Atlantic Richfield Company
(a BP affiliated company)

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

25 November 2008

Re: Work Plan for On-Site Soil & Ground-Water Investigation
Atlantic Richfield Company Station #2162
15135 Hesperian Boulevard
San Leandro, California
ACEH Case #RO0000190

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

Submitted by:

Paul Supple
Environmental Business Manager

Work Plan for On-Site Soil & Ground-Water Investigation
Atlantic Richfield Company Station No. 2162
15135 Hesperian Boulevard, San Leandro, California
ACEHS Case No. RO0000190

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

25 November 2008

Project No. 06-08-620

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

25 November 2008

Project No. 06-08-620

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

Attn.: Mr. Paul Supple

Re: Work Plan for On-Site Soil & Ground-Water Investigation, Atlantic Richfield Company Station No. 2162, 15135 Hesperian Boulevard, San Leandro, California; ACEH Case #RO0000190

Dear Mr. Supple:

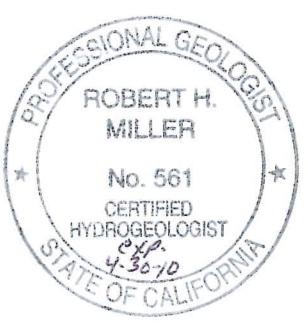
Broadbent & Associates, Inc. (BAI) is pleased to present this Work Plan for On-Site Soil and Ground-Water Investigation for additional subsurface characterization at the Atlantic Richfield Company Station No. 2162, located at 15135 Hesperian Boulevard, Oakland, California (Site). BAI prepared this work plan in response to the 1 October 2008 letter request from Mr. Paresh Khatri of the Alameda County Environmental Health Services (ACEH). This work plan includes brief discussions on the Site background and previous investigations, regional and Site geology and hydrogeology, the scope of work for the proposed monitoring well installation, development and sampling, along with completion schedule.

Should you have questions or require additional information, 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



Enclosures

cc: Mr. Paresh Khatri, Alameda County Environmental Health (Submitted via ACEH ftp site)
Mr. Karl Busche, City of San Leandro Environmental Services Division (Electronic copy uploaded to GeoTracker)

WORK PLAN FOR ON-SITE SOIL & GROUND-WATER INVESTIGATION
Atlantic Richfield Company Station No. 2162
15135 Hesperian Boulevard, San Leandro, California
ACEH Fuel Leak Case No. RO190

TABLE OF CONTENTS

ATTACHMENTS

APPENDICES

WORK PLAN FOR ON-SITE SOIL & GROUND-WATER INVESTIGATION
Atlantic Richfield Company Station No. 2162
15135 Hesperian Boulevard, San Leandro, California
ACEH Fuel Leak Case No. RO190

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 Soil & Ground-Water Investigation for additional source area characterization at the Atlantic Richfield Company Station No. 2162, located at 15135 Hesperian Boulevard, San Leandro, California (Site). This work plan was prepared in response to a letter request from the Alameda County Environmental Health Services (ACEH) dated 1 October 2008. A copy of this letter is provided in Appendix A. Specifically, ACEH technical comments within the 1 October 2008 letter requested the installation of two on-site ground-water monitoring wells to supplement the case for Site closure. This work plan includes brief discussions on the Site background and previous investigations, regional and Site geology and hydrogeology, the scope of work for the proposed monitoring well installations, development and sampling, along with a completion schedule.

2.0 SITE BACKGROUND

The Site is an active ARCO-brand gasoline retail station that consists of a station building, four 10,000 gallon double-wall fiberglass underground storage tanks (USTs), and eight pump dispensers on four dispenser islands. The Site is located on the west side of Hesperian Boulevard south of Ruth Court in Oakland, California (Figure 1). The land use in the immediate vicinity of the Site is commercial. The Site is predominantly covered with concrete and asphalt.

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

Product lines and dispensers were again replaced with upgrades in January 2003. Approximately 140 cubic yards (183 tons) of soil were excavated and removed from the Site during this upgrade of the product lines and dispensers. Following excavation, samples were collected of soil left in place below the dispensers and pipeline runs: Sample S-L4-3.5 yielded a Total Petroleum Hydrocarbons as Gasoline (TPH-G) concentration of 200 milligrams per kilogram (mg/kg), Toluene concentration of 2.1 mg/kg, Ethylbenzene concentration of 1.4 mg/kg, and a Total Xylenes concentration of 1.5 mg/kg; Sample S-L1-3.5 yielded a Benzene concentration of 0.072 mg/kg; and samples S-L3-3.5, S-L1-3.5, and S-D5-3 yielded concentrations of Methyl Tertiary Butyl Ether (MTBE) of 0.55 mg/kg, 0.14 mg/kg, and 0.093 mg/kg, respectively.

Ground-water at the Site has been monitored since 1992 through a network of four monitoring wells: Wells MW-1 and MW-2 are adjacent to the USTs; Wells MW-3 and MW-4 are located downgradient near the southern boundary of the Site (Figure 2). Historic water level elevations

have yielded potentiometric ground-water flow directions mostly consistent to the southwest at hydraulic gradients ranging from 0.002 ft/ft to 0.013 ft/ft. Concentrations of TPH-G/Gasoline-Range Organics (GRO) have, since July 2002, been non-detect and/or below the Environmental Screening Level (ESL) of 100 micrograms per liter (µg/l) for ground water that is a current or potential drinking water resource. The maximum TPH-G/GRO concentration was detected in well MW-2 at a concentration of 2,100 µg/L in October 1999. Concentrations of Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) have been non-detect and/or below the ESLs since December 2000. The maximum Benzene concentration in ground water at the Site was detected in well MW-3 at a concentration of 12 µg/L in May 1996. Maximum concentrations for Toluene, Ethylbenzene, and Total Xylenes were 3.2 µg/L (MW-3, 6/23/1999), 45 µg/L (MW-2, 2/26/1996), and 28 µg/L (MW-2, 2/26/1996), respectively. The wells have shown a decreasing trend in MTBE concentrations since 1996. MTBE has not been detected in well MW-1 since July 2002 or well MW-2 since 2000. The maximum MTBE concentration was detected in well MW-3 at 1,900 µg/L in June 1997. Concentrations of MTBE in MW-3 have shown a decreasing trend from 1,900 µg/L in June 1997 to 4.3 µg/L in July 2006. The MTBE concentration in well MW-4 has shown a decreasing trend from July 2002 to non-detect since August 2005. Results of periodic ground-water monitoring and sampling since 2000 are summarized Appendix B. Historic soil and ground-water analytical data and historic ground-water flow direction and gradient calculations since 2002 are provided in Appendix B.

On the 16th and 17th of July 2007, Stratus Environmental, Inc. (Stratus) advanced a total of five soil borings to evaluate the extent of petroleum hydrocarbon impacted soil and ground water on-site. Soil and ground-water samples were collected from each boring for laboratory analyses. The analytical results for the collected soil samples indicated concentrations of GRO above laboratory reporting limits in five of the 14 soil samples at concentrations ranging from 0.65 mg/kg (CB3 7.5'-8') to 1,100 mg/kg (CB5 11.5'-12'); Diesel-Range Organics (DRO) were detected above laboratory reporting limits in 11 of the 14 soil samples collected at concentrations ranging from 1.6 mg/kg (CB3 15.5'-16') to 1,300 mg/kg (CB2 11.5'-12'); Total Xylenes were detected above laboratory reporting limits in soil sample CB2 11.5'-12' at a concentration of 0.0071 mg/kg; and MTBE was detected above laboratory reporting limits in soil sample CB3 7.5'-8' at a concentration of 0.0063 mg/kg.

The analytical results for the collected ground-water samples from the July 2007 sampling conducted by Stratus indicated detections of GRO above laboratory reporting limits in three of the five ground-water samples at concentrations ranging from 490 µg/L (CB3-W and CB5-W) to 1,900 µg/L (CB2-W); DRO was detected above laboratory reporting limits in four of the five ground-water samples collected at concentrations ranging from 220 µg/L (CB4-W) to 2,000 µg/L (CB2-W); Benzene was detected above laboratory reporting limits in three of the five ground-water samples collected at concentrations ranging from 1.0 µg/L (CB4-W) to 12 µg/L (CB2-W); Ethylbenzene was detected above laboratory reporting limits in two of the five ground-water samples collected at concentrations of 0.92 µg/L (CB3-W) and 110 µg/L (CB2-W); Total Xylenes were detected above laboratory reporting limits in ground-water sample CB2-W at a concentration of 140 µg/L; MTBE was detected above laboratory reporting limits in three of the five ground-water samples collected at concentrations ranging from 0.82 µg/L (CB3-W) to 70 µg/L (CB5-W); and Tert Amyl Methyl Ether (TAME) was detected above laboratory reporting limits in ground-water sample CB5-W at a concentration of 3.9 µg/L. A summary of the analytical results obtained during this investigation are provided in Appendix B.

Based on the field investigation observations, analytical results obtained, and to further progress towards case closure, BAI recommended that a new monitoring well be constructed along the southern boundary of the Site in the approximate location of recently advanced boring CB-5. This location would serve as a sentinel well to determine the repeatable presence or absence of elevated concentrations of petroleum hydrocarbons at the down-gradient boundary of the Site. In addition, ACEH recommended that a permanent monitoring point be located in the source area (near boring CB-2) to aid in evaluating "worst case" concentrations of contaminants at the Site as well as assist in evaluating plume stability.

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 San Leandro Sub-Area, near the northern boundary of the San Lorenzo Sub-Area, in the East Bay Plain of the San Francisco Basin. These Sub-Areas share the same hydrogeologic characteristics, yet are separated by the junction of the surface trace between the San Leandro and San Lorenzo alluvial fans. These Sub-Areas consist primarily of alluvial fan sediments with the distinction of the Yerba Buena Mud extending west into the San Leandro and San Lorenzo Sub-Areas, unlike the northern Sub-Areas. The Yerba Buena Mud forms a major aquitard between the shallow and deep aquifers throughout much of southwestern area of the East Bay Plain. The San Leandro and San Lorenzo Sub-Areas alluvial fans are finer grained and produce less groundwater than the Niles Cone basin to the south.

Throughout most of the Alameda County portion of the East Bay Plain, from Hayward north to Albany, water level contours show that the general direction of 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-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 surface water drainage is the Estudillo Canal, located approximately 1,100 feet southeast of the Site. The Estudillo Canal's overall general flow direction is from east to west; however, specific flow directions of the canal vary to the southwest near the Site, eventually turning to the west-northwest prior to entering the San Francisco Bay via the San Leandro Flood Control Channel.

The Site elevation is approximately 33 feet above mean sea level. The water table fluctuates seasonally with recorded static depths to water in monitor wells at the Site ranging between a historic minimum depth below ground surface (bgs) of 7.10 ft (MW-3 on 4/14/2005) and maximum of 10.08 feet bgs (MW-4 on 10/9/2002). Historically, depth-to-water measurements have typically ranged between 7.0 and 9.5 feet bgs (See Appendix B). Ground-water flow direction during the third quarter 2006 monitoring event on 31 July 2006 was to the south-southwest at a gradient of 0.003 ft/ft. Historic ground-water flow directions and gradients for the Site are summarized in Appendix B. Based on this information, the local ground-water flow

direction is to the southwest which is similar to the surface topography and assumed flow direction, southwest towards the San Francisco Bay.

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

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

4.0 PROPOSED SCOPE OF WORK

4.1 Proposed Well Installation Locations

To further characterize ground-water conditions at the Site, Stratus will install two ground-water monitoring wells, to be identified as MW-5 and MW-6. The proposed locations are based on information in the Soil and Water Investigation Report (BAI, 9/14/2007), ground-water flow direction, subsurface conditions and existing site conditions, and direction from ACEH in the letter dated 1 October 2008. The proposed monitoring well locations are shown on Drawing 2.

4.2 Preliminary Activities, Local Permitting and Notification

Prior to initiating field activities, Stratus will obtain the necessary well permits from Alameda County; prepare a site health and safety plan (HASP) for the proposed work; clear the Site for subsurface utilities; and provide 72-hour advance written notification to ACEH (email preferred to paresh.khatri@acgov.org) and BAI (email tvenus@broadbentinc.com or mobile phone 530-588-5887) prior to the 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 each boring location. Boreholes 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. The HASP will address the proposed monitoring well installations. A copy of the HASP will be available on-site during work. The subcontractor(s) performing field activities will be provided with a copy of the HASP prior to initiating work. A safety tailgate meeting will also be conducted daily to review the Site hazards and drilling work scope.

4.3 Soil Borings

The borings will be completed under the supervision of a Stratus field geologist with the use of a drill rig equipped with 10-inch diameter hollow-stem augers. The borings will be advanced to a total depth of 16 feet bgs using a hollow-stem auger drilling rig. Upon advancement to a total depth of 16 feet bgs, well installation activities will proceed. Due to the recent soil and ground-water investigation conducted on-site, soil samples will not be collected from the soil borings for laboratory analyses. However, soil cuttings will be classified according to the Unified Soil Classification System (USCS), and will be examined using visual and manual methods for parameters including odor, staining, color, grain size, and moisture content. Field screening for hydrocarbons will include visual and olfactory observations and portable photo-ionization detector (PID) measurements.

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

4.4 Monitoring Well Construction

The wells will be constructed of threaded 4-inch diameter, Schedule 40 poly-vinyl chloride (PVC) and screened with 0.010-inch machine-cut slots. Monitoring wells MW-5 and MW-6 will contain screened intervals from eight feet bgs to 16 feet bgs, the total depth of each well. A filter pack consisting of No.2/12 sand will be installed from total depth to two feet above the top of the well screen, which will be overlain by three feet of bentonite, and bentonite-cement grout to the surface. A traffic-rated locking vault will be installed to protect the well head.

4.5 Monitoring Well Development and Sampling

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

After well development, the monitoring wells will be surveyed. A California-licensed Professional Land Surveyor will be scheduled to survey the well heads for top of casing elevation with respect to mean sea level, and for lateral position using northings and eastings per NAD’88. Survey information will be uploaded to GeoTracker.

The wells will be sampled no sooner than 48 hours after well development. The sampling procedure for the wells consists of first measuring the water level and depth to bottom, and checking for the presence of separate phase hydrocarbons (free product) using an electronic oil-water interface probe. If the well does not contain free product, it will be purged of approximately three wetted casing volumes of water (or until dewatered) using a centrifugal pump, gas displacement pump, or bailer. During purging, temperature, pH, and electrical conductivity will be monitored to document that these parameters have stabilized prior to

collecting samples. After purging, water levels will be allowed to partially (at least 80%) recover. Ground-water samples will be collected using a dedicated disposable bailer, placed into appropriate Environmental Protection Agency (EPA) approved containers, labeled, logged onto chain-of-custody records, and transported on ice to the laboratory. Sample labels will include sample name, sampling time and date, analytical methods, and sampler's initials. If the well contains free product, it will not be sampled and free product will be removed according to California Code of Regulations, Title 23, Division 3, Chapter 16, Section 2655, UST Regulations.

Ground-water samples will be analyzed for the following: GRO (hydrocarbon chain lengths between C6-C12) by EPA Method 8015B; DRO (hydrocarbon chain lengths between C10-C28) by EPA Method 8015B (M); and for BTEX, MTBE, Ethyl-t-Butyl Ether (ETBE), 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.

4.6 Well Installation Report

Upon completion of field activities and receipt of the certified field data package (including copies of permits, field data sheets, boring logs, and the laboratory analytical report with chain-of-custody documentation), BAI will prepare a Soil and Ground-Water Investigation Report. The report will document the results of the investigation, field activities, copies of required permit(s), copies of field notes, soil boring and well construction logs, laboratory analytical reports with copies of chain-of-custody records, discussion of findings, conclusions and recommendations. 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:

- Implement On-site Soil and Ground-Water Investigation – Upon approval of this work plan and obtaining the necessary permits.
- Submittal of On-Site Soil and Ground-Water Investigation Report – Within 60 days after completion of fieldwork.

In accordance with direction received from ACEH in their letter of 1 October 2008 (provided within Attachment A), semi-annual ground-water monitoring from the on-site ground-water monitoring wells will be reestablished following the installation of monitoring wells MW-5 and MW-6. Quarterly status reports will continue to be submitted until regular monitoring and sampling begins on-site.

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, 29 May 2007. *Fuel Leak Case No. RO0000190, ARCO #2162, 15135 Hesperian Boulevard, San Leandro, CA.* Submitted to Mr. Paul Supple for Atlantic Richfield, by Mr. Steven Plunkett.

ACEH, 1 October 2008. *Fuel Leak Case No. RO0000190, ARCO #2162, 15135 Hesperian Boulevard, San Leandro, CA.* Submitted to Mr. Paul Supple for Atlantic Richfield, by Mr. Paresh Khatri.

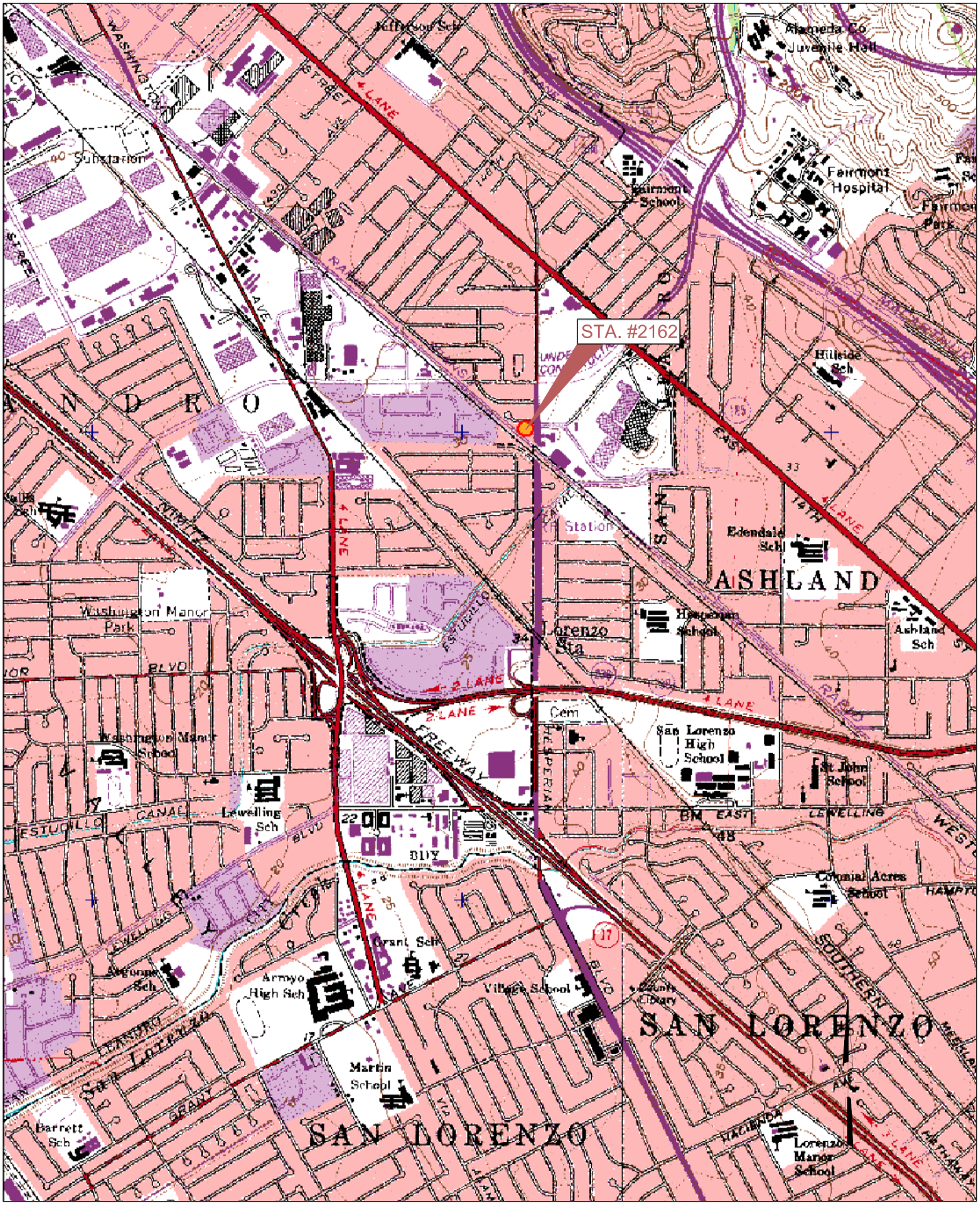
BAI, 15 May 2007. *Work Plan for On-Site Soil and Ground-Water Investigation, Atlantic Richfield Company Station #2162, 15135 Hesperian Boulevard, (San Leandro), California; ACEH Case No. RO0000190.* Submitted to Mr. Steven Plunkett of ACEH on behalf of BP.

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

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

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

LIST OF DRAWINGS

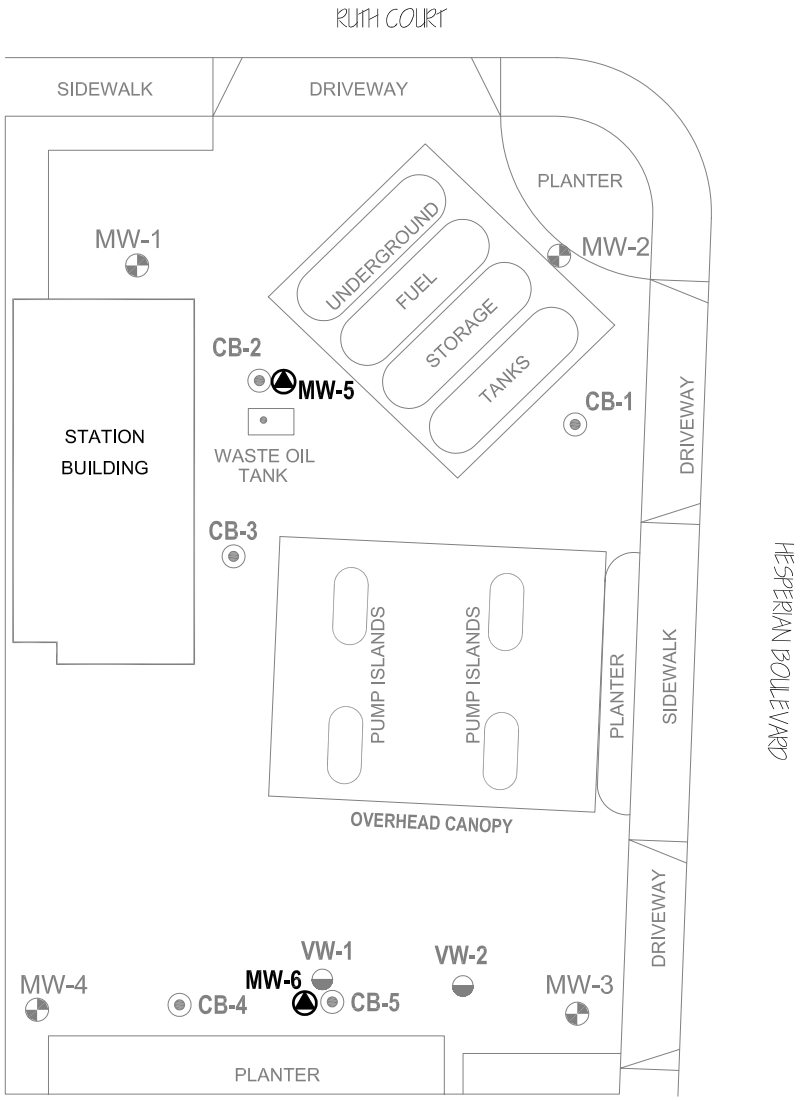


BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California
Project No.: 06-08-620 Date: 11/20/08

Station #2162
15135 Hesperian Boulevard
San Leandro, California

Site Location Map

Drawing
1



LEGEND

MW-6	PROPOSED MONITORING WELL
CB-5	SOIL/GROUND-WATER BORING
MW-4	MONITORING WELL RESNA
VW-2	SOIL VAPOR EXTRACTION WELL

N

0 30 60

SCALE (ft)

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

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California
Project No.: 06-08-620 Date: 10/29/08

Station #2162
15135 Hesperian Boulevard
San Leandro, California

Site Sketch with Proposed
Monitoring Well 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 1, 2008

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

Subject: Fuel Leak Case No. RO0000190 and Geotracker Global ID T0600100084, ARCO #2162, 15135 Hesperian Boulevard, San Leandro, CA 94578

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, "Soil and Water Investigation Report," dated September 14, 2007, which was prepared by Broadbent & Associates (BAI) for the subject site. Five borings were installed at the site to assess soil and groundwater conditions down-gradient of the UST pit and waste oil UST pit, and along the southern portion of the site between groundwater monitoring wells MW-3 and MW-4. Diesel and/or gasoline range hydrocarbons were detected in soil and groundwater samples collected from soil borings CB-2, CB-3, and CB-5. Based on the analytical data, BAI proposes to install an additional groundwater monitoring well in the vicinity of CB-5.

ACEH generally concurs with the proposed scope of work and requests that you address the following technical comments, and send us the technical work plan and reports described below.

TECHNICAL COMMENTS

1. **Contaminant Source Area Characterization** – As mentioned above, three of the five soil borings installed at the site detected elevated diesel and/or gasoline range petroleum hydrocarbons in soil and groundwater samples. Soil boring CB-2 was located down-gradient of the USTs and north of the waste oil UST pit, CB-3 was located south of the waste oil UST pit and down-gradient of the dispenser islands, and CB-5 was located just south of soil vapor extraction well VW-1. Concentrations of TPH-d were detected at 1,300 mg/kg in a soil sample collected from CB-2. A "grab" groundwater sample collected from CB-2 detected TPH-d and TPH-g at concentrations of 2,000 µg/L and 1,900 µg/L, respectively. Concentrations of TPH-g were detected at 1,100 mg/kg in a soil sample collected from boring CB-5. A "grab" groundwater sample collected from CB-5 detected TPH-d and TPH-g at concentrations of 360 µg/L and 490 µg/L, respectively. BAI proposes to install a groundwater monitoring well in the vicinity of CB-5 as this location "would serve as a sentinel well to determine the repeatable presence or absence of elevated concentrations of petroleum hydrocarbons at the down-gradient boundary of the site." ACEH is concerned that currently there is no permanent groundwater monitoring point in the source area, which is in the vicinity of CB-2 where elevated concentrations of petroleum hydrocarbons have been verified in soil and groundwater. A permanent monitoring point in the source area would

appear to aid in evaluating the "worst case" concentrations of contaminants at the site as well as assist in evaluating plume stability. Please propose a scope of work to address the above-mentioned concerns and submit a work plan due by the date specified below.

2. **Groundwater Contaminant Plume Monitoring** – Several years of groundwater monitoring has been conducted at the site. You may propose to revise the groundwater sampling frequency at the site. You may include your proposal in the work plan due 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 the May 3, 2005 Soil Gas Investigation Report) by **October 31, 2008**.

TECHNICAL REPORT REQUEST

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

- **October 30, 2008** – Quarterly Monitoring Report (3rd Quarter 2008)
- **December 1, 2008** – Soil and Water Investigation Work Plan
- **January 30, 2009** – Quarterly Monitoring Report (4th Quarter 2008)
- **April 30, 2009** – Quarterly Monitoring Report (1st Quarter 2009)
- **July 30, 2009** – Quarterly Monitoring Report (2nd 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

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

Jerry Wickham, PG, CHG, CEG
Acting Supervising Hazardous Material Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Tom Venus, Broadbent & Associates, Inc., 1324 Mangrove Ave., Suite. 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

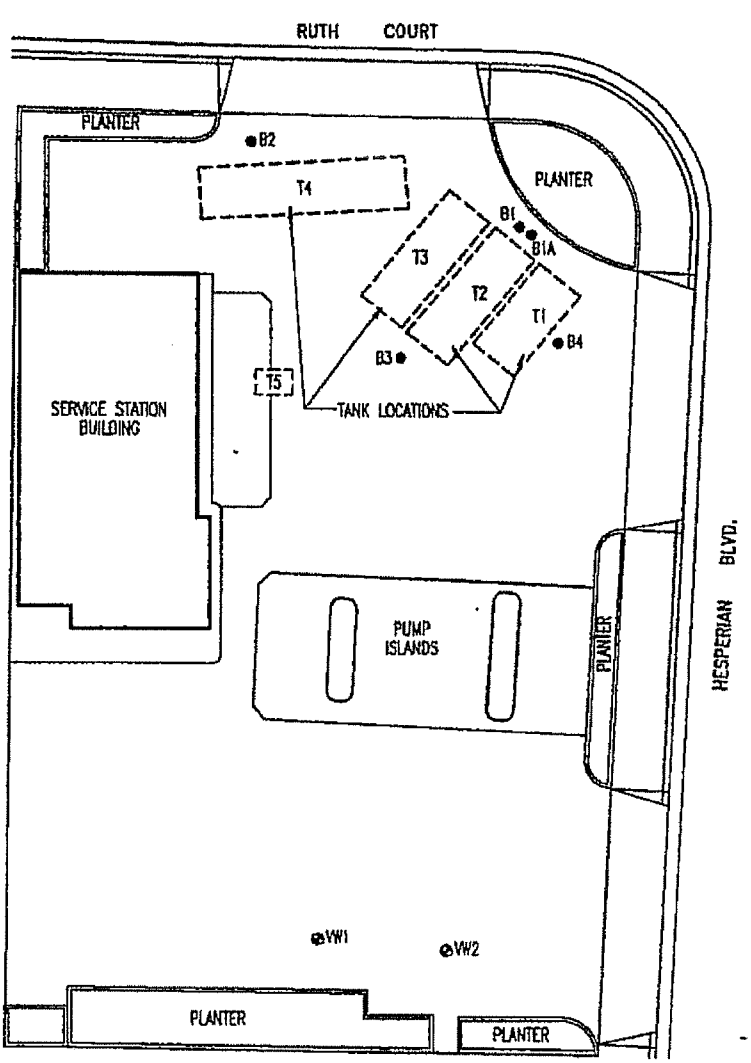
1) Obtain User Name and Password:
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to dehloptoxic@acgov.org
         or
      ii) Send a fax on company letterhead to (510) 337-9335, to the attention 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 AND GROUND-WATER DATA



EXPLANATION

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

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

0' 30' 60'

APPROXIMATE SCALE

ROUX ASSOCIATES
ENVIRONMENTAL CONSULTING & MANAGEMENT

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

PREPARED FOR: ARCO PRODUCTS COMPANY

TITLE: SITE PLAN

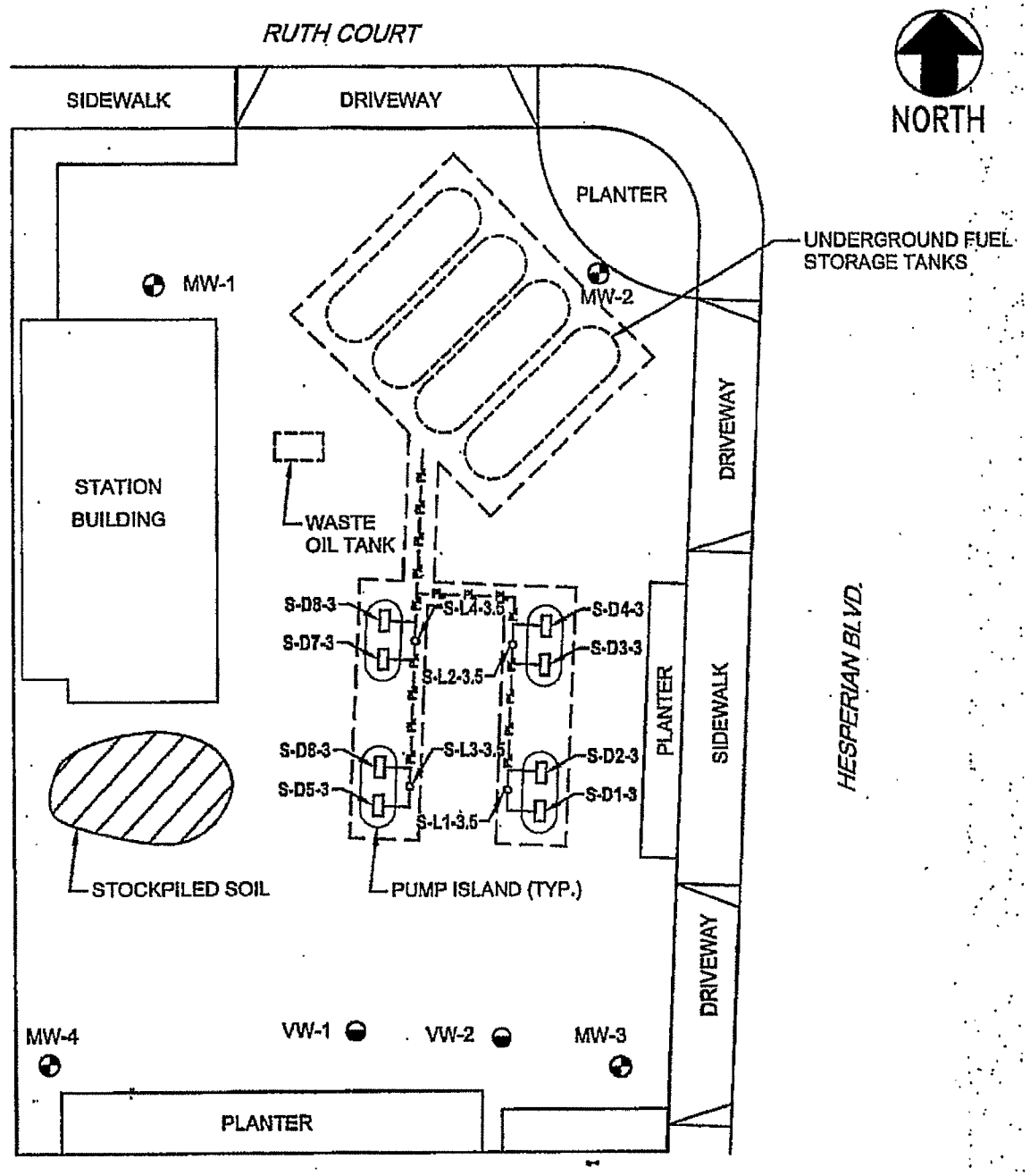
ARCO FACILITY NO. 2162

FIGURE 2

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

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

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



LEGEND

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

0 25 50

SCALE IN FEET

URS

Project No. 38486067

Arco Service Station No. 2162
15135 Hesperian Boulevard
San Leandro, California

SOIL SAMPLING LOCATION PLAN
January 10, 2003

FIGURE
2

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

TABLE 1
Product Line/Dispenser Analytical Results

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

TABLE 2
Soil Stockpile Analytical Results

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

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

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

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

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

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

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

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

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

Station #2162, 15135 Hesperian Blvd., San Leandro, 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	--		31.19	8.0	**16.0**	8.33	22.86	<50	<0.5	0.8	<0.5	<1.0	<10	--	--
9/29/2000	--		31.19	8.0	**16.0**	9.07	22.12	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
12/17/2000	--		31.19	8.0	**16.0**	8.69	22.5	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/23/2001	--		31.19	8.0	**16.0**	8.19	23.0	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
6/20/2001	--		31.19	8.0	**16.0**	8.97	22.22	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
9/22/2001	--		31.19	8.0	**16.0**	9.56	21.63	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
12/28/2001	--		31.19	8.0	**16.0**	8.4	22.79	<50	<0.5	<0.5	<0.5	0.63	<2.5	--	--
3/14/2002	--		31.19	8.0	**16.0**	8.05	23.14	<50	<0.5	<0.5	<0.5	<0.5	170	--	--
4/18/2002	--		31.19	8.0	**16.0**	8.27	22.92	<50	<0.5	<0.5	<0.5	<0.5	--	--	--
7/19/2002	NP		31.19	8.0	**16.0**	8.88	22.31	<50	<0.5	<0.5	<0.5	<0.5	11	1.0	8.2
10/09/02	NP	a	31.19	8.0	**16.0**	--	--	--	--	--	--	--	--	--	--
03/28/03	NP	a, c	31.19	8.0	**16.0**	--	--	--	--	--	--	--	--	--	--
4/7/2003	NP		31.19	8.0	**16.0**	8.28	22.91	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.6	6.9
7/9/2003	NP		31.19	8.0	**16.0**	8.62	22.57	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.1	7.2
10/08/2003	--	d, e	31.13	8.0	16.0	9.19	21.94	--	--	--	--	--	--	--	--
01/13/2004	--		31.13	8.0	16.0	8.35	22.78	--	--	--	--	--	--	--	--
04/05/2004	--		33.70	8.0	16.0	7.29	26.41	--	--	--	--	--	--	--	--
07/12/2004	NP		33.70	8.0	16.0	9.00	24.70	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.8	7.0
10/19/2004	--		33.70	8.0	16.0	9.47	24.23	--	--	--	--	--	--	--	--
01/11/2005	--		33.70	8.0	16.0	7.64	26.06	--	--	--	--	--	--	--	--
04/14/2005	--		33.70	8.0	16.0	7.35	26.35	--	--	--	--	--	--	--	--
08/01/2005	--		33.70	8.0	16.0	8.21	25.49	--	--	--	--	--	--	--	--
7/31/2006	--		**33.70**	**8.0**	**16.0**	**8.10**	**25.6**	--	--	--	--	--	--	--	--
MW-2															
6/20/2000	--		30.38	8.0	**16.0**	7.38	23.0	--	--	--	--	--	--	--	--
9/29/2000	--		30.38	8.0	**16.0**	8.08	22.3	266	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
12/17/2000	--		30.38	8.0	**16.0**	7.8	22.58	175	<0.5	<0.5	0.659	<0.5	<2.5	--	--
3/23/2001	--		30.38	8.0	**16.0**	7.23	23.15	351	<0.5	<0.5	0.912	<0.5	<2.5	--	--
6/20/2001	--		30.38	8.0	**16.0**	7.98	22.4	360	<0.5	<0.5	0.74	<0.5	<2.5	--	--
9/22/2001	--		30.38	8.0	**16.0**	8.55	21.83	190	<0.5	<0.5	<0.5	<0.5	<2.5	--	--

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

Station #2162, 15135 Hesperian Blvd., San Leandro, 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.															
12/28/2001	--		30.38	8.0	**16.0**	7.53	22.85	130	<0.5	0.93	<0.5	0.51	<2.5	--	--
3/14/2002	--		30.38	8.0	**16.0**	7.17	23.21	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
4/18/2002	--		30.38	8.0	**16.0**	7.31	23.07	74	<0.5	<0.5	<0.5	<0.5	--	--	--
7/19/2002	P		30.38	8.0	**16.0**	7.93	22.45	<50	<0.5	<0.5	<0.5	<0.5	<2.5	1.1	7.6
10/9/2002	P		30.38	8.0	**16.0**	8.55	21.83	<50	<0.5	<0.5	<0.5	<0.5	<2.5	0.7	7.3
03/28/03	P	c	30.38	8.0	**16.0**	7.3	23.08	<50	<0.50	0.83	<0.50	<0.50	<0.50	1.48	7.7
4/7/2003	P		30.38	8.0	**16.0**	7.36	23.02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.4	7.0
7/9/2003	P		30.38	8.0	**16.0**	7.71	22.67	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.5	7.6
10/08/2003	--		30.38	8.0	16.0	8.25	22.13	--	--	--	--	--	--	--	--
01/13/2004	--		30.38	8.0	16.0	7.55	22.83	--	--	--	--	--	--	--	--
04/05/2004	--		32.97	8.0	16.0	7.29	25.68	--	--	--	--	--	--	--	--
07/12/2004	NP		32.97	8.0	16.0	8.09	24.88	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.4	7.2
10/19/2004	--		32.97	8.0	16.0	8.29	24.68	--	--	--	--	--	--	--	--
01/11/2005	--		32.97	8.0	16.0	6.81	26.16	--	--	--	--	--	--	--	--
04/14/2005	--		32.97	8.0	16.0	6.69	26.28	--	--	--	--	--	--	--	--
08/01/2005	--		32.97	8.0	16.0	7.40	25.57	--	--	--	--	--	--	--	--
7/31/2006	--		**32.97**	**8.0**	**16.0**	**7.22**	**25.75**	--	--	--	--	--	--	--	--
MW-3															
6/20/2000	--		30.3	8.0	**15.0**	7.75	22.55	--	--	--	--	--	--	--	--
9/29/2000	--		30.3	8.0	**15.0**	8.46	21.84	<50	<0.5	<0.5	<0.5	<0.5	128	--	--
12/17/2000	--		30.3	8.0	**15.0**	8.01	22.29	<50	<0.5	<0.5	<0.5	<0.5	46.7	--	--
3/23/2001	--		30.3	8.0	**15.0**	7.7	22.6	<50	<0.5	<0.5	<0.5	<0.5	26.8	--	--
6/20/2001	--		30.3	8.0	**15.0**	8.23	22.07	<50	<0.5	<0.5	<0.5	<0.5	30	--	--
9/22/2001	--		30.3	8.0	**15.0**	8.89	21.41	<50	<0.5	<0.5	<0.5	<0.5	12	--	--
12/28/2001	--		30.3	8.0	**15.0**	7.83	22.47	<50	<0.5	<0.5	<0.5	<0.5	6.2	--	--
3/14/2002	--		30.3	8.0	**15.0**	7.48	22.82	<50	<0.5	<0.5	<0.5	<0.5	47	--	--
4/18/2002	--		30.3	8.0	**15.0**	7.62	22.68	<50	<0.5	<0.5	<0.5	<0.5	--	--	--
7/19/2002	P	b (TPH-g)	30.3	8.0	**15.0**	8.23	22.07	100	<1.0	<1.0	<1.0	<1.0	330	0.9	7.6
10/9/2002	P		30.3	8.0	**15.0**	8.83	21.47	<50	<0.5	<0.5	<0.5	<0.5	61	0.5	7.4
03/28/03	P	c	30.3	8.0	**15.0**	7.85	22.45	52	<0.50	1.2	<0.50	<0.50	45	1.42	7.6

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

Station #2162, 15135 Hesperian Blvd., San Leandro, 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.															
4/7/2003	P		30.3	8.0	**15.0**	7.71	22.59	56	<0.50	<0.50	<0.50	<0.50	56	1.1	6.8
7/9/2003	P		30.3	8.0	**15.0**	8.0	22.3	<500	<5.0	<5.0	<5.0	<5.0	87	1.6	7.4
10/08/2003	P		30.30	8.0	15.0	8.59	21.71	<50	<0.50	<0.50	<0.50	<0.50	25	0.9	--
01/15/2004	P		30.30	8.0	15.0	7.90	22.40	<50	<0.50	<0.50	<0.50	<0.50	9.8	2.9	7.3
04/05/2004	P		32.89	8.0	15.0	7.61	25.28	<50	<0.50	<0.50	<0.50	<0.50	15	1.5	7.0
07/12/2004	P		32.89	8.0	15.0	8.45	24.44	<50	<0.50	<0.50	<0.50	<0.50	7.3	1.6	6.9
10/19/2004	P		32.89	8.0	15.0	8.95	23.94	<50	<0.50	<0.50	<0.50	<0.50	5.0	0.96	7.1
01/11/2005	P		32.89	8.0	15.0	7.27	25.62	<50	<0.50	<0.50	<0.50	<0.50	2.3	--	7.2
04/14/2005	P		32.89	8.0	15.0	7.10	25.79	<50	<0.50	<0.50	<0.50	1.5	5.6	2.0	7.2
08/01/2005	P		32.89	8.0	15.0	7.71	25.18	<50	<0.50	<0.50	<0.50	<0.50	5.2	1.18	7.0
7/31/2006	**P**		**32.89**	**8.0**	**15.0**	**7.64**	**25.25**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**4.3**	**--**	**6.8**
MW-4															
6/20/2000	--		30.39	10.0	**18.0**	8.87	21.52	--	--	--	--	--	--	--	--
9/29/2000	--		30.39	10.0	**18.0**	9.61	20.78	<50	1.02	<0.5	<0.5	<0.5	12.2	--	--
12/17/2000	--		30.39	10.0	**18.0**	9.17	21.22	<50	<0.5	<0.5	<0.5	<0.5	5.81	--	--
3/23/2001	--		30.39	10.0	**18.0**	8.7	21.69	<50	<0.5	<0.5	<0.5	<0.5	3.04	--	--
6/20/2001	--		30.39	10.0	**18.0**	9.51	20.88	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
9/22/2001	--		30.39	10.0	**18.0**	10.06	20.33	<50	<0.5	<0.5	<0.5	<0.5	5.2	--	--
12/28/2001	--		30.39	10.0	**18.0**	8.86	21.53	<50	<0.5	<0.5	<0.5	<0.5	4.3	--	--
3/14/2002	--		30.39	10.0	**18.0**	8.52	21.87	<50	<0.5	<0.5	<0.5	<0.5	5.1	--	--
4/18/2002	--		30.39	10.0	**18.0**	8.76	21.63	<50	<0.5	<0.5	<0.5	<0.5	--	--	--
7/19/2002	NP		30.39	10.0	**18.0**	9.39	21.00	<50	<0.5	<0.5	<0.5	<0.5	30	1.8	7.8
10/9/2002	NP		30.39	10.0	**18.0**	10.08	20.31	<50	<0.5	<0.5	<0.5	<0.5	28	1.0	8.0
03/28/03	NP	c	30.39	10.0	**18.0**	8.88	21.51	<50	<0.50	1.3	<0.50	<0.50	4.4	0.98	7.2
4/7/2003	NP		30.39	10.0	**18.0**	8.78	21.61	<50	<0.50	<0.50	<0.50	<0.50	14	1.1	7.0
7/9/2003	NP		30.39	10.0	**18.0**	9.14	21.25	<50	<0.50	<0.50	<0.50	<0.50	1.8	1.6	7.4
10/08/2003	NP		30.39	10.0	18.0	9.77	20.62	<50	<0.50	<0.50	<0.50	<0.50	3.1	2.6	6.4
01/15/2004	P		30.39	10.0	18.0	8.68	21.71	<50	1.4	0.84	<0.50	1.5	6.6	2.9	7.1
04/05/2004	NP		33.97	10.0	18.0	8.77	25.20	<50	<0.50	<0.50	<0.50	<0.50	1.3	1.2	7.0
07/12/2004	NP		33.97	10.0	18.0	9.46	24.51	<50	<0.50	<0.50	<0.50	<0.50	1.0	2.5	6.6

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

Station #2162, 15135 Hesperian Blvd., San Leandro, 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.															
10/19/2004	NP		33.97	10.0	18.0	9.91	24.06	<50	<0.50	<0.50	<0.50	<0.50	4.4	1.21	7.9
01/11/2005	P		33.97	10.0	18.0	7.80	26.17	59	2.0	<0.50	<0.50	<0.50	11	0.9	7.1
04/14/2005	NP		33.97	10.0	18.0	8.07	25.90	<50	<0.50	<0.50	<0.50	<0.50	0.64	2.8	7.4
08/01/2005	NP		33.97	10.0	18.0	8.58	25.39	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.48	5.7
7/31/2006	**P**		**33.97**	**10.0**	**18.0**	**8.75**	**25.22**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**--**	**6.7**

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

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

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

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

Well were surveyed to NAVD'88 datum by URS Corporation on February 23, 2004.

Values for DO and pH were obtained through field measurements.

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 #2162, 15135 Hesperian Blvd., San Leandro, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
4/7/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/9/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
07/12/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-2									
3/28/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
4/7/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/9/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
07/12/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-3									
3/28/2003	<100	<20	45	<0.50	<0.50	0.73	<0.50	<0.50	
4/7/2003	<100	<20	56	<0.50	<0.50	0.72	<0.50	<0.50	
7/9/2003	<1,000	<200	87	<5.0	<5.0	<5.0	<5.0	<5.0	
10/08/2003	<100	<20	25	<0.50	<0.50	<0.50	<0.50	<0.50	
01/15/2004	<100	<20	9.8	<0.50	<0.50	<0.50	<0.50	<0.50	a (TBA and EDB)
04/05/2004	<100	<20	15	<0.50	<0.50	<0.50	<0.50	<0.50	
07/12/2004	<100	<20	7.3	<0.50	<0.50	<0.50	<0.50	<0.50	
10/19/2004	<100	<20	5.0	<0.50	<0.50	<0.50	<0.50	<0.50	
01/11/2005	<100	<20	2.3	<0.50	<0.50	<0.50	<0.50	<0.50	b
04/14/2005	<100	<20	5.6	<0.50	<0.50	<0.50	<0.50	<0.50	
08/01/2005	<100	<20	5.2	<0.50	<0.50	<0.50	<0.50	<0.50	b
7/31/2006	**<300**	**<20**	**4.3**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**c**
MW-4									
3/28/2003	<100	<20	4.4	<0.50	<0.50	<0.50	<0.50	<0.50	
4/7/2003	<100	<20	14	<0.50	<0.50	<0.50	<0.50	<0.50	
7/9/2003	<100	<20	1.8	<0.50	<0.50	<0.50	<0.50	<0.50	
10/08/2003	<100	<20	3.1	<0.50	<0.50	<0.50	<0.50	<0.50	
01/15/2004	<100	<20	6.6	<0.50	<0.50	<0.50	<0.50	<0.50	a (TBA and EDB)
04/05/2004	<100	<20	1.3	<0.50	<0.50	<0.50	<0.50	<0.50	
07/12/2004	<100	<20	1.0	<0.50	<0.50	<0.50	<0.50	<0.50	
10/19/2004	<100	<20	4.4	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 2. Summary of Fuel Additives Analytical Data

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

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-4 Cont.									
01/11/2005	<100	<20	11	<0.50	<0.50	<0.50	<0.50	<0.50	b
04/14/2005	<100	<20	0.64	<0.50	<0.50	<0.50	<0.50	<0.50	
08/01/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
7/31/2006	**<300**	**<20**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**c**

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

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

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

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

Table 3. Historical Ground-Water Flow Direction and Gradient

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

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

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

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 C.

SOIL BORING AND MONITORING WELL CONSTRUCTION LOGS

ROUX

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

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

ROUX

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

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

ROUX

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

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

ROUX

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

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

ROUX

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

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

ROUX

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

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

ROUX

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

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

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

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

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

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

Drilling Company: Exploration GeoServices Driller: John and Dennis

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

Signature of Registered Professional:

Registration No.: CEG 1463 State: CA

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

RESNA
Working to Restore Nature

PROJECT 62019.02

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

PLATE 4

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

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

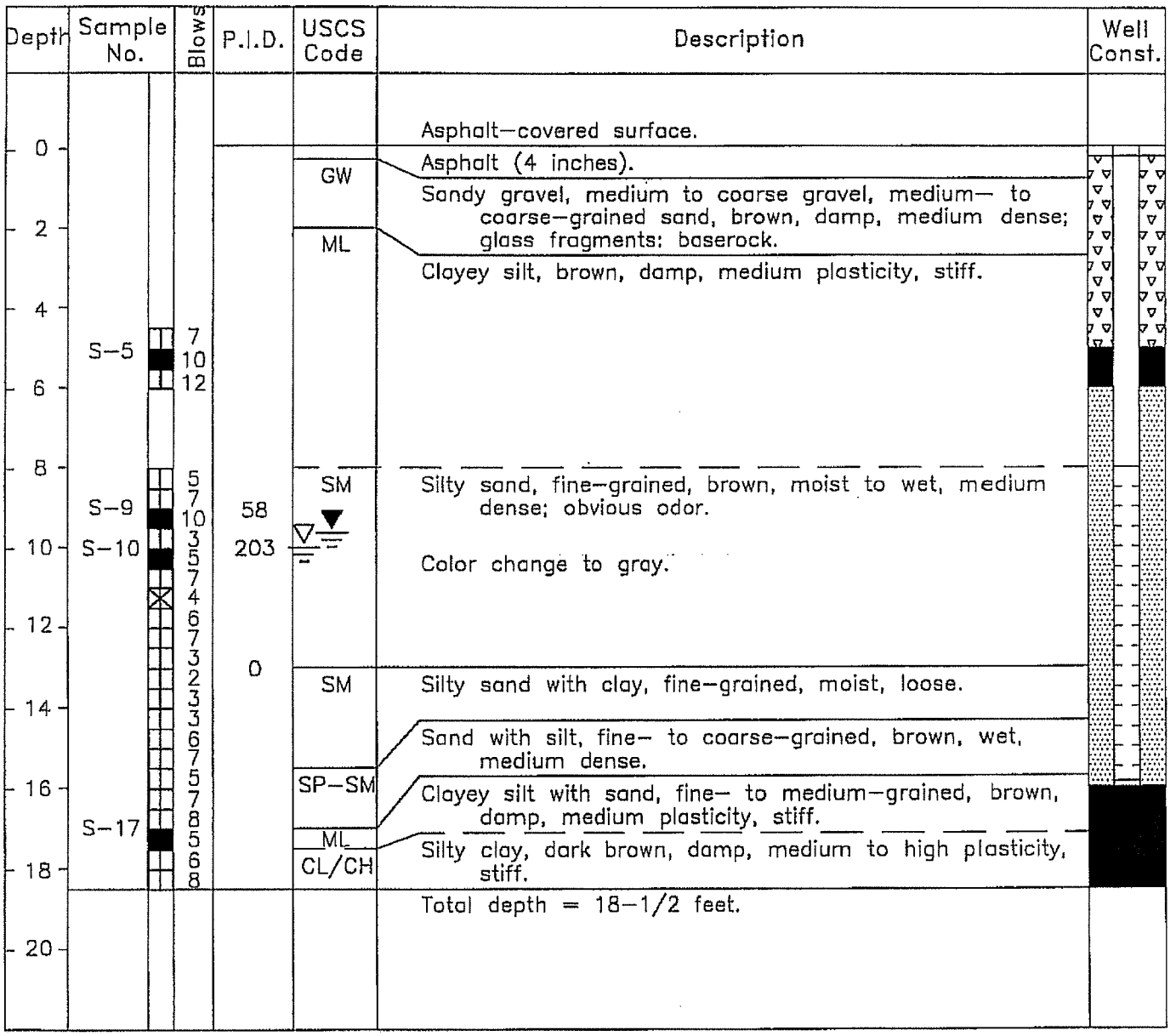
Screen interval: 8 to 16 feet Filter pack: #3 Sand Slot size: 0.020-inch

Drilling Company: Exploration GeoServices Driller: John and Dennis

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

Signature of Registered Professional:

Registration No.: CEG 1463 State: CA



RESNA
Working to Restore Nature

PROJECT 62019.02

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

PLATE 5

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

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

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

Drilling Company: Exploration GeoServices Driller: John and Dennis

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

Signature of Registered Professional:

Registration No.: CEG 1463 State: CA

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

RESNA
Working to Restore Nature

PROJECT 62019.02

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

PLATE 6

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

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

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

Comments: Continuously sampled starting at 5 feet bgs.

STRATUS ENVIRONMENTAL, INC.

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

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

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

Comments: Continuously sampled starting at 5 feet bgs.

STRATUS ENVIRONMENTAL, INC.

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

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

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

Comments: Continuously sampled starting at 5 feet bgs.

STRATUS ENVIRONMENTAL, INC.

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

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

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

Comments: Continuously sampled starting at 5 feet bgs.

STRATUS ENVIRONMENTAL, INC.

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

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

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

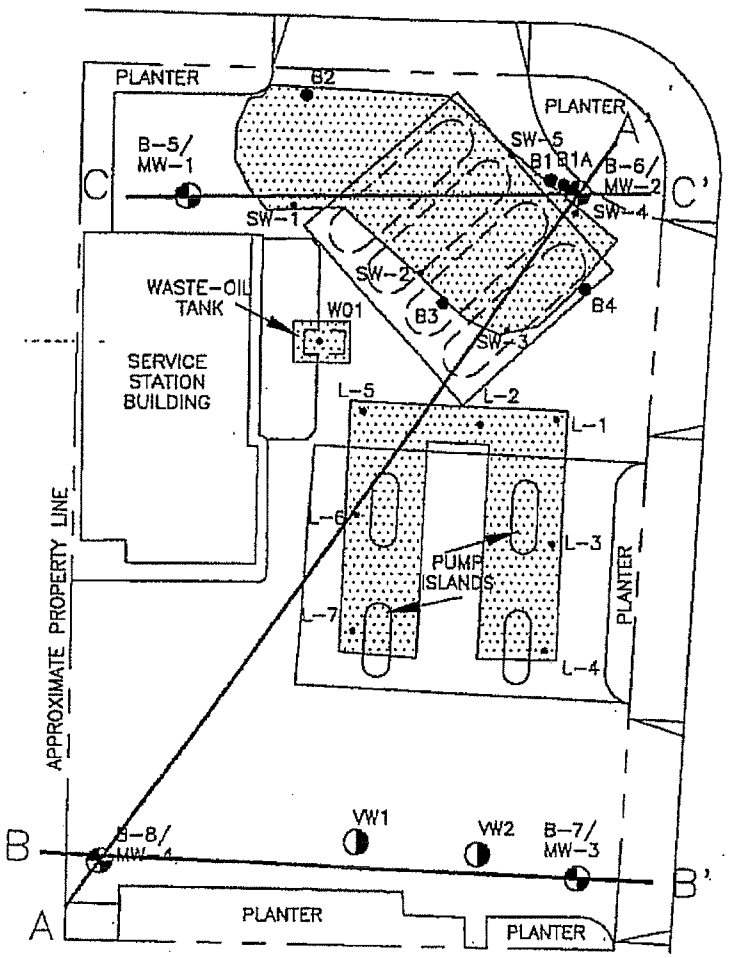
Comments: Continuously sampled starting at 5 feet bgs.

STRATUS ENVIRONMENTAL, INC.

APPENDIX D.

GEOLOGIC CROSS-SECTIONS

RUTH COURT



HESPERIAN BOULEVARD

EXPLANATION

B-8/MW-4 = Monitoring well RESNA September 1992

VW2 = Vapor extraction well (Roux Associates, Inc., 1991)

B4 = Soil boring (Roux Associates, Inc., 1991)

L-7 = Product line sample

SW-5 = Sidewall soil sample

= Former underground storage tank and product line excavations

= Existing underground storage tank

N

Approximate Scale

30 15 0 30 60

feet

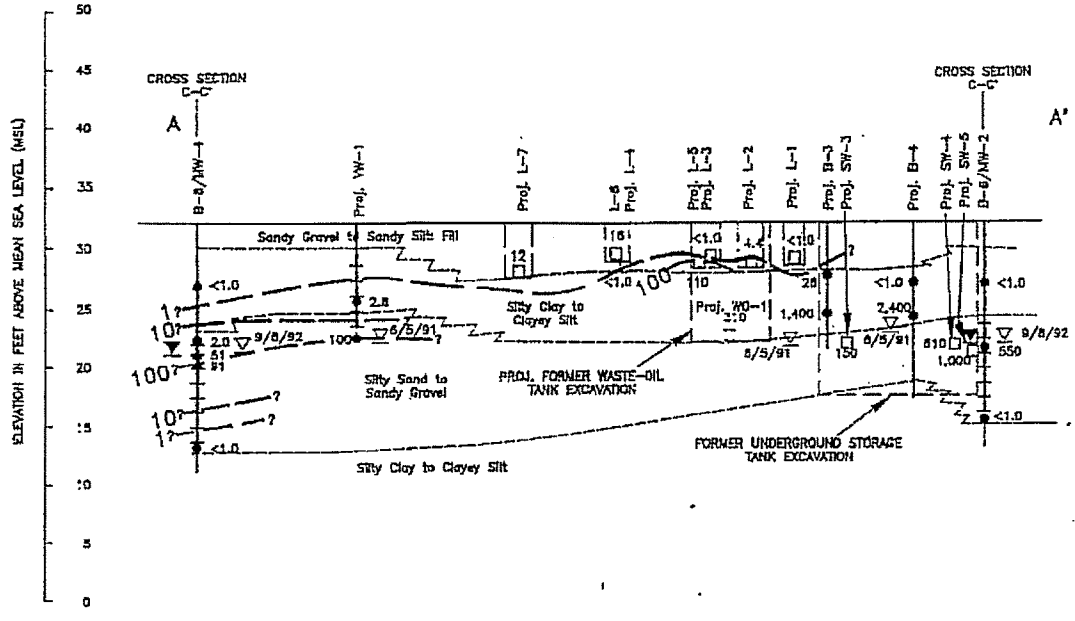
Source: Modified from site plan provided by Roux Associates. and survey data from John Koch, licensed land surveyor (9/16/92)

RESNA
Working to Restore Nature

PROJECT 62019.02

GENERALIZED SITE PLAN
ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California

PLATE
2



EXPLANATION

- Product line and tank excavations
- 100 — Line of equal concentration of TPHg in soil, in parts per million (ppm)
- 1,000 □ — Laboratory analyzed product line excavation soil sample showing TPHg concentration in ppm
- 2,400 ● — Laboratory analyzed soil sample showing TPHg concentration in ppm
- Well casing
- Well screen
- Boring
- Initial water level
- Static water level (10/16/92)

Approximate Vertical Scale

20 10 0 20 40

feet

Approximate Horizontal Scale

10 5 0 10 20

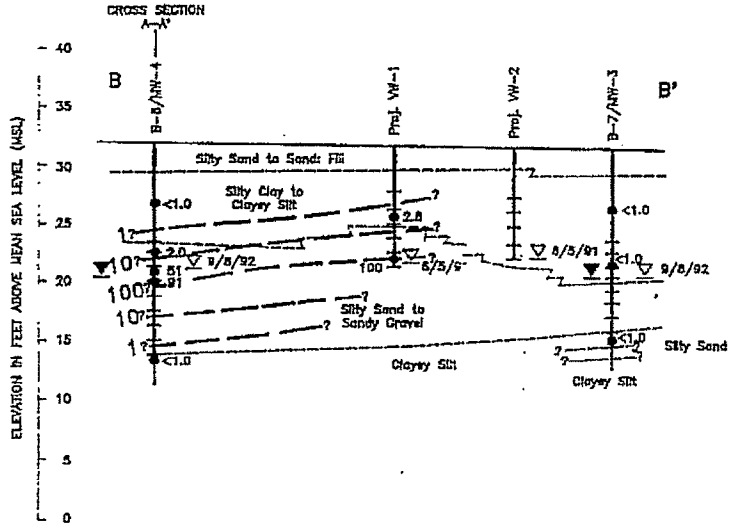
feet

RESNA
Working to Restore Nature

PROJECT 62019.C2

GEOLOGIC CROSS SECTION A-A'
ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California

PLATE 8



EXPLANATION

100 — = Line of equal concentration of TPHg in soil, in parts per million (ppm)

2,400 = Laboratory analyzed soil sample showing TPHg concentration in ppm

= Well casing

= Well screen

= Boring

= Initial water level

= Static water level (10/18/92)

Approximate Vertical Scale

20 10 0 20 40

feet

Approximate Horizontal Scale

10 5 0 10 20

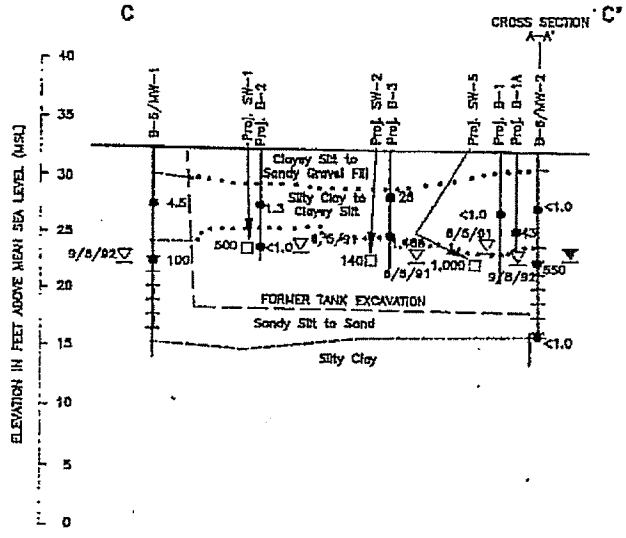
feet

RESNA
Working to Restore Nature

PROJECT 62019.02

GEOLOGIC CROSS SECTION B-B'
ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California

PLATE
9



EXPLANATION

- = Product line and tank excavations
- 100 = Line of equal concentration of TPHg in soil, in parts per million (ppm)
- 1,000 □ = Laboratory analyzed tank excavation sidewall soil sample showing TPHg concentration in ppm
- 2,400 = Laboratory analyzed soil sample showing TPHg concentration in ppm
- = Well casing
- = Well screen
- = Boring
- ▽ = Initial water level
- ▼ = Static water level (10/15/92)

NOTE: Dotted line denotes inferred stratigraphic contact through former excavation tank.

Approximate Vertical Scale

20 10 0 20 40

feet

Approximate Horizontal Scale

10 5 0 10 20

feet

RESNA
Working to Restore Nature

PROJECT 62019.02

GEOLOGIC CROSS SECTON C-C'
ARCO Station 2162
15135 Hesperian Boulevard
San Leandro, California

PLATE
10