0.50	<0.50	<2.5
A-2	01/15/96	29.28	11.17	18.11	<50	<0.50	<0.50	<0.50	<0.50	NA
	04/08/96		10.45	18.83	<50	<0.50	<0.50	<0.50	<0.50	NA
	07/02/96		11.40	17.88	<50	<0.50	<0.50	<0.50	<0.50	<2.5
A-3	01/15/96	27.87	8.66	19.21	---------- Well Sampled Annually ----------					
	04/08/96		7.86	20.01	---------- Well Sampled Annually ----------					
	07/02/96		9.03	18.84	<50	<0.50	<0.50	<0.50	<0.50	<2.5
A-4	01/15/96	28.54	10.00	18.54	---------- Well Sampled Annually ----------					
	04/08/96		9.34	19.20	---------- Well Sampled Annually ----------					
	07/02/96		10.22	18.32	<50	<0.50	<0.50	<0.50	<0.50	<2.5
A-5	01/15/96	27.29	10.61	16.68	<50	<0.50	<0.50	<0.50	<0.50	NA
	04/08/96		10.59	16.70	<50	<0.50	<0.50	<0.50	<0.50	NA
	07/02/96		10.73	16.56	<50	<0.50	<0.50	<0.50	<0.50	<2.5
AR-1	01/15/96	29.08	10.44	18.64	<50	<0.50	<0.50	<0.50	<0.50	NA
	04/08/96		9.56	19.52	<50	<0.50	<0.50	<0.50	<0.50	NA
	07/02/96		10.67	18.41	<50	<0.50	<0.50	<0.50	<0.50	<2.5
AR-2	01/15/96	28.20	11.00	17.20	<50	<0.50	<0.50	<0.50	<0.50	NA
	04/08/96		9.71	18.49	<50	<0.50	<0.50	<0.50	<0.50	NA
	07/02/96		11.15	17.05	<50	<0.50	<0.50	<0.50	<0.50	<2.5

MtBE = Methyl tert-butyl ether
MSL = Mean sea level
TOB = Top of box
ppb = Parts per billion
NA = Not analyzed

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

Station #2112, 1260 Park Street, Alameda, 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
								DRO/ TPHd	GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE		
A-1																
7/17/2006	--	a	30.81	--	--	10.92	19.89	52	<50	<0.50	<0.50	<0.50	<0.50	22	--	6.4
A-2																
7/17/2006	--		31.26	--	--	11.00	20.26	120	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.1
A-3																
7/17/2006	--	c	30.20	--	--	--	--	--	--	--	--	--	--	--	--	--
A-4																
7/17/2006	--	a,b	30.73	--	--	9.02	21.71	<47	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.1
A-5																
7/17/2006	--	a	29.53	--	--	10.67	18.86	120	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	6.9

ABBREVIATIONS & SYMBOLS:
-- = Not analyzed/applicable/measured/available
< = Not detected at or above laboratory reporting limit
ft bgs = Feet below ground surface
ft MSL = Feet above mean sea level
BTEX = Benzene, toluene, ethylbenzene and xylenes
DO = Dissolved oxygen
DTW = Depth to water in ft bgs
GRO = Gasoline range organics, range C4-C12
GWE = Groundwater elevation measured in ft MSL
mg/L = Milligrams per liter
MTBE = Methyl tert butyl ether
NP = Not purged before sampling
P = Purged before sampling
TOC = Top of casing measured in ft MSL
TPH-g = Total petroleum hydrocarbons as gasoline, analyzed using EPA Method 8015, Modified
µg/L = Micrograms per liter
SEQ/SEQM = Sequoia Analytical/Sequoia Morgan Hill Laboratories

FOOTNOTES:
a = Hydrocarb. in req. fuel range, but doesn't resemble req. fuel
b = Surrogate recovery above the acceptance limits. Matrix interference suspected
c = Well obstructed

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

Table 2. Summary of Fuel Additives Analytical Data

Station #2112, 1260 Park Street, Alameda, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
A-1									
7/17/2006	<300	<20	22	<0.50	<0.50	3.3	0.76	<0.50	
A-2									
7/17/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	1.2	<0.50	
A-3									
7/17/2006	--	--	--	--	--	--	--	--	
A-4									
7/17/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
A-5									
7/17/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

ABBREVIATIONS & SYMBOLS:
< = Not detected at or above specified laboratory reporting limit
1,2-DCA = 1,2-Dichloroethane
DIPE = Di-isopropyl ether
EDB = 1,2-Dibromoethane
ETBE = Ethyl tert-butyl ether
MTBE = Methyl tert-butyl ether
TAME = tert-Amyl methyl ether
TBA = tert-Butyl alcohol
µg/L = micrograms per liter

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

APPENDIX E.

SOIL BORING LOGS AND GEOLOGIC CROSS-SECTION

Total depth of boring: 25-1/2 feet **Diameter of boring:** 6 inches **Date drilled:** 1-22-90

Casing diameter: N/A **Length:** N/A **Slot size:** N/A

Screen diameter: N/A **Length:** N/A **Material type:** N/A

Drilling Company: H.E.W. Drilling Inc. **Driller:** Tomas & Defecto

Method Used: Continuos-Flight Auger **Field Geologist:** Steve Bittman

Signature of Registered Professional:

Registration No.: CEG 1264 **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (6 inches) over baserock (6 inches).	
2	S-1.5	8		SP	Sand with some clay, fine-grained, gray-green, damp to moist, medium dense, noticeable odor.	
	S-2	6 10	80			
	S-3.5	5				
4	S-4	8 9	425			
	S-5.5	8				
6	S-6	10 17	450		Gray-brown.	
	S-7.5	21				
8	S-8	39 52	660	SC	Clayey sand, fine-grained, brown-gray, moist, very dense, obvious odor.	
	S-9.5	10				
10	S-10	35 50	600			
12	S-12.5	15		▽	Wet, noticeable odor.	
	S-13	35 57	50			
14						
	S-15.5	14				
16	S-16	32 59	35		Brown.	
18						
20	S-20	35				
	S-20.5	60	2		(Section continues downward)	

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LOG OF BORING B - 1

ARCO Station 2112
1260 Park Street
Alameda, California

PLATE 4

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
22				SC	Clayey sand, fine-grained, brown, moist, very dense.	
24	S-25	0				
26					Total Depth = 25-1/2 feet.	
28						
30						
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						

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LOG OF BORING B - 1

ARCO Station 2112
1260 Park Street
Alameda, California

PLATE 5

Total depth of boring: 11-1/2 feet **Diameter of boring:** 6 inches **Date drilled:** 1-22-90

Casing diameter: N/A **Length:** N/A **Slot size:** N/A

Screen diameter: N/A **Length:** N/A **Material type:** N/A

Drilling Company: H.E.W. Drilling Inc. **Driller:** Tomas & Pefecto

Method Used: Continuos-Flight Auger **Field Geologist:** Steve Bittman

Signature of Registered Professional:

Registration No.: CEG 1264 **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (6 inches) over baserock (6 inches).	
2	S-3	11, 12, 13	110	SP	Sand with some clay, fine-grained, dark brown, damp, medium dense, noticeable odor.	
4						
6	S-6	10, 15, 26	115	SC	Clayey sand, fine-grained, dark brown, damp to moist, dense, noticeable odor.	
8						
10	S-11	15, 26, 39	650			
12					Total Depth = 11-1/2 feet.	
14						
16						
18						
20						

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LOG OF BORING B - 2

ARCO Station 2112
1260 Park Street
Alameda, California

PLATE 6

Total depth of boring: 11-1/2 feet **Diameter of boring:** 6 inches **Date drilled:** 1-22-90

Casing diameter: N/A **Length:** N/A **Slot size:** N/A

Screen diameter: N/A **Length:** N/A **Material type:** N/A

Drilling Company: H.E.W. Drilling Inc. **Driller:** Tomas & Pefecto

Method Used: Continuos-Flight Auger **Field Geologist:** Steve Bittman

Signature of Registered Professional:

Registration No.: CEG1264 **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
					Asphalt (6 inches) over baserock (6 inches).	
2		11		SP	Sand with some clay, fine-grained, brown, moist, dense.	
		12				
	S-3	13	110			
4						
		10				
		15		SC	Clayey sand, fine-grained, gray, moist, noticeable odor.	
6	S-6	26	115			
8						
10		15				
		26				
	S-11	39	650			
12					Total Depth = 11-1/2 feet.	
14						
16						
18						
20						

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LOG OF BORING B - 3

ARCO Station 2112
1260 Park Street
Alameda, California

PLATE 7

Total depth of boring: 11-1/2 feet **Diameter of boring:** 6 inches **Date drilled:** 1-22-90

Casing diameter: N/A **Length:** N/A **Slot size:** N/A

Screen diameter: N/A **Length:** N/A **Material type:** N/A

Drilling Company: H.E.W. Drilling Inc. **Driller:** Tomas & Pefecto

Method Used: Continuos-Flight Auger **Field Geologist:** Steve Bittman

Signature of Registered Professional:

Registration No.: CEG 1264 **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (6 inches) over baserock (6 inches).	
2	S-3	20 22 35	60	SP	Sand with some clay, fine-grained, dark brown, damp, very dense, noticeable odor.	
4						
6	S-6	3 6 10	25	SC	Clayey sand, fine-grained, blue-gray, medium dense, noticeable odor.	
8						
10	S-11	16 21 32	800			
12					Total Depth = 11-1/2 feet.	
14						
16						
18						
20						

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LOG OF BORING B - 4

ARCO Station 2112
1260 Park Street
Alameda, California

PLATE 8

Total depth of boring: 11-1/2 feet **Diameter of boring:** 6 inches **Date drilled:** 1-22-90

Casing diameter: N/A **Length:** N/A **Slot size:** N/A

Screen diameter: N/A **Length:** N/A **Material type:** N/A

Drilling Company: H.E.W. Drilling Inc. **Driller:** Tomas & Pefecto

Method Used: Continuos-Flight Auger **Field Geologist:** Steve Bittman

Signature of Registered Professional:

Registration No.: CEG 1264 **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (6 inches) over baserock (6 inches).	
2	S-3	5, 8, 9	0	SP	Sand with some clay, fine-grained, brown, damp, medium dense.	
4						
6	S-6	7, 7, 7	2	SC	Clayey sand, fine-grained, brown, mottled gray, medium dense, noticeable odor.	
8						
10	S-11	12, 22, 35	800			
12					Total Depth = 11-1/2 feet.	
14						
16						
18						
20						

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LOG OF BORING B - 5

ARCO Station 2112
1260 Park Street
Alameda, California

PLATE 9

Total depth of boring: 13 feet **Diameter of boring:** 6 inches **Date drilled:** 1-29-90

Casing diameter: N/A **Length:** N/A **Slot size:** N/A

Screen diameter: N/A **Length:** N/A **Material type:** N/A

Drilling Company: Garret Enterprises **Driller:** Red & Dave

Method Used: Continuos-Flight Auger **Field Geologist:** Steve Strausz

Signature of Registered Professional:

Registration No.: CEG 1264 **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
					Asphalt (6 inches) over baserock (6 inches).	
2						
4				SM	Silty sand, fine-to medium-grained, gray to light brown, damp, medium dense.	
6	S-5.5	5 6				
	S-6	8	1.7			
8						
				SC	Clayey sand, gray-brown, moist, dense.	
10		12				
		18				
	S-10	18				
12		14		▽		
		21				
	S-12	30	3.1			
14					Total Depth = 13 feet.	
16						
18						
20						

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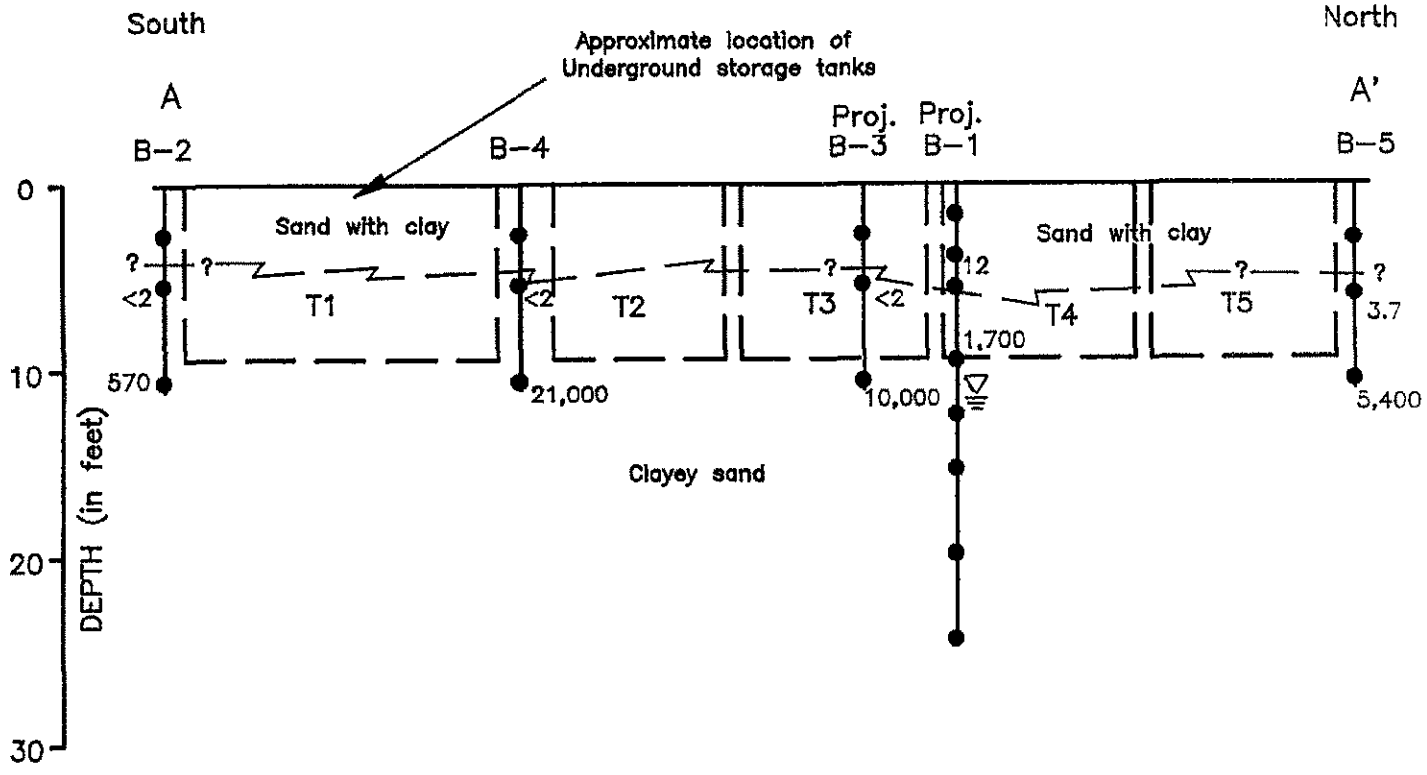
LOG OF BORING B - 6

ARCO Station 2112
1260 Park Street
Alameda, California

PLATE 10



EXPLANATION

= Laboratory analyzed soil sample showing concentration of TPH in part per million

= Boring

= Initial water level in boring

Approximate Horizontal and Vertical Scale

10 5 0 10 20

feet

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GEOLOGIC CROSS SECTION A - A'
ARCO Station 2112
1260 Park Street
Alameda, California

PLATE 11