RO 494

Atlantic Richfield Company
(a BP affiliated company)

P.O. Box 6549
Moraga, California 94570
Phone: (925) 299-8891
Fax: (925) 299-8872

May 6, 2004

Re: Additional Subsurface Investigation Report
ARCO Service Station #2111
1156 Davis Street, ~~Hayward,~~ San Leandro California

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 Engineer

URS

May 6, 2004

Ms. eva chu
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Re: Additional Subsurface Investigation Report
ARCO Service Station #2111
1156 Davis Street, ~~Hayward~~, California.
San Leandro

Dear Ms. chu,

On behalf of the Atlantic Richfield Company (ARCO - a BP affiliated company), URS Corporation (URS) has prepared this *Additional Subsurface Investigation Report* for ARCO Service Station #2111 located at 1156 Davis St., Hayward, California (the Site, Figure 1). This report documents work done as originally proposed in *Remedial Action Plan Addendum,* ARCO Service Station #2111, dated July 15, 2003. The work plan was prepared in response to an Alameda County Health Care Services Agency (ACHCSA) e-mail dated June 25, 2003 (Appendix A).

The purpose of this report is to provide further information regarding the vertical and horizontal extent of the hydrocarbon plume. Fieldwork was conducted to delineate any off-site migration of the contaminant plume. Groundwater sampling was conducted from five of the seven borings advanced during the investigation. In addition, one on-site well was installed, during which soil samples were collected for chemical analysis.

Groundwater was sampled in five of the seven borings (H-1 through H-5). Due to the low permeability of the surrounding sediments, the depth discrete sampling proposed in the workplan was completed in only two borings (H-4 and H-5). Grab groundwater samples were collected from each of the remaining three locations. Soil sampling occurred prior to the analysis replacement of Total Petroleum Hydrocarbons as Gasoline (TPH-g) with the analysis for Gasoline Range Organics (GRO) [1] beginning Fourth Quarter 2003. Groundwater sampling occurred following the Fourth Quarter 2003. Therefore, soil analytical results are presented as TPH-g, while groundwater analytical results are presented as GRO.

---

[1] Please note that beginning in the Fourth Quarter 2003, the laboratory modified the reporting analyte list. Total Petroleum Hydrocarbons as Gasoline (TPH-g) has been changed to Gasoline Range Organics (GRO). The resulting data may be impacted by the potential inclusion of non-TPH-g analytes within the requested fuel range resulting in a higher concentration being reported.

URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612-1924
Tel: 510.893.3600
Fax: 510.874.3268

SITE FEATURES AND BACKGROUND

The Site is an active ARCO service station located at the northwest corner of the intersection of Preda Street and Davis Street (Figure 1). The majority of the property is concrete and asphalt paved. Current Site structures include: two double-walled fiberglass gasoline underground storage tanks (USTs), two pump islands with dispensers, and a convenience store. The area surrounding the Site consists primarily of commercial and residential properties. The Site is bordered: to the southeast by Davis Street, to the northeast by Preda Street, to the southwest by First Christian Church and Davis Street Community Center, and to the northwest by residential homes. Based on the information provided by the County of Alameda Public Works Agency (EMCON 1996), there are several irrigation, monitoring, and industrial wells located downgradient of the Site. The nearest domestic supply well (#2S/3W 27R-7) is located approximately 650 feet west-southwest of the Site. EMCON (1996) determined that wells located hydraulically downgradient of the Site are not impacted by the ARCO facility.
Site investigations, source removal, and interim remedial activities have been conducted at the Site since 1995 (Delta 2001a, 2001b, 2001c; EMCON 1996, 1997). Previous investigations have identified the source of petroleum hydrocarbons to be in the vicinity of the former USTs and fuel dispensers and are limited to the capillary fringe zone (EMCON 1996).

A groundwater monitoring program was implemented at the Site in 1995. The current groundwater monitoring well network consists of five on-Site groundwater monitoring wells (MW-1 to MW-4 and MW-7), three on-Site vapor extraction wells (VW-1 to VW-3), and two off-Site groundwater monitoring wells (MW-5 and MW-6). The groundwater monitoring wells are typically screened from 12 to 26 and 10 to 25 feet below ground surface (bgs), and the vapor extraction wells are screened from 5 to 20 feet bgs. Well construction data is provided in Appendix C. The groundwater monitoring program consists of monthly monitoring of free product and groundwater levels and sampling for TPH-g, benzene, toluene, ethyl benzene, total xylenes (BTEX), and methyl-tertiary butyl ether (MTBE). Historical hydrocarbon and MTBE groundwater quality data shows generally decreasing concentration trends from the historical high detections (Table 3). Historically, levels of free product have been found in MW-1, MW-2, and MW-7. Since June 2000 monitoring well MW-2 is the only well that contains free product.

SUBSURFACE INVESTIGATION

The scope of work performed for the Subsurface Investigation included the following:

Preliminary Field Activities

Before initiating field activities, URS obtained well construction permits from the ACHCSA, created a Site Health and Safety Plan (HASP) describing hazards associated with the proposed work, and conducted a subsurface utility clearance. The utility clearance included notifying Underground Service Alert a minimum of 48 hours prior to

clearance included notifying Underground Service Alert a minimum of 48 hours prior to initiating field activities and securing the services of a private utility-locating company to confirm the absence of underground utilities at each boring location. Copies of the soil boring and well installation permits are included in Appendix B.

The HASP, prepared for URS personnel conducting field activities, addressed the proposed soil borings and groundwater sampling protocol. A copy of the HASP was available on-site at all times. The URS Site supervisor held a tailgate meeting covering aspects of the HASP before the start of any work.

Access agreements (Appendix A) were obtained from the property owner of the Davis Street Community Center in order to advance the proposed soil borings located on the property. Due to a delay in obtaining the agreements, the fieldwork was completed in two phases. The installation of the onsite well (MW-8) occurred on November 26, 2003 and the subsequent soil borings were advanced from March 20, 2004 to March 21, 2004.

Well Installation

On November 26, 2003, a URS geologist supervised Gregg Drilling and Testing, Inc. (Gregg Drilling), of Martinez, California, drill and install a monitoring well (MW-8) to a depth of 38 feet bgs using a hollow stem auger rig. Lithologic logging and sampling was conducted by the onsite URS geologist. Soil samples were collected at least every five feet and submitted to Seven Trent Laboratories (STL), a California-State certified laboratory, for chemical analysis. The samples were analyzed for TPH-g, BTEX, and fuel-oxygenates (including MTBE) using EPA Methods 8260B

The well was constructed with 2-inch diameter schedule 40 polyvinyl chloride (PVC) blank casing and 20 feet of 0.020-inch-slot PVC well screen extending from 18 to 38 feet bgs. The filter pack was constructed with #2/12 Lonestar sand from the bottom of the boring (38 feet bgs) to 2 feet above the top of the screen interval (16 feet bgs). The annulus of the well was sealed with 2 feet of bentonite on top of the sand. Neat Portland cement was grouted from the bentonite plug to the surface. The well was completed inside an existing vault box. Copies of soil boring and well construction reports are included in Appendix C.

Following installation, Blaintech Services was contracted to develop MW-8. The process consisted of surging and bailing the well to remove fine-grained sediments from the well and sand pack. Periodic measurements of pH, conductivity, temperature, and turbidity were recorded during development to establish baseline values for groundwater. A minimum of three casing volumes of water were removed and groundwater was removed continuously until either the water quality parameters stabilized or ten casing volumes were removed. Well development forms are presented in Appendix D.

Soil Boring and Soil/Groundwater Sampling

On March 20, 2004 through March 21, 2004 a URS geologist observed Gregg Drilling advance 6 off-site soil borings and one on-site soil boring using direct push technologies.

locations of the borings are illustrated on Figure 1. During drilling, groundwater was encountered at depths of 17 to 21 feet bgs.

Groundwater was sampled in five of the seven borings (H-1 through H-5). Due to the low permeability of the surrounding sediments and the difficulty in obtaining sufficient groundwater for sampling, the depth discrete sampling proposed in the workplan was not fully completed. Depth discrete groundwater samples were only sampled from two borings (H-4 and H-5). The remaining sampled borings (H-1, H-2, and H-3) were litholgically logged and sampled via grab groundwater sampling methods. One off-site boring (SB-1) and one on-site boring (SB-2) were advanced for purposes of lithological logging only. Groundwater was not sampled in these borings (SB-1 and SB-2).

Groundwater samples were submitted to Sequoia for chemical analysis. The samples were analyzed for GRO, BTEX, and fuel-oxygenates (including MTBE) using EPA Method 8260 (see Table 2 for results).

The Quarterly monitoring event was performed on April 5, 2004. Results are shown on Table 3 and Figure 5.

Geology and Hydrogeology

Soils encountered in the soil borings consisted of clay, silt, sand, and some gravel. Each soil boring was lithologicaly logged by an onsite URS geologist (Appendix C). The general lithology underlying the vicinity consists of a layer of fill that consists of clay, silt, sand and gravel, which extends to approximately 5 to 8 feet bgs. Underlying the fill is a silty clay, in which zones of a higher permeable sand or gravel are encountered. The depths and thicknesses of each sandy/gravelly unit vary considerably from location to location.

During drilling, groundwater was generally first encountered at 17 to 21 feet bgs. The lithology encountered in the "water-bearing" zone, when encountered, generally consists of sands, silty sands, gravelly sands, sandy gravels, and some poorly graded gravels. The lithology of boring MW-8 consists entirely of a low-permeable silty clay. The clayey silts and silty clays encountered during the investigation displayed low to no plasticity and estimated moderately low permeability. Copies of boring logs generated during this assessment are presented in Appendix C.

After lithologic logging of each boring by the onsite geologist, URS constructed three geologic cross-sections (Figures 2, 3 and 4) of the local subsurface. Cross-sectional lines have been shown on Figure 1.

Based on the Second Quarter, 2004 sampling event, the groundwater flow direction is to the west at a calculated hydraulic gradient of approximately 0.004 feet per foot.

Soil Analytical Results

On November 26, 2004, URS submitted 8 soil samples to STL for chemical analysis. The samples were taken during the well installation activities for monitoring well MW-8. Samples were analyzed for TPH-g, BTEX, and fuel-oxygenates (including MTBE). Soil analytical results are presented in Table 1 and maximum concentrations are shown on Figure 4.

Soil sample analytical results from boring MW-8 can be summarized as follows:

- TPH-g was detected above laboratory reporting limits in two of the samples. MW-8-15 and MW-8-16.5 had TPH-g concentrations of 2.1 mg/kg and 150 mg/kg, respectively.
- Benzene and toluene were not detected above laboratory reporting limits for any of the analyzed samples. Ethylbenzene and xylenes were detected in MW-8-16.5 at a concentration of 0.60 mg/kg and 0.84 mg/kg, respectively.
- MTBE was detected above laboratory reporting limits in five of the samples. MTBE was detected in samples MW-8-15, MW-8-23, MW-8-28, MW-8-33, and MW-8-38 at concentrations of 0.032 mg/kg, 1.4 mg/kg, 0.12 mg/kg, 0.037 mg/kg, and 0.027 mg/kg, respectively. Other fuel oxygenates that were detected above laboratory reporting limits include tert-butyl alcohol (TBA), which was detected in MW-8-15 at a concentration of 0.017 mg/kg and tert-amyl methyl ether (TAME), which was detected in MW-8-23 at a concentration of 0.025 mg/kg.

Groundwater Analytical Results

URS submitted 5 depth discrete groundwater samples (H-4-27, H-4-35, H-5-27, H-5-32, and H-5-40) and 3 grab groundwater samples (H-1, H-2, and H-3). The groundwater samples were submitted to Sequoia Analytical, a California state-certified laboratory, for analysis of GRO, BTEX and fuel-oxygenates (including MTBE) using EPA Method 8260. Groundwater analytical results are presented in Tables 2 and 3 and shown on Figure 5.

Depth discrete groundwater sample analytical results from borings H-4 and H-5 can be summarized as follows:

- GRO was detected above laboratory reporting limits in H-5-40 at a concentration of 53 ug/L.
- Benzene, toluene, and ethylbenzene were not detected above laboratory reporting limits in any of the depth discrete samples analyzed.
- Xylene was detected in H-4-27 at a concentration of 0.72 ug/L.
- MTBE and other fuel oxygenates were not detected above laboratory reporting limits in any of the depth discrete samples analyzed.

- There were no contaminant detections above laboratory reporting limits in depth discrete samples H-4-35, H-5-27, and H-5-32.

Grab groundwater sample analytical results from borings H-1, H-2, and H-3 can be summarized as follows:

- GRO was detected above laboratory reporting limits in H-1 and H-2 at concentrations of 820 ug/L and 260,000 ug/L, respectively.
- Benzene and toluene were not detected above laboratory reporting limits in any of the grab groundwater samples submitted for analysis. Ethylbenzene and total xylenes were detected in sample H-2 at concentrations of 5,800 ug/L and 11,000 ug/L, respectively.
- MTBE was detected in grab groundwater samples H-1 and H-2 at concentrations of 550 ug/L and 7,600 ug/L, respectively.
- There were no contaminant detections above laboratory reporting limits in grab groundwater sample H-3.

Quarterly groundwater sampling results from April 5, 2004 can be summarized as follows:

- GRO were detected above laboratory reporting limits in all seven wells sampled this quarter at concentrations ranging from 110 µg/L (MW-4) to 62,000 µg/L (MW-7).
- Benzene was detected above laboratory reporting limits in three wells at concentrations of 33 µg/L (MW-2) and 520 µg/L (MW-7).
- MTBE was detected above laboratory reporting limits in all wells at concentrations ranging from 27 µg/L (MW-4) to 37,000 µg/L (MW-7).
- TAME was detected above laboratory reporting limits in four wells at concentrations ranging from 3.7 µg/L (MW-3) to 37 µg/L (MW-1).
- Other than MTBE and TAME, no other fuel oxygenates were detected above the respective laboratory reporting limits (Table 3).

Copies of laboratory analytical reports and chain-of-custody records for depth discrete samples and grab groundwater samples are presented in Appendix E. Analytical results of quarterly groundwater sampling are presented in Table 3.

Waste Disposal

Soil generated during the field investigation was temporarily stored on-site in DOT approved 55-gallon drums. Following waste characterization, Dillard Environmental

Services was contracted to dispose of all drilling-related waste. Copies of the waste disposal receipt is included in Appendix F.

Survey

Following completion of the well installation and soil boring activities, each location was surveyed by a licensed surveyor relative to mean sea level and latitude and longitude coordinates using Global Positioning System methods and the NAVD '88 and NAD '83 vertical and horizontal datums. Elevation measurements for MW-8 will be used to obtain groundwater levels and determine hydraulic gradient. Survey data are included in Appendix G.

RECOMMENDATIONS

The purpose of this report is to provide data to further delineate the vertical and horizontal extent of the hydrocarbon plume and to provide data for the proposal of downgradient monitoring wells.

Based on these data results, URS recommends installing two downgraident offsite wells (MW-9 and MW-10) in the vicinity of boring H-2 and H-4 (see Figure 1). The wells should be 4-inch diameter wells and screened from 10 to 25 feet. The exact depth and length of screen of the new wells will be determined based on lithology of the boring and by a registered geologist. The well will be installed using Schedule 40 PVC 0.010-inch slotted well screen and #2/12 sand filter pack one to two feet above the top of the well screen. The filter pack will be overlain by one to two feet of bentonite and neat cement grout to the surface. Traffic rated well boxes will be installed to grade.

URS is currently in the process of designing and permitting a duel-phase extraction (DPE) remediation system for the Site. Construction of the system is expected to begin at the end of May and the system being started up at the end of June. The two proposed monitoring wells (MW-9 and MW-10) will be benefical in monitoring the affect of the DPE system has on controlling and remediating the chemical constituents of concern at the Site.

LIMITATIONS

This report is based on data, site conditions, and other information that are generally applicable as of the date of the report, and the conclusions and recommendations herein are therefore applicable only to that time frame. This report has been prepared solely for the use of ARCO and the lead regulatory agency, and should not be used by any third party.

Background information, including but not limited to previous field measurements, analytical results, site plans, and other data has been furnished to URS by BP/ARCO, its previous consultants, and/or third parties that URS has used in preparing this report. URS

has relied on this information as furnished. URS is not responsible for nor has it confirmed the accuracy of this information.

The analytical data provided by the laboratory approved by ARCO have been reviewed and verified by that laboratory. URS has not performed an independent review of the data and is neither responsible for nor has confirmed the accuracy of these data.

We appreciate the opportunity to present this Additional Subsurface Investigation Report to the ACHCSA on behalf of ARCO and trust that this document meets with your approval. Please do not hesitate to contact us at (510) 893-3600 with any questions or comments.

Sincerely,

URS CORPORATION

Christopher Sheridan
Geologist

William Frohlich, C.Hg., C.E.G.
Senior Geologist

for Scott Robinson

Scott Robinson
Project Manager

Appendices:

References
Figure 1 – Site Plan
Figure 2 – Geologic Cross-Section A'-A
Figure 3 – Geologic Cross-Section B'-B
Figure 4 – Geologic Cross-Section C-C'
Figure 5 – Groundwater Maximum Contaminant Concentration Map

Table 1 – Soil Analytical Results
Table 2 – Groundwater Analytical Results
Table 3 – Historical Groundwater Analytical Data

Appendix A – ACHCSA Correspondance
Appendix B – Soil Boring/Well Installation Permits
Appendix C – Soil Boring Logs/Well Construction Diagram
Appendix D – Well Development Forms
Appendix E – Laboratory Analytical Reports and Chain-of-Custody Records
Appendix F – Waste Reciept
Appendix G – Survey Data

cc: Mr. Paul Supple, Atlantic Richfield Company, P.O. Box 6549, Moraga, California 94549 (electronic copy uploaded to ENFOS).

Ms. Jaine O'Connar, City of Fremont Fire Department, Haz Mat Unit, PO Box 5006, Fremont, CA 94537.

REFERENCES

Alameda County Health Care Services Agency. 2003. Email to Paul Supple and Scott Robinson, Subject: RAP for ARCO No. 2111, 1156 Davis Street, San Leandro, California. June 25.

Delta Environmental Consultants, Inc. 2001a. *Well Destruction Report,* ARCO Service Station No. 2111, 1156 Davis Street, San Leandro, California. March 17.

Delta Environmental Consultants, Inc. 2001b. *Tank Basin, Product Line and Dispenser Island Sampling Results,* ARCO Service Station No. 2111, 1156 Davis Street, San Leandro, California. February 2.

Delta Environmental Consultants, Inc. 2001c. *Sump Sampling Results,* ARCO Service Station No. 2111, 1156 Davis Street, San Leandro, California. August 21.

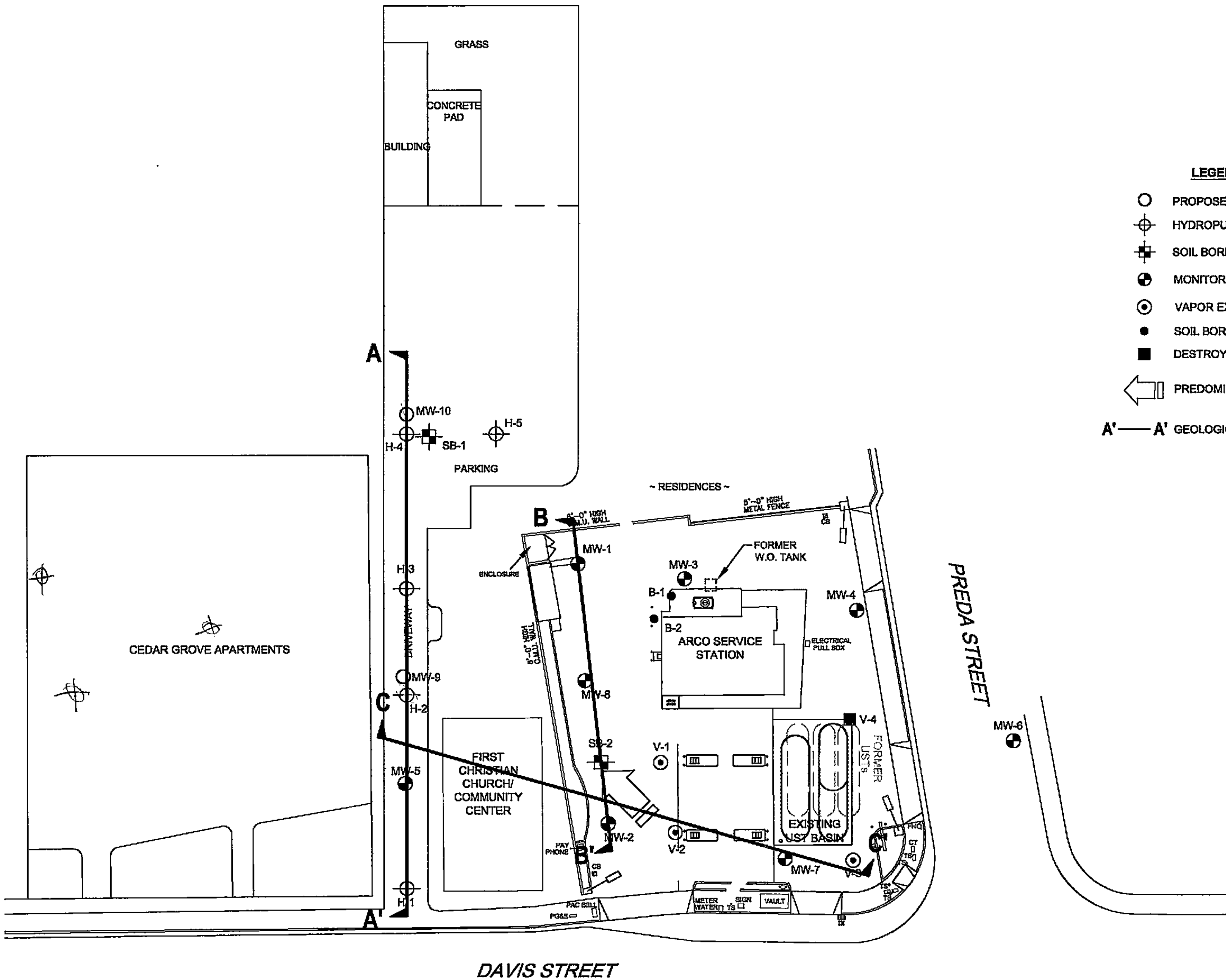
EMCON. 1996. *Soil and Groundwater Assessment Report,* ARCO Service Station 2111, San Leandro, California. September 19.

EMCON. 1997. *Resubmittal of Tier 1, Tier 2 Risk-based Corrective Action Evaluation,* ARCO Service Station 2111, 1156 Davis Street, San Leandro, California. May 23

SFBRWQCB. 1995. *Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan). San Francisco Bay Regional Water Quality Control Board. Region 2. June 21. Volume 1 ESL Lookup Tables, Updated Feb. 2004. .

URS Corporation. 2003. *Remedial Action Plan,* ARCO Service Station No. 2111, 1156 Davis Street, San Leandro, California for Atlantic Richfield Company. June 19

URS Corporation. 2003 *Remedial Action Plan Addendum,* ARCO Service Station #2111, 1156 Davis St., San Leandro, CA. July 15.



LEGEND

- PROPOSED MONITORING WELL LOCATION
- HYDROPUNCH LOCATION
- SOIL BORING LOCATION
- MONITORING WELL
- VAPOR EXTRACTION WELL
- SOIL BORING
- DESTROYED WELL
- PREDOMINANT GROUNDWATER FLOW DIRECTION
- A'——A' GEOLOGICAL CROSS SECTION LINE

NORTH

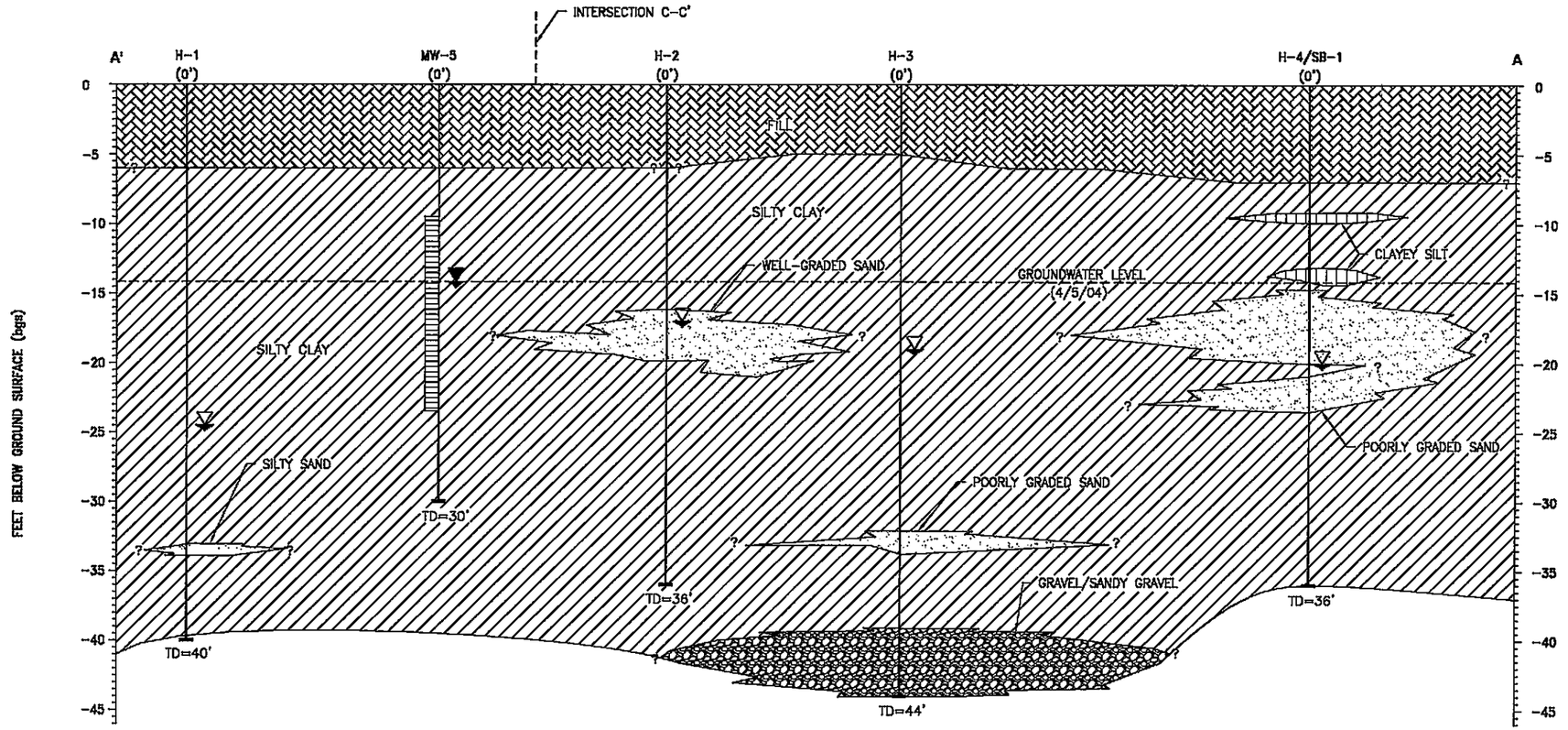
0 40 80

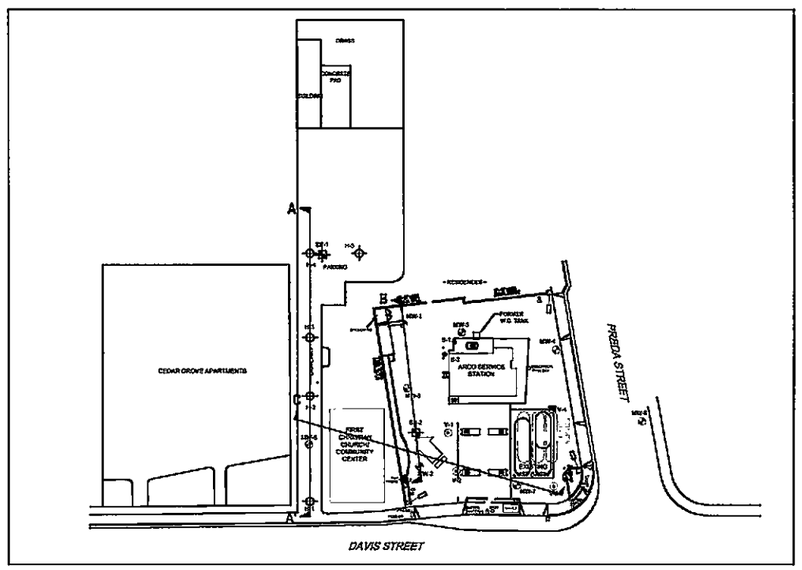
SCALE IN FEET

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

URS	Project No. 38486896 Arco Service Station #2111 1156 Davis Street San Leandro, California	SITE PLAN	FIGURE 1

May 04, 2004 - 11:33am X:\x_env_wasse\BP GEM\Sites\Scott Robinson\Paul Supple\2111\SP_Fig_1.dwg





LEGEND:

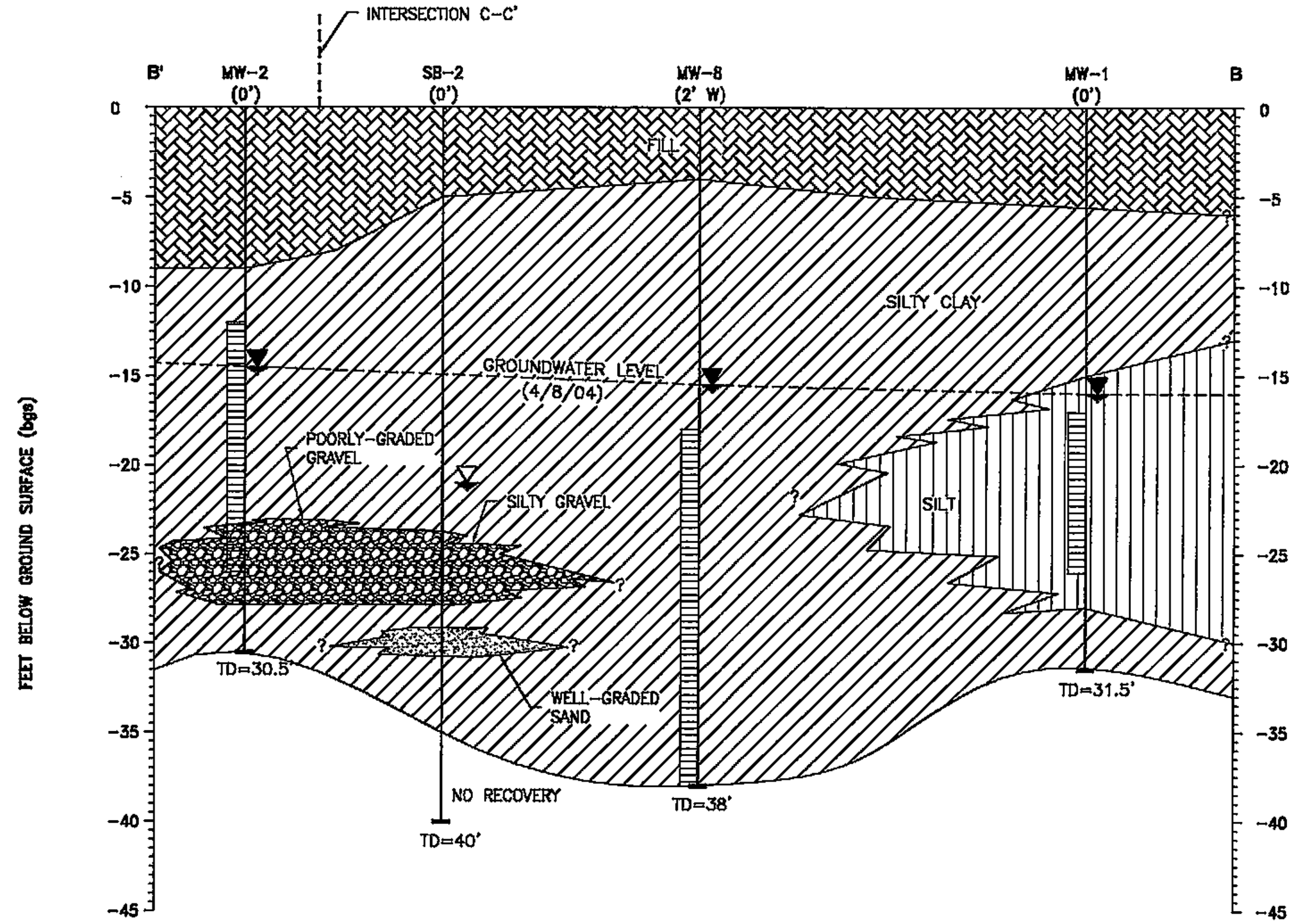
- FIRST ENCOUNTER GROUNDWATER (3/20/04–3/21/04)
- STATIC WATER LEVEL (4/5/04)
- FILL
- GRAVEL/SILTY GRAVEL/SANDY GRAVEL (GM/GP)
- SAND/SILTY SAND/GRAVELLY SAND (SP/SM/SP/SW)
- SILT/CLAYEY SILT (ML)
- SILTY CLAY (CL)
- MW–5 — WELL OR SOIL BORING NUMBER
- (X') — DISTANCE AND DIRECTION OF PROJECTION
- MONITORING WELL SCREENED INTERVAL
- TD=36' — TOTAL DEPTH (FEET BELOW GROUND SURFACE)

0 10 20
VERT. SCALE IN FEET

0 20 40
HORIZ. SCALE IN FEET

URS	Project No. 38486896 Arco Service Station #2111 1156 Davis Street San Leandro, California	GEOLOGIC CROSS-SECTION A'-A	FIGURE 2

Apr 27, 2004 – 1:18pm
X:\x_env_work\SF GEM\Sites\Scott Robinson\Post Script\2111\WP\WP Addendum– Field & Report\Report\Figures\A-A_XSECTIONAL_Fig_2.dwg

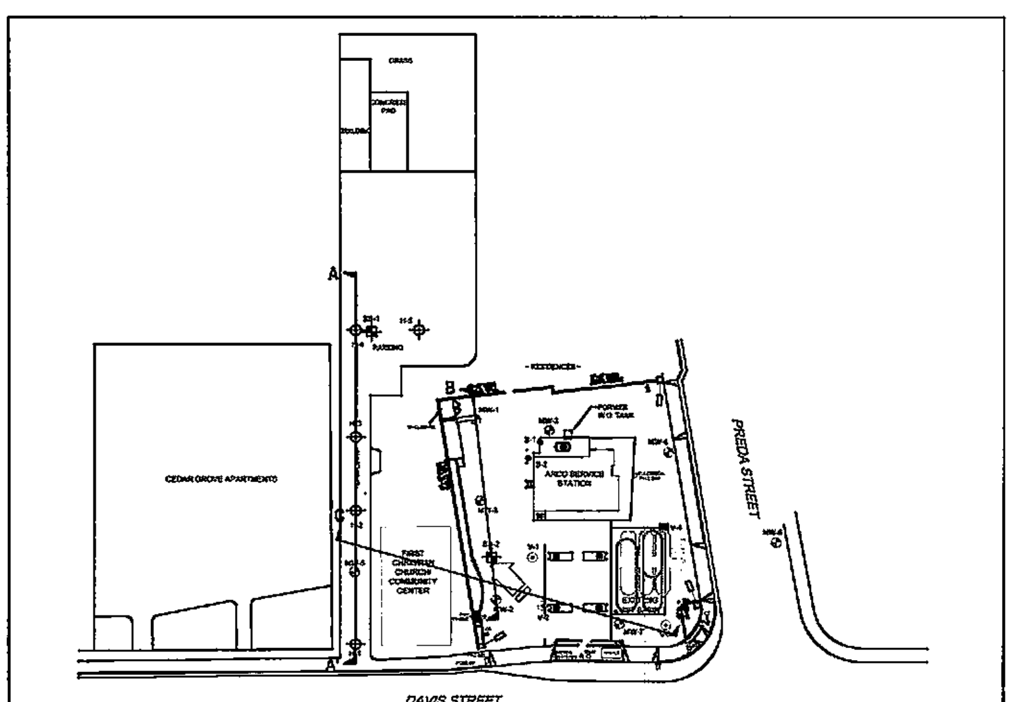


LEGEND:

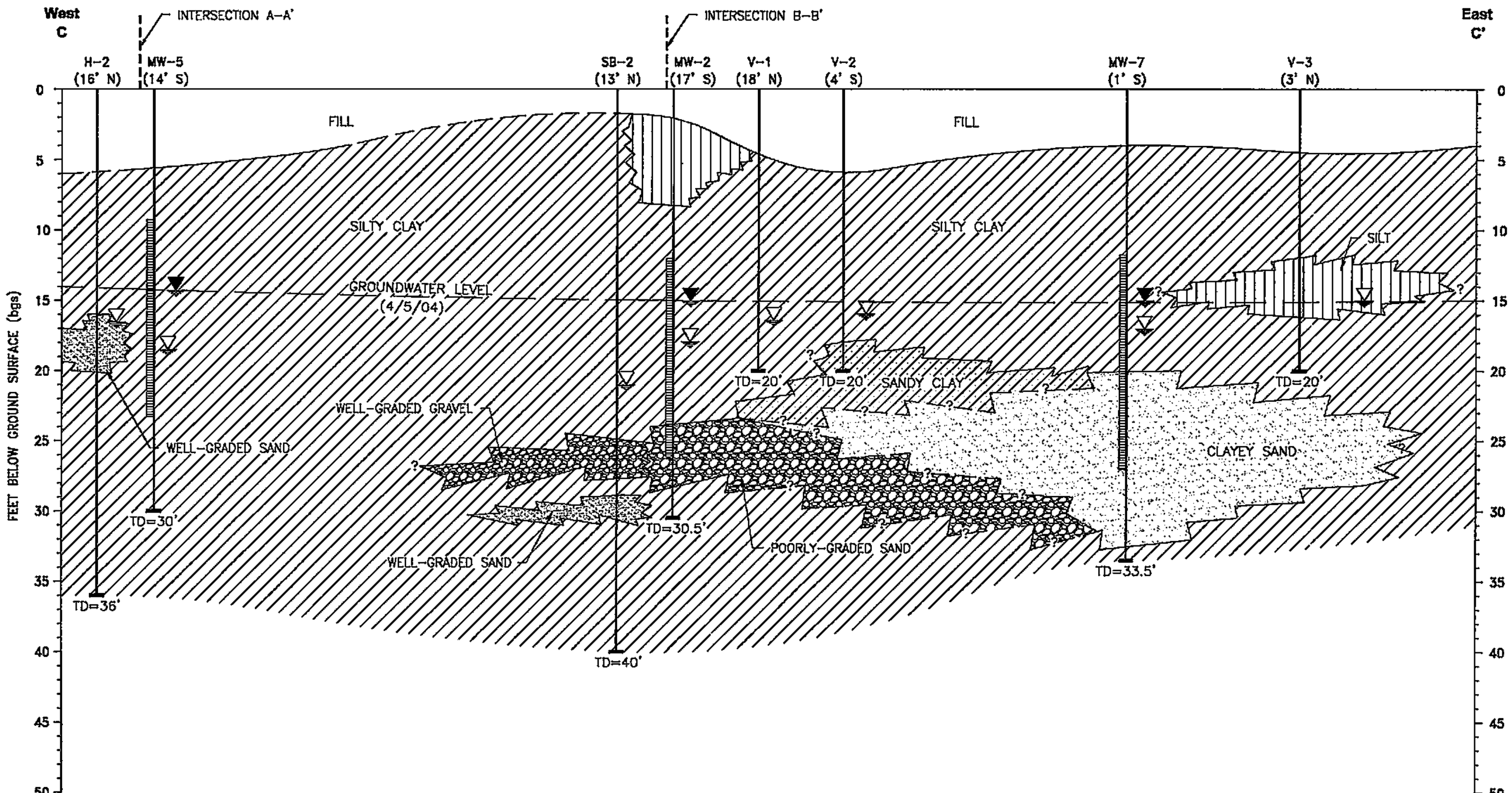
- FIRST ENCOUNTER GROUNDWATER (3/20/04-3/21/04)
- STATIC WATER LEVEL (4/5/04)
- FILL
- GRAVEL/SILTY GRAVEL/SANDY GRAVEL (GM/GP)
- SAND/SILTY SAND/GRAVELLY SAND (SP/SM/SP/SW)
- SILT/CLAYEY SILT (ML)
- SILTY CLAY (CL)
- MW-5 (X') WELL OR SOIL BORING NUMBER DISTANCE AND DIRECTION OF PROJECTION
- MONITORING WELL SCREENED INTERVAL
- TD=36' TOTAL DEPTH (FEET BELOW GROUND SURFACE)

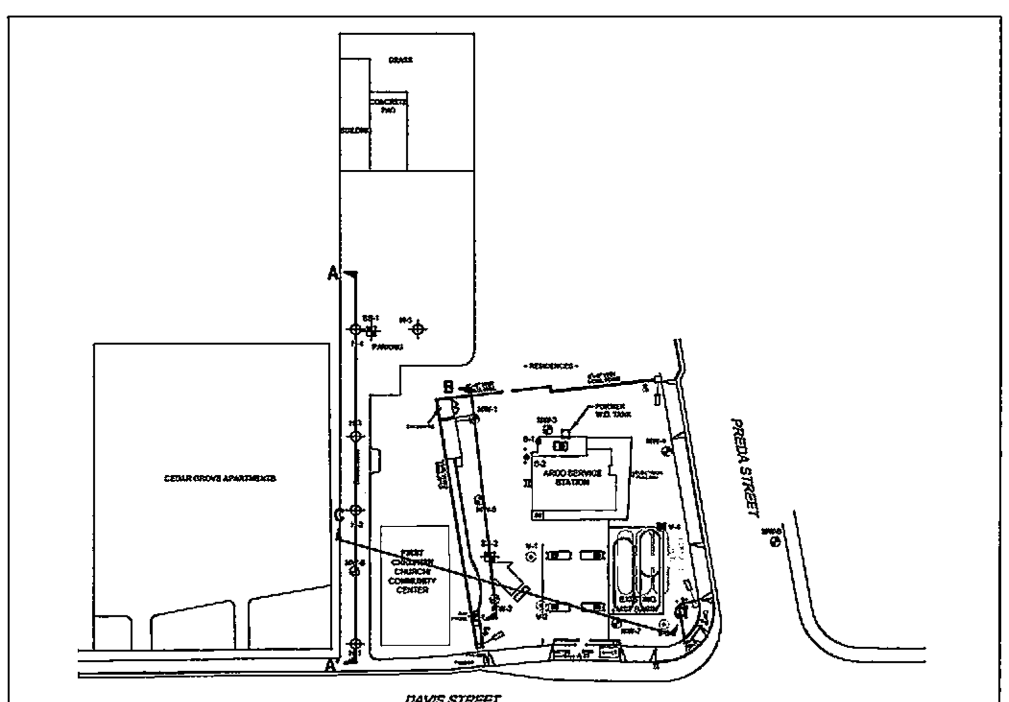
0 10 20
VERT. SCALE IN FEET

0 20 40
HORIZ. SCALE IN FEET



URS	Project No. 38486896 Arco Service Station #2111 1156 Davis Street San Leandro, California	GEOLOGIC CROSS-SECTION B'-B	FIGURE 3





LEGEND:

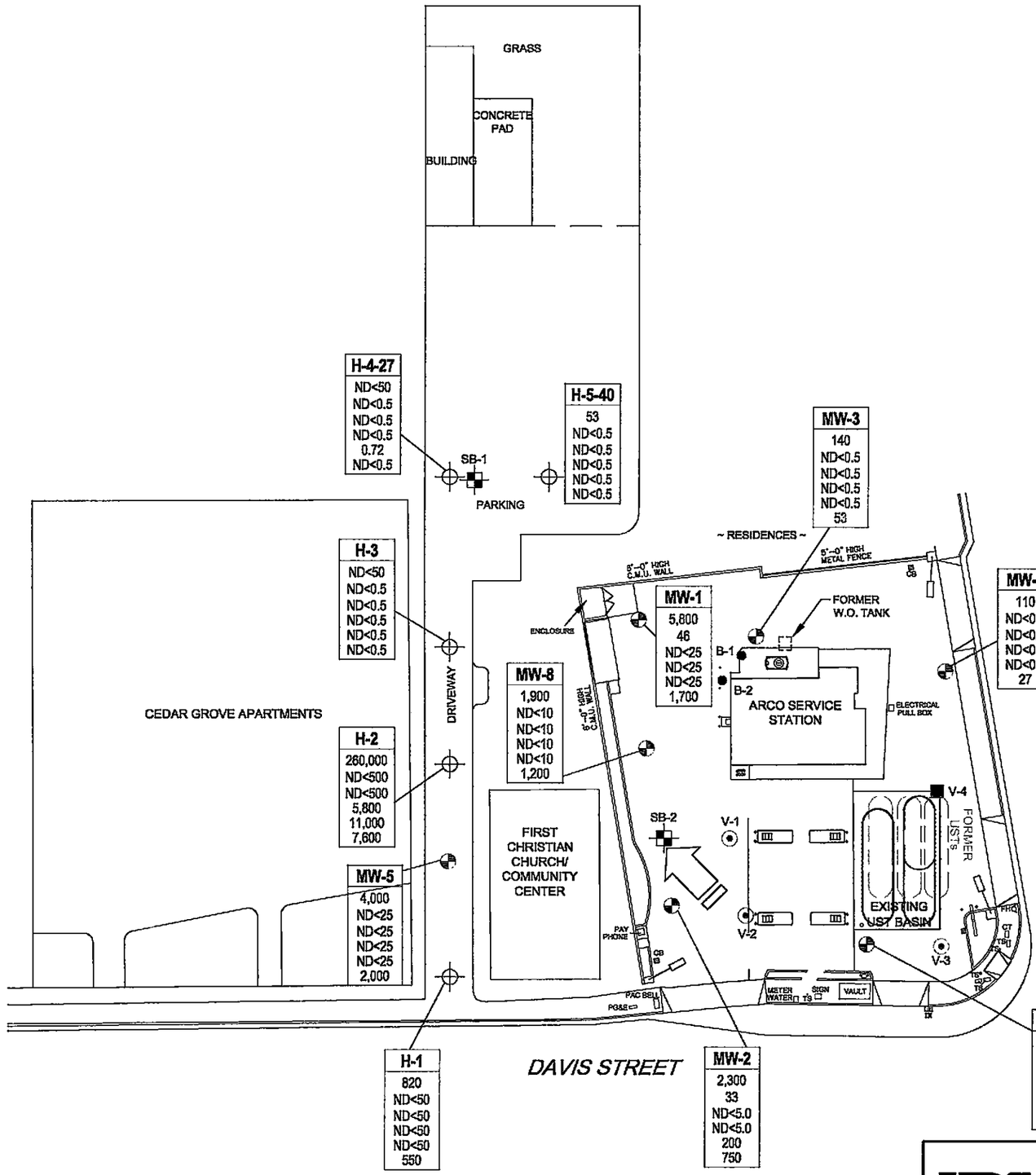
- FIRST ENCOUNTER GROUNDWATER (3/20/04–3/21/04)
- STATIC WATER LEVEL (4/5/04)
- GRAVEL/SILTY GRAVEL/SANDY GRAVEL (GM/GP)
- SAND/SILTY SAND/GRAVELLY SAND (SP/SM/SP/SW)
- SILT/CLAYEY SILT (ML)
- SILTY CLAY (CL)
- SANDY CLAY (CL)
- MW–5 (X') — WELL OR SOIL BORING NUMBER, DISTANCE AND DIRECTION OF PROJECTION
- MONITORING WELL SCREENED INTERVAL
- TD=36' — TOTAL DEPTH (FEET BELOW GROUND SURFACE)

0 10 20
VERT. SCALE IN FEET

0 20 40
HORIZ. SCALE IN FEET

URS	Project No. 38486896	GEOLOGIC CROSS-SECTION C - C'	FIGURE 4
	Arco Service Station #2111 1156 Davis Street San Leandro, California		

May 04, 2004 – 11:28am
X:\x_env_waste\BP GEM\Sites\Scott Robinson\Paul Supple\2111\RAP\RAP Addendum– Field & Report\Report\Figures\C–C_XSECTION_Fig–4.dwg



LEGEND

- HYDROPUNCH LOCATION
- SOIL BORING LOCATION
- MONITORING WELL
- VAPOR EXTRACTION WELL
- SOIL BORING
- DESTROYED WELL
- PREDOMINANT GROUNDWATER FLOW DIRECTION

Well	
GRO	GASOLINE RANGE ORGANICS
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	XYLENE
MTBE	METHYL TERTIARY BUTYL ETHER

GROUNDWATER CONCENTRATIONS SHOWN IN µg/L

NOTES: GROUNDWATER FROM SOIL BORINGS SAMPLED ON 03/20/04.
GROUNDWATER FROM MONITORING WELLS SAMPLED ON 04/05/04.

NORTH

0 40 80

SCALE IN FEET

NOTE: SITE MAP ADAPTED FROM DELTA ENVIRONMENTAL FIGURES. SITE DIMESIONS AND FACILITY LOCATIONS NOT VERIFIED.

URS

Project No. 38486896

Arco Service Station #2111
1156 Davis Street
San Leandro, California

GROUNDWATER MAXIMUM CONTAMINANT CONCENTRATION MAP

FIGURE 5

May 04, 2004 - 11:28am
X:\e_env_waste\SP GEM \Sites\Scott Robinson \Post Supple\21111RAP\RAP Addendum- Field & Report \Report\Figures\5_GW-MAX.dwg

Table 1
Soil Analytical Results
ARCO #2111
1156 Davis St., San Leandro, CA

Well Number	Date Sampled	TPH-g (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	TBA (mg/kg)	MTBE (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)
MW-8-5	11/26/04	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.010	ND<0.005	ND<0.010	ND<0.005	ND<0.005
MW-8-10	11/26/04	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.010	ND<0.005	ND<0.010	ND<0.005	ND<0.005
MW-8-15	11/26/04	**2.1**	ND<0.005	ND<0.005	ND<0.005	ND<0.005	**0.017**	**0.032**	ND<0.010	ND<0.005	ND<0.005
MW-8-16.5	11/26/04	**150** ~	ND<0.5	ND<0.5	**0.60**	**0.84**	ND<2.5	ND<0.50	ND<1.0	ND<0.5	**25**
MW-8-23	11/26/04	ND<5.0	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.050	**1.4**	ND<0.050	ND<0.025	ND<0.025
MW-8-28	11/26/04	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.010	**0.12**	ND<0.010	ND<0.005	ND<0.005
MW-8-33	11/26/04	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.010	**0.037**	ND<0.010	ND<0.005	ND<0.005
MW-8-38	11/26/04	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.010	**0.027**	ND<0.010	ND<0.005	ND<0.005

Notes:
TPH-g = Total Petroleum Hydrocarbons analyzed by EPA method 8260B.
BTEX = Benzene, Toluene, Ethyl-benzene, and Total Xylenes analyzed by EPA method 8260B.
MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8260B.
TBA = tert-Butyl alcohol
DIPE = Di-isopropyl ether
ETBE = Ethyl tert-butyl ether
TAME = tert-Amyl methyl ether
1,2-DCA = 1,2-Dichloroethane
1,2-DBA = 1,2 Dibromoethane (EDB)
mg/kg = Micrograms per kilogram
MSL = Mean sea level
ND< = Not detected at or above specified laboratory method detection limit

Table 2
Groundwater Analytical Results
ARCO #2111
1156 Davis St., San Leandro, CA

Well Number	Date Sampled	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Ethanol (µg/L)	TBA (µg/L)	MTBE (µg/L)	DIE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (mg/L)	1,2-DBA (mg/L)
H-1	03/21/04	**820**	ND<5	ND<5	ND<5	ND<5	ND<1000	ND<200	**550**	ND<5	ND<5	ND<5	ND<5	ND<5
H-2	03/21/04	**260,000**	ND<500	ND<500	**5,800**	**11,000**	ND<100,000	ND<500	**7,600**	ND<500	ND<500	ND<500	ND<500	ND<500
H-3	03/21/04	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
H-4-27	03/20/04	ND<50	ND<0.50	ND<0.50	ND<0.50	**0.72**	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
H-4-35	03/20/04	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
H-5-27	03/20/04	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
H-5-32	03/20/04	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
H-5-40	03/21/04	**53**	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50

Notes:
GRO = Gasoline Range Organics
BTEX = Benzene, Toluene, Ethyl-benzene, and Total Xylenes analyzed by EPA method 8260B.
MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8260B.
TBA = tert-Butyl alcohol
DIE = Di-isopropyl ether
ETBE = Ethyl tert-butyl ether
TAME = tert-Amyl methyl ether
1,2-DCA = 1,2-Dichloroethane
1,2-DBA = 1,2 Dibromoethane (EDB)
µg/L = Micrograms per liter
MSL = Mean sea level
ND< = Not detected at or above specified laboratory method detection limit
* = Groundwater elevation measurments are from first encountered groundwater during drilling.

Source : The data within this table collected prior to July 2002 was provided to URS by Group Environmental Management Company and their previous consultants. URS has not verified the accuracy of this information.

Table 3
Historical Groundwater Analytical Data

ARCO Service Station #2111
1156 Davis Street
San Leandro, California

Well Number	Date Sampled	Purge/ Not Purged	TOC Elevation (feet, MSL)	Top of Screen (feet bgs)	Bottom of Screen (feet bgs)	Well Depth (feet bgs)	Depth to Groundwater (feet, TOC)	Groundwater Elevation (feet, MSL)	GRO / TPH-g [p,-] (µg/L)	Benzene (µg/L)	Toluene (µg/L	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (8020) (µg/L)	MTBE (8260) (µg/L)	Dissolved Oxygen [a] (mg/L)	pH Level [o]
MW-1	06/26/00		39.60	12.50	26.20	27.00	16.46	23.14	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00						16.89	22.71	360	110	ND<0.5	ND<0.5	2.7	2,100	NA	NA	NA
	09/19/00						17.62	21.98	290	76	ND<0.5	ND<0.5	2.3	1,500	NA	NA	NA
	12/21/00						17.39	22.21	257	64	2.89	1.31	4.57	1,080	1,060	NA	NA
	03/13/01						15.7	23.90	ND<500	52.5	ND<5.0	ND<5.0	ND<5.0	1,430	1,370	NA	NA
	09/18/01						18.24	21.36	ND<500	64	7.3	ND<5.0	52	810	1,100	NA	NA
	12/28/01						15.95	23.65	ND<500	ND<5.0	ND<5.0	5.00	22	1,200	1,100	NA	NA
	03/14/02						16.01	23.59	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	34	40	NA	NA
	04/23/02						15.43	24.17	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	30	NA	NA	NA
	07/17/02	NP					17.50	22.10	ND<50	1.2	ND<0.50	ND<0.50	ND<0.50	29	NA	1.6	6.9
	10/09/02						18.27	21.33	240[c]	4.9	ND<1.0	4.1	7.0	290	310	1.2	6.5
	01/13/03						15.37	24.23	760 [c]	34	11	17	56	300	NA	1.0	6.8
	04/07/03 [n]						16.61	22.99	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	22	1.5	6.8
	07/09/03	NP					17.27	22.33	ND<2,500	ND<25	ND<25	ND<25	ND<25	NA	690	1.9	6.7
	10/01/03	NP					18.20	21.40	600	3.0	ND<2.5	ND<2.5	ND<2.5	NA	360	0.6	7.1
	02/05/04 [q]	NP	39.49				16.28	23.32	2,800	31	ND<25	ND<25	ND<25	NA	1,100	0.9	6.5
	04/05/04	**NP**					**16.25**	**23.35**	**5,800**	**46**	**ND<25**	**ND<25**	**ND<25**	**NA**	**1,700**	**1.0**	**6.5**
MW-2	06/26/00		37.99	12.00	26.20	27.00	14.60	23.39[a]	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00						15.14	22.85	95,000	2,300	18,000	2,500	19,000	13,000	NA	NA	NA
	09/19/00						15.95	22.04	63,000	1,200	6,300	2,000	14,000	19,000	NA	NA	NA
	12/21/00						15.60	22.39	45,900	NA	2,130	1,160	9,460	22,400	24,700	NA	NA
	12/21/00[b]						NM	NC	5,010	360	189	213	626	54,300	89,200	NA	NA
	03/13/01						13.77	23.9	3,650	98.1	ND<5.0	ND<5.0	6.42	3,590	3,260	NA	NA
	3/13/2001[b]						NM	NC	ND<20,000	525	466	408	1,460	91,700	76,000	NA	NA
	9/18/2001[a]						16.86	21.13	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/28/01						14.28	23.71	31,000	1,500	3,800	1,300	4,800	9,300	8,800	NA	NA
	03/14/02						14.15	23.84	1,800	25	43	43	270	990	960	NA	NA
	04/23/02						13.60	24.39	9,000	220	110	470	2,500	8,500	NA	NA	NA
	07/17/02	NP	SHEEN				15.75	22.24	74,000 [c]	280	290	820	10,000	19,000	NA	0.4	6.8
	10/9/02 [g]						16.69	21.30	NS	NS	NS	NS	NS	NS	NS	NS	NS
	01/13/03 [g]		FREE PRODUCT				13.59	24.61 [h]	NS	NS	NS	NS	NS	NS	NS	NS	NS
	04/07/03 [g]		FREE PRODUCT				14.70	23.69 [h]	NS	NS	NS	NS	NS	NS	NS	NS	NS
	07/09/03 [g]		FREE PRODUCT				15.48	22.57 [h]	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/01/03 [g]		FREE PRODUCT				16.47	21.58 [h]	NS	NS	NS	NS	NS	NS	NS	NS	NS
	02/05/04 [g,q]		37.86				14.43	23.53 [h]	NS	NS	NS	NS	NS	NS	NS	NS	NS
	02/23/04 [r]						NM	NC	6,500	62	ND<25	64	130	NA	6,500	NA	NA
	02/23/04 [r]						NM	NC	12,000	150	ND<100	190	280	NA	17,000	NA	NA
	03/30/04	**NP**					**14.20**	**23.66** [r]	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
	04/05/04	**NP**					**14.35**	**23.51**	**2,300**	**33**	**ND<5.0**	**ND<5.0**	**200**	**NA**	**750**	**0.6**	**6.7**

Table 3
Historical Groundwater Analytical Data

ARCO Service Station #2111
1156 Davis Street
San Leandro, California

Well Number	Date Sampled	Purge/ Not Purged	TOC Elevation (feet, MSL)	Top of Screen (feet bgs)	Bottom of Screen (feet bgs)	Well Depth (feet bgs)	Depth to Groundwater (feet, TOC)	Groundwater Elevation (feet, MSL)	GRO / TPH-g [b,] (µg/L)	Benzene (µg/L)	Toluene (µg/L	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (8020) (µg/L)	MTBE (8260) (µg/L)	Dissolved Oxygen [c] (mg/L)	pH Level [c]
MW-3	06/26/00		39.32	11.90	26.20	27.00	15.96	23.36	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00						16.42	22.90	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	130	NA	NA	NA
	09/19/00						17.18	22.14	190	17	ND<0.5	1.4	2.4	160	NA	NA	NA
	12/21/00						16.97	22.35	187	17.8	ND<0.5	2.47	2.5	143	125	NA	NA
	03/13/01						15.17	24.15	72.4	2.83	ND<0.5	ND<0.5	ND<0.5	126	122	NA	NA
	09/18/01						17.81	21.51	140	6.4	ND<0.5	3.5	1.6	110	75	NA	NA
	12/28/01						15.44	23.88	130	5.9	ND<0.5	0.99	0.55	90	63	NA	NA
	03/14/02						15.50	23.82	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	100	88	NA	NA
	04/23/02						14.96	24.36	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	77	NA	NA	NA
	07/17/02	NP					17.09	22.23	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	47	NA	0.8	7.2
	10/09/02	NP					17.87	21.45	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	26	29	1.3	7.2
	01/13/03	NP					14.78	24.54	ND<50	ND<0.50	ND<0.50 [l]	ND<0.50	ND<0.50	59 l	NA	0.8	6.8
	04/07/03 [n]	NP					16.15	23.17	88	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	75	1.1	7.0
	07/09/03	NP					16.79	22.53	100	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	52	1.1	6.5
	10/01/03	NP					17.79	21.53	110	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	36	0.7	6.8
	02/05/04 [q]	NP	39.19				15.66	23.53	240	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	37	0.5	6.6
	04/05/04	**NP**					**15.78**	**23.41**	**140**	**ND<0.50**	**ND<0.50**	**ND<0.50**	**ND<0.50**	**NA**	**53**	**1.0**	**6.6**
MW-4	06/26/00		38.10	10.00	24.00	25.00	14.59	23.51	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00						15.04	23.06	97	7.9	ND<0.5	ND<0.5	1.1	51	NA	NA	NA
	09/19/00						15.83	22.27	110	7.0	ND<0.5	ND<0.5	ND<1.0	60	NA	NA	NA
	12/21/00						15.59	22.51	120	5.6	ND<0.5	1.72	ND<0.5	46.3	48.6	NA	NA
	03/13/01						13.73	24.37	76	0.796	ND<0.5	ND<0.5	ND<0.5	53.7	50.0	NA	NA
	09/18/01						16.50	21.60	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	25	26.0	NA	NA
	12/28/01						14.03	24.07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	15	11.0	NA	NA
	03/14/02						14.10	24.00	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	31	28	NA	NA
	04/23/02						13.57	24.53	ND<50	3	ND<0.5	ND<0.5	ND<0.5	42	NA	NA	NA
	07/17/02	NP					15.76	22.34	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	16	NA	1.2	7.1
	10/09/02	NP					16.59	21.51	ND<50	2.2	ND<0.50	ND<0.50	ND<0.50	20	23	0.8	7.1
	01/13/03	NP					13.43	24.67	52 [d]	ND<0.50	1.6	ND<0.50	ND<0.50	22	NA	0.6	6.6
	04/07/03 [n]	NP					14.74	23.36	65	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	24	0.7	6.6
	07/09/03	NP					15.44	22.66	120	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	34	1.4	6.6
	10/01/03	NP					16.45	21.65	98	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	28	0.8	6.5
	02/05/04 [q]	NP	37.99				14.39	23.60	120	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	22	0.5	6.6
	04/05/04	**NP**					**14.37**	**23.62**	**110**	**ND<0.50**	**ND<0.50**	**ND<0.50**	**ND<0.50**	**NA**	**27**	**1.1**	**6.5**

Table 3
Groundwater Elevation and Analytical Data

ARCO Service Station #2111
1156 Davis Street
San Leandro, California

Well Number	Date Sampled	Purge/ Not Purged	TOC Elevation (feet, MSL)	Top of Screen (feet bgs)	Bottom of Screen (feet bgs)	Well Depth (feet bgs)	Depth to Groundwater (feet, TOC)	Groundwater Elevation (feet, MSL)	GRO / TPH-g [p,] (µg/L)	Benzene (µg/L)	Toluene (µg/L	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (8020) (µg/L)	MTBE (8260) (µg/L)	Dissolved Oxygen [o] (mg/L)	pH Level [o]
MW-5	06/26/00		37.21	9.40	23.40	25.00	14.27	22.94	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00						14.69	22.52	55	ND<0.5	ND<0.5	ND<0.5	ND<1.0	14,000	NA	NA	NA
	09/19/00						15.36	21.85	54	ND<0.5	ND<0.5	ND<0.5	ND<1.0	13,000	NA	NA	NA
	12/21/00						15.15	22.06	72.9	2.51	ND<0.5	ND<0.5	0.961	19,200	21,200	NA	NA
	03/13/01						13.5	23.71	ND<500	ND<5	ND<5	ND<5	ND<5	15,900	20,000	NA	NA
	09/18/01						15.94	21.27	ND<10,000	ND<100	ND<100	ND<100	ND<1,000	22,000	20,000	NA	NA
	12/28/01						13.45	23.76	ND<10,000	ND<100	ND<100	ND<100	ND<100	10,000	10,000	NA	NA
	03/14/02						13.82	23.39	ND<5,000	ND<50	ND<50	ND<50	ND<50	7,100	7,700	NA	NA
	04/23/02						13.25	23.96	ND<5,000	ND<50	ND<50	ND<50	ND<50	8,900	NA	NA	NA
	07/17/02	NP					15.27	21.94	7,900 [d]	ND<50	ND<50	ND<50	ND<50	13,000	NA	1.1	7.5
	10/09/02	NP					16.02	21.19	2,400[e]	ND<20	ND<20	ND<20	ND<20	7,300	7,500	1.2	6.7
	01/13/03	NP					13.20	24.01	6,400 [e]	ND<50 [j]	ND<50	ND<50	ND<50 [j]	8,900 [k]	NA	1.3	6.8
	04/07/03 [n]	NP					14.42	22.79	ND<10,000	ND<100	ND<100	ND<100	ND<100	NA	3,700	0.9	6.8
	07/09/03	NP					15.01	22.20	11,000	ND<50	ND<50	ND<50	ND<50	NA	6,500	2.4	6.9
	10/01/03	NP					15.94	21.27	9,600	ND<50	ND<50	ND<50	ND<50	NA	6,100	1.0	7.4
	02/05/04 [q]	NP	37.12				14.10	23.02	8,100	ND<50	ND<50	ND<50	ND<50	NA	7,900	1.5	6.7
	04/05/04	**NP**					**14.14**	**22.98**	**4,000**	**ND<25**	**ND<25**	**ND<25**	**ND<25**	NA	**2,000**	**1.0**	**6.6**
MW-6	06/26/00		37.11	10.00	25.00	25.00	13.46	23.65	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00						13.94	23.17	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	ND<3.0	NA	NA	NA
	09/19/00						14.41	22.70	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	ND<3.0	NA	NA	NA
	12/21/00						14.53	22.58	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA	NA
	03/13/01						12.67	24.44	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA	NA
	09/18/01						15.42	21.69	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	ND<2.0	NA	NA
	12/28/01						12.96	24.15	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	12	ND<0.5	NA	NA
	03/14/02						12.98	24.13	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA	NA
	04/23/02						12.44	24.67	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3	NA	NA	NA
	07/17/02	NP					14.65	22.46	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.5	NA	1.3	7.3
	10/09/02	NP					15.51	21.60	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.5	NA	1.3	7.1
	01/13/03	NP					12.27	24.84	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.5	NA	1.1	6.8
	04/07/03 [n]	NP					13.61	23.50	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	ND<0.50	2.0	6.6
	07/09/03	NP					14.34	22.77	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	ND<0.50	1.6	7.0
	10/01/03	NP					15.37	21.74		---------- Sampled Annually (Third Quarter) ----------							
	02/05/04 [q]		37.11				13.38	23.73		---------- Sampled Annually (Third Quarter) ----------							
	04/05/04						**13.31**	**23.80**		**---------- Sampled Annually (Third Quarter) ----------**							

Table 3
Historical Groundwater Analytical Data

ARCO Service Station #2111
1156 Davis Street
San Leandro, California

Well Number	Date Sampled	Purge/ Not Purged	TOC Elevation (feet, MSL)	Top of Screen (feet bgs)	Bottom of Screen (feet bgs)	Well Depth (feet bgs)	Depth to Groundwater (feet, TOC)	Groundwater Elevation (feet, MSL)	GRO / TPH-g [b] (µg/L)	Benzene (µg/L)	Toluene (µg/L	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (8020) (µg/L)	MTBE (8260) (µg/L)	Dissolved Oxygen [c] (mg/L)	pH Level [c]
MW-7	06/26/00		38.68	12.00	27.00	27.00	14.34	24.34	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00						15.26	23.42	14,000	5.4	ND<0.5	2.8	5.9	71,000	NA	NA	NA
	09/19/00						15.70	22.98	8,400	420	38	470	220	5,600	NA	NA	NA
	12/21/00						16.02	22.66	NS[a]	NS[a]	NS[a]	NS[a]	NS[a]	NS[a]	NS[a]	NA	NA
	03/13/01						14.18	24.50	ND<2,000	154	63	46.3	127	175,000	160,000	NA	NA
	09/18/01						17.02	21.66	ND<100,000	1,900	ND<1,000	ND<1,000	2,800	190,000	370,000	NA	NA
	12/28/01						14.81	23.87	ND<20,000	ND<200	ND<200	ND<200	ND<200	84,000	72,000	NA	NA
	03/14/02						14.60	24.08	ND<50,000	ND<500	ND<500	ND<500	ND<500	85,000	85,000	NA	NA
	04/23/02						13.94	24.74	ND<20,000	530	200	220	800	67,000	NA	NA	NA
	07/17/02	NP					16.27	22.41	26,000 [d]	720	ND<250	ND<250	860	120,000	NA	1.0	6.9
	10/09/02	NP					17.16	21.52	110,000[d]	1,500	4,400	820	5,400	97,000	120,000	0.9	6.8
	01/13/03	NP					13.82	24.86	ND<50,000 [f]	ND<500 [f]	ND<500 [f]	ND<500 [f]	2,200 [f]	33,000 [f]	NA	0.8	6.6
	04/07/03 [m]	NP					14.52	24.16	ND<2,500	30	ND<25	ND<25	ND<25	NA	710	1.0	7.0
	07/09/03	NP					15.97	22.71	66,000	ND<500	ND<500	ND<500	ND<500	NA	36,000	1.6	6.7
	10/01/03	NP					17.03	21.65	130,000	570	ND<500	ND<500	ND<500	NA	84,000	0.7	6.6
	02/05/04 [q]	NP	38.54				14.75	23.79	55,000	300	ND<250	ND<250	ND<250	NA	34,000	1.0	6.7
	04/05/04	**NP**					**14.63**	**23.91**	**62,000**	**520**	**ND<250**	**ND<250**	**380**	**NA**	**37,000**	**1.0**	6.7
MW-8	02/05/04 [q]	P	38.91				15.61	23.30	3,600	ND<25	ND<25	ND<25	ND<25	NA	1,900	0.9	6.8
	04/05/04	P					**15.64**	**23.27**	**1,900**	**ND>10**	**ND>10**	**ND>10**	**ND>10**	**NA**	**1,200**	**3.2**	6.7

Table 3
Groundwater Elevation and Analytical Data

ARCO Service Station #2111
1156 Davis Street
San Leandro, California

Notes:

bgs	= Below ground surface
BTEX	= Benzene, Toluene, Ethyl-benzene, and Total Xylenes analyzed by EPA method 8260B. (Prior to 04/07/03, analyzed by EPA method 8021B.)
GRO	= Gasoline range organics, analyzed by EPA method 8260B.
mg/L	= Micrograms per liter
mg/L	= Milligrams per liter
MSL	= Mean sea level
MTBE	= Methyl tertiary butyl ether analyzed by EPA Method 8260B. (Prior to 04/07/03, analyzed by EPA method 8021B unless otherwise noted.)
NA	= Not available
NC	= Not calculated
ND<	= Not detected at or above specified laboratory method detection limit
NM	= Not measured
NP	= Well not purged before sampling
P	= Well purged before sampling
TOC	= Top of casing
TPH-g	= Total Petroleum Hydrocarbons as Gasoline analyzed by EPA method 8260B. (Prior to 04/07/03, analyzed by EPA method 8015 modified.)
a	= Product sheen noted
b	= Well was sampled after batch extraction event.
c	= Chromatogram Pattern: Gasoline C6-C10
d	= Hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel
e	= Discrete peak @C6-C7
f	= This sample was analyzed beyond the EPA recommended holding time. The results may still be useful for their intended purpose.
g	= Well not sampled due to the detection of free product.
h	= Groundwater elevation adjusted for free product: (thickness of free product x 0.8) + measured groundwater elevation
j	= The closing calibration was outside acceptance limits by 1%. This should be considered in evaluating the result. The average % difference for all analytes met the 15% requirement and the QC suggests that calibration linearity is not a factor.
k	= The closing calibration was outside acceptance limits by 6%. This should be considered in evaluating the result. The average % difference for all analytes met the 15% requirement and the QC suggests that calibration linearity is not a factor.
l	= This analyse was not confirmed using a secondary column in accordance to client contract.
n	= TPH-g, BTEX, and MTBE analyzed by EPA method 8260B beginning on the second quarter 2003 sampling event (04/07/03).
o	=Dissolved Oxygen and pH levels are field measurements.
p	= Please note that beginning in the Fourth Quarter 2003, the laboratory modified the reported analyte list. Total Petroleum Hydrocarbons as Gasoline (TPHg) has been changed to Gasoline Range Organics (GRO). The resulting data may be impacted by the potential inclusion of non-TPHg analytes within the requested fuel range resulting in a higher concentration being reported.
q	= TOC elevations re-surveyed to NAVD'88 on February 23, 2004.
r	= Data collected during batch extraction activities
s	= Beginning in the second quarter of 2004, the carbon range for the TPH-GRO has been changed from C6-C10 to C-4 to C-12. The carbon range for TPH-DRO has been changed from C10-C28 to C10-C36. EPA 8015B has been modified to better meet the requirements of California regulatory agencies.

Source : The data within this table collected prior to July 2002 was provided to URS by Atlantic Richfield Company and their previous consultants. URS has not verified the accuracy of this information.

Appendix A
Correspondence

"Chu, Eva, Env. Health" <EChu@co.alameda.ca.us>

To: "Paul Supple (E-mail) (E-mail)" <supplpv@bp.com>, "Scott_Robinson (E-mail)" <Scott_Robinson@urscorp.com>
cc:
Subject: RAP for ARCO #2111 at 1156 Davis St. San Leandro

06/25/2003 10:06 AM

Hi Paul and Scott:

I reviewed URS' June 19, 2003 RAP prepared for the above referenced site. The proposal to design and implement DPE at the site is acceptable.

One additional groundwater monitoring well is proposed. I'm not convinced this is the best location for a well. GW has flowed from SW to NW. I want to suggest that you have a number of hydropunches advanced and groundwater collected at various depths and at changes in lithology. Data from the HPs will delineate the vertical and horizontal extent of the plume. Then permanent groundwater monitoring well(s) can be sited and an appropriate screen length determined for the well(s).

The design of the DPE and implementation of the RAP can commence now, does not need to wait until after the offsite wells are completed. Please amend the RAP to address my concerns for plume delineation.

eva chu
Alameda County Environmental Health
Hazardous Materials Specialist
1131 Harbor Bay Parkway
(510) 567-6762
(510) 337-9335 (fax)

FILE COPY

RO0000494

October 22, 2003

Mr. Paul Supple
ARCO Products Company
P.O. Box 6549
Moraga, CA 94570

RE: RAP Approval for ARCO Station 2111 at 1156 Davis St, San Leandro, CA

Dear Mr. Supple:

I have completed review of URS' July 15, 2003 *Remedial Action Plan Addendum* report prepared for the above referenced site. URS' proposal to advance at least 5 soil borings using Direct Push Technology to delineate the vertical and horizontal extent of the plume is acceptable. Based on information collected from this phase of investigation, the location and screen interval of permanent groundwater monitoring well(s) will be determined.

The RAP addendum should be implemented within 60 days of the date of this letter, or by December 29, 2003. Please provide at least 72 hours advance notice of field activities. If you have any questions, I can be reached at (510) 567-6762 or by email at echu@co.alameda.ca.us.

eva chu
Hazardous Materials Specialist

c: Donna Drogos
email: Scott Robinson, URS

arco2111-2

BP WEST COAST PRODUCTS LLC

ACCESS AGREEMENT BETWEEN
___Davis St. Community Center_ AND BP West Coast Products LLC

THIS ACCESS AGREEMENT is made as of _March_, 2004 (this "Agreement"), by and between __Davis St. Community Center_, hereinafter collectively referred to as "Grantor", and BP West Coast Products LLC, a Delaware Limited Liability Company, hereinafter referred to as "Grantee".

1. RECITALS

1.1 Grantor owns certain real property located at ___1190 Davis Street, San Leandro, CA.___(the "Property").

1.2 Grantee desires to drill on a portion of the Property borehole(s) (the "Boreholes" and groundwater monitoring well(s) (the" Wells") and to perform assessment and other related work on the Property as required by or in accordance with applicable environmental laws and regulations, or as required by or acceptable to those regulatory agencies exercising appropriate jurisdiction (collectively, the "Work").

1.3 The parties desire to enter into this Agreement to allow Grantee to install said Boreholes and Wells on the Property and to provide access to the Property to Grantee or its representatives for the purpose of performing the Work authorized by this Agreement.

2. AGREEMENT

In consideration of the above and the mutual covenants and agreements herein, the parties agree as follows:

2.1 Grantor hereby grants Grantee or its representatives permission to enter onto the Property for the purpose of performing the Work authorized by this Agreement. Grantor authorizes Grantee or its representatives to release any and all analytical geotechnical data and site assessment information obtained during the performance of the Work to appropriate government agencies. Copies of final assessment and remediation reports pertinent to the Property and provided to such agencies shall also be provided to Grantor.

2.2 Grantee shall not permit any liens to stand against the Property for the Work done or materials furnished to Grantee, and Grantee shall indemnify, defend and save Grantor harmless from any such liens for the Work performed under this Agreement.

2.3 If the surface of the Property or any improvements thereon shall be disturbed by the Work, then, upon completion of Work, the surface or improvements shall be promptly restored by Grantee to its condition just prior to such disturbance.

2.4 Grantee shall, after the Boreholes or Wells are no longer useful to the investigation, backfill or close out such Boreholes or Wells according to applicable standards.

2.5 Grantee shall indemnify, defend, and save Grantor harmless from all liability, damage, expense, causes of action, suits, claims or judgments, including reasonable attorneys fees, resulting from

injuries to persons or damage to property on the Property or on adjoining streets and sidewalks which arise out of the negligence of Grantee, its agents, employees, invitees, or guests in performing the Work under this Agreement.

2.6 This Agreement shall terminate upon the completion of the Work and the backfilling or closing out of Boreholes or Wells as provided herein.

2.7 Grantee shall use its best efforts to locate the Boreholes or Wells in a manner so as not to unreasonably interfere with Grantor's use and occupation of the Property. Grantor, its employees, invitees and authorized representatives shall not unreasonably interfere or temper with the Wells, Boreholes and Grantee's performance of the Work, and furthermore, shall exercise reasonable care with regard to the Wells, Boreholes and Grantee's performance of the Work.

2.8 This Agreement shall only be assigned upon the prior written consent of both parties hereto. Furthermore, this Agreement shall bind and inure to the benefit of successors and assigns of the parties hereto.

2.9 By executing this Agreement or conducting any of the Work thereunder, neither Grantor nor Grantee waives any rights either may have against any person or entity in connection with any contamination such as may actually or allegedly exist at, or in the vicinity of the Property.

2.10 Neither this Agreement nor any of the Work in furtherance of it shall constitute or be interpreted or construed as an admission by Grantee of liability or fault under any federal, state or local law, or for any purpose whatsoever.

IN WITNESS WHEREOF, the parties hereto are authorized to have executed this Agreement as of the day and year first above written.

RP West Coast Products LLC
a Delaware limited liability Company

By: _____

Name: Paul Supple
(Print)

Title: Environmental Manager

WITNESS

By: _____

Name: _____
(Print)

By: _____

Name: Jeanne Edmond
(Print)

Title: Associate Executive Director

WITNESS

By: _____

Name: _____
(Print)

Appendix B
Soil Boring/Well Installation Permits

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-6633 James Yoo
FAX (510) 782-1939

APPLICANTS: PLEASE ATTACH A SITE MAP FOR ALL DRILLING PERMIT APPLICATIONS
DESTRUCTION OF WELLS OVER 45 FEET REQUIRES A SEPARATE PERMIT APPLICATION

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT ARCO Station # 2111
1156 Davis St.
San Leandro, CA

CLIENT
Name BP Amco Mail Code 8040
Address 801 Unionville Rd. Phone 630.434.6219
City Lisle, IL Zip 60532

APPLICANT
Name URS / Chris Sheridan Fax 510.874.3268
Address 500 12th St Phone 510.874.3125
City Oakland Zip 94607

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☒
Monitoring	☐	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☐
Cable	☐	Other	☒ Direct Push		

DRILLER'S NAME Gregg Drilling
DRILLER'S LICENSE NO. 485165

WELL PROJECTS
Drill Hole Diameter 2 in. Maximum
Casing Diameter 2" in. Depth 5/9 ft.
Surface Seal Depth ____ ft. Owner's Well Number ____
Temporary Casing

GEOTECHNICAL PROJECTS
Number of Borings 7 Maximum
Hole Diameter 2 in. Depth 40 ft. HP-1 - HP-5
SB1, SB-2

STARTING DATE 11/1/03
COMPLETION DATE 2/25/03
* Will call w/ exact dates

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE _____ DATE _____
PLEASE PRINT NAME Christopher Sheridan Rev.9-18-02

FOR OFFICE USE
PERMIT NUMBER W03-0998
WELL NUMBER ____
APN ____

PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL / CONTAMINATION
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS BAT Attached.

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED _____ DATE 10-28-03

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-6633 James Yoo
FAX (510) 782-1939

APPLICANTS: PLEASE ATTACH A SITE MAP FOR ALL DRILLING PERMIT APPLICATIONS
DESTRUCTION OF WELLS OVER 45 FEET REQUIRES A SEPARATE PERMIT APPLICATION

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT ARCO St. #2111
1156 Davis St.
San Leandro, CA

CLIENT Mail Code 8040
Name BP Amco
Address 801 Warrenville Rd. V Phone 630.434.6219
City Lisle, IL Zip 60532

APPLICANT
Name URS / Chris Sheridan
Fax 510.874.3268
Address 500 12th St. St. 200 Phone 510.874.3125
City Oakland, CA Zip 94607

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☒	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other _____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

DRILLER'S NAME Gregg Drilling
DRILLER'S LICENSE NO. 485165

WELL PROJECTS
Drill Hole Diameter 4" in. Maximum
Casing Diameter 2" in. Depth 40 ft.
Surface Seal Depth ~20 ft. Owner's Well Number MW-8

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum
Hole Diameter _____ in. Depth _____ ft.

STARTING DATE 11/26/03
COMPLETION DATE 11/26/03

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] DATE 11/17/03
PLEASE PRINT NAME Christopher Sheridan Rev.9-18-02

FOR OFFICE USE

PERMIT NUMBER W0310373 - Approved
WELL NUMBER _____
APN _____

PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and Industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

Approved by James Yoo

APPROVED _____ DATE _____

Appendix C
Soil Boring/Well Construction Logs

URS

1333 Broadway, Suite 800
Oakland, California 94612

LOG OF BORING

Borehole ID: SB-1

Total Depth: 37 feet

PROJECT INFORMATION	DRILLING INFORMATION
Project: BP - Site #2111	**Drilling Company:** Gregg Drilling & Testing
Site Location: 1156 Davis St., San Leandro, CA	**Driller:** Germaine/Jose
Project Manager: Scott Robinson	**Type of Drilling Rig:** DP13 Geoprobe
RG:	**Drilling Method:** Direct Push
Geologist: Christopher Sheridan	**Sampling Method:** Continuous
Job Number: 38486896	**Date(s) Drilled:** 3/20/04 - 3/21/04

BORING INFORMATION

Groundwater Depth (ft bgs): 20 feet	**Boring Location:** Davis St. Community Center parking lot
Hand Auger Depth (ft bgs): 5.0 feet	**Boring Diameter:** 2-inch
Coordinates: X -122.1692944 Y 37.7223623	**Boring Type:** Exploratory

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Recovery	Sample ID / Comments
0		CLAY: DARK BROWN to BROWN silty clay with some gravel (55% clay, 30% silt, 15% gravel). Soft, low plasticity, damp, no odor.	CL	0		Hand auger to 5 feet bgs
4		SILT: BROWN clayey silt (35% clay, 65% silt). Soft, no plasticity, damp.	ML	0		
8		CLAY: DARK BROWN to BROWN silty clay (60% clay, 40% silt). Soft to moderately stiff, low plasticity, damp.	CL	0		
10		SILT: BROWN clayey silt (30% clay, 70% silt).	ML			
		CLAY: DARK BROWN silty clay (65% clay, 35% silt). Moderately stiff, low plasticity, damp.	CL	0		
14		SILT: BROWN silt (100% silt). Soft, no plasticity, moist.	ML	0		
16		SAND: BROWN fine sand with little clay (10% clay, 90% sand). Poorly graded, loose, wet.	SP	0		
18		15', color change to LIGHT BROWN		0		
20		16', trace sand, moist				
		GRAVELLY CLAY: (20.25') grades to..BROWN gravelley clay (70% clay, 30% gravel). Well graded, wet	CL	0		
22		CLAY: BROWN silty clay (70% clay, 35% silt). Moderately stiff, no plasticity, damp.	CL			
24		SAND: BROWN fine sand with little clay (10% clay, 90% sand). Poorly graded, loose, saturated.	SP	0		
26		CLAY: BROWN silty clay with trace fine to coarse sand (65% clay, 30% silt, 5% sand). Moderately stiff to stiff, no plasticity, damp to moist.	CL			
28		slight increased fine to coarse sand. Soft, low plasticity, saturated.		0		
				0		

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Recovery	Sample ID / Comments
30		same silty clay.		0		
32		same silty clay.		0		
34		End of Boring at 37' bgs.		0		
36				0		

URS

1333 Broadway, Suite 800
Oakland, California 94612

LOG OF BORING

Borehole ID: SB-2

Total Depth: 40 feet

PROJECT INFORMATION	DRILLING INFORMATION
Project: BP - Site #2111	**Drilling Company:** Gregg Drilling & Testing
Site Location: 1156 Davis St, San Leandro, CA	**Driller:** Germaine/Jose
Project Manager: Scott Robinson	**Type of Drilling Rig:** DP13 Geoprobe
RG:	**Drilling Method:** Direct Push
Geologist: Christopher Sheridan	**Sampling Method:** Continous
Job Number: 38486896	**Date(s) Drilled:** 3/21/04

BORING INFORMATION

Groundwater Depth (ft bgs): 21	**Boring Location:** ARCO #2111
Hand Auger Depth (ft bgs): 5.0	**Boring Diameter:** 2-inch
Coordinates: X -122.1686721 Y 37.7217975	**Boring Type:** Exploratory

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Recovery	Sample ID / Comments
0		CLAY: BROWN silty clay with fine to coarse sand and some fine to coarse gravel (35% clay, 25% silt, 25% sand, 15% gravel). Soft, low to no plasticity, damp [FILL].	CL			Hand auger 0 to 5 feet bgs
6		CLAY: DARK BROWN to BROWN silty clay with trace fine to coarse sand (65% clay, 30% silt, 5% sand) Moderately stiff to stiff, low plasticity, damp.	CL	0		
8		same as above		0		
10				0		
12		stiff		0		
14		same as above, some hydrocarbon staining and odor.		22		
16		increased staining.		150		
18				120		
20		21'-22', soft, wet, hydrocarbon odor.		268		
22		22.5', stiff		150		
24		GRAVEL: BROWN and OLIVE GRAY sandy gravel with silt (20% silt, 35% sand, 45% gravel). Well graded, moist to wet.	GM	30 0		
26		26.25' to 27', coarse sand grading to...				
28		GRAVEL: GRAY silty gravel with sand (30% silt, 25% sand, 45% gravel). Well graded, angular to sub-angular, moist to wet.	SM/C	0		
		CLAY: BROWN clay with fine to coarse sand and silt (60% clay, 20% silt, 20% sand). Soft, low to moderate plasticity, wet.	CL SW	0		

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Recovery	Sample ID / Comments
30		silt, 20% sand). Soft, low to moderate plasticity, wet.	SW			
		SAND: GRAY sand with gravel. Well graded, subangular, wet (75% sand 25% gravel).	CL	0		
32		CLAY: BROWN clay with fine to coarse sand (75% clay, 25% sand). Soft, moderate plasticity, saturated.	NR			
34						
		No recovery				
36						
38						End of Boring at 40' bgs at 1410 on 3/21/04
		GRAVEL: Gravelly sluff from above.	GM	0		
40						

URS

1333 Broadway, Suite 800
Oakland, California 94612

LOG OF BORING

Borehole ID: H-1

Total Depth: 40 feet

PROJECT INFORMATION	DRILLING INFORMATION
Project: BP - Site #2111	**Drilling Company:** Gregg Drilling & Testing
Site Location: 1156 Davis St., San Leandro, CA	**Driller:** Germaine/Jose
Project Manager: Scott Robinson	**Type of Drilling Rig:** DP13 Geoprobe
RG:	**Drilling Method:** Direct Push
Geologist: Christopher Sheridan	**Sampling Method:** Continuous
Job Number: 38486896	**Date(s) Drilled:** 3/21/04

BORING INFORMATION

Groundwater Depth (ft bgs): 24.5	**Boring Location:** Davis St. Community Center driveway
Hand Auger Depth (ft bgs): 5.0	**Boring Diameter:** 2-inch
Coordinates: X -122.1688693 Y37.7216522	**Boring Type:** Exploratory

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Recovery	Sample ID / Comments
0						Hand auger to 5' bgs.
2						
4						
6		SILT: BROWN clayey silt with some fine to coarse sand and trace gravel (35% clay, 40% silt, 20% sand, 5% gravel) [FILL].	ML	0		
		CLAY: DARK BROWN silty clay with little fine to coarse sand (60% clay, 30% silt, 10% sand). Stiff, non plastic, damp, organics.	CL	0		
8						
10				0		
12		No organics. Same as above		0		
14		Stiff				
16		Color change to BROWN		0		
18		Soft to moderately stiff, moderate plasticity				
20		Slight staining		6.6		
22		Same as above				
24				23		SZ
26		Same silty clay. Wet, slight sheen and hydrocarbon odor.				
28		Same as above, saturated.		25		

URS

LOG OF BORING

Borehole ID: H-1

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Recovery	Sample ID / Comments
30				59		
32				103		
34		SAND: BROWN clayey fine grained sand (30% clay, 70% sand). Poorly graded, subangular, saturated.	SM	205		
		CLAY: BROWN silty clay (70% clay, 30% silt). Soft to moderately stiff, low plasticity, moist, slight odor.	CL	195		
36		Same as above				
38		End of Boring at 40' bgs at 1200 on 3/21/04		150		Grab groundwater sample taken at 1200: H-1.
40				125		

URS

1333 Broadway, Suite 800
Oakland, California 94612

LOG OF BORING

Borehole ID: H-2
Total Depth: 36 feet

PROJECT INFORMATION	DRILLING INFORMATION
Project: BP - Site #2111	**Drilling Company:** Gregg Drilling & Testing
Site Location: 1156 Davis St., San Leandro, CA	**Driller:** Germaine/Jose
Project Manager: Scott Robinson	**Type of Drilling Rig:** DP13 Geoprobe
RG:	**Drilling Method:** Direct Push
Geologist: Mike Berwald/Chris Sheridan	**Sampling Method:** Continuous
Job Number: 38486896	**Date(s) Drilled:** 3/21/04

BORING INFORMATION

Groundwater Depth (ft bgs): 17 feet	**Boring Location:** Davis St. Community Center driveway
Hand Auger Depth (ft bgs): 5.0	**Boring Diameter:** 2-inch
Coordinates: X -122.1690083 Y 37.7218569	**Boring Type:** Exploratory

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Recovery	Sample ID / Comments
0		CLAY: DARK BROWN to BROWN clay with silt and fine to coarse gravel (50% clay, 25% silt, 25% gravel). Moderately stiff, low to moderate plasticity, damp.	CL			Hand auger to 5' bgs.
6		Trace silt and fine gravel. Organics, moist.		0		
10				0		
12		Same as above, BROWN to GREEN staining.		193		
16		Same as above, hydrocarbon odor and sheen				
18		SAND: BROWN and OLIVE GRAY sand with fine to coarse gravel and trace silt (5% silt, 70% sand, 25% gravel). Well-graded, gravel is subangular to angular, wet.	SW	70 72		⊠
20		CLAY: BROWN and OLIVE GRAY silty clay with little fine to coarse sand and trace fine to coarse gravel (55% clay, 30% silt, 10% sand, 5% gravel). Moderately stiff, low plasticity, saturated.	CL			
24		Trace silt, soft, wet, no staining/odor.		130		
28		Same as above.		3.3 1.1 0		

URS

LOG OF BORING

Borehole ID: H-2

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Recovery	Sample ID / Comments
30						
32		Slight sheen in sluff.		0		
34		End of Boring at 36' bgs at 1050 on 3/21/04.		8.3 44		Grab groundwater sample taken at 1050: H-2
36						

URS

1333 Broadway, Suite 800
Oakland, California 94612

LOG OF BORING

Borehole ID: H-3

Total Depth: 44 feet

PROJECT INFORMATION	DRILLING INFORMATION
Project: BP - Site #2111	**Drilling Company:** Gregg Drilling & Testing
Site Location: 1156 Davis St., San Leandro, CA	**Driller:** Germaine/Jose
Project Manager: Scott Robinson	**Type of Drilling Rig:** DP13 Geoprobe
RG:	**Drilling Method:** Direct Push
Geologist: Christopher Sheridan	**Sampling Method:** Continous
Job Number: 38486896	**Date(s) Drilled:** 3/21/04

BORING INFORMATION

Groundwater Depth (ft bgs): 19 feet	**Boring Location:** Davis St. Community Center driveway
Hand Auger Depth (ft bgs): 5.0	**Boring Diameter:** 2-inch
Coordinates: X: -122.1691669 Y: 37.7221031	**Boring Type:** Exploratory

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Recovery	Sample ID
0		SILT: DARK BROWN to BROWN silt with clay and some fine to coarse gravel (25% clay, 60% silt, 15% gravel. Loose, no plasticity, damp [FILL].	ML	0		Hand auger to 5' bgs.
2						
4						
6		No Recovery		0		
8						
10		No Recovery		0		
12		CLAY: DARK BROWN clay with trace silt and trace fine to coarse gravel (90% clay, 5% silt, 5% gravel). Soft, moderate to high plasticity, moist.	CL			
14		Same clay				
16		15.75' - 16.25', increased silt (65% clay, 30% silt, 5% gravel). Soft to moderately stiff		0		
18				0		
20		Color change to BROWN.		0		
22		Same as above, saturated.		0		
24				0		
26		Same as above.		0		
28						
30				0		

URS

LOG OF BORING

Borehole ID: H-3

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Recovery	Sample ID
32		SAND: BROWN and GRAY clayey sand with little fine to coarse gravel (30% clay, 60% sand, 10% gravel). Well graded, subangular to subrounded sand and gravel, saturated.	SM	0		
34		CLAY: BROWN silty clay with fine to coarse sand (50% clay, 30% silt, 20% sand). Soft, moderate plasticity, wet.	CL	0		
36						
38				0		
40		SAND: BROWN fine sand (100% sand). Poorly graded.	SP			Use hammer past 40' bgs.
42		42.5 - 43.5, sluff.				Boring is sluffing.
44		GRAVEL: BROWN sandy gravel with little silt (10% silt 30% sand, 60% gravel). Well graded.	GM	0		End of Boring at 44' bgs at 0925 on 3/21/04.

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Recovery	Sample ID / Comments
30						
32		SAND: BROWN and GRAY clayey sand with little fine to coarse gravel (30% clay, 60% sand, 10% gravel). Well graded, subangular to subrounded sand and gravel, saturated.	SC	0		
34		CLAY: BROWN silty clay with fine to coarse sand (50% clay, 30% silt, 20% sand). Soft, moderate plasticity, wet.	CL	0		
36						
38						
40		SAND: BROWN fine sand (100% sand). Poorly graded.	SP	0		Use hammer past 40' bgs.
42		42.5 - 43.5, sluff.				Boring is sluffing.
44		GRAVEL: BROWN sandy gravel with little silt (10% silt 30% sand, 60% gravel). Well graded.	GW	0		End of Boring at 44' bgs at 0925 on 3/21/04.

URS

1333 Broadway, Suite 800
Oakland, California 94612

LOG OF BORING

Borehole ID: H-4

Total Depth: 35 feet

PROJECT INFORMATION	DRILLING INFORMATION
Project: BP - Site #2111	**Drilling Company:** Gregg Drilling & Testing
Site Location: 1156 Davis St., San Leandro, CA	**Driller:** Germaine/Jose
Project Manager: Scott Robinson	**Type of Drilling Rig:** DP13 Geoprobe
RG:	**Drilling Method:** Direct Push
Geologist: Christopher Sheridan	**Sampling Method:** Continuous
Job Number: 38486896	**Date(s) Drilled:** 3/20/04

BORING INFORMATION

Groundwater Depth (ft bgs): 19.5	**Boring Location:** Davis St. Community Center parking lot
Hand Auger Depth (ft bgs): 5.0	**Boring Diameter:** 2-inch
Coordinates: X -122.1693232 Y 37.7223485	**Boring Type:** Hydropunch

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Recovery	Sample ID / Comments
0		CLAY: DARK BROWN to BROWN silty clay with some gravel (55% clay, 30% silt, 15% gravel). Soft, low plasticity, damp, no odor.				Lithology from SB-1.
2						
4		SILT: BROWN clayey silt (35% clay, 65% silt). Soft, no plasticity, damp.				Hand auger 0' to 5' bgs.
6						
8		CLAY: DARK BROWN to BROWN silty clay (60% clay, 40% silt). Soft to moderately stiff, low plasticity, damp.				
10		SILT: BROWN clayey silt (30% clay, 70% silt). CLAY: DARK BROWN silty clay (65% clay, 35% silt). Moderately stiff, low plasticity, damp.				
12						
14		SILT: BROWN silt (100% silt). Soft, no plasticity, moist.				
16		SAND: BROWN fine sand with little clay (10% clay, 90% sand). Poorly graded, loose, wet. 15;.color change to LIGHT BROWN				Screen 15' - 17' bgs- DRY
18		16;, trace sand, moist				Screen 19.5' - 20.5' bgs - DRY ▽
20		GRAVELLY CLAY: (20.25') grades to..BROWN gravelley clay (70% clay, 30% gravel). Well graded, wet				Screen 20.5' - 21.5' bgs - DRY
22		CLAY: BROWN silty clay (70% clay, 35% silt). Moderately stiff, no plasticity, damp.				Screen 20' - 24' bgs - DRY
24		SAND: BROWN fine sand with little clay (10% clay, 90% sand). Poorly graded, loose, saturated. CLAY: BROWN silty clay with trace fine to coarse sand (65% clay, 30% silt, 5% sand). Moderately stiff to stiff, no plasticity, damp to moist.				
26						
28		slight increased fine to coarse sand. Soft, low plasticity, saturated.				H-4-27 sampled at 1145. Screen 23' - 27' bgs.

URS

LOG OF BORING

Borehole ID: H-4

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Recovery	Sample ID / Comments
30		same silty clay.				H-4-35 sampled at 1155. Screen 32' - 35' bgs.
32						
34		End of Boring at 35' bgs.				

URS

1333 Broadway, Suite 800
Oakland, California 94612

LOG OF BORING

Borehole ID: H-5

Total Depth: 40 feet

PROJECT INFORMATION	DRILLING INFORMATION
Project: BP - Site #2111	**Drilling Company:** Gregg Drilling & Testing
Site Location: 1156 Davis St., San Leandro, CA	**Driller:** Germaine/Jose
Project Manager: Scott Robinson	**Type of Drilling Rig:** DP13 Geoprobe
RG:	**Drilling Method:** Direct Push
Geologist: Christopher Sheridan	**Sampling Method:** Continuous
Job Number: 38486896	**Date(s) Drilled:** 3/20/04 - 3/21/04

BORING INFORMATION

Groundwater Depth (ft bgs): 19.5	**Boring Location:** Davis St. Community Center parking lot
Hand Auger Depth (ft bgs): 5.0	**Boring Diameter:** 2-inch
Coordinates: X -122.1692432 Y 37.7223855	**Boring Type:** Hydropunch

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Recovery	Sample ID / Comments
0		CLAY: DARK BROWN to BROWN silty clay with some gravel (55% clay, 30% silt, 15% gravel). Soft, low plasticity, damp, no odor.	CL			Lithology from SB-1.
4		SILT: BROWN clayey silt (35% clay, 65% silt). Soft, no plasticity, damp.	ML			Hand auger to 5' bgs.
8		CLAY: DARK BROWN to BROWN silty clay (60% clay, 40% silt). Soft to moderately stiff, low plasticity, damp.	CL			
10		SILT: BROWN clayey silt (30% clay, 70% silt).	ML			
		CLAY: DARK BROWN silty clay (65% clay, 35% silt). Moderately stiff, low plasticity, damp.	ML			
12		SILT: BROWN silt (100% silt). Soft, no plasticity, moist.	CL			
16		SAND: BROWN fine sand with little clay (10% clay, 90% sand). Poorly graded, loose, wet.	ML			
		15', color change to LIGHT BROWN				
18		16', trace sand, moist				Screen 17' - 20' bgs - DRY
20		GRAVELLY CLAY: (20.25') grades to..BROWN gravelley clay (70% clay, 30% gravel). Well graded, wet	SP			▽
			CL			
22		CLAY: BROWN silty clay (70% clay, 35% silt). Moderately stiff, no plasticity, damp.	SP			
24		SAND: BROWN fine sand with little clay (10% clay, 90% sand). Poorly graded, loose, saturated.	CL			Screen 19' - 23' bgs - DRY
		CLAY: BROWN silty clay with trace fine to coarse sand (65% clay, 30% silt, 5% sand). Moderately stiff to stiff, no plasticity, damp to moist.				
26						
28		slight increased fine to coarse sand. Soft, low plasticity, saturated.				H-5-27 sampled at 1530, 3/20/04. Screen 25' - 27' bgs.

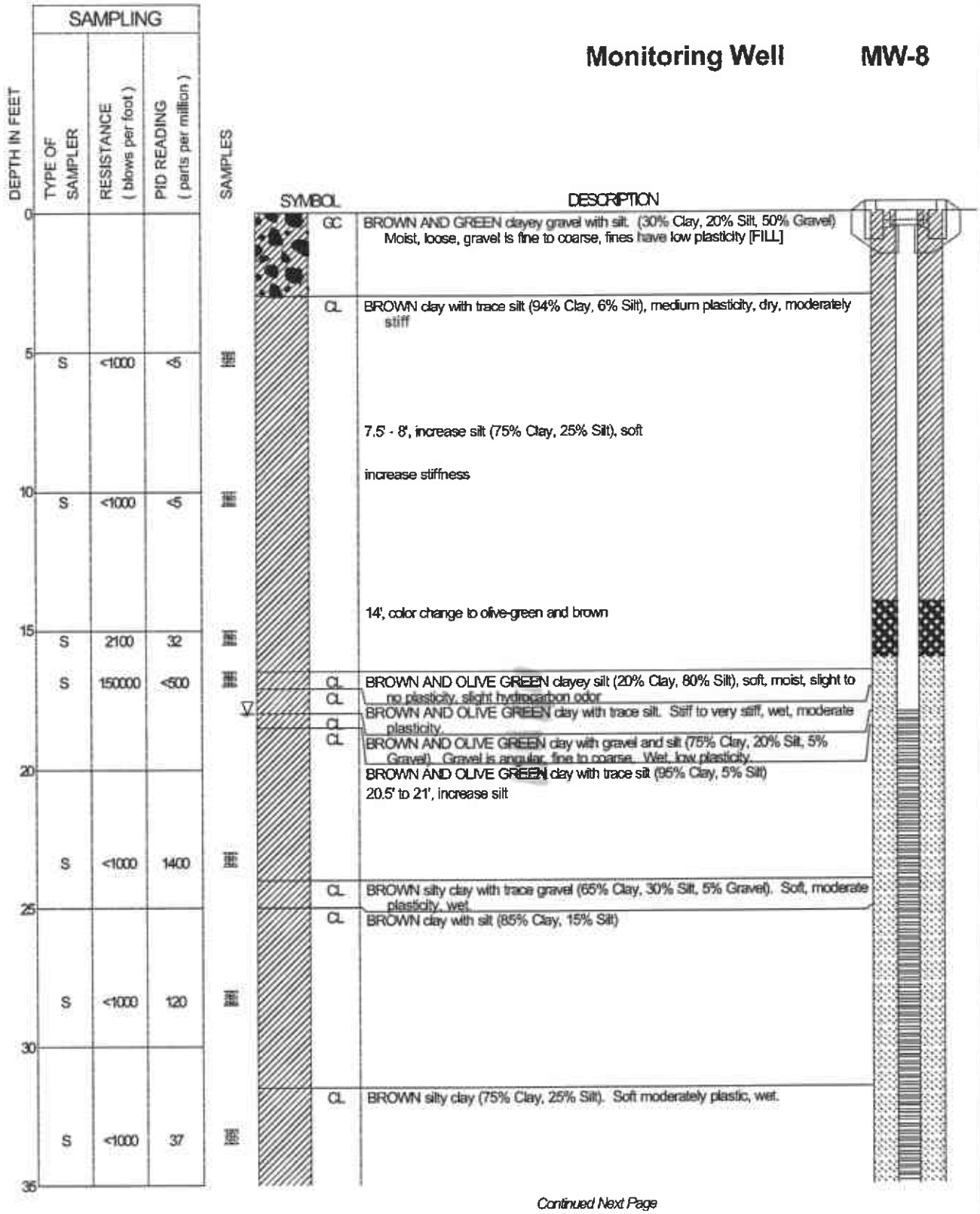
URS

LOG OF BORING

Borehole ID: H-5

Depth (ft bgs)	Symbol	Lithologic Description	USCS	PID (ppm)	Recovery	Sample ID / Comments
30		same silty clay.				H-5-35 sampled at 1540, 3/20/04. Screen 32' - 35' bgs
32						
34						
36		same silty clay.				
38		Not logged.				H-5-40 sampled at 0710, 3/21/04. Screen 38' - 40' bgs.
40		End of Boring at 40' bgs.				

Monitoring Well MW-8

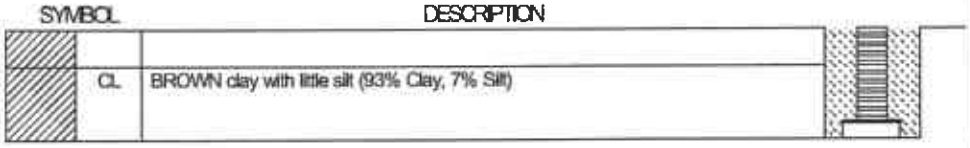


Continued Next Page

Job No: 38486093 Serial No.:	[redacted]		**Log of Boring**
Date Completed: 11/26/03 Boring Depth: 38.0 ft.	Surface Elev: Coordinates:		Location: San Leandro, CA
Top of Casing Elev: ft. Casing Depth: 38.0 ft.	Casing Type: PVC Casing Diam: 2.0 in.	Screened Interval: 18-38 ft. Effective Interval: 16-38 ft.	Slot Size: 0.020 in. Sand Pack: 2/12 Lonestar

Monitoring Well MW-8

DEPTH IN FEET	SAMPLING: TYPE OF SAMPLER	SAMPLING: RESISTANCE (blows per foot)	SAMPLING: PID READING (parts per million)	SAMPLES	SYMBOL	DESCRIPTION
35	S	<1000	27		CL	BROWN clay with little silt (93% Clay, 7% Silt)
40						
45						
50						
55						
60						
65						
70						



End of Boring at 38'

Note: Well was installed inside existing vault box, adjacent to existing 1" and 2" wells.

Appendix D
Well Development Forms

WELL GAUGING DATA

Project # 031209-AC2 Date 12-9-03 Client Arco 2111

Site 1156 Davis St. San Leandro

Well ID	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	
MW-8	2					17.25	39.85	TOC	

WELL DEVELOPMENT DATA SHEET

Project #: 031209-AC2	Client: Arco 2111
Developer: AC	Date Developed: 12.9.03
Well I.D. MW-8	Well Diameter: (circle one) (2) 3 4 6
Total Well Depth: Before 39.82 After 39.85	Depth to Water: Before 17.25 After 17.52
Reason not developed:	If Free Product, thickness:
Additional Notations: pumping @ .33 gpm	

Volume Conversion Factor (VCF):
(12 x (d^2/4) x π) /231
where
12 = in / foot
d = diameter (in.)
π = 3.1416
231 = in 3/gal

Well dia.		VCF
2"	=	0.16
3"	=	0.37
4"	=	0.65
6"	=	1.47
10"	=	4.08
12"	=	6.87

4	X	10	=	40
1 Case Volume		Specified Volumes		gallons

Purging Device:
- ☐ Bailer
- ☐ Suction Pump
- ☐ Electric Submersible
- ☒ Positive Air Displacement

Type of Installed Pump _____
Other equipment used 2" surge block

TIME	TEMP (F)	pH	Cond. (mS or (µS))	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:	
Well	was	surged	for 15 min.	prior	to purging		DTW:
1251	62.0	6.8	857	71000	4	brown / turbid	17.60
1303	62.3	6.8	810	71000	8	brown / odor	17.50
1315	62.1	6.8	805	71000	12	brown / slight odor	17.51
1327	62.4	6.8	801	71000	16	sand bottom	17.50
1339	62.5	6.8	798	71000	20	slightly cloudy	17.51
1351	62.3	6.9	795	71000	24	clearing up	17.53
1403	62.7	6.7	781	71000	28	cloudy	17.52
1415	62.8	6.7	788	71000	32	"	
1427	63.2	6.8	786	659	36	659 cloudy	
1439	63.5	6.8	780	581	40	581 cloudy	

Did Well Dewater? NO — If yes, note above. — Gallons Actually Evacuated: 40

TD = 39.85
DTW = 17.52

bp

WELLHEAD INSPECTION CHECKLIST
BP / GEM

Date 12.9.03

Site Address 1156 Davis St. San Leandro

Job Number 031209-AC2 Technician AC

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Debris Removed From Wellbox	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)
MW-8	X							

NOTES:

BP GEM OIL COMPANY TYPE **A** BILL OF LADING

SOURCE RECORD **BILL OF LADING** FOR NON-HAZARDOUS PURGEWATER RECOVERED FROM GROUNDWATER WELLS AT BP GEM OIL COMPANY FACILITIES IN THE STATE OF CALIFORNIA. THE NON-HAZARDOUS PURGE- WATER WHICH HAS BEEN RECOVERED FROM GROUND- WATER WELLS IS COLLECTED BY THE CONTRACTOR, MADE UP INTO LOADS OF APPROPRIATE SIZE AND HAULED BY DILLARD ENVIRONMENTAL TO THE ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY IN LIVERMORE, CALIFORNIA.

The contractor performing this work is BLAINE TECH SERVICES, INC. (BTS), 1680 Rogers Avenue, San Jose, CA 95112 (phone [408] 573-0555). Blaine Tech Services, Inc. is authorized by BP GEM OIL COMPANY to recover, collect, apportion into loads the Non-Hazardous Well Purgewater that is drawn from wells at the BP GEM Oil Company facility indicated below and deliver that purgewater to BTS. Transport routing of the Non-Hazardous Well Purgewater may be direct from one BP GEM facility to the designated destination point; from one BP GEM facility to the designated destination point via another BP GEM facility; from a BP GEM facility to the designated destination point via the contractor's facility, or any combination thereof. The Non-Hazardous Well Purgewater is and remains the property of BP GEM Oil Company.

This **Source Record BILL OF LADING** was initiated to cover the recovery of Non-Hazardous Well Purgewater from wells at the BP GEM Oil Company facility described below:

Arco 2111

Station #

1156 Davis St. San Leandro

Station Address

Total Gallons Collected From Groundwater Monitoring Wells:

40

added equip. rinse water 10

any other adjustments

TOTAL GALS. RECOVERED 50

loaded onto BTS vehicle # 52

BTS event # 031209-ACZ

time 1500

date 12/9/03

signature

* *

REC'D AT

time

date ___/___/___

unloaded by signature

Appendix E
Laboratory Analytical Reports and Chain-of-Custody Records

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

2 April, 2004

Scott Robinson
URS Corporation [Arco]
1333 Broadway, Suite 800
Oakland, CA 94612

RE: ARCO #2111, San Leandro, CA
Work Order: MNC0624

Enclosed are the results of analyses for samples received by the laboratory on 03/22/04 17:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lisa Race
Senior Project Manager

CA ELAP Certificate #1210

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

URS Corporation [Arco]	Project: ARCO #2111, San Leandro, CA	MNC0624
1333 Broadway, Suite 800	Project Number: N/P	**Reported:**
Oakland CA, 94612	Project Manager: Scott Robinson	04/02/04 11:26

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
H-4-27	MNC0624-01	Water	03/20/04 11:45	03/22/04 17:20
H-4-35	MNC0624-02	Water	03/20/04 11:55	03/22/04 17:20
H-5-27	MNC0624-03	Water	03/20/04 15:30	03/22/04 17:20
H-5-32	MNC0624-04	Water	03/20/04 15:40	03/22/04 17:20

These samples were received with no custody seals.

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

URS Corporation [Arco]	Project: ARCO #2111, San Leandro, CA	MNC0624
1333 Broadway, Suite 800	Project Number: N/P	**Reported:**
Oakland CA, 94612	Project Manager: Scott Robinson	04/02/04 11:26

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
H-4-27 (MNC0624-01) Water Sampled: 03/20/04 11:45 Received: 03/22/04 17:20									
Ethanol	ND	100	ug/l	1	4C26003	03/26/04	03/27/04	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	**0.72**	0.50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*91.4 %*		*78-129*	"	"	"	"	
H-4-35 (MNC0624-02) Water Sampled: 03/20/04 11:55 Received: 03/22/04 17:20									
Ethanol	ND	100	ug/l	1	4C26003	03/26/04	03/27/04	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*96.2 %*		*78-129*	"	"	"	"	

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

URS Corporation [Arco]	Project: ARCO #2111, San Leandro, CA	MNC0624
1333 Broadway, Suite 800	Project Number: N/P	**Reported:**
Oakland CA, 94612	Project Manager: Scott Robinson	04/02/04 11:26

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
H-5-27 (MNC0624-03) Water Sampled: 03/20/04 15:30 Received: 03/22/04 17:20									
Ethanol	ND	100	ug/l	1	4C26003	03/26/04	03/27/04	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*98.8 %*		*78-129*	"	"	"	"	
H-5-32 (MNC0624-04) Water Sampled: 03/20/04 15:40 Received: 03/22/04 17:20									
Ethanol	ND	100	ug/l	1	4C26003	03/26/04	03/27/04	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*102 %*		*78-129*	"	"	"	"	

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

URS Corporation [Arco]	Project: ARCO #2111, San Leandro, CA	MNC0624
1333 Broadway, Suite 800	Project Number: N/P	**Reported:**
Oakland CA, 94612	Project Manager: Scott Robinson	04/02/04 11:26

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4C26003 - EPA 5030B P/T										
Blank (4C26003-BLK1)				Prepared & Analyzed: 03/26/04						
Ethanol	ND	100	ug/l							
tert-Butyl alcohol	ND	20	"							
Methyl tert-butyl ether	ND	0.50	"							
Di-isopropyl ether	ND	0.50	"							
Ethyl tert-butyl ether	ND	0.50	"							
tert-Amyl methyl ether	ND	0.50	"							
1,2-Dichloroethane	ND	0.50	"							
1,2-Dibromoethane (EDB)	ND	0.50	"							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Gasoline Range Organics (C6-C10)	ND	50	"							
Surrogate: 1,2-Dichloroethane-d4	*4.97*		"	*5.00*		*99.4*	*78-129*			
Laboratory Control Sample (4C26003-BS1)				Prepared & Analyzed: 03/26/04						
Ethanol	176	100	ug/l	200		88.0	31-143			
tert-Butyl alcohol	49.2	20	"	50.0		98.4	56-131			
Methyl tert-butyl ether	10.3	0.50	"	10.0		103	63-137			
Di-isopropyl ether	10.2	0.50	"	10.0		102	76-130			
Ethyl tert-butyl ether	10.5	0.50	"	10.0		105	81-121			
tert-Amyl methyl ether	10.2	0.50	"	10.0		102	82-140			
1,2-Dichloroethane	10.6	0.50	"	10.0		106	77-136			
1,2-Dibromoethane (EDB)	9.07	0.50	"	10.0		90.7	77-132			
Benzene	9.94	0.50	"	10.0		99.4	78-124			
Toluene	9.77	0.50	"	10.0		97.7	78-129			
Ethylbenzene	10.2	0.50	"	10.0		102	84-117			
Xylenes (total)	26.9	0.50	"	30.0		89.7	83-125			
Surrogate: 1,2-Dichloroethane-d4	*4.80*		"	*5.00*		*96.0*	*78-129*			

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

URS Corporation [Arco]	Project: ARCO #2111, San Leandro, CA	MNC0624
1333 Broadway, Suite 800	Project Number: N/P	**Reported:**
Oakland CA, 94612	Project Manager: Scott Robinson	04/02/04 11:26

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4C26003 - EPA 5030B P/T										
Laboratory Control Sample (4C26003-BS2)				Prepared & Analyzed: 03/26/04						
Gasoline Range Organics (C6-C10)	348	50	ug/l	440		79.1	70-113			
Surrogate: 1,2-Dichloroethane-d4	*4.81*		"	*5.00*		*96.2*	*78-129*			
Laboratory Control Sample Dup (4C26003-BSD1)				Prepared & Analyzed: 03/26/04						
Ethanol	190	100	ug/l	200		95.0	31-143	7.65	20	
tert-Butyl alcohol	49.2	20	"	50.0		98.4	56-131	0.00	20	
Methyl tert-butyl ether	10.6	0.50	"	10.0		106	63-137	2.87	13	
Di-isopropyl ether	10.6	0.50	"	10.0		106	76-130	3.85	9	
Ethyl tert-butyl ether	10.6	0.50	"	10.0		106	81-121	0.948	9	
tert-Amyl methyl ether	10.8	0.50	"	10.0		108	82-140	5.71	12	
1,2-Dichloroethane	10.7	0.50	"	10.0		107	77-136	0.939	13	
1,2-Dibromoethane (EDB)	9.69	0.50	"	10.0		96.9	77-132	6.61	9	
Benzene	10.2	0.50	"	10.0		102	78-124	2.58	12	
Toluene	10.0	0.50	"	10.0		100	78-129	2.33	10	
Ethylbenzene	10.2	0.50	"	10.0		102	84-117	0.00	10	
Xylenes (total)	27.8	0.50	"	30.0		92.7	83-125	3.29	11	
Surrogate: 1,2-Dichloroethane-d4	*4.68*		"	*5.00*		*93.6*	*78-129*			
Laboratory Control Sample Dup (4C26003-BSD2)				Prepared & Analyzed: 03/26/04						
Gasoline Range Organics (C6-C10)	352	50	ug/l	440		80.0	70-113	1.14	9	
Surrogate: 1,2-Dichloroethane-d4	*5.06*		"	*5.00*		*101*	*78-129*			

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

URS Corporation [Arco]	Project: ARCO #2111, San Leandro, CA	MNC0624
1333 Broadway, Suite 800	Project Number: N/P	**Reported:**
Oakland CA, 94612	Project Manager: Scott Robinson	04/02/04 11:26

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

MNC0624

Page 1 of 1

Chain of Custody Record

bp

Project Name ARCO #2111
Business Unit Atlantic Richfield Company/Central CA Portfolio
BP Laboratory Contract Number: 4 6 1 0 0 0
Requested Due Date: 2 weeks from sampling date

Date: 3/20/04

On-site Time:	Temp:
Off-site Time:	Temp:
Sky Conditions:	
Meteorological Events:	
Wind Speed:	Direction:

Send To:	BP/GEM Facility No.: 2111	Consultant: URS Oakland
Lab Name: Sequoia Analytical	BP/GEM Facility Address: 1156 Davis St., San Leandro, CA	Address: 500 12th Street, #200
Lab Address:	Site ID No. Station	Oakland, CA 94607
	Site Lat/Long:	e-mail EDD: Scott Robinson
Lab PM: Lisa Race	California Global ID #:	Consultant Project No.: 38486883.01
Tele/Fax: 408.782.8156	BP/GEM PM Contact: Paul Supple	Consultant Tele/Fax: 510-893-3600/510-874-3280
Report Type & QC Level: Normal	Address:	Consultant PM: Scott Robinson
BP/GEM Account No.:	Tele/Fax:	Invoice to: Consultant
		BP/GEM Work Release No:

Lab Bottle Order No:

Item No.	Sample Description	Time	Matrix: Soil/Solid	Water/Liquid	Sediments	Air	Laboratory No.	No. of containers	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	Requested Analysis: GRO (8260)	BTEX (8260)	Fuel oxys (including MTBE) (8260)							Sample Point Lat/Long and Comments
1 ✓	H-4-27	1145		X			01	3				X	X	X	X							
2 ✓	H-4-35	1155		X			02	3				X	X	X	X							
3 ✓	H-5-27	1530		X			03	3				X	X	X	X							
4 ✓	H-5-32	1540		X			04	3				X	X	X	X							
5																						
6																						
7																						
8																						
9																						
10																						

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: Chris Sheridan						
Sampler's Company: URS Oakland	URS	3/22/04		SEQUOIA	3/22/04	1420
Shipment Date:	SEQUOIA	3/23/04	1720		3/23/04	1720
Shipment Method: Hand-Deliver						
Shipment Tracking No:						

Instructions:

Ice In Place Yes No x Temperature Blank Yes No x Cooler Temperature on Receipt 4 °F/C Trip Blank Yes No x

BP COC Rev. 1 2/5/02

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: UPS
REC. BY (PRINT): EB
WORKORDER: MSC0624

DATE REC'D AT LAB: 3-22-04
TIME REC'D AT LAB: 1720
DATE LOGGED IN: 3-23-04

DRINKING WATER for regulatory purposes: YES / NO
WASTE WATER for regulatory purposes: YES / NO

CIRCLE THE APPROPRIATE RESPONSE	LAB SAMPLE #	DASH #	CLIENT ID	CONTAINER DESCRIPTION	PRESERVATIVE	SAMPLE MATRIX	DATE SAMPLED	REMARKS: CONDITION (ETC.)
1. Custody Seal(s) Present / Absent Intact / Broken*	01		B-9-27	3 voas	HCl	L	3-20-04	
2. Chain-of-Custody Present / Absent*	02		38	↓	↓	↓	↓	
3. Traffic Reports or Packing List: Present / Absent	03		27					
4. Airbill: Airbill / Sticker Present / Absent	04		37					
5. Airbill #:								
6. Sample Labels: Present / Absent								
7. Sample IDs: Listed / Not Listed on Chain-of-Custody								
8. Sample Condition: Intact / Broken* / Leaking*								
9. Does information on chain-of-custody, traffic reports and sample labels agree? Yes / No*								
10. Sample received within hold time: Yes / No*								
11. Adequate sample volume received? Yes / No*								
12. Proper Preservatives used: Yes / No*								
13. Temp Rec. at Lab: 4°C Is temp 4 +/-2°C? Yes / No**								

(Acceptance range for samples requiring thermal pres.)

Exception (if any): METALS / DFF ON ICE

Problem COC

*IF CIRCLED, CONTACT PROJECT MANAGER AND ATTACH RECORD OF RESOLUTION.

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

2 April, 2004

Scott Robinson
URS Corporation [Arco]
1333 Broadway, Suite 800
Oakland, CA 94612

RE: ARCO #2111, San Leandro, CA
Work Order: MNC0625

Enclosed are the results of analyses for samples received by the laboratory on 03/22/04 17:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lisa Race
Senior Project Manager

CA ELAP Certificate #1210

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

URS Corporation [Arco]	Project: ARCO #2111, San Leandro, CA	MNC0625
1333 Broadway, Suite 800	Project Number: N/P	**Reported:**
Oakland CA, 94612	Project Manager: Scott Robinson	04/02/04 11:38

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
H-5-40	MNC0625-01	Water	03/21/04 07:10	03/22/04 17:20
H-1	MNC0625-02	Water	03/21/04 12:00	03/22/04 17:20
H-2	MNC0625-03	Water	03/21/04 10:50	03/22/04 17:20
H-3	MNC0625-04	Water	03/21/04 09:40	03/22/04 17:20

These samples were received with no custody seals.

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

URS Corporation [Arco]	Project: ARCO #2111, San Leandro, CA	MNC0625
1333 Broadway, Suite 800	Project Number: N/P	**Reported:**
Oakland CA, 94612	Project Manager: Scott Robinson	04/02/04 11:38

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
H-5-40 (MNC0625-01) Water Sampled: 03/21/04 07:10 Received: 03/22/04 17:20									
Ethanol	ND	100	ug/l	1	4C26003	03/26/04	03/27/04	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	**53**	50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*101 %*		*78-129*		"	"	"	
H-1 (MNC0625-02) Water Sampled: 03/21/04 12:00 Received: 03/22/04 17:20									
Ethanol	ND	1000	ug/l	10	4C26030	03/26/04	03/27/04	EPA 8260B	
tert-Butyl alcohol	ND	200	"	"	"	"	"	"	
Methyl tert-butyl ether	**550**	5.0	"	"	"	"	"	"	
Di-isopropyl ether	ND	5.0	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	5.0	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	5.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	5.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"	"	"	
Benzene	ND	5.0	"	"	"	"	"	"	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
Xylenes (total)	ND	5.0	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	**820**	500	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*103 %*		*78-129*		"	"	"	

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

URS Corporation [Arco]	Project: ARCO #2111, San Leandro, CA	MNC0625
1333 Broadway, Suite 800	Project Number: N/P	**Reported:**
Oakland CA, 94612	Project Manager: Scott Robinson	04/02/04 11:38

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
H-2 (MNC0625-03) Water Sampled: 03/21/04 10:50 Received: 03/22/04 17:20									
Ethanol	ND	100000	ug/l	1000	4C26030	03/26/04	03/27/04	EPA 8260B	
tert-Butyl alcohol	ND	20000	"	"	"	"	"	"	
Methyl tert-butyl ether	**7600**	500	"	"	"	"	"	"	
Di-isopropyl ether	ND	500	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	500	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	500	"	"	"	"	"	"	
1,2-Dichloroethane	ND	500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	500	"	"	"	"	"	"	
Benzene	ND	500	"	"	"	"	"	"	
Toluene	ND	500	"	"	"	"	"	"	
Ethylbenzene	**5800**	500	"	"	"	"	"	"	
Xylenes (total)	**11000**	500	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	**260000**	50000	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*101 %*		*78-129*		"	"	"	
H-3 (MNC0625-04) Water Sampled: 03/21/04 09:40 Received: 03/22/04 17:20									
Ethanol	ND	100	ug/l	1	4C26030	03/26/04	03/27/04	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*97.6 %*		*78-129*		"	"	"	

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

URS Corporation [Arcol	Project: ARCO #2111, San Leandro, CA	MNC0625
1333 Broadway, Suite 800	Project Number: N/P	**Reported:**
Oakland CA, 94612	Project Manager: Scott Robinson	04/02/04 11:38

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4C26003 - EPA 5030B P/T										
Blank (4C26003-BLK1)				Prepared & Analyzed: 03/26/04						
Ethanol	ND	100	ug/l							
tert-Butyl alcohol	ND	20	"							
Methyl tert-butyl ether	ND	0.50	"							
Di-isopropyl ether	ND	0.50	"							
Ethyl tert-butyl ether	ND	0.50	"							
tert-Amyl methyl ether	ND	0.50	"							
1,2-Dichloroethane	ND	0.50	"							
1,2-Dibromoethane (EDB)	ND	0.50	"							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Gasoline Range Organics (C6-C10)	ND	50	"							
Surrogate: 1,2-Dichloroethane-d4	*4.97*		"	*5.00*		*99.4*	*78-129*			
Laboratory Control Sample (4C26003-BS1)				Prepared & Analyzed: 03/26/04						
Ethanol	176	100	ug/l	200		88.0	31-143			
tert-Butyl alcohol	49.2	20	"	50.0		98.4	56-131			
Methyl tert-butyl ether	10.3	0.50	"	10.0		103	63-137			
Di-isopropyl ether	10.2	0.50	"	10.0		102	76-130			
Ethyl tert-butyl ether	10.5	0.50	"	10.0		105	81-121			
tert-Amyl methyl ether	10.2	0.50	"	10.0		102	82-140			
1,2-Dichloroethane	10.6	0.50	"	10.0		106	77-136			
1,2-Dibromoethane (EDB)	9.07	0.50	"	10.0		90.7	77-132			
Benzene	9.94	0.50	"	10.0		99.4	78-124			
Toluene	9.77	0.50	"	10.0		97.7	78-129			
Ethylbenzene	10.2	0.50	"	10.0		102	84-117			
Xylenes (total)	26.9	0.50	"	30.0		89.7	83-125			
Surrogate: 1,2-Dichloroethane-d4	*4.80*		"	*5.00*		*96.0*	*78-129*			

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

URS Corporation [Arcol	Project: ARCO #2111, San Leandro, CA	MNC0625
1333 Broadway, Suite 800	Project Number: N/P	**Reported:**
Oakland CA, 94612	Project Manager: Scott Robinson	04/02/04 11:38

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4C26003 - EPA 5030B P/T										
Laboratory Control Sample (4C26003-BS2)				Prepared & Analyzed: 03/26/04						
Gasoline Range Organics (C6-C10)	348	50	ug/l	440		79.1	70-113			
Surrogate: 1,2-Dichloroethane-d4	*4.81*		"	*5.00*		*96.2*	*78-129*			
Laboratory Control Sample Dup (4C26003-BSD1)				Prepared & Analyzed: 03/26/04						
Ethanol	190	100	ug/l	200		95.0	31-143	7.65	20	
tert-Butyl alcohol	49.2	20	"	50.0		98.4	56-131	0.00	20	
Methyl tert-butyl ether	10.6	0.50	"	10.0		106	63-137	2.87	13	
Di-isopropyl ether	10.6	0.50	"	10.0		106	76-130	3.85	9	
Ethyl tert-butyl ether	10.6	0.50	"	10.0		106	81-121	0.948	9	
tert-Amyl methyl ether	10.8	0.50	"	10.0		108	82-140	5.71	12	
1,2-Dichloroethane	10.7	0.50	"	10.0		107	77-136	0.939	13	
1,2-Dibromoethane (EDB)	9.69	0.50	"	10.0		96.9	77-132	6.61	9	
Benzene	10.2	0.50	"	10.0		102	78-124	2.58	12	
Toluene	10.0	0.50	"	10.0		100	78-129	2.33	10	
Ethylbenzene	10.2	0.50	"	10.0		102	84-117	0.00	10	
Xylenes (total)	27.8	0.50	"	30.0		92.7	83-125	3.29	11	
Surrogate: 1,2-Dichloroethane-d4	*4.68*		"	*5.00*		*93.6*	*78-129*			
Laboratory Control Sample Dup (4C26003-BSD2)				Prepared & Analyzed: 03/26/04						
Gasoline Range Organics (C6-C10)	352	50	ug/l	440		80.0	70-113	1.14	9	
Surrogate: 1,2-Dichloroethane-d4	*5.06*		"	*5.00*		*101*	*78-129*			
Batch 4C26030 - EPA 5030B P/T										
Blank (4C26030-BLK1)				Prepared: 03/26/04 Analyzed: 03/27/04						
Ethanol	ND	100	ug/l							
tert-Butyl alcohol	ND	20	"							
Methyl tert-butyl ether	ND	0.50	"							
Di-isopropyl ether	ND	0.50	"							
Ethyl tert-butyl ether	ND	0.50	"							
tert-Amyl methyl ether	ND	0.50	"							
1,2-Dichloroethane	ND	0.50	"							
1,2-Dibromoethane (EDB)	ND	0.50	"							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

URS Corporation [Arco]	Project: ARCO #2111, San Leandro, CA	MNC0625
1333 Broadway, Suite 800	Project Number: N/P	**Reported:**
Oakland CA, 94612	Project Manager: Scott Robinson	04/02/04 11:38

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4C26030 - EPA 5030B P/T										
Blank (4C26030-BLK1)				Prepared: 03/26/04 Analyzed: 03/27/04						
Gasoline Range Organics (C6-C10)	ND	50	ug/l							
Surrogate: 1,2-Dichloroethane-d4	*5.13*		"	*5.00*		*103*	*78-129*			
Laboratory Control Sample (4C26030-BS1)				Prepared: 03/26/04 Analyzed: 03/27/04						
Ethanol	239	100	ug/l	200		120	31-143			
tert-Butyl alcohol	51.0	20	"	50.0		102	56-131			
Methyl tert-butyl ether	10.5	0.50	"	10.0		105	63-137			
Di-isopropyl ether	10.7	0.50	"	10.0		107	76-130			
Ethyl tert-butyl ether	10.7	0.50	"	10.0		107	81-121			
tert-Amyl methyl ether	10.6	0.50	"	10.0		106	82-140			
1,2-Dichloroethane	10.7	0.50	"	10.0		107	77-136			
1,2-Dibromoethane (EDB)	9.42	0.50	"	10.0		94.2	77-132			
Benzene	10.0	0.50	"	10.0		100	78-124			
Toluene	9.76	0.50	"	10.0		97.6	78-129			
Ethylbenzene	10.0	0.50	"	10.0		100	84-117			
Xylenes (total)	27.8	0.50	"	30.0		92.7	83-125			
Surrogate: 1,2-Dichloroethane-d4	*4.76*		"	*5.00*		*95.2*	*78-129*			
Laboratory Control Sample (4C26030-BS2)				Prepared: 03/26/04 Analyzed: 03/27/04						
Gasoline Range Organics (C6-C10)	368	50	ug/l	440		83.6	70-113			
Surrogate: 1,2-Dichloroethane-d4	*5.12*		"	*5.00*		*102*	*78-129*			
Laboratory Control Sample Dup (4C26030-BSD1)				Prepared: 03/26/04 Analyzed: 03/27/04						
Ethanol	194	100	ug/l	200		97.0	31-143	20.8	20	QC21
tert-Butyl alcohol	48.7	20	"	50.0		97.4	56-131	4.61	20	
Methyl tert-butyl ether	10.8	0.50	"	10.0		108	63-137	2.82	13	
Di-isopropyl ether	10.5	0.50	"	10.0		105	76-130	1.89	9	
Ethyl tert-butyl ether	10.7	0.50	"	10.0		107	81-121	0.00	9	
tert-Amyl methyl ether	10.8	0.50	"	10.0		108	82-140	1.87	12	
1,2-Dichloroethane	11.1	0.50	"	10.0		111	77-136	3.67	13	
1,2-Dibromoethane (EDB)	9.60	0.50	"	10.0		96.0	77-132	1.89	9	
Benzene	10.0	0.50	"	10.0		100	78-124	0.00	12	
Toluene	10.0	0.50	"	10.0		100	78-129	2.43	10	
Ethylbenzene	10.1	0.50	"	10.0		101	84-117	0.995	10	
Xylenes (total)	28.1	0.50	"	30.0		93.7	83-125	1.07	11	
Surrogate: 1,2-Dichloroethane-d4	*4.93*		"	*5.00*		*98.6*	*78-129*			

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

URS Corporation [Arcol	Project: ARCO #2111, San Leandro, CA	MNC0625
1333 Broadway, Suite 800	Project Number: N/P	**Reported:**
Oakland CA, 94612	Project Manager: Scott Robinson	04/02/04 11:38

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4C26030 - EPA 5030B P/T										
Laboratory Control Sample Dup (4C26030-BSD2)				Prepared: 03/26/04 Analyzed: 03/27/04						
Gasoline Range Organics (C6-C10)	357	50	ug/l	440		81.1	70-113	3.03	9	
Surrogate: 1,2-Dichloroethane-d4	*5.07*		"	*5.00*		*101*	*78-129*			

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

URS Corporation [Arcol	Project: ARCO #2111, San Leandro, CA	MNC0625
1333 Broadway, Suite 800	Project Number: N/P	**Reported:**
Oakland CA, 94612	Project Manager: Scott Robinson	04/02/04 11:38

Notes and Definitions

QC21	The RPD result exceeded the control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

bp

Chain of Custody Record

MWC0625

On-site Time:	Temp:
Off-site Time:	Temp:
Sky Conditions:	
Meteorological Events:	
Wind Speed:	Direction:

Project Name: ARCO #2111
Business Unit: Atlantic Richfield Company/Central CA Portfolio
BP Laboratory Contract Number: 4 6 1 0 0 0
Date: 3/21/04
Requested Due Date: 2 weeks from sampling date

Send To:	BP/GEM Facility No.: 2111	Consultant: URS Oakland
Lab Name: Sequoia Analytical	BP/GEM Facility Address: 1156 Davis St., San Leandro, CA	Address: 500 12th Street, #200
Lab Address:	Site ID No. Station	Oakalnd, CA 94607
	Site Lat/Long:	e-mail EDD: Scott Robinson
	California Global ID #:	Consultant Project No.: 38486883.01
Lab PM: Lisa Race	BP/GEM PM Contact: Paul Supple	Consultant Tele/Fax: 510-893-3600/510-874-3280
Tele/Fax: 408.782.8156	Address:	Consultant PM: Scott Robinson
Report Type & QC Level: Normal		Invoice to: Consultant
BP/GEM Account No.:	Tele/Fax:	BP/GEM Work Release No:
Lab Bottle Order No:		

Item No.	Sample Description	Time	Soil/Solid	Water/Liquid	Sediments	Air	Laboratory No.	No. of containers	Unpreserved	H_2SO_4	HNO_3	HCl		GRO (8260)	BTEX (8260)	Fuel-oxys (including MTBE) (8260)						Sample Point Lat/Long and Comments
1 ✓	H-5-40	710		X			01	3				X		X	X	X						
2 ✓	H-1	1200		X			02	3				X		X	X	X						
3 ✓	H-2	1050		X			03	3				X		X	X	X						
4 ✓	H-3	940		X			04	3				X		X	X	X						
5	H-2-16.5	1020	X				05	1	X													HOLD SAMPLE
6																						
7																						
8																						
9																						
10																						

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: Chris Sheridan	[signature] / URS	3/22/04		[signature] SEQUOIA	3/22/04	1420
Sampler's Company: URS Oakland	[signature] SEQUOIA	3/22/04	1720	[signature]	3/22/04	1720
Shipment Date:						
Shipment Method: Hand Deliver						
Shipment Tracking No:						

Special Instructions:

Custody Seals In Place Yes ___ No x   Temperature Blank Yes ___ No x   Cooler Temperature on Receipt 4 °F/C   Trip Blank Yes ___ No x

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: WRS
REC. BY (PRINT): CB
WORKORDER: MNC0625

DATE REC'D AT LAB: 3-22-04
TIME REC'D AT LAB: 1720
DATE LOGGED IN: 3-23-04

DRINKING WATER for regulatory purposes: YES / NO
WASTE WATER for regulatory purposes: YES / NO

CIRCLE THE APPROPRIATE RESPONSE		LAB SAMPLE #	DASH #	CLIENT ID	CONTAINER DESCRIPTION	PRESERVATIVE	SAMPLE MATRIX	DATE SAMPLED	REMARKS: CONDITION (ETC.)
1. Custody Seal(s)	Present / Absent			H-5-40	3 VOAs	HCl	L	3-21-04	
	Intact / Broken*			H-1	↓	↓	↓	↓	
2. Chain-of-Custody	Present / Absent*			2					
3. Traffic Reports or Packing List:	Present / Absent			3	↓	↓	↓	↓	
4. Airbill:	Airbill / Sticker Present / Absent			H-2-14-8	VOA	—	S	3-21-04	
5. Airbill #:									
6. Sample Labels:	Present / Absent								
7. Sample IDs:	Listed / Not Listed on Chain-of-Custody								
8. Sample Condition:	Intact / Broken* / Leaking*								
9. Does information on chain-of-custody, traffic reports and sample labels agree?	Yes / No*								
10. Sample received within hold time:	Yes / No*								
11. Adequate sample volume received?	Yes / No*								
12. Proper Preservatives used:	Yes / No*								
13. Temp Rec. at Lab: 6 °C Is temp 4 +/-2°C?	Yes / No*								

*acceptance range for samples requiring thermal pres.)

*exception (if any): METALS / DFF ON ICE

*problem COC

*IF CIRCLED, CONTACT PROJECT MANAGER AND ATTACH RECORD OF RESOLUTION.

SEVERN TRENT STL

Submission #: 2003-11-0916

Fuel Oxygenates by 8260B

URS-Oakland, CA

Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
MW-8-5	11/26/2003 09:00	Soil	1
MW-8-10	11/26/2003 09:10	Soil	2
MW-8-15	11/26/2003 09:20	Soil	3
MW-8-23	11/26/2003 09:40	Soil	5
MW-8-28	11/26/2003 09:50	Soil	6
MW-8-33	11/26/2003 10:00	Soil	7
MW-8-38	11/26/2003 10:10	Soil	8

Fuel Oxygenates by 8260B

URS-Oakland, CA
Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Prep(s):	5030B	Test(s):	8260B
Sample ID:	MW-8-5	Lab ID:	2003-11-0916 - 1
Sampled:	11/26/2003 09:00	Extracted:	11/29/2003 14:55
Matrix:	Soil	QC Batch#:	2003/11/29-1A.69

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	1000	ug/Kg	1.00	11/29/2003 14:55	
tert-Butyl alcohol (TBA)	ND	10	ug/Kg	1.00	11/29/2003 14:55	
Methyl tert-butyl ether (MTBE)	ND	5.0	ug/Kg	1.00	11/29/2003 14:55	
Di-isopropyl Ether (DIPE)	ND	10	ug/Kg	1.00	11/29/2003 14:55	
Ethyl tert-butyl ether (ETBE)	ND	5.0	ug/Kg	1.00	11/29/2003 14:55	
tert-Amyl methyl ether (TAME)	ND	5.0	ug/Kg	1.00	11/29/2003 14:55	
Benzene	ND	5.0	ug/Kg	1.00	11/29/2003 14:55	
Toluene	ND	5.0	ug/Kg	1.00	11/29/2003 14:55	
Ethyl benzene	ND	5.0	ug/Kg	1.00	11/29/2003 14:55	
Total xylenes	ND	5.0	ug/Kg	1.00	11/29/2003 14:55	
Surrogate(s)						
1,2-Dichloroethane-d4	88.7	70	%	1.00	11/29/2003 14:55	
Toluene-d8	101.6	81	%	1.00	11/29/2003 14:55	

Fuel Oxygenates by 8260B

URS-Oakland, CA
Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Prep(s):	5030B	Test(s):	8260B
Sample ID:	MW-6-10	Lab ID:	2003-11-0916 - 2
Sampled:	11/26/2003 09:10	Extracted:	11/29/2003 15:14
Matrix:	Soil	QC Batch#:	2003/11/29-1A.69

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	1000	ug/Kg	1.00	11/29/2003 15:14	
tert-Butyl alcohol (TBA)	ND	10	ug/Kg	1.00	11/29/2003 15:14	
Methyl tert-butyl ether (MTBE)	ND	5.0	ug/Kg	1.00	11/29/2003 15:14	
Di-isopropyl Ether (DIPE)	ND	10	ug/Kg	1.00	11/29/2003 15:14	
Ethyl tert-butyl ether (ETBE)	ND	5.0	ug/Kg	1.00	11/29/2003 15:14	
tert-Amyl methyl ether (TAME)	ND	5.0	ug/Kg	1.00	11/29/2003 15:14	
Benzene	ND	5.0	ug/Kg	1.00	11/29/2003 15:14	
Toluene	ND	5.0	ug/Kg	1.00	11/29/2003 15:14	
Ethyl benzene	ND	5.0	ug/Kg	1.00	11/29/2003 15:14	
Total xylenes	ND	5.0	ug/Kg	1.00	11/29/2003 15:14	
Surrogate(s)						
1,2-Dichloroethane-d4	89.1	70	%	1.00	11/29/2003 15:14	
Toluene-d8	93.7	81	%	1.00	11/29/2003 15:14	

Fuel Oxygenates by 8260B

URS-Oakland, CA
Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Prep(s):	5030B	Test(s):	8260B
Sample ID:	MW-6-15	Lab ID:	2003-11-0916 - 3
Sampled:	11/26/2003 09:20	Extracted:	12/2/2003 11:51
Matrix:	Soil	QC Batch#:	2003/12/02-1A.69

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	2100	1000	ug/Kg	1.00	12/02/2003 11:51	g
tert-Butyl alcohol (TBA)	17	10	ug/Kg	1.00	12/02/2003 11:51	
Methyl tert-butyl ether (MTBE)	32	5.0	ug/Kg	1.00	12/02/2003 11:51	
Di-isopropyl Ether (DIPE)	ND	10	ug/Kg	1.00	12/02/2003 11:51	
Ethyl tert-butyl ether (ETBE)	ND	5.0	ug/Kg	1.00	12/02/2003 11:51	
tert-Amyl methyl ether (TAME)	ND	5.0	ug/Kg	1.00	12/02/2003 11:51	
Benzene	ND	5.0	ug/Kg	1.00	12/02/2003 11:51	
Toluene	ND	5.0	ug/Kg	1.00	12/02/2003 11:51	
Ethyl benzene	18	5.0	ug/Kg	1.00	12/02/2003 11:51	
Total xylenes	ND	5.0	ug/Kg	1.00	12/02/2003 11:51	
Surrogate(s)						
1,2-Dichloroethane-d4	83.9	70	%	1.00	12/02/2003 11:51	
Toluene-d8	105.4	81	%	1.00	12/02/2003 11:51	

Fuel Oxygenates by 8260B

URS-Oakland, CA

Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Prep(s):	5030B	Test(s):	8260B
Sample ID:	MW-8-23	Lab ID:	2003-11-0916 - 5
Sampled:	11/26/2003 09:40	Extracted:	12/2/2003 12:10
Matrix:	Soil	QC Batch#:	2003/12/02-1A.69

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	5000	ug/Kg	5.00	12/02/2003 12:10	
tert-Butyl alcohol (TBA)	ND	50	ug/Kg	5.00	12/02/2003 12:10	
Methyl tert-butyl ether (MTBE)	1400	25	ug/Kg	5.00	12/02/2003 12:10	
Di-isopropyl Ether (DIPE)	ND	50	ug/Kg	5.00	12/02/2003 12:10	
Ethyl tert-butyl ether (ETBE)	ND	25	ug/Kg	5.00	12/02/2003 12:10	
tert-Amyl methyl ether (TAME)	25	25	ug/Kg	5.00	12/02/2003 12:10	
Benzene	ND	25	ug/Kg	5.00	12/02/2003 12:10	
Toluene	ND	25	ug/Kg	5.00	12/02/2003 12:10	
Ethyl benzene	ND	25	ug/Kg	5.00	12/02/2003 12:10	
Total xylenes	ND	25	ug/Kg	5.00	12/02/2003 12:10	
Surrogate(s)						
1,2-Dichloroethane-d4	83.0	70	%	5.00	12/02/2003 12:10	
Toluene-d8	92.7	81	%	5.00	12/02/2003 12:10	

Fuel Oxygenates by 8260B

URS-Oakland, CA
Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Prep(s):	5030B	Test(s):	8260B
Sample ID:	MW-6-28	Lab ID:	2003-11-0916 - 6
Sampled:	11/26/2003 09:50	Extracted:	12/2/2003 12:28
Matrix:	Soil	QC Batch#:	2003/12/02-1A.69

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	1000	ug/Kg	1.00	12/02/2003 12:28	
tert-Butyl alcohol (TBA)	ND	10	ug/Kg	1.00	12/02/2003 12:28	
Methyl tert-butyl ether (MTBE)	120	5.0	ug/Kg	1.00	12/02/2003 12:28	
Di-isopropyl Ether (DIPE)	ND	10	ug/Kg	1.00	12/02/2003 12:28	
Ethyl tert-butyl ether (ETBE)	ND	5.0	ug/Kg	1.00	12/02/2003 12:28	
tert-Amyl methyl ether (TAME)	ND	5.0	ug/Kg	1.00	12/02/2003 12:28	
Benzene	ND	5.0	ug/Kg	1.00	12/02/2003 12:28	
Toluene	ND	5.0	ug/Kg	1.00	12/02/2003 12:28	
Ethyl benzene	ND	5.0	ug/Kg	1.00	12/02/2003 12:28	
Total xylenes	ND	5.0	ug/Kg	1.00	12/02/2003 12:28	
Surrogate(s)						
1,2-Dichloroethane-d4	85.3	70	%	1.00	12/02/2003 12:28	
Toluene-d8	95.1	81	%	1.00	12/02/2003 12:28	

Fuel Oxygenates by 8260B

URS-Oakland, CA

Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Prep(s):	5030B	Test(s):	8260B
Sample ID:	MW-8-33	Lab ID:	2003-11-0916 - 7
Sampled:	11/26/2003 10:00	Extracted:	12/2/2003 12:47
Matrix:	Soil	QC Batch#:	2003/12/02-1A.69

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	1000	ug/Kg	1.00	12/02/2003 12:47	
tert-Butyl alcohol (TBA)	ND	10	ug/Kg	1.00	12/02/2003 12:47	
Methyl tert-butyl ether (MTBE)	37	5.0	ug/Kg	1.00	12/02/2003 12:47	
Di-isopropyl Ether (DIPE)	ND	10	ug/Kg	1.00	12/02/2003 12:47	
Ethyl tert-butyl ether (ETBE)	ND	5.0	ug/Kg	1.00	12/02/2003 12:47	
tert-Amyl methyl ether (TAME)	ND	5.0	ug/Kg	1.00	12/02/2003 12:47	
Benzene	ND	5.0	ug/Kg	1.00	12/02/2003 12:47	
Toluene	ND	5.0	ug/Kg	1.00	12/02/2003 12:47	
Ethyl benzene	ND	5.0	ug/Kg	1.00	12/02/2003 12:47	
Total xylenes	ND	5.0	ug/Kg	1.00	12/02/2003 12:47	
Surrogate(s)						
1,2-Dichloroethane-d4	86.8	70	%	1.00	12/02/2003 12:47	
Toluene-d8	89.2	81	%	1.00	12/02/2003 12:47	

Fuel Oxygenates by 8260B

URS-Oakland, CA

Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Prep(s):	5030B	Test(s):	8260B
Sample ID:	MW-8-38	Lab ID:	2003-11-0916 - 8
Sampled:	11/26/2003 10:10	Extracted:	11/29/2003 16:47
Matrix:	Soil	QC Batch#:	2003/11/29-1A.69

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	1000	ug/Kg	1.00	11/29/2003 16:47	
tert-Butyl alcohol (TBA)	ND	10	ug/Kg	1.00	11/29/2003 16:47	
Methyl tert-butyl ether (MTBE)	27	5.0	ug/Kg	1.00	11/29/2003 16:47	
Di-isopropyl Ether (DIPE)	ND	10	ug/Kg	1.00	11/29/2003 16:47	
Ethyl tert-butyl ether (ETBE)	ND	5.0	ug/Kg	1.00	11/29/2003 16:47	
tert-Amyl methyl ether (TAME)	ND	5.0	ug/Kg	1.00	11/29/2003 16:47	
Benzene	ND	5.0	ug/Kg	1.00	11/29/2003 16:47	
Toluene	ND	5.0	ug/Kg	1.00	11/29/2003 16:47	
Ethyl benzene	ND	5.0	ug/Kg	1.00	11/29/2003 16:47	
Total xylenes	ND	5.0	ug/Kg	1.00	11/29/2003 16:47	
Surrogate(s)						
1,2-Dichloroethane-d4	90.5	70	%	1.00	11/29/2003 16:47	
Toluene-d8	86.2	81	%	1.00	11/29/2003 16:47	

Fuel Oxygenates by 8260B

URS-Oakland, CA
Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Batch QC Report

Prep(s): 5030B | Soil | Test(s): 8260B

Method Blank | **QC Batch # 2003/11/29-1A.69**

MB: 2003/11/29-1A 69-018 | Date Extracted: 11/29/2003 12:18

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	1000	ug/Kg	11/29/2003 12:18	
Benzene	ND	5.0	ug/Kg	11/29/2003 12:18	
Toluene	ND	5.0	ug/Kg	11/29/2003 12:18	
Ethyl benzene	ND	5.0	ug/Kg	11/29/2003 12:18	
Total xylenes	ND	5.0	ug/Kg	11/29/2003 12:18	
tert-Butyl alcohol (TBA)	ND	10.0	ug/Kg	11/29/2003 12:18	
Methyl tert-butyl ether (MTBE)	ND	5.0	ug/Kg	11/29/2003 12:18	
Di-isopropyl Ether (DIPE)	ND	10.0	ug/Kg	11/29/2003 12:18	
Ethyl tert-butyl ether (ETBE)	ND	5.0	ug/Kg	11/29/2003 12:18	
tert-Amyl methyl ether (TAME)	ND	5.0	ug/Kg	11/29/2003 12:18	
Surrogates(s)					
1,2-Dichloroethane-d4	84.8	70-121	%	11/29/2003 12:18	
Toluene-d8	93.5	81-117	%	11/29/2003 12:18	

Fuel Oxygenates by 8260B

URS-Oakland, CA
Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Batch QC Report

Prep(s): 5030B — Test(s): 8260B

Method Blank — **Soil** — **QC Batch # 2003/12/02-1A.69**

MB: 2003/12/02-1A.69-028 — Date Extracted: 12/02/2003 10:28

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	1000	ug/Kg	12/02/2003 10:28	
Benzene	ND	5.0	ug/Kg	12/02/2003 10:28	
Toluene	ND	5.0	ug/Kg	12/02/2003 10:28	
Ethyl benzene	ND	5.0	ug/Kg	12/02/2003 10:28	
Total xylenes	ND	5.0	ug/Kg	12/02/2003 10:28	
tert-Butyl alcohol (TBA)	ND	10.0	ug/Kg	12/02/2003 10:28	
Methyl tert-butyl ether (MTBE)	ND	5.0	ug/Kg	12/02/2003 10:28	
Di-isopropyl Ether (DIPE)	ND	10.0	ug/Kg	12/02/2003 10:28	
Ethyl tert-butyl ether (ETBE)	ND	5.0	ug/Kg	12/02/2003 10:28	
tert-Amyl methyl ether (TAME)	ND	5.0	ug/Kg	12/02/2003 10:28	
Surrogates(s)					
1,2-Dichloroethane-d4	92.2	70-121	%	12/02/2003 10:28	
Toluene-d8	98.7	81-117	%	12/02/2003 10:28	

Fuel Oxygenates by 8260B

URS-Oakland, CA
Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Batch QC Report

Prep(s): 5030B — Test(s): 8260B

Laboratory Control Spike — **Soil** — **QC Batch # 2003/11/29-1A.69**

LCS 2003/11/29-1A.69-060 — Extracted: 11/29/2003 — Analyzed: 11/29/2003 11:41

LCSD 2003/11/29-1A.69-059 — Extracted: 11/29/2003 — Analyzed: 11/29/2003 11:59

Compound	Conc. ug/Kg		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD	%	Rec.	RPD	LCS	LCSD
Benzene	48.6	47.2	50	97.2	96.7	0.5	69-129	20		
Toluene	52.4	48.5	50	104.8	99.4	5.3	70-130	20		
Methyl tert-butyl ether (MTBE)	47.2	45.2	50	94.4	92.6	1.9	65-165	20		
Surrogates(s)										
1,2-Dichloroethane-d4	432	413	500	86.4	82.6		70-121			
Toluene-d8	482	448	500	96.4	89.6		81-117			

Fuel Oxygenates by 8260B

URS-Oakland, CA
Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Batch QC Report

Prep(s): 5030B — Test(s): 8260B

Laboratory Control Spike — **Soil** — **QC Batch # 2003/12/02-1A.69**

LCS 2003/12/02-1A.69-050 — Extracted: 12/02/2003 — Analyzed: 12/02/2003 09:50

LCSD 2003/12/02-1A.69-008 — Extracted: 12/02/2003 — Analyzed: 12/02/2003 10:08

Compound	Conc. ug/Kg		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD	%	Rec.	RPD	LCS	LCSD
Benzene	44.0	44.9	50	88.0	89.8	2.0	69-129	20		
Toluene	45.0	50.7	50	90.0	101.4	11.9	70-130	20		
Methyl tert-butyl ether (MTBE)	39.0	38.9	50	78.0	77.8	0.3	65-165	20		
Surrogates(s)										
1,2-Dichloroethane-d4	455	445	500	91.0	89.0		70-121			
Toluene-d8	445	521	500	89.0	104.2		81-117			

Fuel Oxygenates by 8260B

URS-Oakland, CA
Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Legend and Notes

Result Flag

g

Hydrocarbon reported in the gasoline range does not match our gasoline standard.

SEVERN TRENT STL

Submission #: 2003-11-0916

Gas/BTEXFuel Oxygenates by 8260B (High Level)

URS-Oakland, CA

Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
MW-8-16.5	11/26/2003 09:30	Soil	4

Gas/BTEXFuel Oxygenates by 8260B (High Level)

URS-Oakland, CA
Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Prep(s):	5030B	Test(s):	8260B
Sample ID:	MW-8-16.5	Lab ID:	2003-11-0916 - 4
Sampled:	11/26/2003 09:30	Extracted:	12/1/2003 11:30
Matrix:	Soil	QC Batch#:	2003/12/01-03.66

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	150000	50000	ug/Kg	1.00	12/04/2003 11:19	g
Benzene	ND	500	ug/Kg	1.00	12/04/2003 11:19	
Toluene	ND	500	ug/Kg	1.00	12/04/2003 11:19	
Ethyl benzene	600	500	ug/Kg	1.00	12/04/2003 11:19	
Total xylenes	840	500	ug/Kg	1.00	12/04/2003 11:19	
tert-Butyl alcohol (TBA)	ND	2500	ug/Kg	1.00	12/04/2003 11:19	
Methyl tert-butyl ether (MTBE)	ND	500	ug/Kg	1.00	12/04/2003 11:19	
Di-isopropyl Ether (DIPE)	ND	1000	ug/Kg	1.00	12/04/2003 11:19	
Ethyl tert-butyl ether (ETBE)	ND	500	ug/Kg	1.00	12/04/2003 11:19	
tert-Amyl methyl ether (TAME)	ND	500	ug/Kg	1.00	12/04/2003 11:19	
Surrogate(s)						
1,2-Dichloroethane-d4	84.2	70-121	%	1.00	12/04/2003 11:19	
Toluene-d8	91.5	81-117	%	1.00	12/04/2003 11:19	

Gas/BTEXFuel Oxygenates by 8260B (High Level)

URS-Oakland, CA
Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Batch QC Report

Prep(s): 5030B — Test(s): 8260B
Method Blank — **Soil** — **QC Batch # 2003/12/01-03.66**
MB: 2003/12/01-03.66-036 — Date Extracted: 12/01/2003 13:36

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	mg/Kg	12/01/2003 13:36	
Benzene	ND	0.50	mg/Kg	12/01/2003 13:36	
Toluene	ND	0.50	mg/Kg	12/01/2003 13:36	
Ethyl benzene	ND	0.50	mg/Kg	12/01/2003 13:36	
Total xylenes	ND	0.50	mg/Kg	12/01/2003 13:36	
tert-Butyl alcohol (TBA)	ND	2.5	mg/Kg	12/01/2003 13:36	
Methyl tert-butyl ether (MTBE)	ND	0.50	mg/Kg	12/01/2003 13:36	
Di-isopropyl Ether (DIPE)	ND	1.0	mg/Kg	12/01/2003 13:36	
Ethyl tert-butyl ether (ETBE)	ND	0.50	mg/Kg	12/01/2003 13:36	
tert-Amyl methyl ether (TAME)	ND	0.50	mg/Kg	12/01/2003 13:36	
Surrogates(s)					
1,2-Dichloroethane-d4	98.0	76-130	%	12/01/2003 13:36	
Toluene-d8	94.8	78-115	%	12/01/2003 13:36	

Gas/BTEXFuel Oxygenates by 8260B (High Level)

URS-Oakland, CA
Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Batch QC Report

Prep(s): 5030B Test(s): 8260B

Laboratory Control Spike **Soil** **QC Batch # 2003/12/01-03.66**

LCS 2003/12/01-03.66-048 Extracted: 12/01/2003 Analyzed: 12/01/2003 12:48

LCSD 2003/12/01-03.66-012 Extracted: 12/01/2003 Analyzed: 12/01/2003 13:12

Compound	Conc. mg/Kg		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD	%	Rec.	RPD	LCS	LCSD
Benzene	9360	9530	10000	93.6	95.3	1.8	69-129	20		
Toluene	9460	9610	10000	94.6	96.1	1.6	70-130	20		
Methyl tert-butyl ether (MTBE)	9120	9140	10000	91.2	91.4	0.2	65-165	20		
Surrogates(s)										
1,2-Dichloroethane-d4	244	251	250	97.6	100.4		76-130			
Toluene-d8	231	243	250	92.4	97.2		78-115			

Gas/BTEXFuel Oxygenates by 8260B (High Level)

URS-Oakland, CA
Attn.: Scott Robinson

500 12th Street, Suite 200
Oakland, CA 94607-4014
Phone: (510) 893-3600 Fax: (510) 874-3268

Project: BP/GEM Facility No.: Station 2111

Received: 11/26/2003 15:15

Site: 1156 Davis St., San Leandro, CA

Legend and Notes

Result Flag

g

Hydrocarbon reported in the gasoline range does not match our gasoline standard.

STL

STL San Francisco

Sample Receipt Checklist

Submission #:2003- 11 - 0916

Checklist completed by: (initials) DSH Date: 11/29/03

Courier name: ☒ STL San Francisco ☐ Client

Custody seals intact on shipping container/samples	Yes ___ No ___	Not Present ✓
Chain of custody present?	Yes ✓ No ___	
Chain of custody signed when relinquished and received?	Yes ✓ No ___	
Chain of custody agrees with sample labels?	Yes ✓ No ___	
Samples in proper container/bottle?	Yes ✓ No ___	
Sample containers intact?	Yes ✓ No ___	
Sufficient sample volume for indicated test?	Yes ✓ No ___	
All samples received within holding time?	Yes ✓ No ___	
Container/Temp Blank temperature in compliance (4° C ± 2)?	Temp: 3.0 °C	Yes ✓ No ___
	Ice Present	Yes ✓ No ___
Water - VOA vials have zero headspace?	No VOA vials submitted ✓	Yes ___ No ___

(If bubble is present, refer to approximate bubble size and itemize in comments as S (small ~ O), M (medium ~ O) or L (large ~ O))

Water - pH acceptable upon receipt? ☐ Yes ☐ No soil

☐ pH adjusted– Preservative used: ☐ HNO_3 ☐ HCl ☐ H_2SO_4 ☐ NaOH ☐ ZnOAc –Lot #(s): _____

For any item check-listed "No", provided detail of discrepancy in comment section below:

Comments:

Project Management [Routing for instruction of indicated discrepancy(ies)]

Project Manager: (Initials) _____ Date: ___/___/03

Client contacted: ☐ Yes ☐ No

Summary of discussion:

Corrective Action (per PM/Client):

80642

2003-11-0916

bp

Chain of Custody Record

Project Name Station 2111 -1156 Davis St., San Leandro, CA
Business Unit Atlantic Richfield Company/Northern CA Portfolio
BP Laboratory Contract Number: 4 6 1 0 0 0
Requested Due Date: 12/10/03
(mm/dd/yy - 2 weeks from sampling date)

Date: 11/26/03

On-site Time:	Temp:
Off- site Time:	Temp:
Sky Conditions:	Sunny
Meteorological Events:	/
Wind Speed:	Direction

Send To:		
Lab Name: STL Chromalab	BP/GEM Facility No.: Station 2111	Consultant: URS Oakland
Lab Address: 1220 Quarry Lane	BP/GEM Facility Address: 1156 Davis St., San Leandro, CA	Address: 500 12th Street, #200
Pleasanton, CA 94566	Site ID No. Station 2111	Oakland, CA 94607
	California Global ID #T0600101665	e-mail EDD: Scott_Robinson@URSCorp.com
	BP/GEM PM Contact: Paul Supple	Consultant Project No.:
Lab PM: Afsaneh Salimpour	Address: P.O. Box 6549, Moraga, CA 94570	Consultant Tele/Fax: 510-874-3280/510-874-3268
Tele/Fax:925.484.1919	Tele/Fax: 925-299-8891/925-299-8872	Consultant PM: Scott Robinson
Report Type & QC Level: Normal		Invoice to: Atlantic Richfield Company
BP/GEM Account No.:		BP/GEM Work Release No:
Lab Bottle Order No:		

Item No.	Field Point ID	Sample ID	Time	Matrix: Soil/Solid	Water/Liquid	Sediments	Air	Laboratory No.	No. of containers	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl		Requested Analysis: TPH-g (8260)	BTEX (8260)	MTBE (8260)	Cal 15	5 oxys					Sample Point Lat/Long and Comments
1	MW-8	MW-8-5	0900	X					1	X					X	X	X							[illegible]
2	↓	MW-8-10	0910	X					1						X	X	X							
3		MW-8-15	0920	X					1						X	X	X							
4		MW-8-16.5	0930	X					1						X	X	X							
5		MW-8-23	0940	X					1						X	X	X							
6		MW-8-28	0950	X					1						X	X	X							
7		MW-8-33	1000	X					1						X	X	X							
8	↓	MW-8-38	1010	X					1	↓					X	X	X							
9																								3.0°C
10																								

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: Chris Sheridan						
Sampler's Company: URS Oakland	[signature]	11/26/03	11:55	[signature] STL-SF	11/26/03	11:55
Shipment Date:	[signature]	11/26/03	1515			
Shipment Method:						
Shipment Tracking No:				[signature]	11/26/03	1515

Special Instructions:

Custody Seals In Place Yes____ No____ Temperature Blank Yes____ No____ Cooler Temperature on Receipt ____°F/C Trip Blank Yes____ No X

BP COC Rev.1 2/8/02

XX_ENVI_WASTE\BP-GEMCO\EJ\EPCHAIN OF CUSTODY FORMS\EQUITY SITES\ALCOC\1\0202

Appendix E
Waste Manifests

Appendix F
Waste Reciept

REPUBLIC SERVICES VASCO ROAD, LLC

4001 N. Vasco Road, Livermore, California 94551 • (925) 447-0491

160669

TICKET: 516289
CUSTOMER: DILL / DILLARD/EXXON
TRUCK: 195
ACCT#: 5007814
PROFILE #: 1002524

DATE: 04/16/2004
TIME: 10:49 - 10:51

BP#11131

GENERATOR: 1002524 / ARCO # BP WEST COAST PROD
ORIGIN: 5 / HAYWARD 1233
LICENSE:
COMMENT:

GROSS: 0 LBS
TARE: 0 LBS
NET: 0 LBS

WASTE:	QUANTITY	UNIT	RATE	AMOUNT
SOILD / SOIL DRUMS	5.00	U		

Tax

I certify that I have not disposed of any liquid or hazardous waste.

Total:

Mark Pursell
Weighmaster:

DRIVER

DRIVER

All children must remain in vehicles.

WARNING: Transporting any unauthorized hazardous waste to this facility for disposal is prohibited by law. Persons violating this prohibition are subject to civil and criminal prosecution

Appendix G
Survey Data

BP/ARCO Survey Sheet

Site: **2111**
Date: 3/2/04

Well ID	X-coord (NAD'83)	Y-coord (NAD'83)	Top of Casing (NAVD'88)	Top of Lid (NAVD'88)	Ground Surface (NAVD'88)	Comments
MW-1	-122.1687969	37.7219938	39.49	39.73	39.73	
MW-2	-122.1686654	37.7217628	37.86	38.61	38.61	
MW-3	-122.1686687	37.7220180	39.19	39.87	39.87	
MW-4	-122.1684591	37.7220358	37.99	38.73	38.73	
MW-5	-122.1689275	37.7217378	37.12	37.60	37.60	
MW-6	-122.1682287	37.7219511	37.11	38.03	38.03	
MW-7	-122.1684465	37.7217826	38.54	38.90	38.90	
MW-8	-122.1687519	37.7218896	38.91	39.38	39.38	
V-1	-122.1686227	37.7218233	38.81	39.27	39.27	
V-2	-122.1685841	37.7217634	38.17	38.78	38.78	
V-3	-122.1683701	37.7217952	37.88	38.59	38.59	

BP/ARCO Survey Sheet

Site: BP 2111
Survey Date: 4/7/04

Well ID	X-coord (NAD'83)	Y-coord (NAD'83)	Top of Casing (NAVD'88)	Top of Lid (NAVD'88)	Ground Surface (NAVD'88)	Comments
H-1	-122.1688693	37.7216522				
H-2	-122.1690083	37.7218569				
H-3	-122.1691669	37.7221031				
H-4	-122.1693232	37.7223485				
H-5	-122.1692432	37.7223855				
SB-1	-122.1692944	37.7223623				
SB-2	-122.1686721	37.7217975				