

# Atlantic Richfield Company

**Chuck Carmel**  
Environmental Business Manager

**RECEIVED**

11:33 am, Nov 09, 2010

Alameda County  
Environmental Health

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November 8, 2010

Re: Soil and Ground-Water Investigation Work Plan  
Atlantic Richfield Company Station #4977  
2770 Castro Valley Boulevard, Castro Valley, California  
ACEH Case #RO0002436

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

Submitted by,



Chuck Carmel  
Environmental Business Manager

Attachment

**SOIL AND GROUND-WATER INVESTIGATION  
WORK PLAN**

Atlantic Richfield Company Station #4977  
2770 Castro Valley Boulevard, Castro Valley, California  
ACEH Case # RO0002436

Prepared for

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

Prepared by



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

November 8, 2010

Project No. 06-82-625

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



November 8, 2010

Project No. 06-82-625

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

Attn.: Mr. Chuck Carmel

Re: Soil and Ground-Water Investigation Work Plan, Atlantic Richfield Company (a BP affiliated company) Station #4977, 2770 Castro Valley Blvd, Castro Valley, California; ACEH Case #RO0002436

Dear Mr. Carmel:

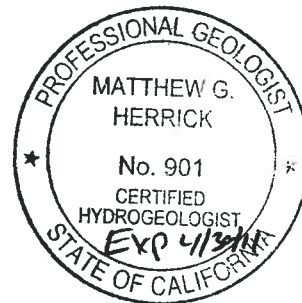
Broadbent & Associates, Inc. (BAI) is pleased to submit this Work Plan to conduct a soil and ground-water investigation at Atlantic Richfield Company Station #4977 (herein referred to as Station #4977) located at 2770 Castro Valley Blvd, Castro Valley, California (Property). This Work Plan has been prepared in accordance with the Alameda County Environmental Health (ACEH) letter dated September 10, 2010.

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

Sincerely,  
BROADBENT & ASSOCIATES, INC.

Jason R. Duda  
Project Scientist

Matthew G. Herrick, P.G., C.HG.  
Senior Hydrogeologist



cc: Mr. Paresh Khatri, ACEH (Submitted via ACEH ftp Site)  
GeoTracker

## TABLE OF CONTENTS

	<u>PAGE</u>
1.0 Background .....	1
2.0 Scope of Work.....	1
3.0 Project Setup.....	2
4.0 Soil Investigation.....	2
5.0 Ground-Water Investigation.....	2
6.0 Schedule and Reporting.....	3
7.0 Closure.....	3
8.0 References .....	3

## LIST OF DRAWINGS

Drawing 1: Site Location Map, Station #4977, Castro Valley, CA

Drawing 2: Site Map with Proposed Boring Locations, Station #4977, Castro Valley, CA

## APPENDICES

Appendix A: Historic Soil Analytical Data

Appendix B: Historic Ground-Water Monitoring and Analytical Data

## **1.0 Background**

Provided herein is a Work Plan to conduct a soil and ground-water investigation at Station #4977 located at 2770 Castro Valley Road, Castro Valley, California. The Property is currently an operational gas station located in an area of mixed commercial and residential use. The property consists of a convenience store and two gasoline dispensing islands with associated underground storage tanks (USTs) and product piping. A site location map is provided in Drawing 1.

During tank basin, product line and dispenser upgrade activities completed in March 2001, Delta Environmental Consultants, Inc. (Delta) collected soil samples beneath the tank basin, product lines and dispenser islands. Total purgeable hydrocarbons as gasoline (TPHg) were detected in 19 of the 22 compliance samples at concentrations up to 1,450 milligrams per kilogram (mg/kg) in sample DP-2. Benzene was detected in 12 of the 22 compliance samples at concentrations up to 8.05 mg/kg in sample DP-2. MTBE was detected in six of the 22 compliance samples at concentrations up to 9.97 mg/kg in sample PL-7. Approximately 1,105.60 tons of soil were removed and disposed of during excavation activities. Piping for the potential future installation of a remediation system on-site was also installed during this time. Historic soil sampling locations and analytical data are provided in Appendix A.

In April 2002, Delta completed soil boring advancement and monitoring well installation activities on the Property. Five borings (MW-1, MW-2, MW-3, B-1, and B-2) were advanced to a total depth of 15 feet, with three of the borings being completed as ground-water monitoring wells (MW-1 through MW-3). Soil samples were collected at approximately five foot intervals. TPHg were detected in eight of the 18 samples collected at concentrations up to 1,600 mg/kg in sample B-2-6.00. Benzene was detected in seven of the 18 samples collected at concentrations up to 3.2 mg/kg in sample MW-1-10.50. MTBE was detected in 10 of the 18 soil samples collected at concentrations up to 0.12 mg/kg in sample MW-3-12.50. Historic soil analytical data and a geologic cross-section are provided in Appendix A.

Quarterly ground-water monitoring and sampling has been conducted on wells MW-1, MW-2, and MW-3 at the Site since April 2002. The monitoring and sampling schedule was modified to be conducted semi-annually during the second and fourth quarters of each calendar year in June 2009. Historic ground-water monitoring and analytical data are provided in Appendix B.

Upon reviewing the case file for Station #4977, ACEH issued the September 10, 2010 letter stating that the extent of impacted soil and ground water appears to be undefined at the Site and the implementation of a soil and ground-water investigation is warranted. Accordingly, this *Soil and Ground-Water Investigation Work Plan* has been prepared.

## **2.0 Scope of Work**

In order to adequately characterize the soil and ground water at Station #4977, it is proposed to advance three soil borings to an approximate depth of 15 feet below ground surface (bgs) to facilitate collection of soil and ground-water samples on-site. The proposed location of boring B-3 is adjacent to historic boring B-2, in which ground-water samples were not originally collected. The proposed location of boring B-4 is southeast of the northernmost dispenser island adjacent to

Wisteria Street and slightly southeast of historic product line soil sample PL-7, which contained elevated concentrations of MTBE. The proposed location of boring B-5 is northeast of the southernmost dispenser island adjacent to historic dispenser island soil sample DP-2, which contained elevated concentrations of hydrocarbons. The proposed boring locations are depicted in Drawing 2.

### **3.0 Project Setup**

In accordance with the current contract with Atlantic Richfield Company, Broadbent & Associates, Inc. (BAI) will complete the field work associated with this soil and ground-water investigation (i.e., drilling and sampling). BAI will obtain any permits necessary prior to initiation of field work. BAI will then generate a report for submittal to ACEH summarizing the soil and ground-water investigation including data interpretation and recommendations.

### **4.0 Soil Investigation**

Soil borings will be advanced to a total depth of approximately 15 feet bgs using a Geoprobe direct push drilling technique. Soils will be lithologically logged by a qualified geologist using the Unified Soil Classification System (USCS). The expected depth to static ground water at Station #4977 is estimated to be approximately five to 15 feet bgs. Soil samples will be collected at five foot intervals beginning approximately 6.5 feet bgs and continuing to just above the capillary fringe. A minimum of two soil samples will be submitted for laboratory analysis from each boring. The two soil samples will include: (1) the deepest sample collected just above the capillary fringe and (2) the sample with the highest photo-ionization detector reading. Each sample collected for submittal to a laboratory for analysis will be sealed on both ends with Teflon tape, capped with plastic end caps, labeled, and placed in an ice-filled cooler for preservation. The soil samples will be transported under chain-of-custody protocol to a California State-certified analytical laboratory and analyzed for the following:

- Gasoline range organics (GRO, C6-C12) via EPA Method 8015B and Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) via EPA Method 8260B; and
- Fuel additives MTBE, tert-butyl alcohol (TBA), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), di-isopropyl ether (DIPE), 1,2-dichloroethane (1,2-DCA), 1,2-dibromoethane (EDB), and ethanol via EPA Method 8260B.

Upon completion of soil and ground-water sampling activities, each boring will be abandoned using neat cement grout and completed at the surface to match the surrounding area. Investigation-derived residuals will be collected in 55-gallon steel drums, stored on the Property, and profiled prior to disposal at an approved Atlantic Richfield Company disposal facility.

### **5.0 Ground-Water Investigation**

As stated above, depth to static ground water is expected to be between five and 15 feet bgs. One grab ground-water sample will be collected from each boring utilizing either a disposable bailer and the construction of a temporary PVC well casing or a peristaltic pump and disposable tubing. Ground-water samples will be collected in appropriate sampling containers, labeled and chilled prior

to transport under chain-of-custody protocol to a California State-certified analytical laboratory and analyzed for the following:

- GRO via EPA Method 8015B and BTEX via EPA Method 8260B; and
- Fuel additives MTBE, TBA, ETBE, TAME, DIPE, 1,2-DCA, EDB, and ethanol via EPA Method 8260B.

## **6.0 Schedule and Reporting**

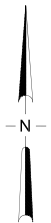
Once ACEH has approved this Soil and Ground-Water Investigation Work Plan, BAI will execute the work. Upon completion of field work, BAI will complete a soil and ground-water investigation report for submittal to ACEH.

## **7.0 Closure**

Our services will be performed in accordance with the generally accepted standard of practice at the time work commences. Results and recommendations will be based on review of available documentation and written or verbal correspondence with appropriate regulatory agencies, laboratory results, observations of field personnel, and the points investigated. No other warranty, expressed or implied is made.

## **8.0 References**

- Delta. June 20, 2001. *Tank Basin, Product Line and Dispenser Island Sampling Results and Installation of Future Remediation System Piping, ARCO Station No. 4977, 2770 Castro Valley Road, Castro Valley, California.*
- Delta. June 25, 2002. *Monitoring Well Installation Results Report, ARCO Service Station #4977 ARCO Station No. 4977, 2770 Castro Valley Road, Castro Valley, California.*



APPROXIMATE SCALE (mi)

IMAGE SOURCE: DELORME

**BROADBENT & ASSOCIATES, INC.**  
 ENGINEERING, WATER RESOURCES & ENVIRONMENTAL  
 1324 Mangrove Ave. Suite 212, Chico, California 95926  
 Project No.: 06-82-625 Date: 12/16/2009

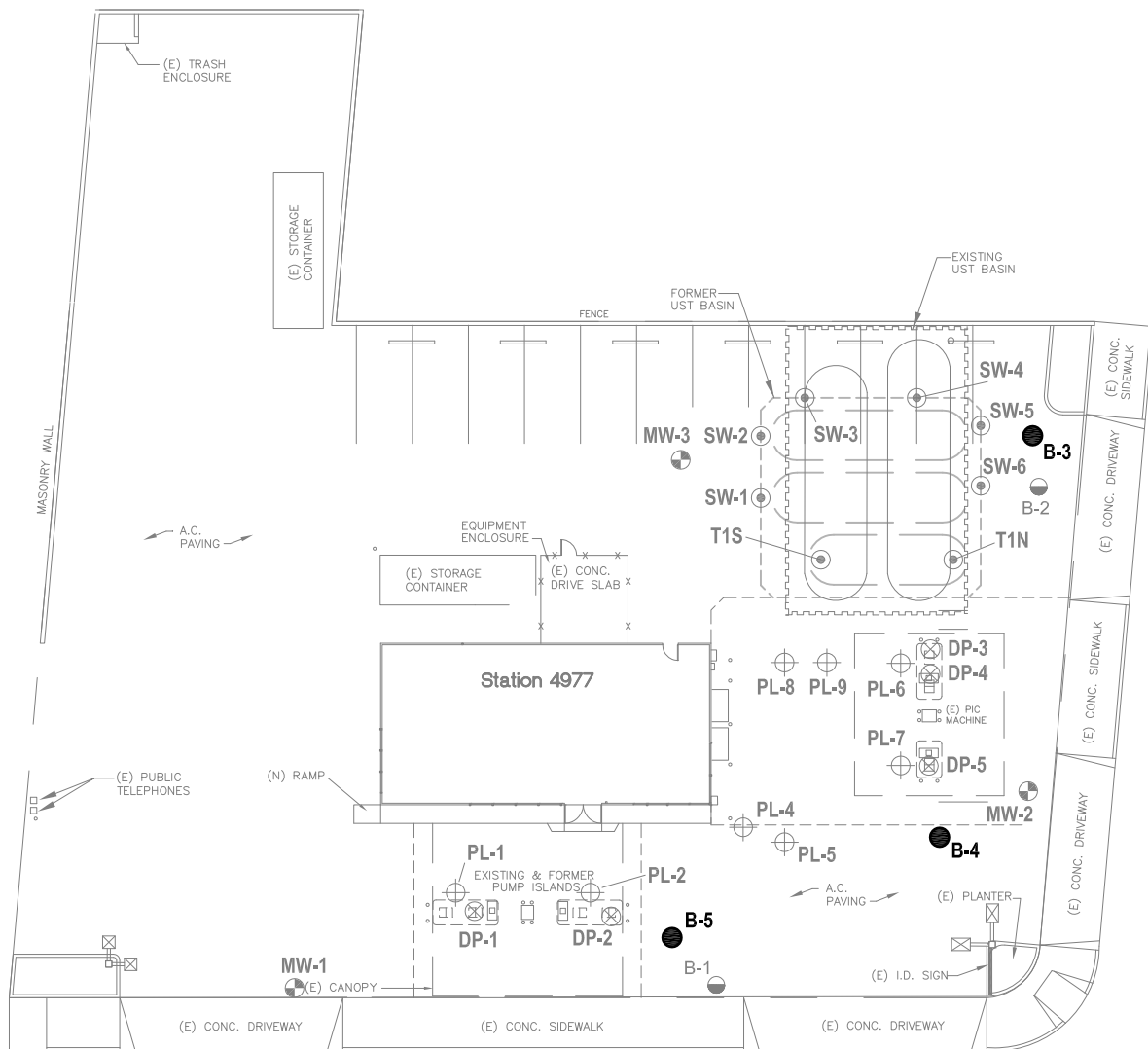
Station #4977  
 2770 Castro Valley Blvd.  
 Castro Valley, California

Site Location Map

Drawing

1





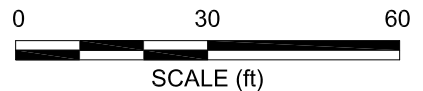
Castro Valley Blvd.

Wisteria Street

**LEGEND**

- PROPOSED SOIL BORING
- ⊕ MONITORING WELL
- SOIL BORING
- ⊗ DISPENSER COMPLIANCE SAMPLE
- ⊕ PRODUCT LINE SAMPLES
- ⊙ FORMER TANK BASIN SAMPLES

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



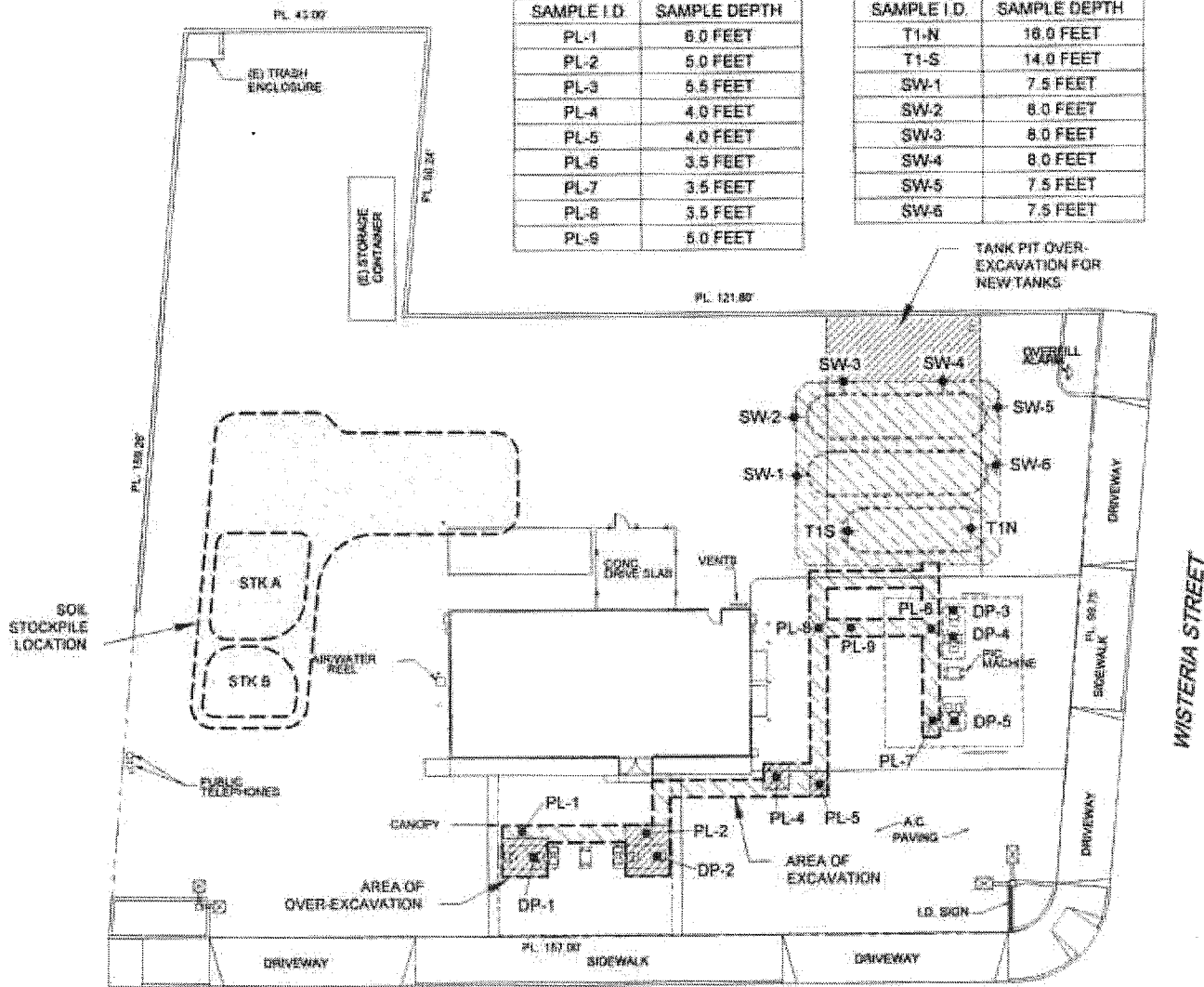
**Appendix A:**  
**Historic Soil Analytical Data**

PRODUCT LINE SAMPLES

SAMPLE I.D.	SAMPLE DEPTH
PL-1	8.0 FEET
PL-2	5.0 FEET
PL-3	5.5 FEET
PL-4	4.0 FEET
PL-5	4.0 FEET
PL-6	3.5 FEET
PL-7	3.5 FEET
PL-8	3.5 FEET
PL-9	5.0 FEET

FORMER TANK BASIN

SAMPLE I.D.	SAMPLE DEPTH
T1-N	18.0 FEET
T1-S	14.0 FEET
SW-1	7.5 FEET
SW-2	8.0 FEET
SW-3	8.0 FEET
SW-4	8.0 FEET
SW-5	7.5 FEET
SW-6	7.5 FEET



DISPENSER PUMP SAMPLES

SAMPLE I.D.	SAMPLE DEPTH
DP-1	8.0 FEET
DP-2	8.0 FEET
DP-3	3.0 FEET
DP-4	3.5 FEET
DP-5	3.5 FEET

CASTRO VALLEY BLVD.

North



SCALE

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

LEGEND:

- ◆ T-1N TANK BASIN SOIL SAMPLE LOCATIONS
- PL-1 FORMER PRODUCT LINE/ DISPENSER PUMP SOIL SAMPLE LOCATIONS
- ▨ AREA OF SOIL EXCAVATION DURING REPLACEMENT OF TANKS/ PRODUCT LINES/ DISPENSER PUMPS
- ▩ AREA OF OVER-EXCAVATION DURING REPLACEMENT OF TANKS/ PRODUCT LINES/ DISPENSER PUMPS

FIGURE 3  
AREA OF EXCAVATION  
AND SAMPLE LOCATION MAP  
ARCO FACILITY NO. 4977  
2770 CASTRO VALLEY ROAD  
CASTRO VALLEY, CA.

PROJECT NO. 0000-845	DRAWN BY TLA 6/15/01
FILE NO. 4977-1	PREPARED BY TLA
REVISION NO. 4	REVIEWED BY



TABLE 1

## SOIL SAMPLE LABORATORY ANALYTICAL RESULTS

ARCO Service Station No. 4977  
2770 Castro Valley Road  
Castro Valley, California

Sample ID	Date	Depth (ft)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	TPH as Gasoline (mg/kg)	MTBE (mg/kg)	MTBE [8260] (mg/kg)	Lead (mg/kg)
<b><u>Dispenser Island Samples</u></b>										
DP-1	03/15/01	6.0	0.946	<0.025	5.14	3.52	235	1.39	1.63	<12.5
DP-2	03/15/01	6.0	8.05	2.17	37.3	127	1,450	<10	NA	<10
DP-3	03/15/01	3.0	<0.005	<0.005	<0.005	0.00746	<1.0	<0.05	NA	<10
DP-4	03/15/01	3.5	<0.25	<0.25	0.608	1.03	296	<2.5	NA	<10
DP-5	03/15/01	3.5	<0.005	<0.005	0.0174	0.0314	3.56	0.907	1.27	<10
<b><u>Product Line Samples</u></b>										
PL-1	03/15/01	6.0	1.79	<0.1	9.46	28.7	398	<1.0	NA	<10
PL-2	03/15/01	5.0	3.01	<0.25	25.8	65.7	1,140	6.33	4.79	<10
PL-3	03/15/01	5.5	<0.25	0.947	11	9.76	530	<2.5	NA	<12.5
PL-4	03/15/01	4.0	0.077	<0.005	0.0335	0.0623	8.77	<0.05	NA	<10
PL-5	03/15/01	4.0	0.107	<0.025	0.143	0.195	28.6	<0.25	NA	<10
PL-6	03/15/01	3.5	0.911	<0.1	2.26	0.484	243	1.48	0.145	<10
PL-7	03/15/01	3.5	0.847	0.438	2.5	9.13	128	9.97	8.6	<10
PL-8	03/15/01	3.5	0.36	<0.1	0.919	0.877	230	<1.0	NA	<10
PL-9	03/15/01	5.0	0.82	<0.25	3.64	1.67	295	<2.5	NA	<10
<b><u>Tank Basin Samples</u></b>										
T1-S	03/15/01	14.0	<0.005	<0.005	0.00644	0.00558	<1.0	0.0503	<0.1	<10
T1-N	03/15/01	16.0	<0.005	0.0187	0.00595	0.0209	<1.0	<0.05	NA	<10
SW-1	03/15/01	7.5	<0.05	<0.05	3.7	5.43	279	<0.5	NA	<10
SW-2	03/15/01	8.0	<1.0	<1.0	19.8	92.7	1,170	<10	NA	<10
SW-3	03/15/01	8.0	0.503	<0.5	10.4	57.9	678	<5.0	NA	<10
SW-4	03/15/01	8.0	<0.25	<0.25	5.38	32.9	581	<2.5	NA	<10
SW-5	03/15/01	7.5	<0.25	<0.25	3.49	16.6	556	<2.5	NA	<10
SW-6	03/15/01	7.5	0.326	<0.25	6.96	50.3	631	<2.5	NA	<10
<b><u>Soil Stockpile Results</u></b>										
STK-A	03/15/01	Composite	<0.25	<0.25	12.7	32.1	884	NA	NA	<10
STK-B	03/15/01	Composite	0.0572	0.0231	0.175	0.116	14.8	NA	NA	<10
SP-1,2,3,4	03/21/01	Composite	0.05	0.135	0.484	1.55	94.5	NA	NA	<10.0
SP-5,6,7,8	03/21/01	Composite	<0.05	0.109	0.331	1.53	83.4	NA	NA	16.2
SP-9,10,11,1	03/21/01	Composite	0.0151	0.0519	0.171	0.559	33.7	NA	NA	<10.0

TPH = Total petroleum hydrocarbons.

MTBE = Methyl tertiary butyl ether (analyzed by DHS LUFT)

NA = Not Analyzed

TABLE 1

## SOIL SAMPLE LABORATORY ANALYTICAL RESULTS

ARCO Service Station No. 4977  
2770 Castro Valley Road  
Castro Valley, California

Sample ID	Date	Depth (ft)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	TPH as Gasoline (mg/kg)	MTBE (mg/kg)	Total Lead (mg/kg)
<b>Dispenser Island Samples</b>									
MW-1-5.50	04/11/02	5.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.50	<0.0050	NA
MW-1-10.50		10.5	3.2	1.8	5.8	2.6	340	<0.025	NA
MW-1-12.50		12.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.50	<0.0050	NA
MW-1-14.00		14.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.50	<0.0050	NA
MW-2-6.00	04/11/02	6.0	<0.050	<0.050	<0.050	<0.050	12	<0.025	NA
MW-2-10.00		10.0	0.59	0.10	1.7	6.9	60	0.064	NA
MW-2-12.00		12.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.50	<0.0050	NA
MW-2-13.50		13.5	<0.0050	<0.0050	0.0061	0.019	<0.50	0.016	NA
MW-3-6.00	04/11/02	6.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.50	0.025	NA
MW-3-11.00		11.0	0.36	<0.10	0.69	0.43	35	0.098	NA
MW-3-12.50		12.5	0.0067	<0.0050	<0.0050	<0.0050	<0.50	0.12	NA
MW-3-14.00		14.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.50	0.10	NA
B-1-6.00	04/12/02	6.0	0.15	<0.050	0.8	0.87	95	<0.025	NA
B-1-10.50		10.5	1.1	1.2	6.2	2.1	240	<0.025	NA
B-1-12.00		12.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.50	0.0098	NA
B-2-6.00	04/11/02	6.0	<1.0	<1.0	25	150	1,600	0.037	NA
B-2-10.50		10.5	0.61	0.73	3.0	2.4	160	0.075	NA
B-2-12.50		12.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.50	0.023	NA
<b>Soil Stockpile Results</b>									
SP-1,2,3,4	04/12/02	-	<0.0050	<0.0050	0.0096	0.012	0.91	NA	<10

TPH = Total petroleum hydrocarbons.

MTBE = Methyl tertiary butyl ether (analyzed by DHS LUFT)

NA = Not analyzed

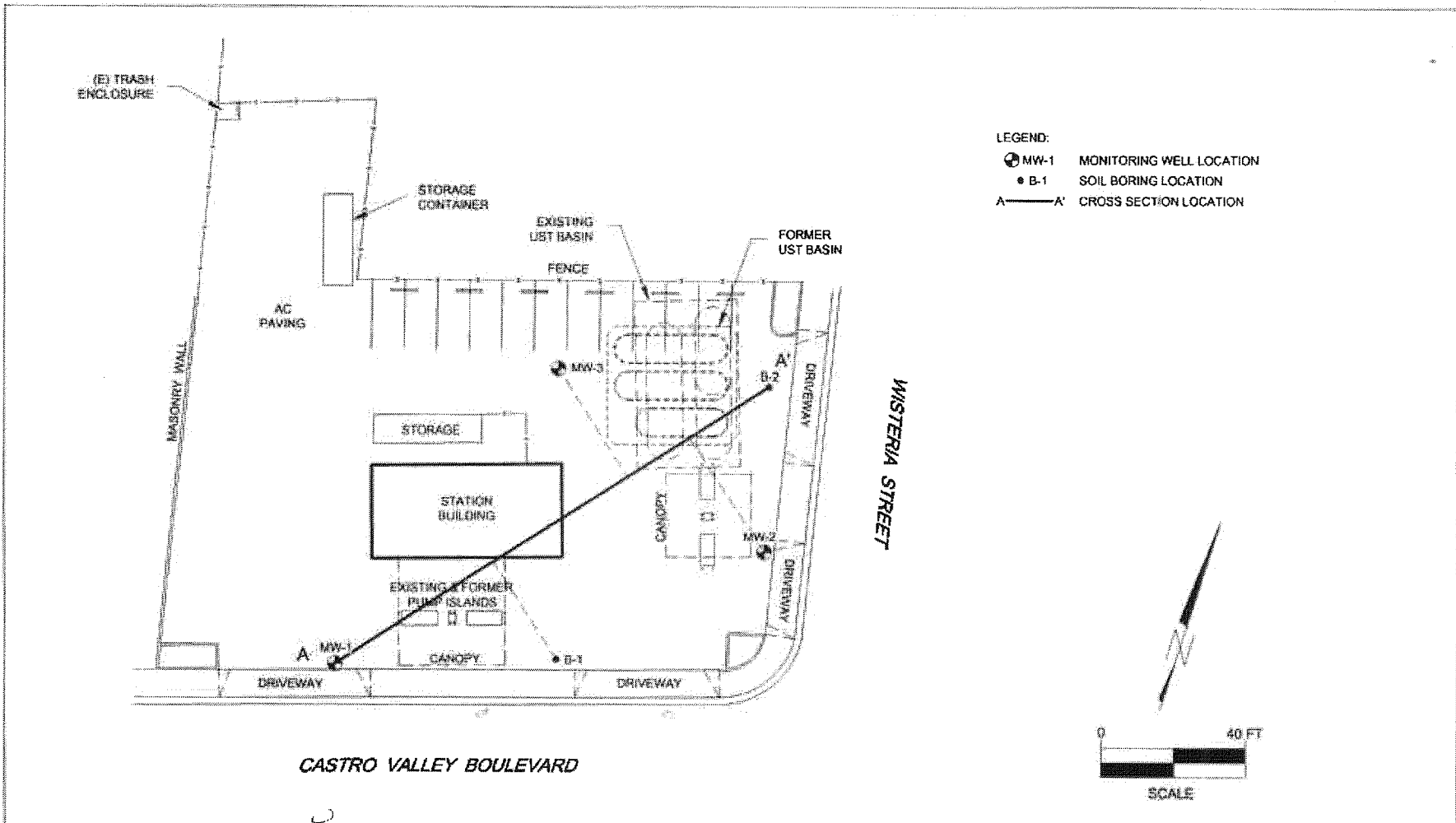
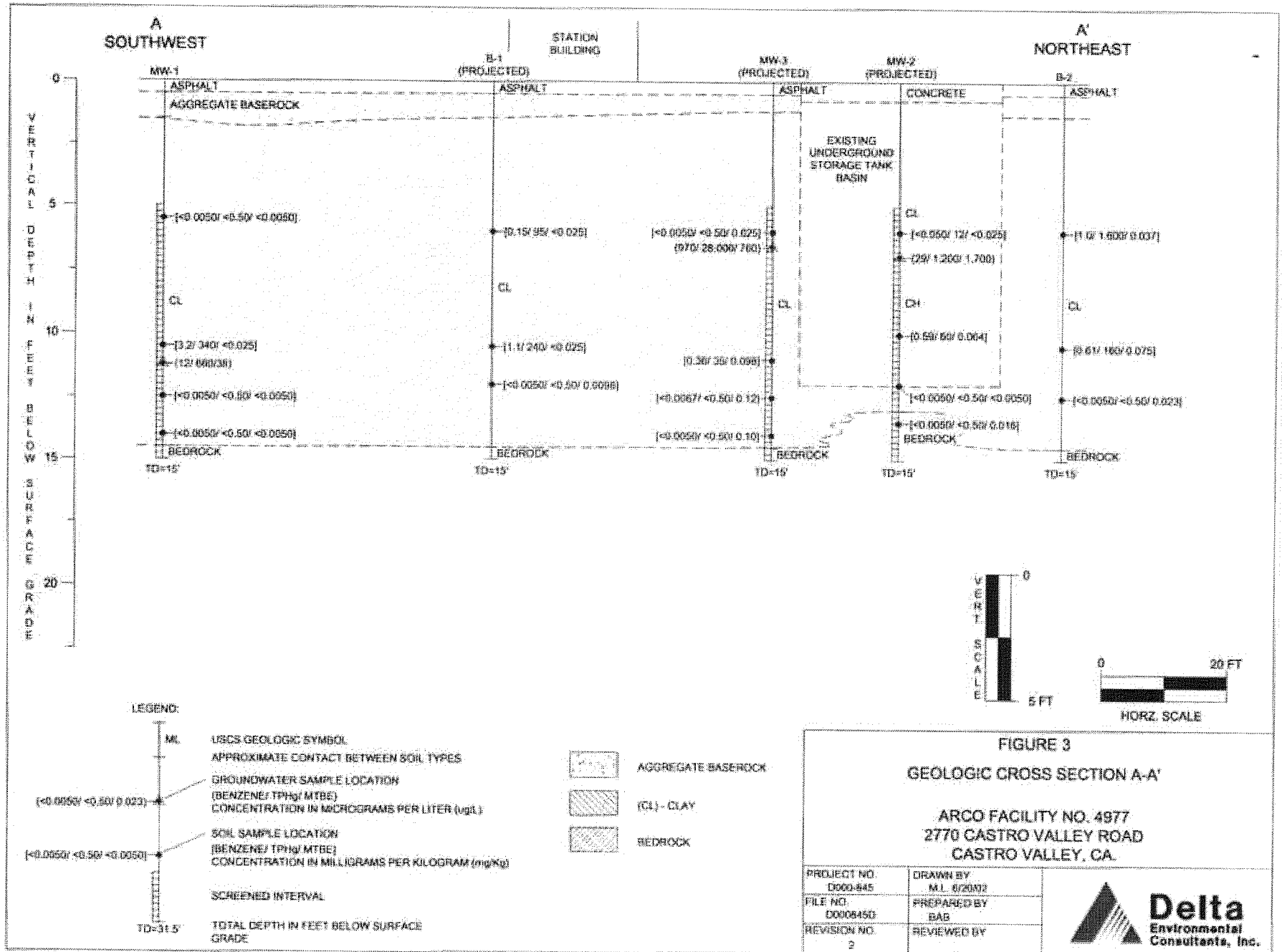


FIGURE 2  
SITE MAP

ARCO FACILITY NO. 4977  
2770 CASTRO VALLEY BOULEVARD  
CASTRO VALLEY, CA.

PROJECT NO. D082-045	DRAWN BY M.L. B2682
FILE NO. D00845C	PREPARED BY BAB
REVISION NO. 3	REVIEWED BY





**Appendix B:**  
**Historic Ground-Water Monitoring and Analytical Data**



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

**ARCO Service Station #4977, 2770 Castro Valley Blvd., Castro Valley, CA**

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
<b>MW-1</b>															
4/19/2002	--		161.11	5.0	15.0	11.21	149.90	660	12	1.3	4.3	0.8	38	--	--
9/27/2002	--		161.11	5.0	15.0	9.29	151.82	130	7.7	0.87	5.4	0.79	39	1.7	6.9
12/16/2002	--	a	161.11	5.0	15.0	8.55	152.56	77	1.8	<0.50	0.69	<1.0	42	1.6	6.9
3/11/2003	--		161.11	5.0	15.0	8.07	153.04	140	9.8	<0.50	5.6	<0.50	20	1.4	7.4
6/17/2003	--		161.11	5.0	15.0	8.31	152.80	510	60	1.4	81	<1.0	23	2.2	7
9/18/2003	--	b	161.11	5.0	15.0	9.45	151.66	72	2.4	1.4	1.6	1.5	39	2.7	7
12/11/2003	P		161.11	5.0	15.0	8.80	152.31	79	1.5	<0.50	1.5	4.4	48	2.1	7.0
03/11/2004	P		163.44	5.0	15.0	7.61	155.83	<50	1.3	<0.50	0.77	1.3	17	1.4	6.8
06/02/2004	P		163.44	5.0	15.0	8.95	154.49	53	1.4	<0.50	0.93	<0.50	39	2.3	7.1
09/22/2004	P		163.44	5.0	15.0	9.42	154.02	70	<0.50	<0.50	<0.50	<0.50	48	1.7	6.8
12/15/2004	P		163.44	5.0	15.0	7.88	155.56	63	<0.50	<0.50	<0.50	<0.50	45	1.8	6.9
03/07/2005	P		163.44	5.0	15.0	7.02	156.42	<50	<0.50	<0.50	<0.50	<0.50	4.0	2.4	6.8
06/27/2005	P		163.44	5.0	15.0	7.53	155.91	52	2.0	<0.50	1.9	0.78	8.1	2.8	7.1
09/16/2005	P		163.44	5.0	15.0	9.20	154.24	<50	<0.50	<0.50	<0.50	0.76	14	1.82	6.9
12/27/2005	P		163.44	5.0	15.0	7.60	155.84	<50	1.3	<0.50	1.5	<0.50	9.4	2.02	7.87
03/16/2006	P		163.44	5.0	15.0	6.97	156.47	71	3.0	<0.50	3.5	<0.50	3.4	1.6	7.1
6/26/2006	P		163.44	5.0	15.0	8.58	154.86	71	0.69	<0.50	1.1	3.5	3.2	2.2	6.9
9/29/2006	P		163.44	5.0	15.0	8.85	154.59	<50	<0.50	<0.50	<0.50	<0.50	5.2	2.35	6.7
12/19/2006	P		163.44	5.0	15.0	8.00	155.44	<50	<0.50	<0.50	<0.50	<0.50	4.3	4.80	7.21
3/29/2007	P		163.44	5.0	15.0	7.70	155.74	<50	<0.50	<0.50	<0.50	<0.50	2.3	3.44	7.18
6/5/2007	P		163.44	5.0	15.0	8.77	154.67	<50	<0.50	<0.50	<0.50	<0.50	3.2	3.45	7.29
9/25/2007	P		163.44	5.0	15.0	9.18	154.26	<50	<0.50	<0.50	<0.50	<0.50	5.3	2.61	7.41
12/26/2007	P		163.44	5.0	15.0	8.45	154.99	<50	<0.50	<0.50	<0.50	<0.50	2.9	5.57	7.43
3/25/2008	P		163.44	5.0	15.0	8.29	155.15	<50	<0.50	<0.50	<0.50	<0.50	0.94	3.52	7.80
6/10/2008	P		163.44	5.0	15.0	9.17	154.27	<50	<0.50	<0.50	<0.50	<0.50	1.3	3.38	7.01
9/2/2008	P		163.44	5.0	15.0	9.15	154.29	<50	<0.50	<0.50	<0.50	<0.50	5.6	2.30	6.81
12/2/2008	P		163.44	5.0	15.0	8.90	154.54	<50	<0.50	<0.50	<0.50	<0.50	2.7	2.41	6.96
3/5/2009	P		163.44	5.0	15.0	8.05	155.39	<50	<0.50	<0.50	<0.50	<0.50	1.3	2.48	7.47
6/2/2009	P		163.44	5.0	15.0	14.91	148.53	<50	<0.50	<0.50	<0.50	<0.50	0.60	0.83	7.01
11/6/2009	P		163.44	5.0	15.0	8.46	154.98	<50	<0.50	<0.50	<0.50	<0.50	1.9	1.15	6.8
<b>5/20/2010</b>	--		<b>163.44</b>	<b>5.0</b>	<b>15.0</b>	<b>8.02</b>	<b>155.42</b>	--	--	--	--	--	--	--	--

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

**ARCO Service Station #4977, 2770 Castro Valley Blvd., Castro Valley, CA**

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
<b>MW-1</b>															
<b>MW-2</b>															
4/19/2002	--		161.87	5.0	15.0	6.59	155.28	28,000	970	120	860	6,900	760	--	--
9/27/2002	--		161.87	5.0	15.0	7.18	154.69	17,000	1,400	<50	1,200	3,700	1,400	1.5	6.8
12/16/2002	--	a	161.87	5.0	15.0	7.31	154.56	17,000	1,000	<50	980	3,300	980	1.9	6.8
3/11/2003	--		161.87	5.0	15.0	6.02	155.85	24,000	1,600	70	1,300	4,300	920	1.7	7.4
6/17/2003	--		161.87	5.0	15.0	6.31	155.56	28,000	1,300	55	1,300	4,500	610	1.4	6.9
9/18/2003	--		161.87	5.0	15.0	7.61	154.26	19,000	960	63	1,100	3,100	580	2.7	6.8
12/11/2003	P		161.87	5.0	15.0	6.50	155.37	29,000	710	53	1,300	3,800	490	2.0	7.0
03/11/2004	P		164.29	5.0	15.0	6.02	158.27	19,000	830	49	1,500	4,000	410	0.8	6.5
06/02/2004	P		164.29	5.0	15.0	7.14	157.15	25,000	680	<50	1,300	3,900	240	4.3	7.1
09/22/2004	--		164.29	5.0	15.0	7.63	156.66	15,000	980	<25	980	940	390	--	6.7
12/15/2004	P	c	164.29	5.0	15.0	6.48	157.81	22,000	610	26	1,300	3,200	290	0.3	6.9
03/07/2005	P		164.29	5.0	15.0	6.08	158.21	25,000	570	33	1,400	3,900	120	2.3	6.8
06/27/2005	P		164.29	5.0	15.0	6.90	157.39	24,000	630	32	1,200	2,900	86	2.5	7.2
09/16/2005	P		164.29	5.0	15.0	7.66	156.63	25,000	550	<25	1,400	3,000	82	1.41	7.0
12/27/2005	P		164.29	5.0	15.0	5.60	158.69	33,000	540	<25	1,300	2,700	100	2.26	7.19
03/16/2006	P	c	164.29	5.0	15.0	7.25	157.04	29,000	710	<50	1,400	2,600	78	1.4	7.1
6/26/2006	P	c	164.29	5.0	15.0	6.60	157.69	20,000	630	<25	1,200	1,100	110	0.64	6.8
9/29/2006	P		164.29	5.0	15.0	6.85	157.44	24,000	530	<25	1,300	1,800	86	1.36	6.7
12/19/2006	P		164.29	5.0	15.0	6.02	158.27	21,000	500	<25	1,400	1,700	70	1.11	7.42
3/29/2007	P		164.29	5.0	15.0	6.03	158.26	16,000	530	<25	1,100	1,100	80	2.98	7.18
6/5/2007	P		164.29	5.0	15.0	6.85	157.44	21,000	420	<25	1,100	1,100	50	2.09	7.20
9/25/2007	P		164.29	5.0	15.0	7.15	157.14	25,000	620	<25	1,400	1,200	70	3.25	7.59
12/26/2007	P		164.29	5.0	15.0	6.25	158.04	16,000	440	<5.0	760	570	80	1.84	7.66
3/25/2008	P		164.29	5.0	15.0	6.63	157.66	16,000	530	7.8	790	470	96	1.78	7.72
6/10/2008	P		164.29	5.0	15.0	7.04	157.25	14,000	480	<25	730	240	100	1.83	6.96
9/2/2008	P		164.29	5.0	15.0	7.25	157.04	13,000	440	<25	690	240	91	3.09	6.61
12/2/2008	P		164.29	5.0	15.0	6.42	157.87	31,000	490	<10	670	120	97	3.05	7.00
3/5/2009	P		164.29	5.0	15.0	5.83	158.46	16,000	470	<10	490	130	82	2.99	7.35
6/2/2009	P		164.29	5.0	15.0	14.51	149.78	11,000	340	<10	490	210	34	1.07	6.89

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

**ARCO Service Station #4977, 2770 Castro Valley Blvd., Castro Valley, CA**

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
<b>MW-2 Cont.</b>															
11/6/2009	P		164.29	5.0	15.0	6.52	157.77	14,000	470	<10	400	110	76	0.32	6.8
<b>5/20/2010</b>	<b>P</b>		<b>164.29</b>	<b>5.0</b>	<b>15.0</b>	<b>6.80</b>	<b>157.49</b>	<b>12,000</b>	<b>430</b>	<b>&lt;10</b>	<b>270</b>	<b>55</b>	<b>64</b>	<b>0.74</b>	<b>6.5</b>
<b>MW-3</b>															
4/19/2002	--		162.14	5.0	15.0	6.94	155.20	1,200	29	1.1	43	62	1,700	--	--
9/27/2002	--		162.14	5.0	15.0	8.26	153.88	740	7.8	<2.5	6.8	4.4	1,100	1	6.7
12/16/2002	--	a	162.14	5.0	15.0	6.76	155.38	1,200	13	<10	170	88	910	2.3	6.8
3/11/2003	--		162.14	5.0	15.0	6.92	155.22	<2,500	<25	<25	<25	<25	470	1.7	7.5
6/17/2003	--		162.14	5.0	15.0	7.44	154.70	<1,000	<10	<10	14	<10	530	1.9	7
9/18/2003	--		162.14	5.0	15.0	8.43	153.71	470	4.8	<2.5	10	9.2	300	2.9	6.8
12/11/2003	P		162.14	5.0	15.0	6.72	155.42	<500	<5.0	<5.0	7.0	13	180	1.9	6.9
03/11/2004	P		164.53	5.0	15.0	6.09	158.44	360	1.9	<1.0	5.6	5.0	110	2.6	6.8
06/02/2004	P		164.53	5.0	15.0	7.50	157.03	380	2.8	<0.50	8.0	2.1	43	3.6	7.3
09/22/2004	P		164.53	5.0	15.0	8.00	156.53	270	<0.50	<0.50	0.54	<0.50	50	1.8	6.9
12/15/2004	P		164.53	5.0	15.0	6.43	158.10	390	3.5	<0.50	20	3.7	49	1.1	6.9
03/07/2005	P		164.53	5.0	15.0	6.12	158.41	1,900	13	<1.0	93	29	70	2.3	6.8
06/27/2005	P		164.53	5.0	15.0	7.08	157.45	830	4.0	<0.50	13	2.8	33	3.3	7.3
09/16/2005	P		164.53	5.0	15.0	7.28	157.25	320	2.1	<0.50	5.4	0.60	21	2.11	7.0
12/27/2005	P		164.53	5.0	15.0	6.47	158.06	770	6.0	<0.50	33	2.7	36	2.96	7.42
03/16/2006	P		164.53	5.0	15.0	6.10	158.43	1,600	11	<0.50	59	6.4	45	1.4	7.1
6/26/2006	P		164.53	5.0	15.0	6.92	157.61	400	<0.50	<0.50	1.6	2.1	26	2.41	7.0
9/29/2006	P		164.53	5.0	15.0	7.38	157.15	220	0.86	<0.50	2.2	0.58	14	1.95	7.0
12/19/2006	P		164.53	5.0	15.0	6.65	157.88	450	4.3	<0.50	19	1.4	19	3.68	7.30
3/29/2007	P		164.53	5.0	15.0	6.92	157.61	390	3.0	<0.50	9.1	0.60	27	1.98	7.16
6/5/2007	P		164.53	5.0	15.0	7.01	157.52	390	1.9	<0.50	6.9	<0.50	20	1.99	7.34
9/25/2007	P		164.53	5.0	15.0	7.52	157.01	260	1.3	<0.50	2.7	<0.50	12	3.44	7.41
12/26/2007	P		164.53	5.0	15.0	6.65	157.88	460	3.1	<0.50	15	0.89	17	4.05	7.46
3/25/2008	P		164.53	5.0	15.0	6.71	157.82	260	0.91	0.71	2.5	0.54	29	2.40	7.63
6/10/2008	P		164.53	5.0	15.0	7.33	157.20	120	<0.50	<0.50	2.0	<0.50	12	2.29	7.59
9/2/2008	P		164.53	5.0	15.0	7.53	157.00	97	<0.50	<0.50	<0.50	<0.50	9.3	3.28	6.81
12/2/2008	P		164.53	5.0	15.0	7.38	157.15	140	<0.50	<0.50	<0.50	<0.50	8.4	3.18	7.06

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #4977, 2770 Castro Valley Blvd., Castro Valley, CA**

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
<b>MW-3 Cont.</b>															
3/5/2009	P		164.53	5.0	15.0	5.21	159.32	530	3.3	<0.50	22	0.71	18	3.11	7.46
6/2/2009	P		164.53	5.0	15.0	14.81	149.72	490	2.1	<0.50	6.2	<0.50	13	0.83	7.03
11/6/2009	P		164.53	5.0	15.0	7.38	157.15	99	<0.50	<0.50	<0.50	<0.50	5.8	0.32	6.97
<b>5/20/2010</b>	<b>P</b>		<b>164.53</b>	<b>5.0</b>	<b>15.0</b>	<b>6.78</b>	<b>157.75</b>	<b>300</b>	<b>0.89</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>14</b>	<b>--</b>	<b>6.48</b>

SYMBOLS AND ABBREVIATIONS:

< = Not detected at or above specified laboratory reporting limits

-- = Not measured, sampled, analyzed, applicable

ft bgs = Feet below ground surface

DO = Dissolved oxygen

DTW = Depth to water in ft

GRO = Gasoline range organics

GWE = Groundwater elevation in ft

mg/L = Milligrams per liter

MTBE = Methyl tert-butyl ether analyzed by EPA Method 8021B unless otherwise noted (before 12/16/02)

P/NP = Well was purged/not purged prior to sampling

TPH-g = Total petroleum hydrocarbons as gasoline (C5-C9)

TOC = Top of casing measured in ft MSL

µg/L = Micrograms per liter

FOOTNOTES:

a = TPH, benzene, toluene, ethylbenzene, total xylenes, and MTBE analyzed by EPA Method 8260B beginning on 4th quarter sampling event (12/16/02).

b = This sample was originally analyzed within the EPA recommended hold time. Re-analysis for confirmation or dilution was performed past the recommended hold time. The results may still be used for their intended purpose.

c = Sheen in well.

NOTES:

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

Wells were re-surveyed on 3/23/2004.

Values for DO and pH were field measurements.

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

GRO analysis was completed by EPA method 8260B (C4-C12) for samples collected from the time period April 2006 through February 4, 2008. The analysis for GRO was changed to EPA method 8015B (C6-C12) for samples collected from the time period February 5, 2008 through the present.

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

**Table 2. Summary of Fuel Additives Analytical Data**  
**ARCO Service Station #4977, 2770 Castro Valley Blvd., Castro Valley, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-1</b>									
12/16/2002	<50	<5.0	42	<0.50	<0.50	<0.50	<0.50	<0.50	
3/11/2003	<100	<20	20	<0.50	<0.50	<0.50	<0.50	<0.50	
6/17/2003	<200	<40	23	<1.0	<1.0	<1.0	<1.0	<1.0	
9/18/2003	<100	<20	39	<0.50	<0.50	<0.50	<0.50	<0.50	a
12/11/2003	<100	<20	48	<0.50	<0.50	<0.50	<0.50	<0.50	
03/11/2004	<100	<20	17	<0.50	<0.50	<0.50	<0.50	<0.50	
06/02/2004	<100	<20	39	<0.50	<0.50	<0.50	<0.50	<0.50	
09/22/2004	<100	<20	48	<0.50	<0.50	<0.50	<0.50	<0.50	
12/15/2004	<100	<20	45	<0.50	<0.50	<0.50	<0.50	<0.50	a
03/07/2005	<100	<20	4.0	<0.50	<0.50	<0.50	<0.50	<0.50	
06/27/2005	<100	<20	8.1	<0.50	<0.50	<0.50	<0.50	<0.50	
09/16/2005	<100	<20	14	<0.50	<0.50	<0.50	<0.50	<0.50	
12/27/2005	<100	<20	9.4	<0.50	<0.50	<0.50	<0.50	<0.50	b
03/16/2006	<300	<20	3.4	<0.50	<0.50	<0.50	<0.50	<0.50	c
6/26/2006	<300	<20	3.2	<0.50	<0.50	<0.50	<0.50	<0.50	
9/29/2006	<300	<20	5.2	<0.50	<0.50	<0.50	<0.50	<0.50	
12/9/2006	<300	<20	4.3	<0.50	<0.50	<0.50	<0.50	--	b
3/29/2007	<300	<20	2.3	<0.50	<0.50	<0.50	<0.50	<0.50	
6/5/2007	<300	<20	3.2	<0.50	<0.50	<0.50	<0.50	<0.50	
9/25/2007	<300	<20	5.3	<0.50	<0.50	<0.50	<0.50	<0.50	
12/26/2007	<300	<20	2.9	<0.50	<0.50	<0.50	<0.50	<0.50	
3/25/2008	<300	<10	0.94	<0.50	<0.50	<0.50	<0.50	<0.50	
6/10/2008	<300	<10	1.3	<0.50	<0.50	<0.50	<0.50	<0.50	
9/2/2008	<300	<10	5.6	<0.50	<0.50	<0.50	<0.50	<0.50	
12/2/2008	<300	<10	2.7	<0.50	<0.50	<0.50	<0.50	<0.50	
3/5/2009	<300	<10	1.3	<0.50	<0.50	<0.50	<0.50	<0.50	
6/2/2009	<300	<10	0.60	<0.50	<0.50	<0.50	<0.50	<0.50	
11/6/2009	<300	<10	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>MW-2</b>									
12/16/2002	<5,000	<500	980	<50	<50	<50	<50	<50	
3/11/2003	<10,000	<2,000	920	<50	<50	<50	<50	<50	

**Table 2. Summary of Fuel Additives Analytical Data**  
**ARCO Service Station #4977, 2770 Castro Valley Blvd., Castro Valley, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-2 Cont.</b>									
6/17/2003	<10,000	<2,000	610	<50	<50	<50	<50	<50	
9/18/2003	<5,000	<1,000	580	<25	<25	<25	<25	<25	
12/11/2003	<5,000	<1,000	490	<25	<25	<25	<25	<25	
03/11/2004	<2,000	<400	410	<10	<10	<10	<10	<10	
06/02/2004	<10,000	<2,000	240	<50	<50	<50	<50	<50	
09/22/2004	<5,000	<1,000	390	<25	<25	<25	<25	<25	
12/15/2004	<2,000	<400	290	<10	<10	<10	<10	<10	a
03/07/2005	<5,000	<1,000	120	<25	<25	<25	<25	<25	
06/27/2005	<5,000	<1,000	86	<25	<25	<25	<25	<25	
09/16/2005	<5,000	<1,000	82	<25	<25	<25	<25	<25	
12/27/2005	<5,000	<1,000	100	<25	<25	<25	<25	<25	b
03/16/2006	<30,000	<2,000	78	<50	<50	<50	<50	<50	c
6/26/2006	<15,000	<1,000	110	<25	<25	<25	<25	<25	
9/29/2006	<15,000	<1,000	86	<25	<25	<25	<25	<25	
12/9/2006	<15,000	<1,000	70	<25	<25	<25	<25	--	b
3/29/2007	<15,000	<1,000	80	<25	<25	<25	<25	<25	
6/5/2007	<15,000	<1,000	50	<25	<25	<25	<25	<25	
9/25/2007	<15,000	<1,000	70	<25	<25	<25	<25	<25	
12/26/2007	<3,000	<200	80	<5.0	<5.0	<5.0	<5.0	<5.0	
3/25/2008	<1,500	<50	96	<2.5	<2.5	<2.5	<2.5	<2.5	
6/10/2008	<15,000	<500	100	<25	<25	<25	<25	<25	
9/2/2008	<15,000	<500	91	<25	<25	<25	<25	<25	
12/2/2008	<6,000	<200	97	<10	<10	<10	<10	<10	
3/5/2009	<6,000	<200	82	<10	<10	<10	<10	<10	
6/2/2009	<6,000	<200	34	<10	<10	<10	<10	<10	
11/6/2009	<6,000	<200	76	<10	<10	<10	<10	<10	
<b>5/20/2010</b>	<b>&lt;6,000</b>	<b>&lt;200</b>	<b>64</b>	<b>&lt;10</b>	<b>&lt;10</b>	<b>&lt;10</b>	<b>&lt;10</b>	<b>&lt;10</b>	
<b>MW-3</b>									
12/16/2002	<1,000	<100	910	<10	<10	12	<10	<10	
3/11/2003	<5,000	<1,000	470	<25	<25	<25	<25	<25	
6/17/2003	<2,000	<400	530	<10	<10	<10	<10	<10	

**Table 2. Summary of Fuel Additives Analytical Data**  
**ARCO Service Station #4977, 2770 Castro Valley Blvd., Castro Valley, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-3 Cont.</b>									
9/18/2003	<500	<100	300	<2.5	<2.5	3.2	<2.5	<2.5	
12/11/2003	<1,000	<200	180	<5.0	<5.0	<5.0	<5.0	<5.0	
03/11/2004	<200	570	110	<1.0	<1.0	<1.0	<1.0	<1.0	
06/02/2004	<100	130	43	<0.50	<0.50	0.56	<0.50	<0.50	
09/22/2004	<100	28	50	<0.50	<0.50	0.51	<0.50	<0.50	
12/15/2004	<100	110	49	<0.50	0.52	0.61	<0.50	<0.50	a
03/07/2005	<200	190	70	<1.0	<1.0	<1.0	<1.0	<1.0	
06/27/2005	<100	130	33	<0.50	<0.50	<0.50	<0.50	<0.50	
09/16/2005	<100	44	21	<0.50	<0.50	<0.50	<0.50	<0.50	
12/27/2005	<100	150	36	<0.50	<0.50	<0.50	<0.50	<0.50	b
03/16/2006	<300	160	45	<0.50	<0.50	0.84	<0.50	<0.50	c
6/26/2006	<300	53	26	<0.50	<0.50	<0.50	<0.50	<0.50	
9/29/2006	<300	55	14	<0.50	<0.50	<0.50	<0.50	<0.50	
12/9/2006	<300	<20	19	<0.50	<0.50	<0.50	<0.50	--	b
3/29/2007	<300	130	27	<0.50	<0.50	<0.50	<0.50	<0.50	
6/5/2007	<300	77	20	<0.50	<0.50	<0.50	<0.50	<0.50	
9/25/2007	<300	30	12	<0.50	<0.50	<0.50	<0.50	<0.50	
12/26/2007	<300	76	17	<0.50	<0.50	<0.50	<0.50	<0.50	
3/25/2008	<300	100	29	<0.50	<0.50	<0.50	<0.50	<0.50	
6/10/2008	<300	25	12	<0.50	<0.50	<0.50	<0.50	<0.50	
9/2/2008	<300	<10	9.3	<0.50	<0.50	<0.50	<0.50	<0.50	
12/2/2008	<300	<10	8.4	<0.50	<0.50	<0.50	<0.50	<0.50	
3/5/2009	<300	98	18	<0.50	<0.50	<0.50	<0.50	<0.50	
6/2/2009	<300	89	13	<0.50	<0.50	<0.50	<0.50	<0.50	
11/6/2009	<300	11	5.8	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>5/20/2010</b>	<b>&lt;300</b>	<b>100</b>	<b>14</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	



**SYMBOLS AND ABBREVIATIONS:**

< = Not detected at or above specified laboratory reporting limit

1,2-DCA = 1,2-Dichloroethane

DIPE = Di-isopropyl ether

EDB = 1,2-Dibromoethane

ETBE = Ethyl tert-butyl ether

MTBE = Methyl tert-butyl ether

TAME = tert-Amyl methyl ether

TBA = tert-Butyl alcohol

µg/L = Micrograms per liter

**FOOTNOTES:**

a = This sample was originally analyzed within the EPA recommended hold time. Re-analysis for confirmation or dilution was performed past the recommended hold time. The results may still be used for their intended purpose.

b = Calibration verification for ethanol was within method limits but outside contract limits.

c = Possible high bias for DIPE, 1,2-DCA, and ethanol due to CCV falling outside acceptance criteria.

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

**Table 3. Historical Ground-Water Flow Direction and Gradient**  
**ARCO Service Station #4977, 2770 Castro Valley Blvd., Castro Valley, CA**

<b>Date Sampled</b>	<b>Approximate Flow Direction</b>	<b>Approximate Hydraulic Gradient</b>
4/19/2002	Southwest	0.038
9/27/2002	Southwest	0.021
12/16/2002	Southeast	0.029
3/11/2003	South	0.024
6/17/2003	South-Southwest	0.022
9/18/2003	South-Southwest	0.022
3/11/2004	South-Southwest	0.024
6/2/2004	South	0.025
9/22/2004	South	0.025
12/15/2004	South	0.020
3/7/2005	South	0.02
6/27/2005	South	0.01
9/16/2005	Southeast	0.03
12/27/2005	South-Southeast	0.02
3/16/2006	Southeast	0.02
6/26/2006	South	0.03
9/29/2006	South	0.025
12/19/2006	South	0.024
3/29/2007	South	0.020
6/5/2007	South	0.027
9/25/2007	South	0.023
12/26/2007	South	0.027
3/25/2008	South	0.026
6/10/2008	South	0.026
9/2/2008	South	0.026
12/2/2008	South	0.028
3/5/2009	South	0.037
6/2/2009	South	0.011
11/6/2009	South-Southwest	0.025
<b>5/20/2010</b>	<b>South</b>	<b>0.021</b>

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