

Atlantic Richfield Company

Shannon Couch
Operations Project Manager

PO Box 1257
San Ramon, CA 94583
Phone: (925) 275-3804
Fax: (925) 275-3815
E-Mail: shannon.couch@bp.com

RECEIVED

By Alameda County Environmental Health at 2:19 pm, Jun 27, 2013

June 19, 2013

Re: Conceptual Site Model and Revised Soil Vapor Investigation Work Plan
Atlantic Richfield Company Station #374
6407 Telegraph Avenue, Oakland, California
ACEH Case #RO0000078

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

Submitted by,



Shannon Couch
Operations Project Manager

Attachment

**Conceptual Site Model and
Revised Soil Vapor Investigation Work Plan**
Atlantic Richfield Company Station No. 374
6407 Telegraph Avenue, Oakland, California
ACEH Fuel Leak Case No. RO0000078

Prepared for

Ms. Shannon Couch
Operations Manager
Atlantic Richfield Company
P.O. Box 1257
San Ramon, California 94583

Prepared by



875 Cotting Lane, Suite G,
Vacaville, California 95688
(707) 455-7290
www.broadbentinc.com

June 19, 2013

Project No. 06-88-602



BROADBENT

875 Cotting Ln., Suite G, Vacaville, CA 95688

[T] 707-455-7290 [F] 707-455-7295

broadbentinc.com

CREATING SOLUTIONS. BUILDING TRUST.

June 19, 2013

Project No. 06-88-602

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

Attn.: Ms. Shannon Couch


Re: Conceptual Site Model and Revised Soil Vapor Investigation Work Plan, Atlantic Richfield Company Station No.374, 6407 Telegraph Ave., Oakland, California; ACEH Case No.RO0000078


Dear Ms. Couch:

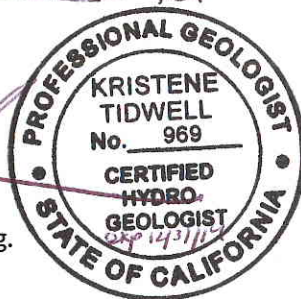
Broadbent & Associates, Inc. (Broadbent) is pleased to submit this *Conceptual Site Model and Revised Soil Vapor Investigation Work Plan* (CSM and Revised Work Plan) for Atlantic Richfield Company Station No. 374 (herein referred to as Station No. 374) located at 6407 Telegraph Avenue, Oakland, California (Site). This CSM and Revised Work Plan has been prepared in response to the teleconference call with Alameda County Environmental Health (ACEH) dated January 28, 2013, and attending a meeting with the ACEH on March 28, 2013.

Should you have questions or require additional information, please do not hesitate to contact us at (707) 455-7290.

Sincerely,
BROADBENT & ASSOCIATES, INC.

 for
James Ramos, EIT
Senior Staff Engineer


Kristene Tidwell, P.G., C.Hg.
Senior Geologist



cc: Ms. Dilan Roe, Alameda County Environmental Health (Submitted via ACEH ftp site)
Electronic copy uploaded to GeoTracker

**SITE CONCEPTUAL MODEL AND
REVISED SOIL VAPOR INVESTIGATION WORK PLAN
Atlantic Richfield Company Station No. 374
6407 Telegraph Ave., Oakland, California
Fuel Leak Case No. RO0000078**

TABLE OF CONTENTS

<u>No.</u>	<u>Section</u>	<u>Page</u>
1.0	Introduction	1
2.0	Site Background	1
2.1	Conceptual Site Model	1
2.2	Previous Site Investigations.....	2
2.2	Sensitive Receptor Survey	4
4.0	Proposed Scope of Work	
4.1	Data Objectives	4
4.2	Preliminary Activities.....	5
4.3	Soil Vapor Probe Installation	6
4.4	Sampling and Analytical	6
4.5	Updated Sensitive Receptor Survey	6
4.6	Preferential Pathway Study.....	7
5.0	Soil Vapor Investigation Report and Updated Conceptual Site Model.....	8
6.0	Proposed Schedule.....	8
7.0	Limitations.....	8
8.0	References.....	8

DRAWINGS

Drawing 1	Site Location Map
Drawing 2	Groundwater Elevation Contours and Analytical Summary Map – February 14, 2013
Drawing 3	Proposed Soil Probe Locations
Drawing 4	GRO Isoconcentration Contour Map – February 14, 2013
Drawing 5	Benzene Isoconcentration Contour Map– February 14, 2013
Drawing 6	MTBE Isoconcentration Contour Map– February 14, 2013
Drawing 7	Site Vicinity and Underground Utility Infrastructure
Drawing 8	Site Map with Cross-Section Locations
Drawing 9	Geologic Cross-Sections A-A'
Drawing 10	Geologic Cross-Sections B-B'

TABLES

Table 1	Conceptual Site Model
Table 2	Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
Table 3	Summary of Fuel Additives Analytical Data
Table 4	Historical Groundwater Gradient – Direction and Magnitude

APPENDICES

Appendix A	Recent Regulatory Correspondence
Appendix B	Historic Site Data and Trend Graphs
Appendix C	Soil Boring and Well Construction Logs

**SITE CONCEPTUAL MODEL AND
REVISED SOIL VAPOR INVESTIGATION WORK PLAN
Atlantic Richfield Company Station No. 374
6407 Telegraph Ave., Oakland, California
Fuel Leak Case No. RO0000078**

1.0 INTRODUCTION

On behalf of the Atlantic Richfield Company, RM – a BP affiliated company; Broadbent & Associates, Inc. (Broadbent) has prepared this *Conceptual Site Model and Revised Soil Vapor Investigation Work Plan* (CSM and Revised Work Plan) for the Atlantic Richfield Company Station No. 374, located at 6407 Telegraph Ave., Oakland, California (Site). Previously a *Soil Investigation Work Plan* dated November 20, 2012 was submitted. However, this previous work plan was rejected in an email dated February 21, 2012 by the Alameda County Environmental Health Agency (ACEH) due noted data gaps and not including a CSM with the Work Plan. This Revised Work Plan and CSM is intended to satisfy these data gaps and provide CSM to assist in understanding of Site conditions. The overall purpose of this CSM and Revised Work Plan is to summarize current Site conditions and close the data gaps that the ACEH has identified, as well as enhance overall Site understanding. A summary of Site background and previous investigations, and the proposed addition to the scope of work are presented below. The Conceptual Site Model (CSM) is included as Table 1.

2.0 SITE BACKGROUND

Station No. 374 is located at the northwest corner of Telegraph and Alcatraz Avenues in an area of mixed residential and commercial land use. The elevation of the Site is approximately 164 feet above mean sea level with local topography sloping gently to the southwest (United States Geological Survey [USGS], Oakland West Quadrangle, California). Surrounding land use is primarily single- and multi-family residences with commercial buildings located east and southeast of the Site. The Assessor's Parcel Number is 16-1424.

The adjacent property to the west is a, multi-story apartment complex. The adjacent property to the north is a restaurant/store. Across Alcatraz Avenue to the south of the Site is a dry cleaner. Across Telegraph to the east of the Site is a pawn shop and window decorations shop. A Site Location Map is provided as Drawing 1. A Site Map depicting current groundwater elevation and analytical date is presented as Drawing 2.

2.1 CONCEPTUAL SITE MODEL

A Conceptual Site Model (CSM) has been prepared to aid in understanding of Site conditions and to identify any additional data gaps. This CSM is presented as Table 1. This CSM includes the following:

- Regional and Site Geology
- Extent of LNAPL, GRO, benzene, and MTBE in groundwater
- Release mechanisms
- Nature and extent of constituents of concern in soil, groundwater, and soil vapor
- On- and offsite receptors
- Identified data gaps

This CSM discusses many of the items identified by the ACEH January during a 28, 2013 teleconference including: adequacy of proposed soil vapor investigation in light of shallow groundwater conditions, migration in utility corridors, and potential vapor intrusion in adjacent buildings. Recent regulatory correspondence is presented in Appendix A.

2.2 PREVIOUS SITE INVESTIGATIONS

The following section summarizes the previous hydrocarbon release, resulting investigations, and remedial activities completed at the Site. Appendix B includes historic Site data. Appendix C includes soil boring and well construction logs.

In February 1988, a leak was detected during annual tank testing in the vapor/vent line of the unleaded system. In April 1988, an underground storage tank (UST) Unauthorized Release Report was filed with the Alameda County Public Health Service.

In April 1988, Applied Geosystems (AGS) advanced soil borings B-1 through B-4 near the then existing USTs. Gasoline range organics (GRO, hydrocarbon chain lengths C6-C12) concentrations in soil samples ranged from 48 to 930 milligrams per kilogram (mg/kg). Groundwater was encountered at approximately 10 feet below ground surface (bgs). One inch of light non-aqueous phase liquid (LNAPL) was observed in a grab groundwater sample collected from boring B-1. Additionally, product sheen was also observed in grab groundwater samples from borings B-2 and B-4.

In June 1988, four gasoline USTs were removed from the Site. No holes were observed in the removed tanks; however, some of the protective asphaltic coating had apparently dissolved around the fill ports of the tanks. Laboratory analyses of the soil samples collected beneath one of the former USTs indicated GRO concentrations ranging from 3 mg/kg to 1,097 mg/kg. The excavation was extended north of this UST; a soil sample (S-12-T4A2) collected after this excavation indicated a GRO concentration of 795 mg/kg. A soil sample collected beneath the north of the excavation (S-11-T1A) indicated a GRO concentration of 399 mg/kg. Groundwater was observed seeping into the northwestern portion of the UST pit at a depth of approximately 12 feet. Observation wells W-1 and W-2 were installed in the former UST pit and observation wells W-3 and W-4 were installed in the new UST pit. A sheen was observed in wells W-1 and W-2 in the former UST pit.

In December 1988, AGS collected groundwater samples from well W-4 and analyzed for GRO benzene, toluene, ethylbenzene, and total xylenes (BTEX). No detectable concentrations of GRO or BTEX were reported in these groundwater samples (AGS 1989).

In July 1989, AGS installed groundwater monitoring wells MW-1 through MW-4. Well MW-3 was installed offsite on the west side of Irwin Court. Eight of the nine soil samples collected during these activities did not contain detectable concentrations of gasoline constituents. A GRO concentration of 60 mg/kg was reported for the soil sample obtained from a depth of 8.5 feet in the boring advanced prior to the installation of well MW-1.

In April 1992, RESNA advanced offsite soil borings B-5 and B-6 and converted the borings into wells MW-5 and MW-6, southwest and west of the Site. No GRO or BTEX were reported in the soil samples collected during this investigation.

Between October and December 1993, RESNA oversaw installation of a groundwater extraction (GWE) remediation system at the Site. The GWE system began operating on December 21, 1993. Groundwater

was extracted from well W-2 and treated using liquid-phase activated carbon before being discharged to the sanitary sewer. The system was shut down on October 13, 1995 following verbal approval from the ACEH. A total of 93,989 gallons of water were reportedly extracted during system operation and an estimated 2.61 pounds of GRO were removed.

In September 1995, dispensers and associated underground product lines were removed from the Site. Pacific Environmental Group (PEG), Inc. collected soil samples beneath both the dispenser islands and product lines. Total purgeable petroleum hydrocarbons as gasoline (TPPHg) were reported for soil samples collected from beneath the product lines at concentrations ranging between 1.9 mg/kg and 65 mg/kg; benzene was detected in soil sample TR-A-13 at 0.30 mg/kg. Beneath the product dispensers, TPPHg was detected at concentrations ranging between 19 mg/kg and 140 mg/kg; benzene was detected in two soil samples at 2.1 mg/kg (TR-A-14) and 0.0089 mg/kg (TR-A-15).

In November 1995, PEG installed oxygen releasing compound (ORC) socks in well MW-3 to enhance naturally-occurring bioremediation. In September 1998, Pinnacle Environmental Solutions installed ORC socks in well MW-4. The bioremediation enhancement program was terminated during the Second Quarter of 2000.

In November 2008, Stratus Environmental, Inc. (Stratus) conducted an onsite soil investigation in order to characterize residual hydrocarbon contamination in soils near the former UST area. Soil borings B-11 and B-12 were advanced in the vicinity of historical soil samples S-12-T4A1 and S--12-T4A2, respectively. Soil samples collected from 15 feet (B-11) and 15.5 feet (B-12) were analyzed for GRO, BTEX, methyl tertiary butyl ether (MTBE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), di-isopropyl ether (DIPE), 1,2-dichloroethane (1,2-DCA), 1,2-dibromoethane (EDB), tertiary butyl alcohol (TBA), and ethanol. No hydrocarbon were detected with the exception of trace concentrations of MTBE (0.0072 mg/kg and 0.014 mg/kg) at 15 feet bgs and TBA (0.011 mg/kg) at 15.5 feet bgs. The boring locations are depicted in Appendix B.

In December 2008, Stratus collected compliance soil samples during dispenser and product piping upgrades. Soil samples were collected beneath the fuel dispensers and short pipeline stubs that were connected into the main product lines. Based on initial soil sample analytical results, limited excavation was attempted to remove soil from sampling locations D4-2.5' and PL3-3' due to their elevated hydrocarbon concentrations. Additional soil samples (D-4 5' and PL-3 5') were collected on December 9, 2008 from approximately 5 feet bgs in an attempt to delineate the vertical extent of contamination at the two previous locations with elevated hydrocarbon concentrations. Additional soil sample PL-3 5' contained lower hydrocarbon concentrations than the original sample PL3-3', while sample D-4 5' contained higher hydrocarbons concentrations than the original sample. Maximum GRO and benzene concentrations reported in the soil samples were 6,500 mg/kg and 19 mg/kg, respectively. A total of approximately 84 cubic yards of soil were transported by Belshire Environmental Services to the Forward Incorporated Allied Waste Services disposal facility in Manteca, California. Compliance sample locations are depicted in Appendix B.

In September 2009, Stratus oversaw advancement of four direct-push borings (B-13, B-14, B-14A, and B-15) in the vicinity of the south end of the eastern pump island. The borings were advanced near the December 2008 pipeline and dispenser samples PL-3 and D-4, to a maximum depth of 18 feet bgs; soil samples for laboratory analyses were obtained from 4.5 feet, 6.5 feet, and 8.5 feet bgs from each boring. Soil samples from B-13 and B-15 contained GRO up to 1,800 mg/kg, benzene up to 8.2 mg/kg, and MTBE up to 0.024 mg/kg. Soil samples from boring B-14 to the south of the pump island contained

GRO up to 390 mg/kg, benzene up to 0.56 mg/kg, and MTBE up to 0.025 mg/kg. A “grab” groundwater sample collected from boring B-15 contained 19,000 micrograms per liter (ug/L) of GRO, 3,700 ug/L of benzene, and 250 ug/L of MTBE. Boring locations are depicted in Appendix B.

In November 2010, Broadbent advanced four soil borings (B-16 through B-19) and converted three borings (B-16 through B-18) to groundwater monitoring wells (MW-7, MW-8, and MW-9, respectively). Boring and monitoring well locations are provided in Appendix B.

Groundwater monitoring has been performed at the Site since wells were first installed in 1989. The highest concentrations of petroleum hydrocarbons have historically and are currently detected in well MW-4. Currently hydrocarbons are not detected with the exception of MTBE. MTBE is currently present in wells MW-1, MW-2, MW-3, MW-6 MW-7, MW-8, and MW-9. Currently, the highest concentration of MTBE is present in well MW-1 at a concentration of 66 ug/L.

3.0 SENSITIVE RECEPTOR SURVEY

In February 2011, Closure Solutions conducted a Sensitive Receptor Survey (SRS) within a ½ - mile radius of the Site to identify presence of water supply wells. Based on their findings, two wells installed 1,590 feet south (cross-gradient) of the Site were identified. They were unable to determine the use of these wells as they were installed in 1935.

4.0 PROPOSED SCOPE OF WORK

The purpose of the proposed Revised Work Plan and CSM is to determine if there is a potential risk of soil vapor intrusion in the apartments west of the Site and to determine any other sensitive receptors within a 2000 ft radius of the Site. The attached CSM (Table 1) describes these conditions and data gaps in detail. Additionally, many of the ACEH-identified data gaps are presented in this CSM. In order to evaluate these identified data gaps, Broadbent is proposing to install three soil vapor probes onsite and two near the offsite apartment complex. The soil vapor probes are proposed to be located within the alley way between the apartment complex and the western boundary portion of the Site where MW-4 is located. The soil vapor probes will be installed using a hand auger at each location with total depths of 3.0 feet bgs ('A' depth) and of 5.5 feet bgs ('B' depth). Proposed soil vapor probe locations are shown in Drawing 3. All soil vapor probe installation and sampling activities will be carried out in accordance with the California Department of Toxic Substances Control (DTSC) *Final Guidance for Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* dated October 2011 (DTSC, 2011). The intended data objective for each proposed vapor probe is summarized in Section 4.1. Specific screen intervals and collection methods are summarized in Sections 4.3 and 4.4, respectively.

In addition to the proposed soil vapor probes, a proposed evaluation of the apartment building foundation type will be conducted to further assess the risk of soil vapor intrusion, an updated SRS will be conducted (described in Section 4.4), and a preferential pathway study will be conducted.

An access agreement will be obtained from the property owner in order to install the proposed soil vapor probes and to evaluate the building foundation. As-built documents will be obtained, if possible, to help with the soil vapor intrusion risk evaluation.

4.1 DATA OBJECTIVES

As described above, the proposed soil vapor investigation intended to quantify any potential vapor intrusion risks on offsite, downgradient residents. The data objectives for each specific proposed vapor point are summarized in the following table. The locations of the proposed borings are included in Drawing 3.

Proposed Soil Vapor Probe	Location	Data Objective
SV-1A/1B	Onsite, near source area	Evaluate potential future offsite risks
SV-2A/2B	Offsite, near residential building	Evaluate potential current offsite risks
SV-3A/3B	Offsite, near residential building	Evaluate potential current offsite risks

4.2 PRELIMINARY ACTIVITIES

Prior to initiating field activities, Broadbent will obtain the necessary permits from Alameda County Public Works Agency (ACPWA), prepare a Site-Specific Health & Safety Plan (HASP) for the proposed work, obtain an access agreement with the property owner of the apartments west of the Site, clear the Site for subsurface utilities, and provide 72-hour advance written notification to ACEH (email to Dilan.Roe@acgov.org) prior to the start of field activities. The utility clearance will include notifying Underground Services Alert (USA-North) of the pending work a minimum of two full business days prior to initiating the subsurface field investigation. In addition, the services of a private underground utility locator will be utilized.

The Site-Specific HASP will be prepared for use by personnel implementing the work. The HASP will address the proposed soil-gas boring/sampling scope of work. A copy of the HASP will be available on-site during the work. Subcontractors performing field activities will be provided with a copy of the HASP prior to initiating work. A safety tailgate meeting will also be conducted daily to review the Site hazards and mitigations.

4.3 SOIL VAPOR PROBE INSTALLATION

Soil vapor probes will be constructed by attaching a 6-inch long soil gas probe tip to 0.125-inch diameter nylon tubing (i.e. NylaFlow) or Teflon tubing extending two feet above the surface. The soil vapor probe tips will be constructed of double-woven stainless steel wire screen with a 0.057-inch pore diameter, equipped with stainless-steel end fittings. Each soil vapor probe will be embedded within the middle of a one-foot thick sand filter pack of #2/12 sorted sand, topped with one-half foot of dry granular Bentonite below a minimum of one-half foot of hydrated granular Bentonite, and completed with a flush, traffic-rated well vault at the surface set within neat cement concrete surface seal to match the existing grade. Care will be taken to prevent the tubing and Swagelok fitting at its end from being damaged or kinked when coiled back into the well vault.

4.4 SAMPLING AND ANALYTICAL

Sampling will occur at least two weeks after installation of the soil vapor monitoring implants to allow time for the concrete to cure and disturbed subsurface conditions to equilibrate. In addition, soil vapor sampling shall not be performed during or immediately after a rainfall event of 0.5 inches or more. If a rainfall event of this magnitude occurs within 24 hours of the scheduled soil vapor sampling activities, the field work shall be rescheduled.

After setting up a secure and barricaded work area, the sampling train will be assembled. The Swagelok fitting at the end of the implant's tubing will be connected to an inline vacuum gage with a tee then a 100-cubic centimeter (cc) calibrated syringe with three-way valve at the tip. Coming off the tee for the sample will be a one-liter Summa canister, supplied by the laboratory under high vacuum (-30 inches Mercury/in. Hg), leak checked, and batch certified to be free of contaminants. With the valve to the soil vapor monitoring implant closed and the valve to the Summa canister closed, the sampling train will be checked for leaks during a shut-in leak test by applying with the calibrated syringe a vacuum of -15 in. Hg for a period of five minutes (15 in. Hg is fifty percent above the standard threshold of -10 in. Hg considered representative of "No Flow" conditions). When the applied vacuum does not drop during the shut-in test, the sampling train assembly will be considered leak-tested tight.

After the shut-in leak test, the closed valve of the soil vapor monitoring implant will be opened and the sampling train slowly purged of three calculated interior volumes using the calibrated syringe. Following completion of purging, a clear plastic shroud will be setup over the sampling train to contain the chemical tracer/leak-check compound (Helium gas) that will be released within. The shroud will be placed to completely cover the soil vapor sampling implant wellhead, its aboveground tubing, and the tubing, fittings, and sample Summa canister that will make up the sampling train. Once setup, Helium gas will be released via tubing under the shroud. A Radiodetection Model MGD-2002 Helium Detector (or similar) will be used to monitor the concentration within the shroud by placing its probe within. Prior to and during sampling, a positive-pressure concentration of approximately 20 percent Helium will be maintained within the shroud using the compressed gas cylinder's flow regulator. Helium concentrations within the shroud will be recorded in the field notes at one-minute intervals.

Once a positive-pressure Helium atmosphere is created under the shroud, the valve to the Summa canister will be opened and the sample collected. The sampling rates into the Summa canisters will be fixed by laboratory-supplied critical orifice assemblies (flow regulators) with a 0.0060 inch orifice allowing approximately 200 standard cc per minute (cc/min). Samples will be collected into the Summa canisters until the vacuum has dropped from the initial laboratory-supplied vacuum of -30 in.Hg to -5 in.Hg. Sample start times, end times, starting vacuums, ending vacuums, and Helium concentrations during sampling will be recorded in the field notes.

Finally, for comparison purposes, one Summa canister will be used to collect an ambient air sample from the ground level just outside the entrance door to the Station Building. No leak-check compound will be utilized during collection of the ambient air sample.

Collected samples will be promptly submitted under chain-of-custody protocol to Calscience Environmental Laboratories, Inc. in Garden Grove, California (CA-ELAP #1230, NELAP #03220CA). At the laboratory, select soil gas samples will be analyzed for GRO by EPA Method TO-3, and for BTEX, MTBE, Ethanol, TBA, DIPE, ETBE, and TAME by EPA Method TO-15. Soil gas samples will also be analyzed for

Oxygen (O₂) and Argon, Carbon Dioxide (CO₂), Methane (CH₄), and Helium (Tracer/leak-check compound) by Modified Method ASTM D-1946.

Direction on the chain-of-custody will be to first analyze the "B" samples from 5.5 feet bgs. Concentration results for the "B" deeper soil vapor samples will be compared against the Environmental Screening Levels (ESLs) for shallow soil gas (commercial/industrial land use) established by the California Regional Water Quality Control Board, San Francisco Bay Region. Concentrations will also be compared to acceptable concentrations presented in the Low Threat UST Closure Policy (SWRCB, 2012). If concentration results for any of the TO-3/TO-15 analytes from the deeper "B" soil vapor sample exceed established screening levels, then the corresponding shallow "A" soil vapor sample from 3.0 ft bgs will be analyzed also. Laboratory analyses for soil vapor samples will be performed in accordance with EPA standard holding times for Summa canisters.

4.5 SENSITIVE RECEPTOR SURVEY

Sensitive Receptor Survey will be conducted in order to fill in the data gap that exists for this Site. Closure solutions has conducted a SRS for determining nearby water wells within 2000 ft of the Site but there was no information regarding other potential receptors with regards to the Site, and the Alameda County Public Works Agency (ACPWA) records were not reviewed. Therefore Broadbent proposes an updated SRS to be completed to close this data gap. This updated SRS will consist of identifying all potential receptors within a 2,000-foot radius, including wells, schools, hospitals, and potential ecological receptors. The ACPWA records will be reviewed during these updated SRS activities. Additionally, further details regarding regional groundwater conditions will also be evaluated. The results of this updated SRS will be included in the forthcoming report.

4.6 PREFERENTIAL PATHWAY STUDY

A preferential pathway study will be conducted within the area between well MW-3, southern pump island, Alcatraz Avenue and MW-4. This area will be used to evaluate potential contaminant migration pathways near the offsite, downgradient apartment complex where there is a potential vapor intrusion risk. Additionally, attempts will be made to obtain information regarding the utilities from the City of Oakland, Alameda County, and the utility providers themselves. The size, location, and depths of the utilities will be determined if the information is obtained. Results of this study will be included in the forthcoming report, described below.

5.0 SOIL VAPOR INVESTIGATION REPORT AND UPDATED CSM

Upon completion of field activities, Broadbent will prepare Soil Gas Investigation Report and Updated CSM. The report will document the results of the investigation, field activities, copies of required permit(s), copies of field notes, soil boring and well logs, discussion of findings, and conclusions. Deviations from the Work Plan or data inconsistencies will be discussed in the report. An update to the CSM (Table 1) will also be included.

6.0 PROPOSED SCHEDULE

The schedule for the above-noted work is proposed to proceed as follows:

- Implement Investigation Activities– Within 30 days of obtaining access from offsite property owners.
- Submittal of Soil Vapor Investigation Report – Within 90 days of obtaining access from offsite property owners.

7.0 LIMITATIONS

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

8.0 REFERENCES

- Broadbent, 2009. On-site Soil and Groundwater Investigation Report. Atlantic Richfield Company Station #374, 6407 Telegraph Ave., Oakland, CA, ACEH Case #RO0000078. November 11
- Broadbent, 2011. On-site Soil and Groundwater Investigation Report. Atlantic Richfield Company Station #374, 6407 Telegraph Ave., Oakland, CA, ACEH Case #RO0000078.
- Broadbent, 2012. Soil Vapor Investigation Work Plan, Atlantic Richfield Company Station #374, 6407 Telegraph Avenue, Oakland, CA, ACEH Case #RO0000078. November 20.
- California Department of Toxic Substances Control (DTSC), 2011. *Final Guidance for Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air*. October.
- California Regional Water Quality Control Board – San Francisco Bay Region (SFRWQCB), 1999. *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*. June.
- California Regional Water Quality Control Board – San Francisco Bay Region (SFRWQCB), 2013. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater. Interim final. February.
- State Water Resources Control Board, 2012. *Low-Threat Underground Storage Tank Case Closure Policy*, April 17.
- USGS, 1997. *Quaternary Geology of Alameda County, and parts of Contra Costa, Santa Clara, San Mateo, San Francisco, Stanislaus, and San Joaquin Counties, California*: a digital database
By E.J. Helley and R.W. Graymer

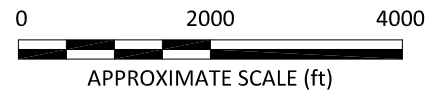
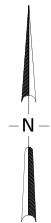
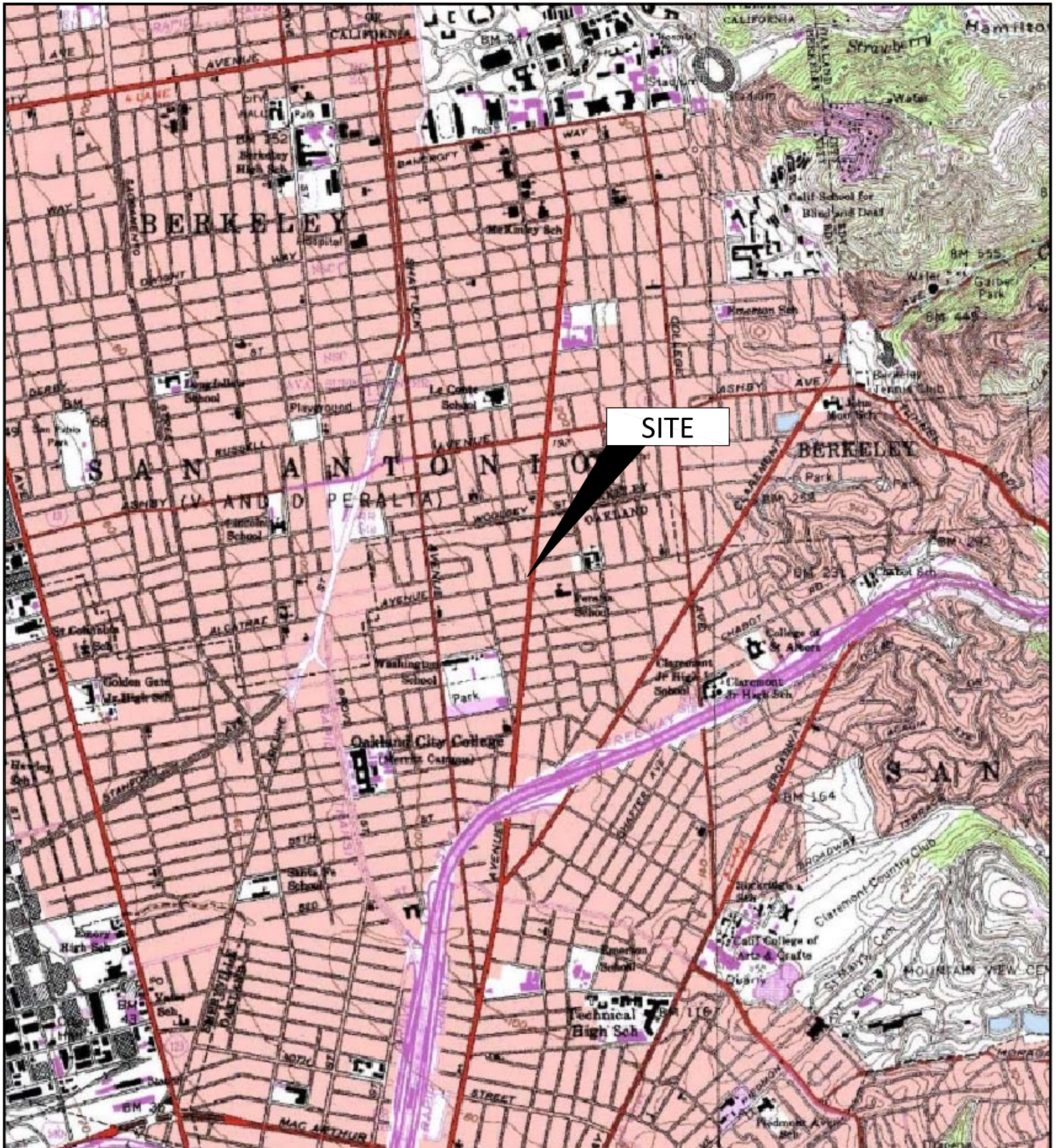


IMAGE SOURCE: USGS

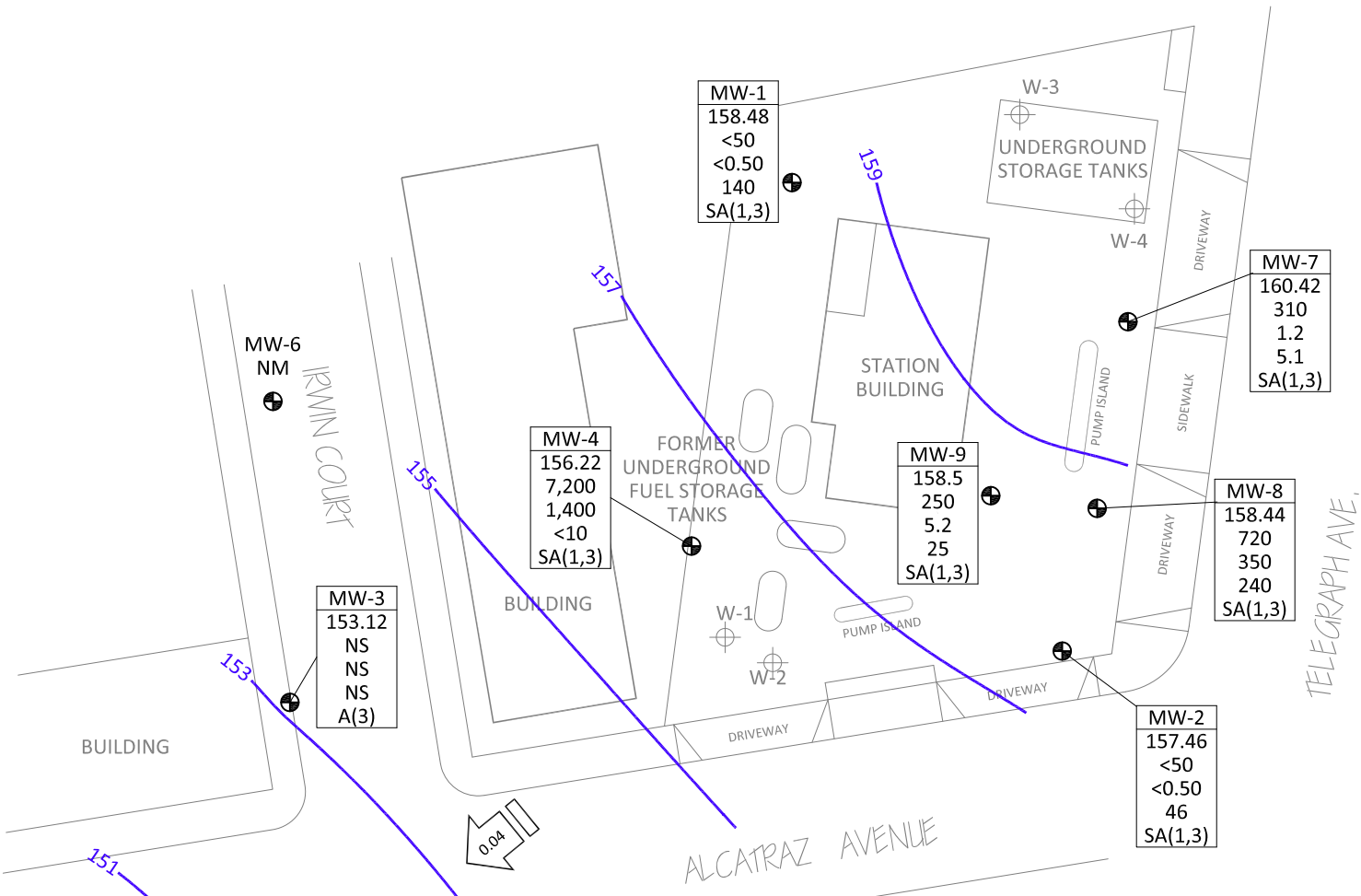
BROADBENT
 875 Cotting Lane, Suite G
 Vacaville, California 95688
 Project No.: 06-88-602 Date: 3/8/2013

Station #374
 6407 Telegraph Ave.
 Oakland, California

Site Location Map

Drawing

1



MW-5
149.36
NS
NS
NS
A(3)

MW-6
NM

MW-3
153.12
NS
NS
NS
A(3)

MW-4
156.22
7,200
1,400
<10
SA(1,3)

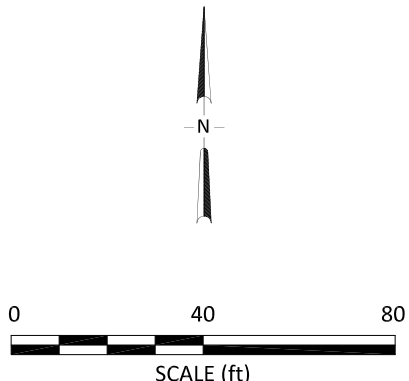
MW-1
158.48
<50
<0.50
140
SA(1,3)

MW-9
158.5
250
5.2
25
SA(1,3)

MW-2
157.46
<50
<0.50
46
SA(1,3)

MW-8
158.44
720
350
240
SA(1,3)

MW-7
160.42
310
1.2
5.1
SA(1,3)



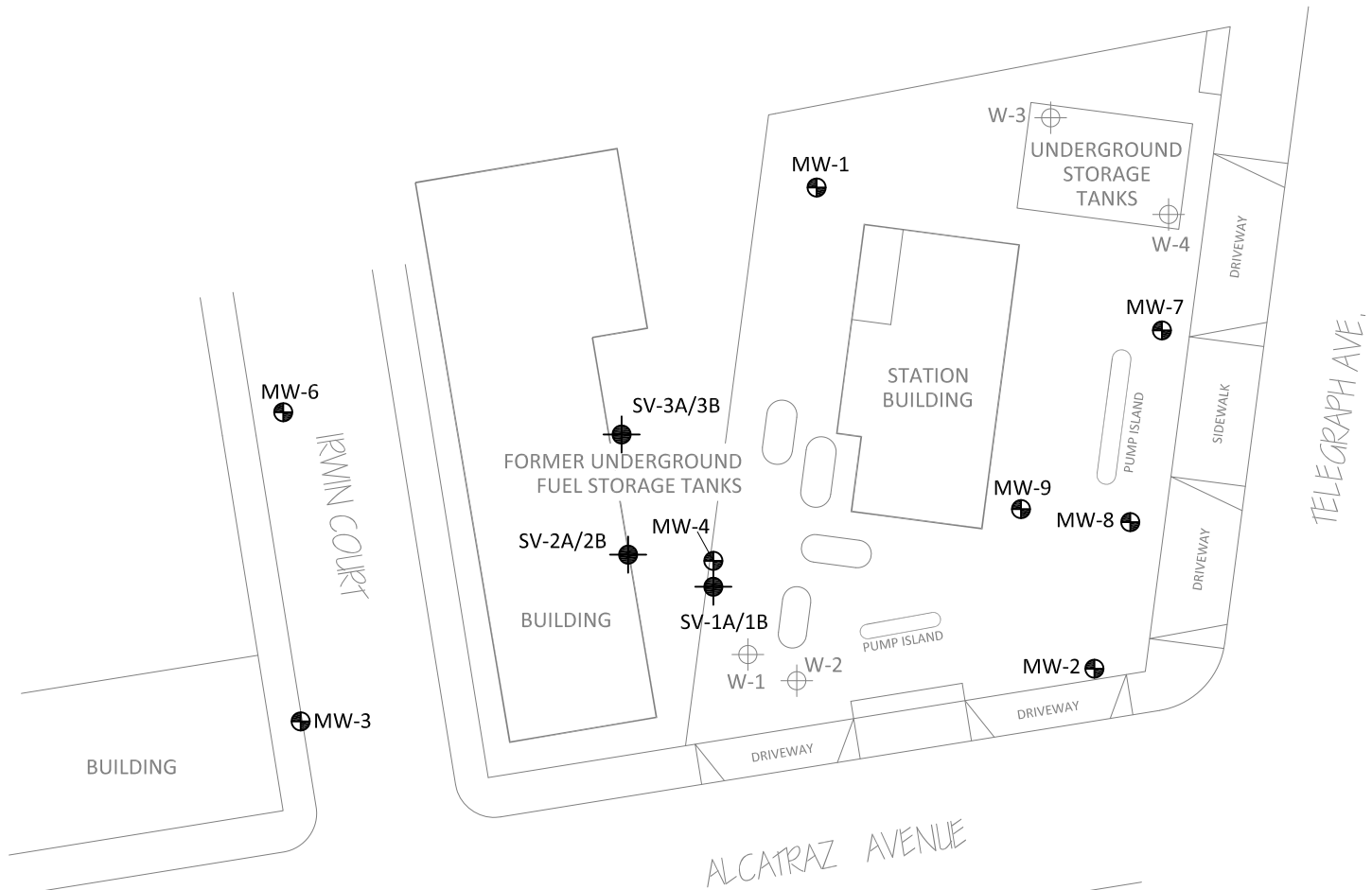
LEGEND

- Monitoring Well Location
- Tank Pit Monitoring Well Location
- Groundwater Elevation Contour (Feet Above Site Datum)
- Groundwater Gradient (ft/ft)
- A(3) Sampled Annually - Third Quarter
- SA(1,3) Sampled Semi-Annually - First and Third Quarter

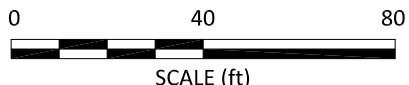
WELL	Well Designation
ELEV	Groundwater Elevation (ft)
GRO	GRO, Benzene, and MTBE
BZ	Concentrations (µg/L)
MTBE	
A/SA/Q	Sampling Frequency

- NM Not Monitored
- NS Not Sampled

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

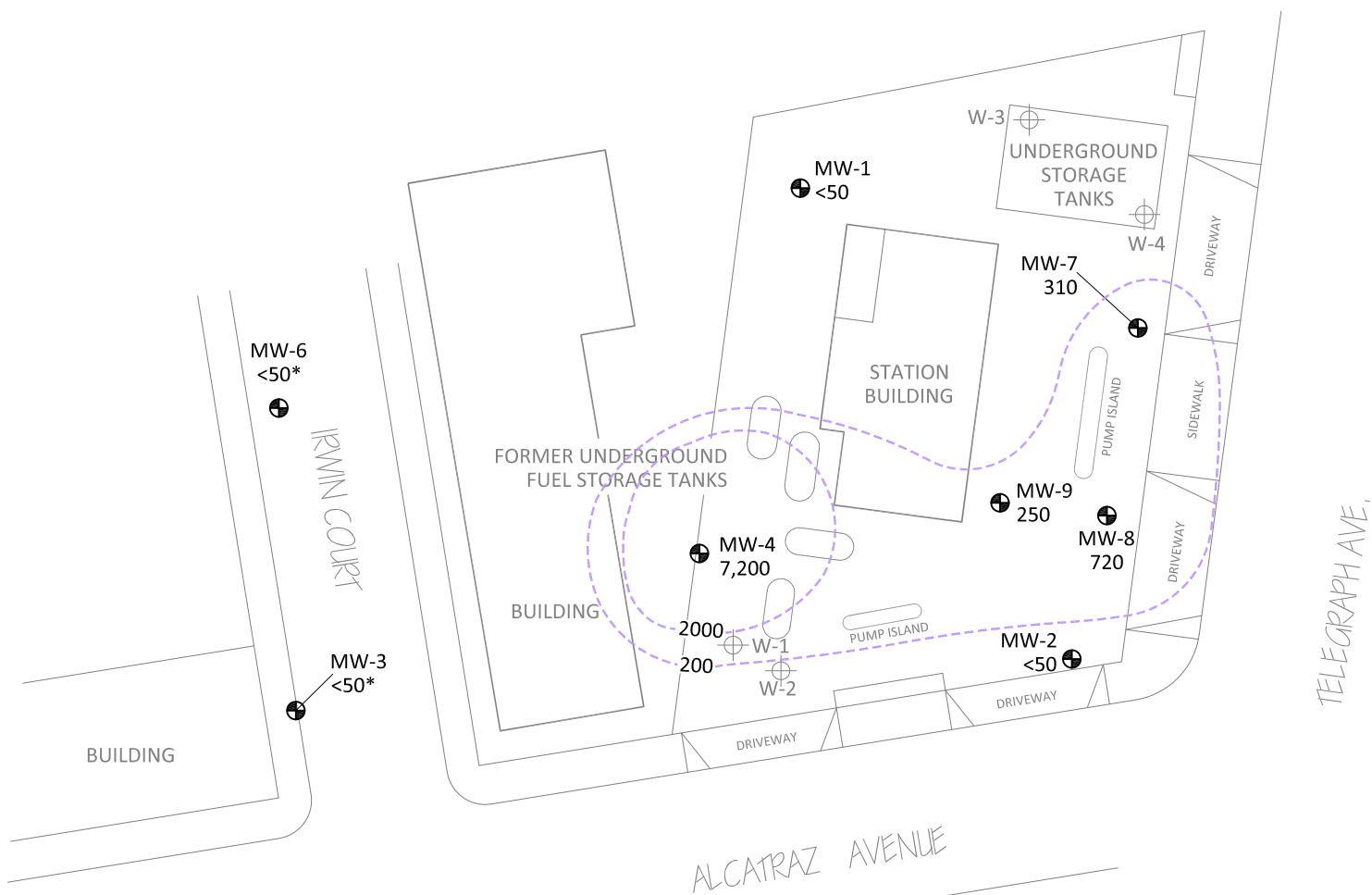


⊕ MW-5

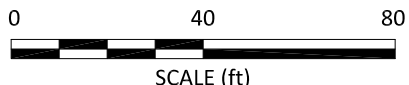


LEGEND	
⊕	Monitoring Well Location
⊕	Tank Pit Monitoring Well Location
⊕	Proposed Soil Probe Location

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

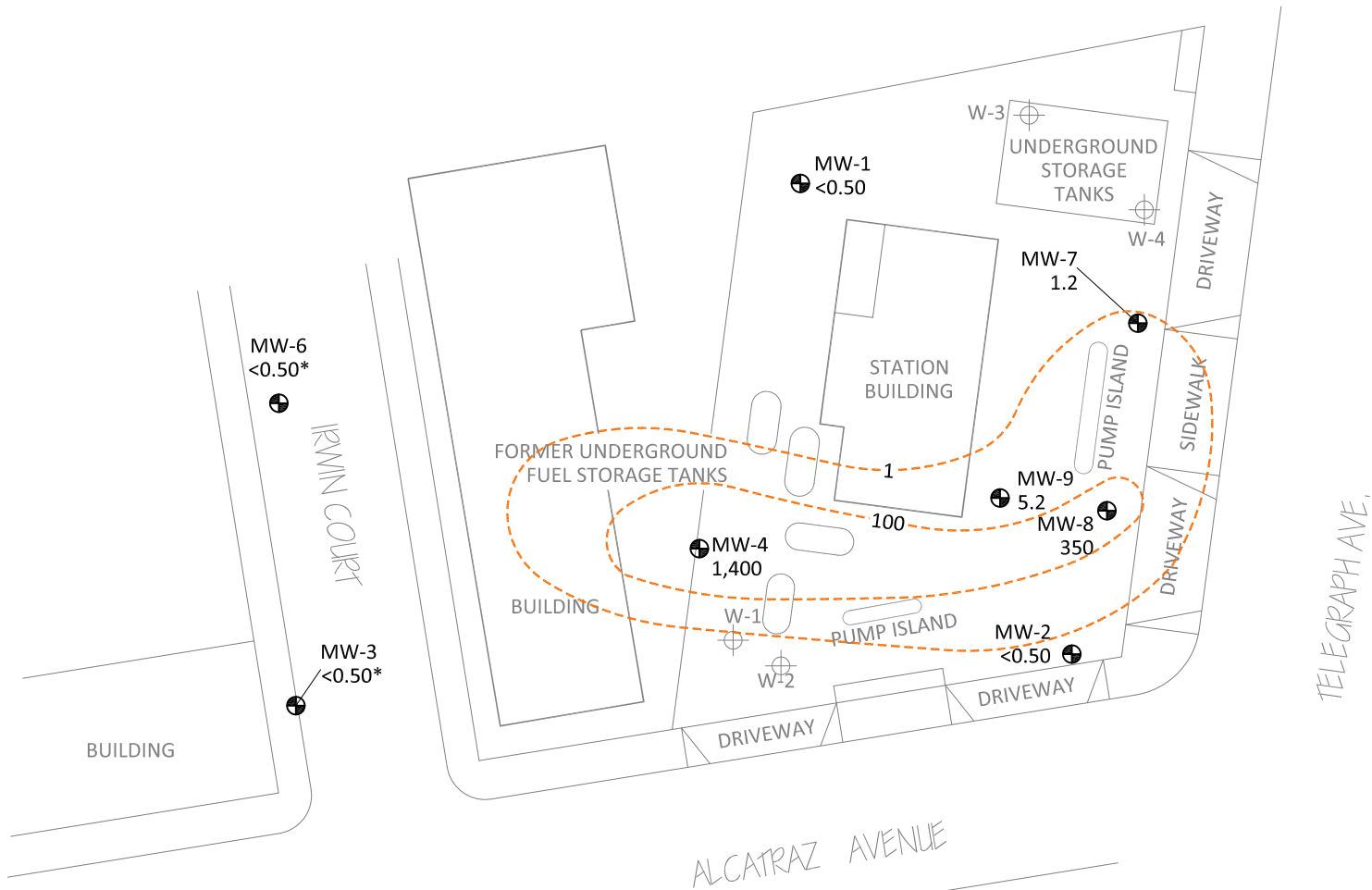


MW-5
<50*

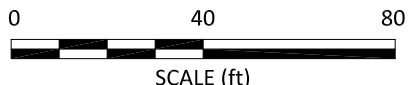


LEGEND	
	Monitoring Well Location
	Tank Pit Monitoring Well Location
	MTBE Isoconcentration Contour ($\mu\text{g/L}$)
*	Results from 3rd Quarter, 2012

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

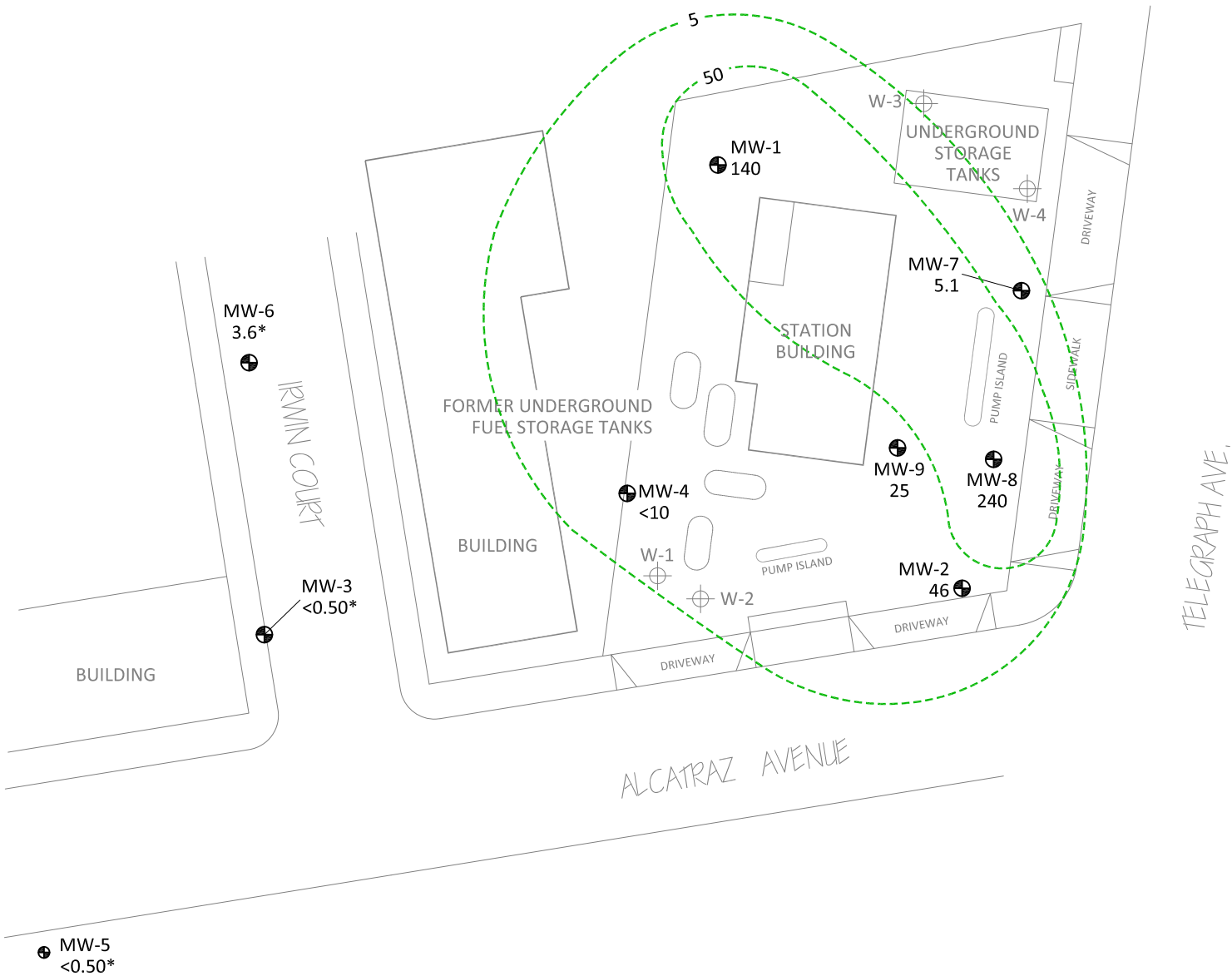


MW-5
<math><0.50^*</math>

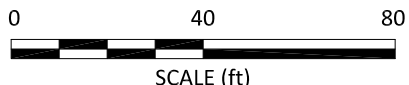
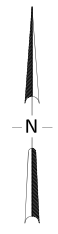


LEGEND	
	Monitoring Well Location
	Tank Pit Monitoring Well Location
	MTBE Isoconcentration Contour ($\mu\text{g/L}$)
*	Results from 3rd Quarter, 2012

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

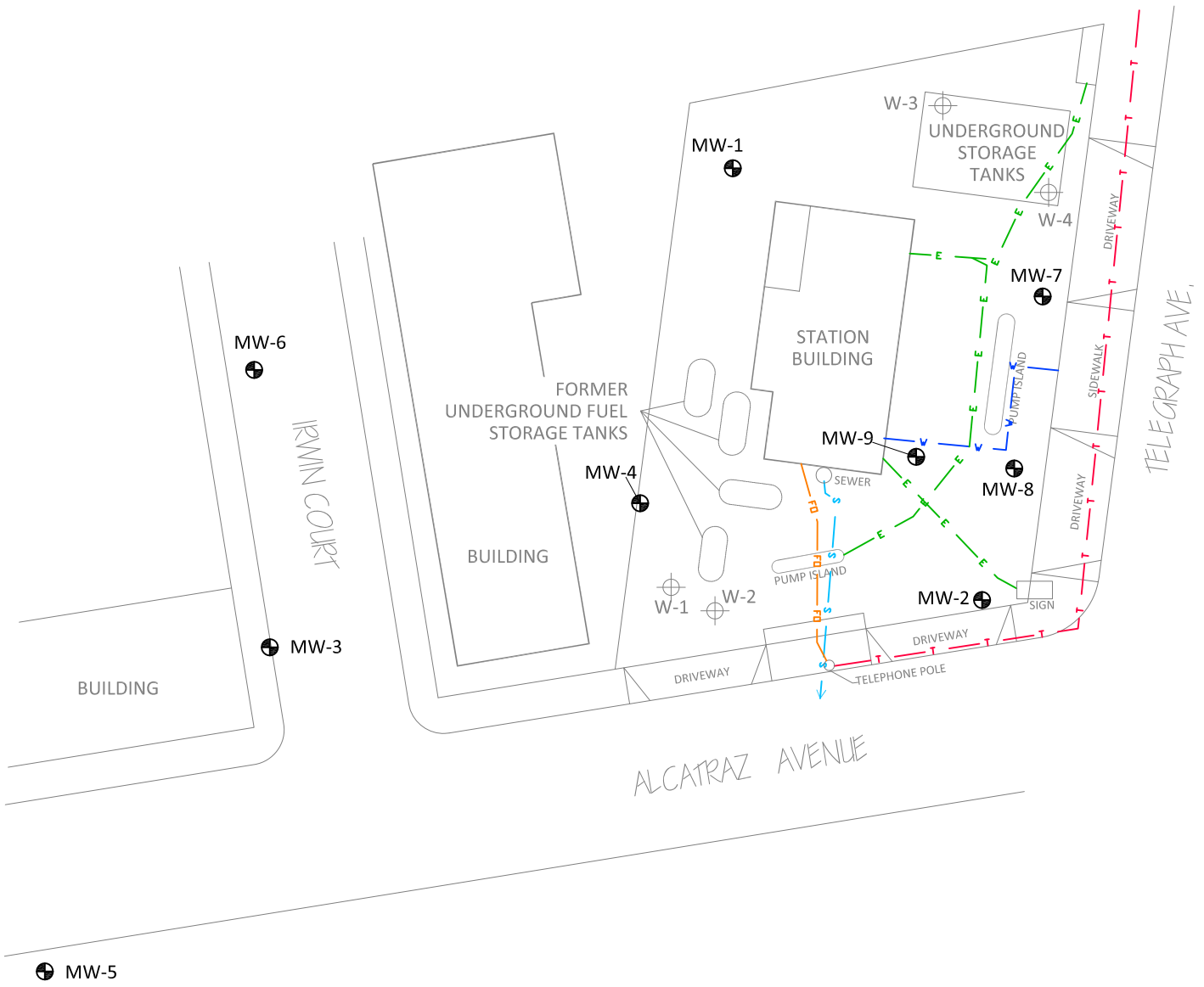


MW-5
<0.50*

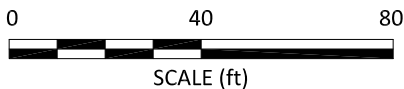


LEGEND	
	Monitoring Well Location
	Tank Pit Monitoring Well Location
	MTBE Isoconcentration Contour (µg/L)
*	Results from 3rd Quarter, 2012

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

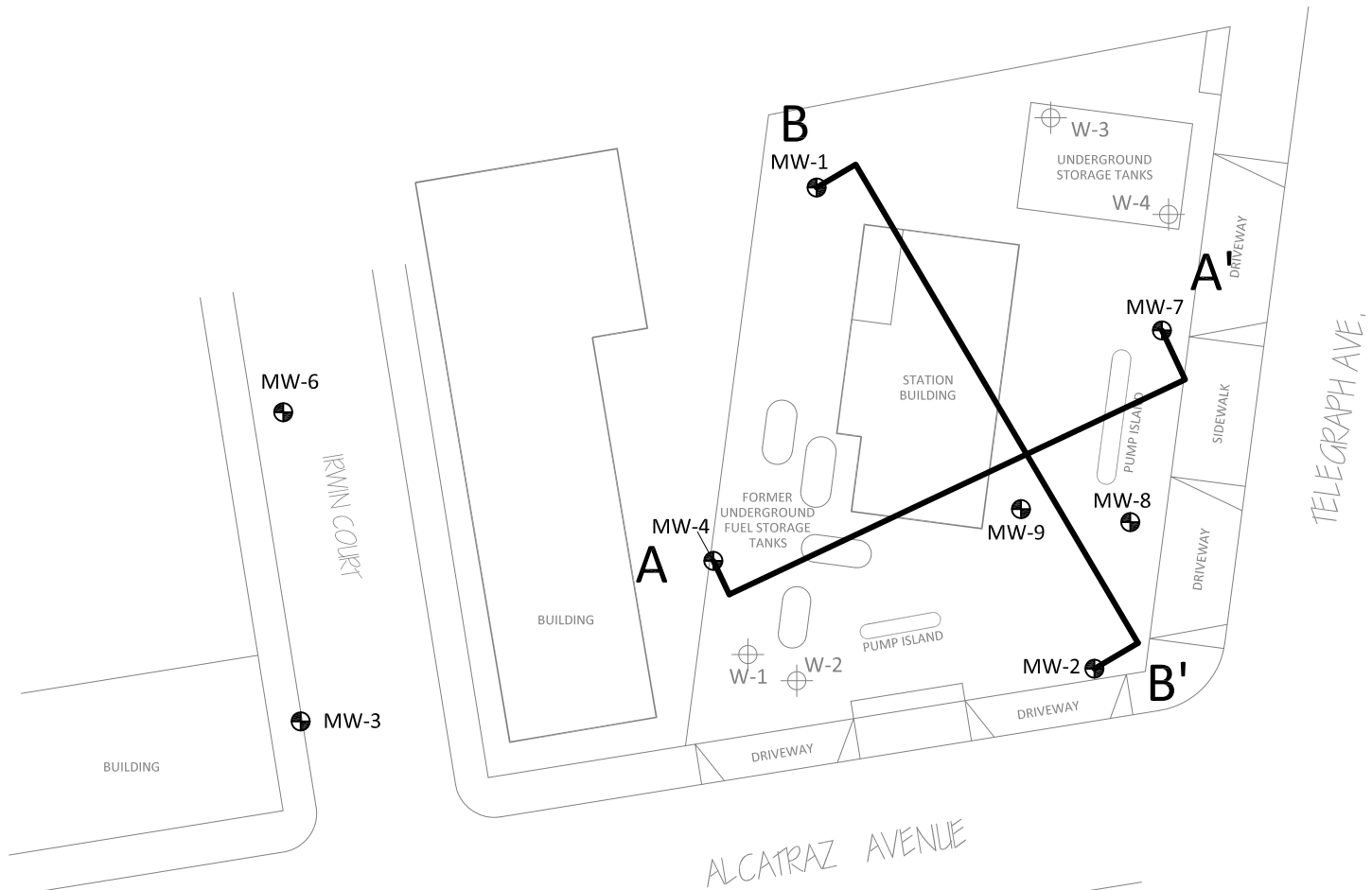


⊕ MW-5

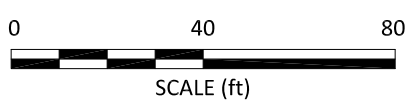


LEGEND	
⊕	Monitoring Well Location
⊕	Tank Pit Monitoring Well Location
— E —	Electrical Line
— S —	Sewer Line
— T —	Telephone Line
— V —	Water Line
— FD —	Communication Line

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

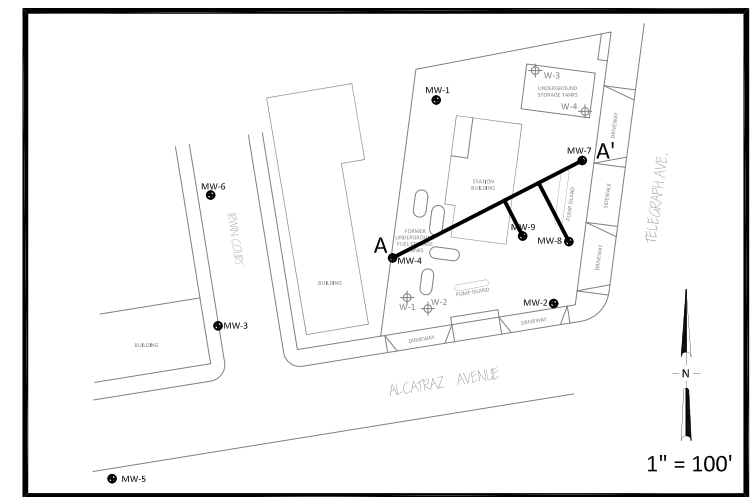
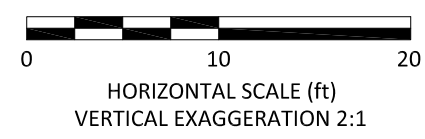
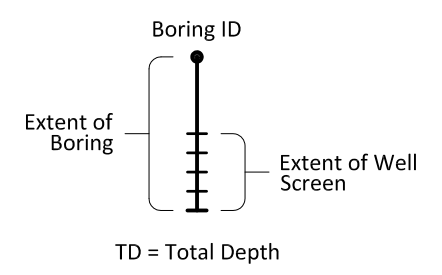
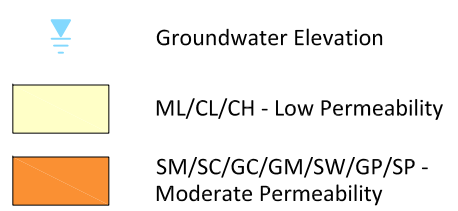
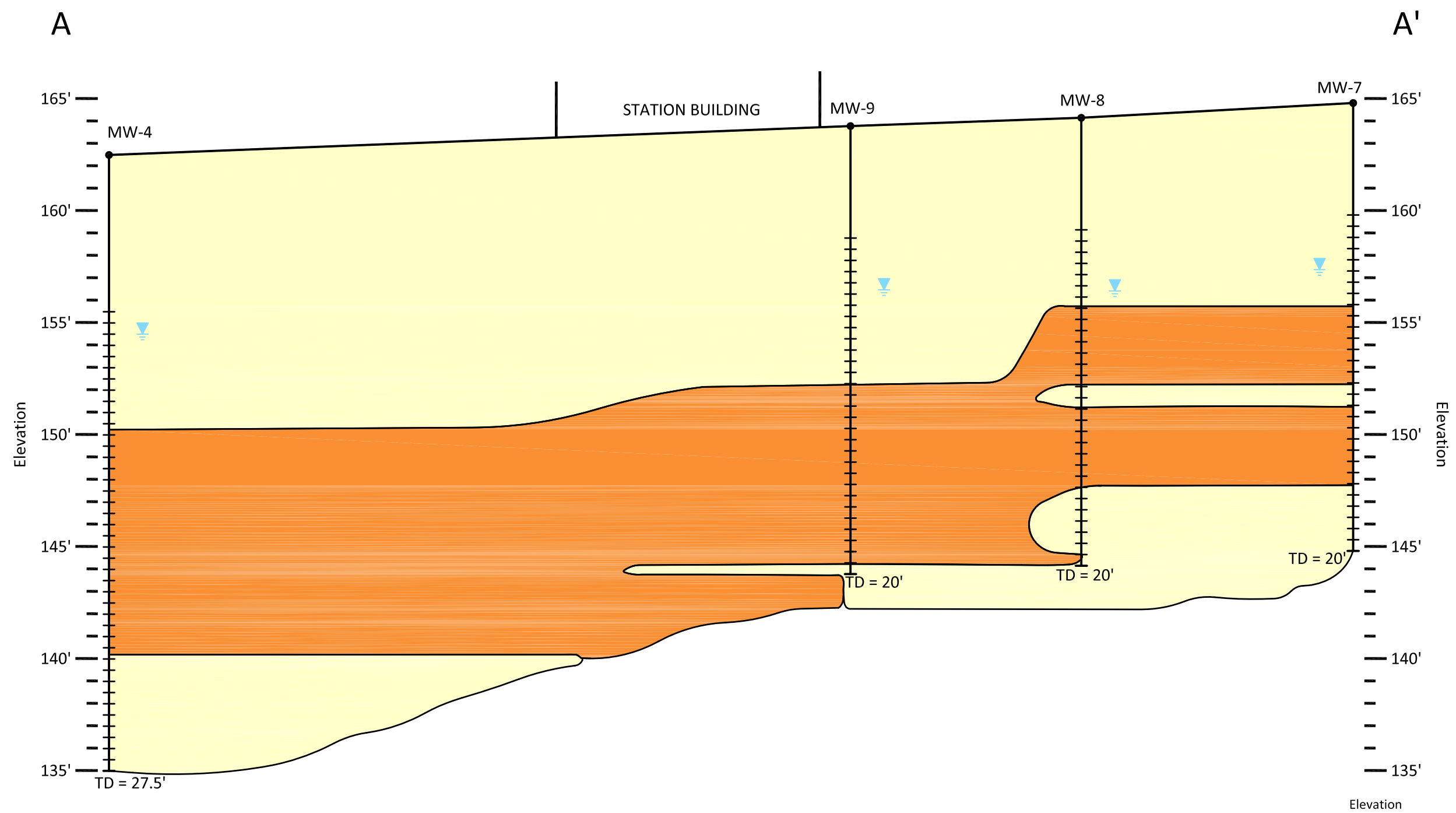


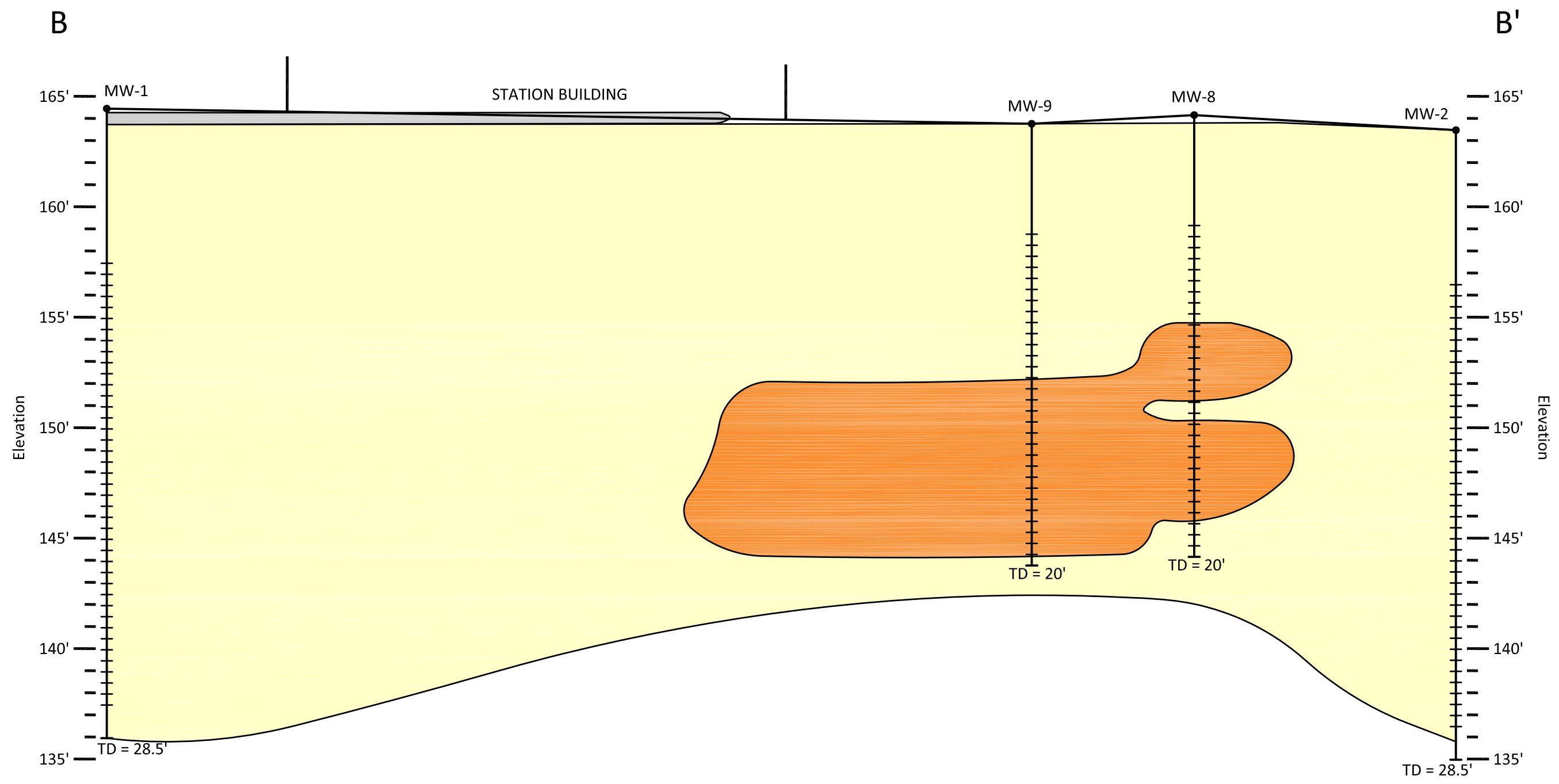
⊕ MW-5



LEGEND	
⊕	Monitoring Well Location
⊕	Tank Pit Monitoring Well Location

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





- Groundwater Elevation
- Asphalt/Backfill
- ML/CL/CH - Low Permeability
- SM/SC/GC/GM/SW/GP/SP - Moderate Permeability

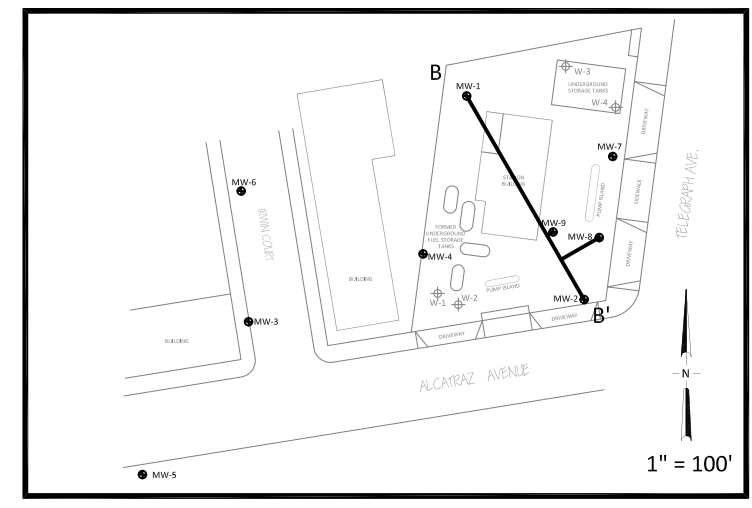
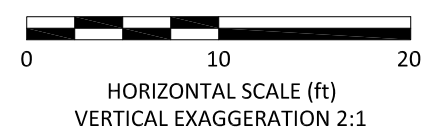
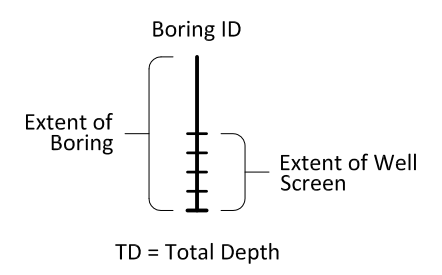


TABLE 1

CONCEPTUAL SITE MODEL

Atlantic Richfield Company Station 374
6407 Telegraph Ave
Oakland, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Geology and Hydrogeology	Regional	<p>According to the <i>East Bay Plain Groundwater Basin Beneficial Use Evaluation Report</i> (California Regional Water Quality Control Board – San Francisco Bay Region/SFRWQCB, June 1999), the Site is located within the Oakland Sub-Area of the East Bay Plain of the San Francisco Basin. The Oakland Sub-Area contains a sequence of alluvial fans. The alluvial fill thickness ranges from 300 to 700 ft in depth. There are no well-defined aquitards such as estuarine muds. The largest and deepest wells in this sub-area historically pumped one to two million gallons per day at depths greater than 200 ft. Overall, sustainable yields are low due in part to low recharge potential. The Merrit sand in West Oakland was an important part of the early water supply for the City of Oakland. It is shallow (up to 60 ft), but before the turn of the last century, septic systems contaminated the water supply wells.</p> <p>Throughout most of the Alameda County portion of the East Bay Plain, from Hayward north to Albany, water level contours show that the general direction of groundwater flow is from east to west or from the Hayward Fault to the San Francisco Bay. Groundwater flow direction generally correlates to topography. Flow direction and velocity are also influenced by buried stream channels that typically are oriented in an east to west direction.</p>	None	NA
	Site	<p>The Site elevation is approximately 163 ft above sea level. The water table fluctuates seasonally and over time. Historically, depth-to-water measurements have ranged from approximately 5 to 11 ft bgs). During First Quarter 2013, the average depth to groundwater in onsite wells MW-1, MW-2, MW-4, and MW-7 through MW-9 was approximately 5.5 ft. Groundwater flow direction during the First Quarter 2013 monitoring event on February 14, 2013 was to the southwest at a gradient of approximately 0.04 ft/ft.</p>	None	NA

TABLE 1**CONCEPTUAL SITE MODEL**

Atlantic Richfield Company Station 374
 6407 Telegraph Ave
 Oakland, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Geology and Hydrogeology (continued)	Site (continued)	The Site is typically underlain by silty and sandy clays with intervals consisting of sands and gravels to a maximum explored depth of approximately 28 ft bgs. The boring log for MW-7 indicates that intermittent layers of silty clay and sandy clay are present throughout the entire boring with gravels appearing at approximately eight ft bgs and sand appearing at approximately 18 ft bgs. The boring log for MW-2 indicates that intermittent layers of silty clay and sandy clay are present throughout the entire boring with gravels appearing at approximately eight ft bgs. The boring log for MW-3 indicates that silty clay is present throughout the entire boring with minor gravel appearing at approximately 18.5 ft bgs and sand appearing at approximately 27 ft bgs. The boring log for MW-4 indicates that silty clay is present from approximately ground surface to 13 ft bgs. Sandy gravel with some silt appears at 13 ft bgs and transitions into silty clay with some sand and gravel at approximately 22 ft bgs.		
Surface Water Bodies		The nearest surface water body is an unnamed creek that terminates 3,400 ft east of the Site (Closure Solutions, 2012). The nearest natural drainage is Claremont Creek, located approximately 1.2 miles west-northwest of the Site. Claremont Creek flows generally east to west near the Site vicinity. The San Francisco Bay is located approximately 2 miles west of the Site.	None	NA
Nearby Wells		A Sensitive Receptor Survey was carried out in February 2011 by Closure Solutions to identify the presence of water wells within a ½-mile radius of the Site. According to Closure Solutions' report, 2 wells were identified within a ½-mile radius in the downgradient and crossgradient groundwater flow direction and its intended use is unknown. A Sensitive Survey will be conducted by Broadbent to verify the water wells found by Closure Solutions and to determine Ecological Receptors and nearest schools and hospitals.	Yes	Conduct Survey

TABLE 1**CONCEPTUAL SITE MODEL**

Atlantic Richfield Company Station 374
 6407 Telegraph Ave
 Oakland, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Constituents of Concern	Light-Non Aqueous Phase Liquids (LNAPL)	LNAPL has not been observed at this Site in monitoring wells. However, LNAPL was observed during the soil investigation conducted by Applied Geosystems (AGS) in 1988. One inch of LNAPL was observed in a grab groundwater sample collected from boring B-1. Additionally, product sheen was also observed in grab groundwater samples from borings B-2 and B-4. Product sheen was also encountered in observation wells W-1 and W-2 in the former UST pit during the UST removal and excavation in June 1988 (AGS, 1988).	None	NA
	Gasoline Range Organics (GRO)	Concentrations of GRO have historically been detected in four of the nine Site monitoring wells (MW-4 and MW-7 through MW-9). In wells MW-7 and MW-9, only low and intermittent concentrations of GRO have been historically detected. Historical concentrations of GRO was reported in well MW-4 were above 2,000 µg/L installation since 2000. No GRO has been detected in offsite wells MW-3, MW-5, and MW-6. Onsite wells MW-1 and MW-2 have historically have had detections of GRO concentrations but within the last three years it has been reported as non-detect. These wells define the GRO: plume MW-7 to the northeast, MW-8 to the southeast, MW-4 and west. Drawing 4 presents isoconcentration contours for the most recent groundwater monitoring and sampling event (1Q13).	None	NA
	Benzene	Benzene has historically been detected in all wells except for MW-1, MW-3, MW-5, and MW-6. However, well MW-2 had sporadic detections sat low concentrations of no greater than 3 µg/L. The highest onsite concentration of benzene was detected in well MW-4 at 5,100 µg/L in June 2000. Maximum benzene concentrations are detected in well MW-4 with concentrations over 1,000 µg/L. However, MW-8 was reported at a higher than normal concentration from the most recent sampling event (1Q13). Drawing 5 presents isoconcentration contours of benzene in groundwater during the most recent groundwater monitoring event (1Q13).	None	NA

TABLE 1**CONCEPTUAL SITE MODEL**

Atlantic Richfield Company Station 374
 6407 Telegraph Ave
 Oakland, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Constituents of Concern (continued)	MTBE	Methyl tert butyl ether (MTBE) has been historically detected in all wells except for MW-5. However, in wells MW-3, MW-6, MW-7 only low concentrations have been detected. The highest historic concentration of MTBE was reported in well MW-1 in March 2001 at a concentration of 2,710 µg/L. Wells MW-1 and MW-8 contain the highest concentrations ranging from 140 µg/L to 240 µg/L within the last two sampling events. Wells MW-1 and MW-9 exhibit decreasing trend while MW-8 fluctuates in concentration. Drawing 6 presents isoconcentration contours of MTBE in groundwater during the most recent groundwater monitoring event (1Q13). MTBE concentration trend graphs for all wells are included in Appendix B. Overall the graphs show decreasing concentrations of the MTBE .	None	NA
Potential Sources	Onsite	<p>The main sources of contamination onsite were from the former UST's and pump islands located in the southeastern area of the site. In February 1988, a leak was detected in the vapor/vent line of the unleaded system during annual tank testing. The results of a April 1988 limited environmental site assessment conducted by AGS which included four soil borings near the USTs indicated soil and groundwater contamination with LNAPL and sheen being observed in the groundwater grab sample collected from the soil boring locations. Between June 7 and 10, 1988, the four gasoline USTs were removed from the Site and on September 21, 1996, two pump islands along with its associated underground product lines were removed. Removal of UST's and pump islands was to control and mitigate the spread of contamination. Subsequent soil remediation and soil investigations determined residual hydrocarbon contamination still exists around the former UST and pump islands locations. A decreasing trend in hydrocarbon residuals in the groundwater can be seen in all wells however MW-4 still contains the highest concentration of GRO.</p> <p>The Site is an active service station. Current USTs and dispensers are present. Data</p>	None	NA

TABLE 1**CONCEPTUAL SITE MODEL**

Atlantic Richfield Company Station 374
 6407 Telegraph Ave
 Oakland, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Potential Sources (continued)	Onsite (continued)	presented herein does not indicate that an ongoing hydrocarbon release is occurring, since hydrocarbon concentrations have steadily been decreasing since the removal of the former UST's and associated pump islands. The Site monitoring and sampling history indicate that hydrocarbon releases occurred from the former UST location and pump islands, with no additional releases having occurred.		
	Offsite	Diagonally across the site is a former Mobil service station that ceased operation in 1983. A petroleum leak was reported in March 1986 and the four USTs were removed in May 1986. Confirmation soil and groundwater samples were taken during the removal and excavation of the UST's. The site is approximately 120 feet southeast and cross-gradient to ARCO 374. (Resna, 1992). Currently there is a notice of violation from SWRCB which the responsible party has not responded to and is missing the laboratory report of the groundwater sampling that took place. No further work has been conducted since the notice of violation was first issued in 2009. This site may be a potential secondary source of contamination but due to the groundwater direction of the Site and its crossgradient proximity to Arco 374, it is unlikely impacting the Site.	None	NA
Nature and Extent of Environmental Impacts	Extent in Soil	Soil appears defined at the Site. Upon completion of an offsite soil boring investigation conducted by Broadbent in November 2010, moderate concentrations of GRO, benzene, toluene, ethylbenzene, and total xylenes are present within the soil at 8.0 to 9.5 ft bgs in the east pump island investigation area. Hydrocarbon concentrations diminish in concentration with depth and horizontal distance from this east pump island. One exception to this observation is the MW-8 soil sample at 11 ft bgs where the GRO concentration was 1,400 mg/kg. The soil analytical data demonstrates that the soil petroleum hydrocarbon impact around the east pump	None	NA

TABLE 1

CONCEPTUAL SITE MODEL

Atlantic Richfield Company Station 374
 6407 Telegraph Ave
 Oakland, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Nature and Extent of Environmental Impacts (continued)	Extent in Soil (continued)	<p>island is defined vertically at 12.5 ft bgs, to levels below residential Regional Water Quality Control board ESLs for shallow soil scenarios where the groundwater is a potential drinking water resource. The soil analytical data also demonstrates that the petroleum hydrocarbon impact in soil around the east pump island is sufficiently defined laterally.</p> <p>The soil data from this investigation are consistent with the elevated GRO concentrations in soil samples collected during Broadbent's November 11, 2009 <i>Soil and Groundwater Investigation</i> where soil boring B-15 contained 1,400 mg/kg at 4.5 ft bgs and B-13 contained 1,800 mg/kg at 8.5 ft bgs. These observed concentrations are indicative of a point release from the former product piping that spreads outward when encountering a more permeable (sandy, gravelly) layer. The data also is consistent with the previous high concentration of 6,500 mg/kg GRO detected in product line sample PL-3 5' collected on December 4, 2008 during product line replacement and fuel dispenser upgrades (Broadbent, 2009).</p> <p>Low concentrations of MTBE were detected in shallow soil samples collected from MW-8 and MW-9. Six of the 18 soil samples detected MTBE concentrations and none of the 18 detected TBA concentrations exceeded the residential ESLs for shallow soil scenarios where the groundwater is a potential drinking water resource. Two of the six MTBE samples (MW-8-14.5 and MW-9-15.5) were collected within the capillary fringe and MTBE concentrations are likely from a groundwater source. Neither MTBE nor TBA concentrations in soil exceeded the residential ESLs for shallow soil where the ground water is not a potential drinking water resource.</p>		

TABLE 1

CONCEPTUAL SITE MODEL

Atlantic Richfield Company Station 374
 6407 Telegraph Ave
 Oakland, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Nature and Extent of Environmental Impacts (continued)	Extent in Shallow Groundwater	The groundwater monitoring network at the Site include nine wells (MW-1 thru MW-9); upgradient wells (MW-1, MW-2, MW-7 thru MW-9); and downgradient wells (MW-3 thru MW-6). Isoconcentration maps for the most recent groundwater monitoring and sampling event (1Q13) for GRO, benzene, and MTBE are included as Drawings 4 through 6 respectively. Based on these drawing s and the <i>On-site Soil and Groundwater Investigation Report (Broadbent, 2011)</i> , the extent of petroleum compounds is well defined in all directions, and is predominately limited around the former UST's and southern pump island area with the exception of MTBE plume which encompasses a bigger area. Additionally, free product is not present at this Site, and dissolved petroleum concentrations are decreasing. The data is adequate for understanding the SCM.	None	NA
	Extent in Deeper Groundwater	Soil Borings B-1 through B-5 (MW-1 through MW-5) were all advanced to 27 ft bgs and borings B-16 to B-18 (MW-6 through MW-9) and soil boring B-19 were advanced to 20 ft bgs. Based on the results of these boring logs and the <i>On-site Soil and Groundwater Investigation Report (Broadbent, 2011)</i> , petroleum compounds in groundwater are vertically defined within the first-encountered groundwater between 7 to 12 ft bgs. The deeper groundwater zone was not encountered nor was petroleum constituents were detected or observed deeper than 15 ft bgs.	None	NA
	Extent in Soil Vapor	No soil vapor assessment has been performed at the Site. The apartments located west of the Site are downgradient to the former UST locations. Two proposed soil vapor probes locations, one nested soil vapor probe (SV-1A/1B) south of MW-4 along the fence and the other nested soil vapor probe (SV-2A/2B) located between the	Yes	Conduct Soil Vapor Investigation

TABLE 1**CONCEPTUAL SITE MODEL**

Atlantic Richfield Company Station 374
 6407 Telegraph Ave
 Oakland, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Nature and Extent of Environmental Impacts (continued)	Extent in Soil Vapor (continued)	apartments and MW-4 (Drawing 3), will assess the potential risk of soil vapor intrusion from the Site. An evaluation of the apartment complex foundation will also be conducted in order to assist in determining the risk involved from soil vapor intrusion.		
Migration Pathways	Potential Conduits	Historic maps of underground utilities including water, sewer line and communication are included in Drawing 7. The majority of the mapped underground utilities are believed to be relatively shallow (less than three feet bgs). Exception is the mapped sewer pipeline that is located within the area where the release occurred. Since depth to groundwater is typically measured as high as 6 feet bgs, there is a potential that the deeper sewer system conduits may be acting as preferential pathways for contaminant migration. The area west of the Site within the residential area contains a data gap which underground utilities have not been mapped. Broadbent proposes to conduct a conduit study within this area in order to determine if there are potential conduits stemming from the Site.	Yes	Conduct Utility Locate
Potential Receptors	Onsite	No onsite water supply wells or surface water exists. The only potential onsite receptor would be onsite workers exposed to gasoline vapors. However, the exposure from current fueling operations represents a greater risk than any associated with potential groundwater or soil vapor exposure (SWRCB, 2012).	None	NA
	Offsite	As discussed above, the apartments west of the site are located down gradient of the Site and are considered a potential offsite receptor. This receptor is in close proximity to the former USTs with MW-4 still containing high concentrations of GRO and Benzene. Although the concentrations of GRO and Benzene in groundwater on the offsite wells MW-4, MW-5, and MW-6 were reported as non-detect, there is a	Yes	Offsite Soil Vapor Assessment for adjacent apartment

TABLE 1

CONCEPTUAL SITE MODEL

Atlantic Richfield Company Station 374
6407 Telegraph Ave
Oakland, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Potential Receptors (continued)	Offsite (continued)	<p>potential possibility that the plume could be beneath the apartments and terminate there (as seen in Drawing 4 and Drawing 5). Broadbent proposes to conduct an offsite soil vapor assessment of the adjacent apartments to determine the potential risk of soil vapor intrusion.</p> <p>As mentioned above, a Sensitive Receptor Survey was carried out in February 2011 by Closure Solutions to identify the presence of water wells within a ½-mile radius of the Site. According to Closure Solutions' report, two wells were identified within a ½-mile radius in the downgradient and crossgradient groundwater flow direction and its intended use is unknown. Closure Solution was unable to locate these wells and were deemed not in use according to their Survey. The nearest natural drainage is Claremont Creek, located approximately 1.2 miles northwest of the Site. Claremont Creek flows generally east to west near the Site vicinity. The SRS does not contain Ecological receptors and nearby schools and hospitals. Broadbent proposes to conduct an updated SRS to fill in these data gaps.</p>		

TABLE 1

CONCEPTUAL SITE MODEL

Atlantic Richfield Company Station 374
6407 Telegraph Ave
Oakland, California

Notes:

bgs = below ground surface

BTEX = benzene, toluene, ethylbenzene, xylenes

DRO = Diesel Range Organics

ESL = Environmental Screen Levels

ft = foot

ft/ft = foot per foot

GRO = Gasoline Range Organics

LNAPL = Light-Non Aqueous Phase Liquid

mg/kg = milligrams per kilogram

MTBE = Methyl tert-butyl Ether

NA = Not Applicable

UST = Underground Storage Tank

µg/L = micrograms per liter

All report references are included in Section 3 of the preceding report

Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-1															
6/20/2000	--	158.91	7.00	27.00	6.86	152.05	--	--	--	--	--	--	--	--	
9/28/2000	--		7.00	27.00	7.50	151.41	--	--	--	--	--	--	--	--	
12/17/2000	--		7.00	27.00	7.49	151.42	--	--	--	--	--	--	--	--	
3/23/2001	--		7.00	27.00	5.90	153.01	<50	<0.5	<0.5	<0.5	<0.5	2,710	--	--	
6/21/2001	--		7.00	27.00	7.45	151.46	--	--	--	--	--	--	--	--	
9/23/2001	--		7.00	27.00	8.46	150.45	--	--	--	--	--	--	--	--	
12/31/2001	--		7.00	27.00	5.50	153.41	--	--	--	--	--	--	--	--	
3/21/2002	--		7.00	27.00	4.71	154.20	<5,000	<50	<50	<50	<50	2,000	--	--	
4/17/2002	--		7.00	27.00	5.54	153.37	--	--	--	--	--	--	--	--	
8/12/2002	--		7.00	27.00	7.77	151.14	--	--	--	--	--	--	--	--	
12/6/2002	--		7.00	27.00	7.65	151.26	--	--	--	--	--	--	--	--	
1/29/2003	--		7.00	27.00	5.88	153.03	--	--	--	--	--	--	--	--	b
5/23/2003	--		7.00	27.00	5.62	153.29	<10,000	<100	<100	<100	<100	1,600	1.3	7.1	
9/4/2003	--		7.00	27.00	7.85	151.06	--	--	--	--	--	--	--	--	
11/20/2003	P		7.00	27.00	8.17	150.74	1,600	<10	<10	<10	<10	1,500	1.7	6.7	
02/02/2004	P	164.57	7.00	27.00	6.71	157.86	--	--	--	--	--	--	1.0	--	f
05/14/2004	P		7.00	27.00	7.08	157.49	<2,500	<25	<25	<25	<25	1,200	1.4	6.6	
09/02/2004	P		7.00	27.00	8.12	156.45	580	<5.0	<5.0	<5.0	<5.0	660	3.8	6.7	
11/04/2004	P		7.00	27.00	7.38	157.19	1,700	<10	<10	<10	<10	580	6.0	6.5	
02/08/2005	P		7.00	27.00	6.60	157.97	<1,000	<10	<10	<10	<10	610	0.71	6.5	
05/09/2005	P		7.00	27.00	6.84	157.73	540	<5.0	<5.0	<5.0	5.5	620	3.12	6.6	e
08/11/2005	P		7.00	27.00	7.36	157.21	540	<2.5	<2.5	<2.5	4.0	390	0.8	6.6	
11/18/2005	P		7.00	27.00	8.02	156.55	350	<2.5	<2.5	<2.5	<2.5	340	2.6	6.7	e
02/16/2006	P		7.00	27.00	6.44	158.13	350	<2.5	<2.5	<2.5	<2.5	340	1.6	6.7	e
5/30/2006	P		7.00	27.00	6.87	157.70	270	<2.5	<2.5	<2.5	<2.5	420	4.73	6.4	
8/24/2006	P		7.00	27.00	7.75	156.82	95	<5.0	<5.0	<5.0	<5.0	180	0.65	6.9	
11/1/2006	P		7.00	27.00	8.28	156.29	120	<5.0	<5.0	<5.0	<5.0	220	1.65	7.07	
2/7/2007	NP		7.00	27.00	7.40	157.17	120	<5.0	<5.0	<5.0	<5.0	190	1.88	7.45	e

Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-1 Cont.															
5/8/2007	P	164.57	7.00	27.00	6.50	158.07	<500	<5.0	<5.0	<5.0	<5.0	420	1.21	6.94	
8/8/2007	NP		7.00	27.00	8.17	156.40	82	<0.50	<0.50	<0.50	<0.50	110	1.16	7.00	e
11/14/2007	NP		7.00	27.00	8.01	156.56	170	<2.5	<2.5	<2.5	<2.5	210	1.92	6.49	
2/22/2008	P		7.00	27.00	6.00	158.57	<50	<0.50	<0.50	<0.50	<0.50	250	2.57	6.65	
5/24/2008	NP		7.00	27.00	7.58	156.99	<50	<5.0	<5.0	<5.0	<5.0	380	2.28	6.81	
8/21/2008	NP		7.00	27.00	8.60	155.97	<50	<2.5	<2.5	<2.5	<2.5	170	2.16	6.98	
11/19/2008	NP		7.00	27.00	8.88	155.69	<50	<0.50	<0.50	<0.50	<0.50	30	2.12	7.27	
2/23/2009	P		7.00	27.00	6.40	158.17	78	<2.5	<2.5	<2.5	<2.5	240	2.19	6.03	
5/14/2009	P		7.00	27.00	6.67	157.90	53	<0.50	<0.50	<0.50	<0.50	200	1.75	6.69	
8/20/2009	NP		7.00	27.00	8.25	156.32	150	<2.0	<2.0	<2.0	<2.0	170	2.14	6.25	i (GRO)
2/19/2010	P		7.00	27.00	6.07	158.50	<50	<0.50	<0.50	<0.50	<0.50	170	0.92	6.66	
8/10/2010	NP		7.00	27.00	7.58	156.99	<50	<2.5	<2.5	<2.5	<2.5	230	3.86	7.1	
12/16/2010	P	164.45	7.00	27.00	6.64	157.81	<50	<2.0	<2.0	<2.0	<2.0	140	1.20	6.86	j
2/14/2011	NP		7.00	27.00	7.10	157.35	<50	<2.5	<2.5	<2.5	<2.5	170	1.18	6.7	
5/20/2011	--		7.00	27.00	6.38	158.07	--	--	--	--	--	--	--	--	
8/15/2011	NP		7.00	27.00	7.24	157.21	<50	<2.5	<2.5	<2.5	<2.5	130	2.54	6.9	
2/2/2012	P		7.00	27.00	7.32	157.13	<50	<1.0	<1.0	<1.0	<1.0	66	1.01	7.1	
8/9/2012	P		7.00	27.00	6.69	157.76	<50	<0.50	<0.50	<0.50	<1.0	170	1.65	6.99	
2/14/2013	P		7.00	27.00	5.97	158.48	<50	<0.50	<0.50	<0.50	<1.0	140	1.74	7.20	
MW-2															
6/20/2000	--	157.92	7.00	27.00	7.67	150.25	--	--	--	--	--	--	--	--	
9/28/2000	--		7.00	27.00	8.51	149.41	--	--	--	--	--	--	--	--	
12/17/2000	--		7.00	27.00	8.14	149.78	--	--	--	--	--	--	--	--	
3/23/2001	--		7.00	27.00	7.21	150.71	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
6/21/2001	--		7.00	27.00	7.99	149.93	--	--	--	--	--	--	--	--	
9/23/2001	--		7.00	27.00	8.52	149.40	--	--	--	--	--	--	--	--	
12/31/2001	--		7.00	27.00	6.01	151.91	--	--	--	--	--	--	--	--	
3/21/2002	--		7.00	27.00	5.95	151.97	<50	<0.5	<0.5	<0.5	<0.5	45	--	--	

Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-2 Cont.															
4/17/2002	--	157.92	7.00	27.00	6.45	151.47	--	--	--	--	--	--	--	--	
8/12/2002	--		7.00	27.00	8.08	149.84	--	--	--	--	--	--	--	--	
12/6/2002	--		7.00	27.00	8.29	149.63	--	--	--	--	--	--	--	--	
1/29/2003	--		7.00	27.00	7.22	150.70	--	--	--	--	--	--	--	--	b
5/23/2003	--		7.00	27.00	6.85	151.07	<50	<0.50	<0.50	<0.50	<0.50	55	1.4	7.2	
9/4/2003	--		7.00	27.00	7.94	149.98	--	--	--	--	--	--	--	--	
11/20/2003	--		7.00	27.00	8.05	149.87	--	--	--	--	--	--	--	--	
02/02/2004	P	163.46	7.00	27.00	7.00	156.46	74	<0.50	<0.50	<0.50	<0.50	37	1.1	8.9	f
05/14/2004	--		7.00	27.00	7.97	155.49	--	--	--	--	--	--	--	--	
09/02/2004	P		7.00	27.00	8.19	155.27	<250	<2.5	<2.5	<2.5	<2.5	67	2.7	6.9	
11/04/2004	--		7.00	27.00	7.54	155.92	--	--	--	--	--	--	--	--	
02/08/2005	P		7.00	27.00	6.72	156.74	<50	<0.50	<0.50	<0.50	<0.50	30	0.86	6.7	
05/09/2005	--		7.00	27.00	7.16	156.30	--	--	--	--	--	--	--	--	
08/11/2005	P		7.00	27.00	7.85	155.61	<50	<0.50	<0.50	<0.50	<0.50	35	1.0	6.6	
11/18/2005	--		7.00	27.00	8.23	155.23	--	--	--	--	--	--	--	--	
02/16/2006	P		7.00	27.00	6.82	156.64	<50	<0.50	<0.50	<0.50	<0.50	39	1.3	7.0	
5/30/2006	--		7.00	27.00	7.23	156.23	--	--	--	--	--	--	--	--	
8/24/2006	P		7.00	27.00	8.00	155.46	60	<0.50	<0.50	<0.50	<0.50	25	0.90	6.8	
11/1/2006	--		7.00	27.00	8.38	155.08	--	--	--	--	--	--	--	--	
2/7/2007	NP		7.00	27.00	7.88	155.58	<50	0.50	<0.50	<0.50	<0.50	7.2	0.94	7.39	
5/8/2007	--		7.00	27.00	7.28	156.18	--	--	--	--	--	--	--	--	
8/8/2007	NP		7.00	27.00	8.38	155.08	88	3.2	<0.50	<0.50	<0.50	7.2	0.94	7.75	
11/14/2007	--		7.00	27.00	8.10	155.36	--	--	--	--	--	--	--	--	
2/22/2008	P		7.00	27.00	6.75	156.71	<50	<0.50	<0.50	<0.50	<0.50	24	2.18	7.02	
5/24/2008	--		7.00	27.00	7.98	155.48	--	--	--	--	--	--	--	--	
8/21/2008	NP		7.00	27.00	8.58	154.88	<50	2.6	<0.50	<0.50	<0.50	4.9	2.20	7.11	
11/19/2008	--		7.00	27.00	8.66	154.80	--	--	--	--	--	--	--	--	
2/23/2009	P		7.00	27.00	6.67	156.79	74	1.0	<0.50	<0.50	<0.50	24	2.25	6.16	

Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-2 Cont.															
5/14/2009	--	163.46	7.00	27.00	7.02	156.44	--	--	--	--	--	--	--	--	
8/20/2009	NP		7.00	27.00	8.41	155.05	82	2.4	<0.50	<0.50	<0.50	8.4	2.19	6.37	
2/19/2010	NP		7.00	27.00	7.36	156.10	<50	<0.50	<0.50	<0.50	<0.50	22	0.81	6.90	
8/10/2010	NP		7.00	27.00	7.69	155.77	<50	<0.50	<0.50	<0.50	<0.50	23	2.40	7.67	
12/16/2010	P	163.49	7.00	27.00	7.12	156.37	<50	<0.50	<0.50	<0.50	<0.50	17	0.69	7.06	j
2/14/2011	NP		7.00	27.00	7.35	156.14	<50	<0.50	<0.50	<0.50	<0.50	11	0.87	7.0	
5/20/2011	--		7.00	27.00	7.02	156.47	--	--	--	--	--	--	--	--	
8/15/2011	NP		7.00	27.00	7.62	155.87	<50	<0.50	<0.50	<0.50	<0.50	1.7	1.45	7.1	
2/2/2012	P		7.00	27.00	7.56	155.93	<50	<0.50	<0.50	<0.50	<0.50	1.8	0.85	7.3	
8/9/2012	P		7.00	27.00	6.31	157.18	<50	<0.50	<0.50	<0.50	<1.0	73	1.28	7.15	
2/14/2013	P		7.00	27.00	6.03	157.46	<50	<0.50	<0.50	<0.50	<1.0	46	1.71	7.48	
MW-3															
6/20/2000	--	153.64	7.00	27.00	6.42	147.22	<50	<0.5	<0.5	<0.5	<1.0	<10	--	--	
9/28/2000	--		7.00	27.00	7.31	146.33	--	--	--	--	--	--	--	--	
12/17/2000	--		7.00	27.00	6.45	147.19	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/23/2001	--		7.00	27.00	6.01	147.63	--	--	--	--	--	--	--	--	
6/21/2001	--		7.00	27.00	6.80	146.84	110	5.5	<0.5	5.4	4.1	2.5	--	--	
9/23/2001	--		7.00	27.00	7.32	146.32	--	--	--	--	--	--	--	--	
12/31/2001	--		7.00	27.00	4.48	149.16	<50	<0.5	<0.5	<0.5	<0.5	4.9	--	--	
3/21/2002	--		7.00	27.00	4.36	149.28	--	--	--	--	--	--	--	--	
4/17/2002	--		7.00	27.00	5.31	148.33	<50	<0.5	<0.5	<0.5	<0.5	8.7	--	--	
8/12/2002	--		7.00	27.00	7.00	146.64	--	--	--	--	--	--	--	--	
12/6/2002	--		7.00	27.00	7.32	146.32	<50	<0.5	<0.5	<0.5	<0.5	6.2	1.4	6.7	
1/29/2003	--		7.00	27.00	6.07	147.57	--	--	--	--	--	--	--	--	b
5/23/2003	--		7.00	27.00	6.45	147.19	<50	<0.50	<0.50	<0.50	<0.50	1.6	0.9	7.7	
9/4/2003	--		7.00	27.00	6.93	146.71	--	--	--	--	--	--	--	--	c
11/20/2003	--		7.00	27.00	7.04	146.60	--	--	--	--	--	--	--	--	c
02/02/2004	--	159.21	7.00	27.00	5.92	153.29	--	--	--	--	--	--	--	--	f

Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-3 Cont.															
05/14/2004	--	159.21	7.00	27.00	7.52	151.69	--	--	--	--	--	--	--	--	
09/02/2004	P		7.00	27.00	7.19	152.02	<50	<0.50	<0.50	<0.50	<0.50	6.5	9.3	8.9	
11/04/2004	--		7.00	27.00	6.40	152.81	--	--	--	--	--	--	--	--	
02/08/2005	--		7.00	27.00	6.01	153.20	--	--	--	--	--	--	--	--	
05/09/2005	--		7.00	27.00	6.74	152.47	--	--	--	--	--	--	--	--	
08/11/2005	P		7.00	27.00	6.77	152.44	<50	<0.50	<0.50	<0.50	<0.50	11	1.9	6.5	
11/18/2005	--		7.00	27.00	7.83	151.38	--	--	--	--	--	--	--	--	
02/16/2006	--		7.00	27.00	7.26	151.95	--	--	--	--	--	--	--	--	
5/30/2006	--		7.00	27.00	5.82	153.39	--	--	--	--	--	--	--	--	
8/24/2006	P		7.00	27.00	7.00	152.21	<50	<0.50	<0.50	<0.50	<0.50	7.6	1.15	6.4	
11/1/2006	--		7.00	27.00	7.50	151.71	--	--	--	--	--	--	--	--	
2/7/2007	--		7.00	27.00	6.90	152.31	--	--	--	--	--	--	--	--	
5/8/2007	--		7.00	27.00	5.95	153.26	--	--	--	--	--	--	--	--	
8/8/2007	NP		7.00	27.00	7.47	151.74	<50	<0.50	<0.50	<0.50	<0.50	1.2	1.21	6.93	
11/14/2007	--		7.00	27.00	7.05	152.16	--	--	--	--	--	--	--	--	
2/22/2008	--		7.00	27.00	5.50	153.71	--	--	--	--	--	--	--	--	
5/24/2008	--		7.00	27.00	7.03	152.18	--	--	--	--	--	--	--	--	
8/21/2008	NP		7.00	27.00	7.80	151.41	<50	<0.50	<0.50	<0.50	<0.50	3.1	2.11	6.84	
11/19/2008	--		7.00	27.00	7.69	151.52	--	--	--	--	--	--	--	--	
2/23/2009	--		7.00	27.00	7.28	151.93	--	--	--	--	--	--	--	--	
5/14/2009	--		7.00	27.00	6.17	153.04	--	--	--	--	--	--	--	--	
8/20/2009	NP		7.00	27.00	7.38	151.83	<50	<0.50	<0.50	<0.50	<0.50	2.2	2.05	7.01	
2/19/2010	--		7.00	27.00	5.31	153.90	--	--	--	--	--	--	--	--	
8/10/2010	NP		7.00	27.00	7.12	152.09	<50	<0.50	<0.50	<0.50	<0.50	1.6	1.27	7.33	
12/16/2010	--		7.00	27.00	5.65	153.56	--	--	--	--	--	--	--	--	j
2/14/2011	--		7.00	27.00	6.20	153.01	--	--	--	--	--	--	--	--	
5/20/2011	--		7.00	27.00	5.77	153.44	--	--	--	--	--	--	--	--	
8/15/2011	P		7.00	27.00	6.41	152.80	<50	<0.50	<0.50	<0.50	<0.50	1.2	1.04	7.0	

Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-3 Cont.															
2/2/2012	--	159.21	7.00	27.00	6.34	152.87	--	--	--	--	--	--	--	--	
8/9/2012	P		7.00	27.00	6.62	152.59	<50	<0.50	<0.50	<0.50	<1.0	2.0	1.16	6.71	
2/14/2013	--		7.00	27.00	6.09	153.12	--	--	--	--	--	--	--	--	
MW-4															
6/20/2000	--	156.53	7.00	27.00	7.50	149.03	20,000	5,100	440	1,000	1,700	<250	--	--	c
9/28/2000	--		7.00	27.00	8.20	148.33	--	--	--	--	--	--	--	--	
12/17/2000	--		7.00	27.00	8.11	148.42	4,320	1,240	<20	27.2	249	<100	--	--	
3/23/2001	--		7.00	27.00	6.69	149.84	--	--	--	--	--	--	--	--	
6/21/2001	--		7.00	27.00	8.01	148.52	2,800	470	16	19	160	130	--	--	
9/23/2001	--		7.00	27.00	8.91	147.62	--	--	--	--	--	--	--	--	
12/31/2001	--		7.00	27.00	4.42	152.11	4,600	1,500	100	160	210	160	--	--	
3/21/2002	--		7.00	27.00	4.98	151.55	--	--	--	--	--	--	--	--	
4/17/2002	--		7.00	27.00	6.23	150.30	7,100	2,200	110	290	450	<250	--	--	
8/12/2002	--		7.00	27.00	8.24	148.29	--	--	--	--	--	--	--	--	
12/6/2002	--		7.00	27.00	8.42	148.11	1,500	410	6.8	20	29	43	1.1	6.7	a
1/29/2003	--		7.00	27.00	7.20	149.33	--	--	--	--	--	--	--	--	b
5/23/2003	--		7.00	27.00	7.18	149.35	< 5,000	1,300	89	210	260	<50	1.4	6.9	
9/4/2003	--		7.00	27.00	8.15	148.38	--	--	--	--	--	--	--	--	c
11/20/2003	--		7.00	27.00	8.73	147.80	--	--	--	--	--	--	--	--	c
02/02/2004	P	163.25	7.00	27.00	6.25	157.00	980	280	21	29	38	29	1.4	10.6	c, f, g
05/14/2004	--		7.00	27.00	8.38	154.87	--	--	--	--	--	--	--	--	g
09/02/2004	P		7.00	27.00	8.36	154.89	260	11	<1.0	5.5	14	28	2.4	7.4	g
11/04/2004	--		7.00	27.00	7.71	155.54	--	--	--	--	--	--	--	--	c, g
02/08/2005	P		7.00	27.00	6.27	156.98	7,500	1,700	320	480	920	45	0.65	6.5	g
05/09/2005	--		7.00	27.00	5.90	157.35	--	--	--	--	--	--	--	--	g
08/11/2005	P		7.00	27.00	7.96	155.29	3,100	1,100	41	160	110	32	0.6	6.5	g
11/18/2005	--		7.00	27.00	8.57	154.68	--	--	--	--	--	--	--	--	g
02/16/2006	P		7.00	27.00	6.28	156.97	9,400	1,800	130	600	420	35	0.5	6.8	g

Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-4 Cont.															
5/30/2006	--	162.47	7.00	27.00	7.02	155.45	--	--	--	--	--	--	--	--	g
8/24/2006	P		7.00	27.00	8.26	154.21	3,600	1,400	21	110	70	39	1.00	6.8	
11/1/2006	--		7.00	27.00	8.67	153.80	--	--	--	--	--	--	--	--	
2/7/2007	NP		7.00	27.00	8.02	154.45	3,100	570	17	170	110	67	0.95	7.07	
5/8/2007	--		7.00	27.00	7.03	155.44	--	--	--	--	--	--	--	--	
8/8/2007	NP		7.00	27.00	8.60	153.87	2,900	630	22	67	57	72	0.93	6.79	
11/14/2007	--		7.00	27.00	8.53	153.94	--	--	--	--	--	--	--	--	
2/22/2008	P		7.00	27.00	6.25	156.22	3,900	880	39	180	92	70	2.31	6.87	
5/24/2008	--		7.00	27.00	--	--	--	--	--	--	--	--	--	--	d
8/21/2008	NP		7.00	27.00	8.96	153.51	3,700	1,100	26	85	130	53	2.26	6.80	
11/19/2008	--		7.00	27.00	9.20	153.27	--	--	--	--	--	--	--	--	
2/23/2009	P		7.00	27.00	6.35	156.12	3,000	220	9.1	23	19	39	2.21	6.51	
5/14/2009	--		7.00	27.00	7.00	155.47	--	--	--	--	--	--	--	--	
8/20/2009	NP		7.00	27.00	8.05	154.42	5,700	1,100	35	110	100	23	2.17	6.81	
2/19/2010	P		7.00	27.00	5.71	156.76	12,000	1,200	120	230	390	<5.0	0.81	6.70	i
8/10/2010	NP		7.00	27.00	7.59	154.88	9,700	1,500	120	400	400	<20	3.81	6.8	
12/16/2010	P	162.48	7.00	27.00	6.83	155.65	15,000	1,800	82	270	210	<25	0.49	6.81	j
2/14/2011	NP		7.00	27.00	7.33	155.15	260	<0.50	<0.50	2.7	11	13	0.80	7.10	
5/20/2011	--		7.00	27.00	6.89	155.59	--	--	--	--	--	--	--	--	
8/15/2011	P		7.00	27.00	7.59	154.89	8,600	2,100	86	250	210	<12	1.02	7.0	l
2/2/2012	P		7.00	27.00	7.71	154.77	4,600	1,000	34	23	33	<12	0.60	7.2	
8/9/2012	P		7.00	27.00	6.57	155.91	3,200	660	44	53	57	<5.0	1.09	7.05	
2/14/2013	P		7.00	27.00	6.26	156.22	7,200	1,400	150	390	700	<10	1.20	7.51	
MW-5															
6/20/2000	--	151.33	10.00	23.00	7.84	143.49	<50	<0.5	<0.5	<0.5	<1.0	<10	--	--	
9/28/2000	--		10.00	23.00	8.37	142.96	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/17/2000	--		10.00	23.00	8.36	142.97	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/23/2001	--		10.00	23.00	7.55	143.78	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	

Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-5 Cont.															
6/21/2001	--	151.33	10.00	23.00	8.20	143.13	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
9/23/2001	--		10.00	23.00	8.68	142.65	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/31/2001	--		10.00	23.00	7.57	143.76	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/21/2002	--		10.00	23.00	6.12	145.21	<50	<0.5	<0.5	<0.5	<0.5	3.2	--	--	
4/17/2002	--		10.00	23.00	6.61	144.72	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
8/12/2002	--		10.00	23.00	8.14	143.19	<50	<0.5	<0.5	<0.5	<0.5	<2.5	4.1	7.6	
12/6/2002	--		10.00	23.00	8.65	142.68	<50	<0.5	<0.5	<0.5	<0.5	<2.5	1.1	6.8	
1/29/2003	--		10.00	23.00	7.22	144.11	<50	<0.5	<0.5	<0.5	<0.5	<0.50	1	6.6	b
5/23/2003	--		10.00	23.00	7.31	144.02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.1	6.6	
9/4/2003	--		10.00	23.00	9.50	141.83	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.2	6.7	
11/20/2003	--		10.00	23.00	8.31	143.02	--	--	--	--	--	--	--	--	
02/02/2004	--		10.00	23.00	6.92	144.41	--	--	--	--	--	--	--	--	c, f, h
05/14/2004	--		10.00	23.00	8.56	142.77	--	--	--	--	--	--	--	--	h
09/02/2004	P		10.00	23.00	8.79	142.54	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.5	6.8	h
11/04/2004	--		10.00	23.00	8.33	143.00	--	--	--	--	--	--	--	--	c, h
02/08/2005	--		10.00	23.00	7.28	144.05	--	--	--	--	--	--	--	--	h
05/09/2005	--		10.00	23.00	8.19	143.14	--	--	--	--	--	--	--	--	h
08/11/2005	P		10.00	23.00	8.39	142.94	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.2	6.6	h
11/18/2005	--		10.00	23.00	11.25	140.08	--	--	--	--	--	--	--	--	h
02/16/2006	--		10.00	23.00	9.22	142.11	--	--	--	--	--	--	--	--	h
5/30/2006	--		10.00	23.00	7.52	143.81	--	--	--	--	--	--	--	--	h
8/24/2006	P		10.00	23.00	7.95	143.38	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.60	6.6	
11/1/2006	--		10.00	23.00	8.32	143.01	--	--	--	--	--	--	--	--	
2/7/2007	--		10.00	23.00	8.25	143.08	--	--	--	--	--	--	--	--	
5/8/2007	--		10.00	23.00	7.60	143.73	--	--	--	--	--	--	--	--	
8/8/2007	P		10.00	23.00	8.12	143.21	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.26	7.31	
11/14/2007	--		10.00	23.00	9.10	142.23	--	--	--	--	--	--	--	--	
2/22/2008	--		10.00	23.00	7.48	143.85	--	--	--	--	--	--	--	--	

Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-5 Cont.															
5/24/2008	--	151.33	10.00	23.00	8.12	143.21	--	--	--	--	--	--	--	--	
8/21/2008	P		10.00	23.00	8.65	142.68	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.14	6.54	
11/19/2008	--		10.00	23.00	11.86	139.47	--	--	--	--	--	--	--	--	
2/23/2009	--		10.00	23.00	10.20	141.13	--	--	--	--	--	--	--	--	
5/14/2009	--		10.00	23.00	9.63	141.70	--	--	--	--	--	--	--	--	
8/20/2009	P		10.00	23.00	8.52	142.81	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.01	6.47	
2/19/2010	--		10.00	23.00	--	--	--	--	--	--	--	--	--	--	d
8/10/2010	P		10.00	23.00	8.05	143.28	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.15	7.1	
12/16/2010	--	156.90	10.00	23.00	8.10	148.80	--	--	--	--	--	--	--	--	j
2/14/2011	--		10.00	23.00	--	--	--	--	--	--	--	--	--	--	d
5/20/2011	--		10.00	23.00	--	--	--	--	--	--	--	--	--	--	d
8/15/2011	P		10.00	23.00	7.91	148.99	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.46	7.4	
2/2/2012	--		10.00	23.00	8.08	148.82	--	--	--	--	--	--	--	--	
8/9/2012	P		10.00	23.00	8.02	148.88	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.25	6.99	
2/14/2013	--		10.00	23.00	7.54	149.36	--	--	--	--	--	--	--	--	
MW-6															
6/20/2000	--	153.84	5.00	15.00	4.79	149.05	--	--	--	--	--	--	--	--	
9/28/2000	--		5.00	15.00	5.39	148.45	--	--	--	--	--	--	--	--	
12/17/2000	--		5.00	15.00	4.71	149.13	--	--	--	--	--	--	--	--	
3/23/2001	--		5.00	15.00	4.69	149.15	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
6/21/2001	--		5.00	15.00	5.22	148.62	--	--	--	--	--	--	--	--	
9/23/2001	--		5.00	15.00	5.40	148.44	--	--	--	--	--	--	--	--	
12/31/2001	--		5.00	15.00	3.95	149.89	--	--	--	--	--	--	--	--	
3/21/2002	--		5.00	15.00	2.94	150.90	<50	<0.5	<0.5	<0.5	<0.5	5.2	--	--	
4/17/2002	--		5.00	15.00	5.11	148.73	--	--	--	--	--	--	--	--	
8/12/2002	--		5.00	15.00	5.23	148.61	--	--	--	--	--	--	--	--	
12/6/2002	--		5.00	15.00	5.29	148.55	--	--	--	--	--	--	--	--	
1/29/2003	--		5.00	15.00	4.79	149.05	--	--	--	--	--	--	--	--	b

Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-6 Cont.															
5/23/2003	--	153.84	5.00	15.00	4.31	149.53	<50	<0.50	<0.50	<0.50	<0.50	9.4	1	6.7	
09/04/03	--		5.00	15.00	--	--	--	--	--	--	--	--	--	--	d
11/20/2003	--		5.00	15.00	6.31	147.53	--	--	--	--	--	--	--	--	
02/02/2004	--	159.41	5.00	15.00	4.78	154.63	--	--	--	--	--	--	--	--	f
05/14/2004	--		5.00	15.00	6.29	153.12	--	--	--	--	--	--	--	--	
09/02/2004	--		5.00	15.00	5.79	153.62	--	--	--	--	--	--	--	--	d
11/04/2004	--		5.00	15.00	--	--	--	--	--	--	--	--	--	--	d
02/08/2005	--		5.00	15.00	5.13	154.28	--	--	--	--	--	--	--	--	
05/09/2005	--		5.00	15.00	4.52	154.89	--	--	--	--	--	--	--	--	
08/11/2005	P		5.00	15.00	5.02	154.39	<50	<0.50	<0.50	<0.50	<0.50	7.9	2.1	6.6	
11/18/2005	--		5.00	15.00	6.31	153.10	--	--	--	--	--	--	--	--	
02/16/2006	--		5.00	15.00	4.24	155.17	--	--	--	--	--	--	--	--	
5/30/2006	--		5.00	15.00	4.45	154.96	--	--	--	--	--	--	--	--	
8/24/2006	P		5.00	15.00	5.18	154.23	<50	<0.50	<0.50	<0.50	<0.50	12	3.4	6.8	
11/1/2006	--		5.00	15.00	6.05	153.36	--	--	--	--	--	--	--	--	
2/7/2007	--		5.00	15.00	5.00	154.41	--	--	--	--	--	--	--	--	
5/8/2007	--		5.00	15.00	4.30	155.11	--	--	--	--	--	--	--	--	
8/8/2007	NP		5.00	15.00	5.51	153.90	<50	<0.50	<0.50	<0.50	<0.50	0.57	2.94	6.87	
11/14/2007	--		5.00	15.00	5.38	154.03	--	--	--	--	--	--	--	--	
2/22/2008	--		5.00	15.00	4.70	154.71	--	--	--	--	--	--	--	--	
5/24/2008	--		5.00	15.00	5.25	154.16	--	--	--	--	--	--	--	--	
8/21/2008	NP		5.00	15.00	6.14	153.27	<50	<0.50	<0.50	<0.50	<0.50	1.9	1.99	7.13	
11/19/2008	--		5.00	15.00	5.94	153.47	--	--	--	--	--	--	--	--	
2/23/2009	--		5.00	15.00	5.00	154.41	--	--	--	--	--	--	--	--	
5/14/2009	--		5.00	15.00	4.60	154.81	--	--	--	--	--	--	--	--	
8/20/2009	NP		5.00	15.00	5.65	153.76	<50	<0.50	<0.50	<0.50	<0.50	2.0	1.98	6.81	
2/19/2010	--		5.00	15.00	7.28	152.13	--	--	--	--	--	--	--	--	
8/10/2010	NP		5.00	15.00	5.02	154.39	<50	<0.50	<0.50	<0.50	<0.50	4.3	1.99	6.93	

Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-6 Cont.															
12/16/2010	--	159.41	5.00	15.00	4.50	154.91	--	--	--	--	--	--	--	--	j
2/14/2011	--		5.00	15.00	4.80	154.61	--	--	--	--	--	--	--	--	
5/20/2011	--		5.00	15.00	4.29	155.12	--	--	--	--	--	--	--	--	
8/15/2011	P		5.00	15.00	4.52	154.89	<50	<0.50	<0.50	<0.50	<0.50	2.2	1.55	7.1	
2/2/2012	--		5.00	15.00	--	--	--	--	--	--	--	--	--	--	d
8/9/2012	P		5.00	15.00	4.65	154.76	<50	<0.50	<0.50	<0.50	<1.0	3.6	1.14	6.89	
2/14/2013	--		5.00	15.00	--	--	--	--	--	--	--	--	--	--	d
MW-7															
12/16/2010	P	164.80	5.00	20.00	6.52	158.28	700	<0.50	<0.50	15	32	62	--	7.08	j
2/14/2011	NP		5.00	20.00	6.77	158.03	7,100	1,700	98	260	210	<20	1.02	6.8	
5/20/2011	NP		5.00	20.00	5.84	158.96	570	<0.50	<0.50	37	25	4.6	1.66	6.7	1 (GRO)
8/15/2011	P		5.00	20.00	6.96	157.84	420	<1.0	<1.0	49	6.7	14	0.58	6.9	
2/2/2012	P		5.00	20.00	7.15	157.65	<50	<0.50	<0.50	<0.50	<0.50	6.2	0.45	7.5	
8/9/2012	P		5.00	20.00	5.05	159.75	85	<0.50	<0.50	5.8	1.1	7.0	1.04	7.25	
2/14/2013	P		5.00	20.00	4.38	160.42	310	1.2	<0.50	1.6	6.3	5.1	1.31	7.64	
MW-8															
12/16/2010	P	164.14	5.00	20.00	6.85	157.29	520	43	<0.50	4.1	21	150	0.46	7.12	j
2/14/2011	NP		5.00	20.00	7.30	156.84	<50	<2.0	<2.0	<2.0	<2.0	110	1.07	6.7	
5/20/2011	NP		5.00	20.00	6.88	157.26	<50	<2.0	<2.0	<2.0	<2.0	88	1.35	6.5	
8/15/2011	P		5.00	20.00	6.00	158.14	<50	5.2	<1.0	9.7	<1.0	57	0.51	6.7	
2/2/2012	P		5.00	20.00	7.57	156.57	<50	<0.50	<0.50	<0.50	<0.50	3.9	0.68	7.1	
8/9/2012	P		5.00	20.00	6.08	158.06	110	67	<0.50	<0.50	<1.0	150	1.16	6.98	
2/14/2013	P		5.00	20.00	5.70	158.44	720	350	<2.0	<2.0	<4.0	240	1.23	7.40	
MW-9															
12/16/2010	P	163.77	5.00	20.00	6.63	157.14	330	18	<0.50	11	38	390	0.57	6.97	j
2/14/2011	NP		5.00	20.00	6.85	156.92	<50	<4.0	<4.0	<4.0	<4.0	270	0.98	6.9	

Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-9 Cont.															
5/20/2011	NP	163.77	5.00	20.00	6.39	157.38	66	<4.0	<4.0	<4.0	<4.0	280	1.64	6.7	1 (GRO)
8/15/2011	NP		5.00	20.00	7.09	156.68	<50	<2.0	<2.0	<2.0	<2.0	120	0.88	7.1	
2/2/2012	P		5.00	20.00	7.18	156.59	<50	<0.50	<0.50	<0.50	<0.50	34	0.65	7.2	
8/9/2012	P		5.00	20.00	5.68	158.09	82	1.9	<0.50	<0.50	<1.0	19	1.61	7.13	
2/14/2013	P		5.00	20.00	5.27	158.50	250	5.2	<0.50	<0.50	1.4	25	1.23	7.51	

Symbols & Abbreviations:

-- = Not analyzed/applicable/measured/available
< = Not detected at or above laboratory reporting limit
DO = Dissolved oxygen
DTW = Depth to water in ft below TOC
ft bgs = Feet below ground surface
GRO = Gasoline range organics
GWE = Groundwater elevation measured in ft
mg/L = Milligrams per liter
MTBE = Methyl tert-butyl ether
NP = Well was not purged prior to sampling
P = Well was purged prior to sampling
TOC = Top of casing measured in ft
TPH-g = Total petroleum hydrocarbons as gasoline
µg/L = Micrograms per liter
BTEX = Benzene, toluene, ethylbenzene and xylenes

ESL - DW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil & Groundwater, Interim Final-November 2007 (Revised May 2008).

ESL - NDW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is NOT a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil & Groundwater, Interim Final-November 2007 (Revised May 2008).

NE = ESL not established

Footnotes:

a = Chromatogram pattern: Gasoline C6-C10 for GRO/TPH-g
b = Beginning this quarter, groundwater samples were analyzed by EPA method 8260B for TPH-g, BTEX, and fuel oxygenates
c = Wells gauged with ORC sock in well
d = Well inaccessible
e = The hydrocarbon result for GRO was partly due to individual peaks in the quantitative range
f = Well resurveyed on 1/27/2004 to NAVD88
g = Upon review of survey data (1/27/2004), TOC elevation for MW-4 is actually 162.47 ft.
h = Upon review of survey data (1/27/2004), MW-5 was not surveyed from the TOC. MW-5 was surveyed from the pavement due to inaccessibility to the TOC. Therefore, survey data for MW-5 from the TOC is unavailable. Historic data prior to 5/30/2006 (change in consultant) not modified
i = Quantitation of unknown hydrocarbon(s) in sample based on gasoline
j = Surveyed 12/9/2010
k = Grab groundwater sample
l = Quantitated against gasoline

Notes:

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

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

Values for DO and pH were obtained through field measurements

The DTW's and TOC's for wells MW-5 and MW-6 were taken from Delta Environmental sampling sheets because the well logs were not available

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

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. Summary of Fuel Additives Analytical Data
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-1									
3/23/2001	--	--	2,710	--	--	--	--	--	
3/21/2002	--	--	2,000	--	--	--	--	--	
5/23/2003	<20,000	<4,000	1,600	<100	<100	<100	--	--	
11/20/2003	<2,000	<400	1,500	<10	<10	<10	--	--	a
05/14/2004	<5,000	<1,000	1,200	<25	<25	<25	<25	<25	
09/02/2004	<1,000	<200	660	<5.0	<5.0	<5.0	<5.0	<5.0	
11/04/2004	<2,000	<400	580	<10	<10	<10	<10	<10	
02/08/2005	<2,000	<400	610	<10	<10	<10	<10	<10	
05/09/2005	<1,000	<200	620	<5.0	<5.0	<5.0	<5.0	<5.0	a
08/11/2005	<500	250	390	<2.5	<2.5	2.6	<2.5	<2.5	a
11/18/2005	<500	<100	340	<2.5	<2.5	<2.5	<2.5	<2.5	a
02/16/2006	<1,500	<100	340	<2.5	<2.5	<2.5	<2.5	<2.5	
5/30/2006	<1,500	<100	420	<2.5	<2.5	<2.5	<2.5	<2.5	a
8/24/2006	<3,000	<200	180	<5.0	<5.0	<5.0	<5.0	<5.0	
11/1/2006	<3,000	<200	220	<5.0	<5.0	<5.0	<5.0	<5.0	a
2/7/2007	<3,000	<200	190	<5.0	<5.0	<5.0	<5.0	<5.0	
5/8/2007	<3,000	<200	420	<5.0	<5.0	<5.0	<5.0	<5.0	
8/8/2007	<300	<20	110	<0.50	<0.50	<0.50	<0.50	<0.50	
11/14/2007	<1,500	<100	210	<2.5	<2.5	<2.5	<2.5	<2.5	
2/22/2008	<300	<10	250	<0.50	<0.50	1.5	<0.50	<0.50	
5/24/2008	<3,000	<100	380	<5.0	<5.0	<5.0	<5.0	<5.0	
8/21/2008	<1,500	<50	170	<2.5	<2.5	<2.5	<2.5	<2.5	
11/19/2008	<300	<10	30	<0.50	<0.50	<0.50	<0.50	<0.50	
2/23/2009	<1,500	<50	240	<2.5	<2.5	<2.5	<2.5	<2.5	
5/14/2009	<300	<10	200	<0.50	<0.50	1.3	<0.50	<0.50	
8/20/2009	<1,200	<40	170	<2.0	<2.0	<2.0	<2.0	<2.0	
2/19/2010	<300	<10	170	<0.50	<0.50	1.2	<0.50	<0.50	
8/10/2010	<1,500	<50	230	<2.5	<2.5	<2.5	<2.5	<2.5	
12/16/2010	<1,200	<40	140	<2.0	<2.0	<2.0	<2.0	<2.0	

Table 3. Summary of Fuel Additives Analytical Data
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-1 Cont.									
2/14/2011	<1,500	<50	170	<2.5	<2.5	<2.5	<2.5	<2.5	
8/15/2011	<1,500	<50	130	<2.5	<2.5	<2.5	<2.5	<2.5	
2/2/2012	<600	<20	66	<1.0	<1.0	<1.0	<1.0	<1.0	
8/9/2012	<150	<10	170	<0.50	<0.50	0.78	<0.50	<0.50	
2/14/2013	<150	<10	140	<0.50	<0.50	0.58	<0.50	<0.50	
MW-2									
3/23/2001	--	--	<2.5	--	--	--	--	--	
3/21/2002	--	--	45	--	--	--	--	--	
5/23/2003	<100	<20	55	<0.50	<0.50	0.53	--	--	
02/02/2004	<100	<20	37	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<500	<100	67	<2.5	<2.5	<2.5	<2.5	<2.5	
02/08/2005	<100	<20	30	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	35	<0.50	<0.50	<0.50	<0.50	<0.50	a
02/16/2006	<300	<20	39	<0.50	<0.50	<0.50	<0.50	<0.50	
8/24/2006	<300	<20	25	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2007	<300	<20	7.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	7.2	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2008	<300	<10	24	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	4.9	<0.50	<0.50	<0.50	<0.50	<0.50	
2/23/2009	<300	<10	24	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	8.4	<0.50	<0.50	<0.50	<0.50	<0.50	
2/19/2010	<300	<10	22	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2010	<300	<10	23	<0.50	<0.50	<0.50	<0.50	<0.50	
12/16/2010	<300	<10	17	<0.50	<0.50	<0.50	<0.50	<0.50	
2/14/2011	<300	<10	11	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2011	<300	<10	1.7	<0.50	<0.50	<0.50	<0.50	<0.50	
2/2/2012	<300	<10	1.8	<0.50	<0.50	<0.50	<0.50	<0.50	
8/9/2012	<150	<10	73	<0.50	<0.50	0.61	<0.50	<0.50	
2/14/2013	<150	<10	46	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 3. Summary of Fuel Additives Analytical Data
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-3									
6/20/2000	--	--	<10	--	--	--	--	--	
12/17/2000	--	--	<2.5	--	--	--	--	--	
6/21/2001	--	--	2.5	--	--	--	--	--	
12/31/2001	--	--	4.9	--	--	--	--	--	
4/17/2002	--	--	8.7	--	--	--	--	--	
12/6/2002	--	--	6.2	--	--	--	--	--	
5/23/2003	<100	<20	1.6	<0.50	<0.50	<0.50	--	--	
09/02/2004	<100	<20	6.5	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	11	<0.50	<0.50	<0.50	<0.50	<0.50	a
8/24/2006	<300	<20	7.6	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	3.1	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	2.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2010	<300	<10	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2011	<300	<10	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/9/2012	<150	<10	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-4									
6/20/2000	--	--	<250	--	--	--	--	--	
12/17/2000	--	--	<100	--	--	--	--	--	
6/21/2001	--	--	130	--	--	--	--	--	
12/31/2001	--	--	160	--	--	--	--	--	
4/17/2002	--	--	<250	--	--	--	--	--	
12/6/2002	--	--	43	--	--	--	--	--	
5/23/2003	<10,000	<2,000	<50	<50	<50	<50	--	--	
02/02/2004	<500	<100	29	<2.5	<2.5	2.6	<2.5	<2.5	
09/02/2004	<200	<40	28	<1.0	<1.0	<1.0	<1.0	<1.0	
02/08/2005	<5,000	<1,000	45	<25	<25	<25	<25	<25	
08/11/2005	<2,000	<400	32	<10	<10	<10	<10	<10	
02/16/2006	<6,000	<400	35	<10	<10	<10	<10	<10	

Table 3. Summary of Fuel Additives Analytical Data
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-4 Cont.									
8/24/2006	<1,500	<100	39	<2.5	<2.5	<2.5	<2.5	<2.5	
2/7/2007	<6,000	<400	67	<10	<10	<10	<10	<10	
8/8/2007	<6,000	<400	72	<10	<10	<10	<10	<10	
2/22/2008	<6,000	<200	70	<10	<10	<10	<10	<10	
8/21/2008	<12,000	<400	53	<20	<20	<20	<20	<20	
2/23/2009	<3,000	<100	39	<5.0	<5.0	<5.0	<5.0	<5.0	
8/20/2009	<12,000	<400	23	<20	<20	<20	<20	<20	
2/19/2010	<3,000	<100	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
8/10/2010	<12,000	<400	<20	<20	<20	<20	<20	<20	
12/16/2010	<15,000	<500	<25	<25	<25	<25	<25	<25	
2/14/2011	<300	<10	13	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2011	<7,500	<250	<12	<12	<12	<12	<12	<12	
2/2/2012	<7,500	<250	<12	<12	<12	<12	<12	<12	
8/9/2012	<1,500	<100	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
2/14/2013	<3,000	<200	<10	<10	<10	<10	<10	<10	
MW-5									
6/20/2000	--	--	<10	--	--	--	--	--	
9/28/2000	--	--	<2.5	--	--	--	--	--	
12/17/2000	--	--	<2.5	--	--	--	--	--	
3/23/2001	--	--	<2.5	--	--	--	--	--	
6/21/2001	--	--	<2.5	--	--	--	--	--	
9/23/2001	--	--	<2.5	--	--	--	--	--	
12/31/2001	--	--	<2.5	--	--	--	--	--	
3/21/2002	--	--	3.2	--	--	--	--	--	
4/17/2002	--	--	<2.5	--	--	--	--	--	
8/12/2002	--	--	<2.5	--	--	--	--	--	
12/6/2002	--	--	<2.5	--	--	--	--	--	
1/29/2003	<40	<20	<0.50	<0.50	<0.50	<0.50	--	--	
5/23/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	--	--	

Table 3. Summary of Fuel Additives Analytical Data
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-5 Cont.									
9/4/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/24/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/9/2012	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-6									
3/23/2001	--	--	<2.5	--	--	--	--	--	
3/21/2002	--	--	5.2	--	--	--	--	--	
5/23/2003	<100	<20	9.4	<0.50	<0.50	<0.50	--	--	
08/11/2005	<100	<20	7.9	<0.50	<0.50	<0.50	<0.50	<0.50	a
8/24/2006	<300	<20	12	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	0.57	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2010	<300	<10	4.3	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2011	<300	<10	2.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/9/2012	<150	<10	3.6	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-7									
12/16/2010	<300	<10	62	<0.50	<0.50	<0.50	<0.50	<0.50	
2/14/2011	<1,2000	<400	<20	<20	<20	<20	<20	<20	
5/20/2011	<300	<10	4.6	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2011	<600	<20	14	<1.0	<1.0	<1.0	<1.0	<1.0	
2/2/2012	<300	<10	6.2	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 3. Summary of Fuel Additives Analytical Data
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-7 Cont.									
8/9/2012	<150	<10	7.0	<0.50	<0.50	<0.50	<0.50	<0.50	
2/14/2013	<150	<10	5.1	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-8									
12/16/2010	<300	<10	150	<0.50	<0.50	1.7	<0.50	<0.50	
2/14/2011	<1,200	<40	110	<2.0	<2.0	<2.0	<2.0	<2.0	
5/20/2011	<1,200	<40	88	<2.0	<2.0	<2.0	<2.0	<2.0	
8/15/2011	<600	<20	57	<1.0	<1.0	<1.0	<1.0	<1.0	
2/2/2012	<300	<10	3.9	<0.50	<0.50	<0.50	<0.50	<0.50	
8/9/2012	<150	31	150	<0.50	<0.50	2.0	<0.50	<0.50	
2/14/2013	<600	150	240	<2.0	<2.0	5.2	<2.0	<2.0	
MW-9									
12/16/2010	<300	40	390	<0.50	<0.50	4.1	<0.50	<0.50	
2/14/2011	<2,400	<80	270	<4.0	<4.0	<4.0	<4.0	<4.0	
5/20/2011	<2,400	<80	280	<4.0	<4.0	<4.0	<4.0	<4.0	
8/15/2011	<1,200	<40	120	<2.0	<2.0	<2.0	<2.0	<2.0	
2/2/2012	<300	<10	34	<0.50	<0.50	<0.50	<0.50	<0.50	
8/9/2012	<150	<10	19	<0.50	<0.50	<0.50	<0.50	<0.50	
2/14/2013	<150	<10	25	<0.50	<0.50	<0.50	<0.50	<0.50	

Symbols & Abbreviations:

-- = Not analyzed/applicable/measured/available

< = Not detected at or above the laboratory reporting limit

1,2-DCA = 1,2-Dichloroethane

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

ESL - DW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil & Groundwater, Interim Final-November 2007 (Revised May 2008).

ESL - NDW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is NOT a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil & Groundwater, Interim Final-November 2007 (Revised May 2008).

NE = ESL not established

Footnotes:

a = The continuing calibration verification for ethanol was outside of client contractual limits, however, it was within method acceptance limits. The data should still be useful for its intended purpose

Notes:

All volatile organic compounds analyzed using EPA Method 8260B

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 4. Historical Groundwater Gradient - Direction and Magnitude
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
1/31/1996	Southwest	0.04
4/10/1996	Southwest	0.04
7/16/1996	Southwest	0.03
10/14/1996	Southwest	0.03
3/27/1997	Southwest	0.04
5/27/1997	Southwest	0.03
8/12/1997	Southwest	0.04
11/17/1997	Southwest	0.03
3/16/1998	Southwest	0.03
5/12/1998	Southwest	0.04
7/27/1998	Southwest	0.04
10/15/1998	Southwest	0.02
2/18/1999	Southwest	0.05
5/24/1999	Southwest	0.03
8/27/1999	Southwest	0.03
10/26/1999	Southwest	0.03
2/3/2000	Southwest	0.047
6/20/2000	Southwest	0.035
9/28/2000	Southwest	0.034
12/17/2000	Southwest	0.032
3/23/2001	Southwest	0.034
6/21/2001	Southwest	0.032
9/23/2001	Southwest	0.029
12/31/2001	Southwest	0.043
3/21/2002	Southwest	0.038
4/17/2002	Southwest	0.031
8/12/2002	Southwest	0.032
12/6/2002	Southwest	0.020
1/29/2003	Southwest	0.027
5/23/2003	Southwest	0.039
9/4/2003	Southwest	0.033
11/20/2003	Southwest	0.029
2/2/2004	Southwest	0.043 (a)
5/14/2004	Southwest	0.037 (a)
9/2/2004	Southwest	0.027 (a)
11/4/2004	Southwest	0.034 (a)
2/8/2005	Southwest	0.061 (a)
5/9/2005	Southwest	0.08 (a)
8/11/2005	Southwest	0.06 (a)
11/18/2005	Southwest	0.07 (a)
2/16/2006	Southwest	0.09 (a)
5/30/2006	Southwest	0.06 (a)
8/24/2006	Southwest	0.03
11/1/2006	Southwest	0.02
2/7/2007	Southwest	0.03

Table 4. Historical Groundwater Gradient - Direction and Magnitude
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
5/8/2007	Southwest	0.03
8/8/2007	Southwest	0.03
11/14/2007	Southwest	0.03
2/22/2008	Southwest	0.03
5/24/2008	Southwest	0.03
8/21/2008	Southwest	0.03
11/19/2008	Southwest	0.03
2/23/2009	Southwest	0.04
5/14/2009	Southwest	0.03
8/20/2009	Southwest	0.03
2/19/2010	West-Southwest	0.05
8/10/2010	Southwest	0.03
12/16/2010	Southwest	0.03
2/14/2011	Southwest	0.03
5/20/2011	Southwest	0.03
8/15/2011	Southwest	0.03
2/2/2012	Southwest	0.03
8/9/2012	Southwest	0.03
2/14/2013	Southwest	0.04

Footnotes:

a = Gradients potentially suspect due to error in MW-4 and MW-5 TOC measuring point elevations discovered third quarter 2006

Notes:

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

APPENDIX A

RECENT REGULATORY CORRESPONDENCE

Tori Malone

From: Kristene Tidwell
Sent: Friday, June 7, 2013 11:53 AM
To: Tori Malone
Subject: FW: Fuel Leak Case No. RO0000307 (BP Station 402), Fuel Leak Case No. RO0002526 (BP Station 2107), Fuel Leak Case No. RO0000494 (BP Station 2111), Fuel Leak Case No. RO0000190 (BP Station 2162), Fuel Leak Case No. RO0000078 (BP Station 374)
Attachments: BP Workplans.docx

From: Roe, Dilan, Env. Health [<mailto:Dilan.Roe@acgov.org>]
Sent: Thursday, February 21, 2013 5:32 PM
To: Couch, Shannon L. (URS) (Shannon.Couch@bp.com); Skance, John
Cc: Kristene Tidwell; Tom Venus; Matt Herrick
Subject: Fuel Leak Case No. RO0000307 (BP Station 402), Fuel Leak Case No. RO0002526 (BP Station 2107), Fuel Leak Case No. RO0000494 (BP Station 2111), Fuel Leak Case No. RO0000190 (BP Station 2162), Fuel Leak Case No. RO0000078 (BP Station 374)

Shannon and John:

Alameda County Environmental Health has reviewed the five work plans recently submitted by Broadbent & Associates, Inc. (BAI) for the subject sites (see attached file for details). ACEH has evaluated the data and recommendations presented in the work plans in conjunction with information contained in the case files and the State Water Resources Control Board's Low Threat Closure Policy (LTCP) criteria.

Due to the extensive nature of our comments on the work plans, I scheduled several lengthy teleconference calls with BAI staff last month on January 2, January 11, and January 28 to discuss the inadequacy of the proposed scopes of work. My concerns include but are not limited to the lack of site conceptual models for the site that justify the proposed scope of work, the failure to address data gaps that are critical to advancing your sites towards closure under the LTCP, a lack of understanding of the LTCP criteria, and the lack of inclusion of standard elements in the work plans that address goals and objectives, data quality objectives, and standard operating procedures/sampling and analysis plan.

Local Oversight Agencies are under mandate by the SWRCB to conduct evaluations of all sites using the LTCP, identify data gaps and impediments to closure, and work with responsible parties to develop a Path to Closure Plan by December 31, 2013. The Path to Closure must have milestone dates by calendar quarter which will achieve site cleanup and case closure in a timely and efficient manner that minimizes the cost of corrective action.

Therefore, I would like to schedule a meeting with you both as well as Matt Herrick, Kristine Tidwell, and Tom Venus to discuss our comments and a more efficient path forward. I would like to schedule a four hour meeting as my comments are extensive and the goal of this meeting is for everyone to come away with a thorough understanding of each of the sites and a plan to efficiently move them towards closure.

Please propose some times in the near future when your team could be available to meet, with the exception of next week.

Thank you,

Dilan Roe, P.E.

Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

510.567.6767; Ext. 36767

QIC: 30440

dilan.roe@acgov.org

PDF copies of case files can be reviewed/downloaded at:

<http://www.acgov.org/aceh/lop/ust.htm>

No virus found in this message.

Checked by AVG - www.avg.com

Version: 2012.0.2238 / Virus Database: 2639/5621 - Release Date: 02/21/13

APPENDIX B

HISTORIC SITE DATA

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

ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-1															
6/20/2000	--	158.91	7.00	27.00	6.86	152.05	--	--	--	--	--	--	--	--	
9/28/2000	--		7.00	27.00	7.50	151.41	--	--	--	--	--	--	--	--	
12/17/2000	--		7.00	27.00	7.49	151.42	--	--	--	--	--	--	--	--	
3/23/2001	--		7.00	27.00	5.90	153.01	<50	<0.5	<0.5	<0.5	<0.5	2,710	--	--	
6/21/2001	--		7.00	27.00	7.45	151.46	--	--	--	--	--	--	--	--	
9/23/2001	--		7.00	27.00	8.46	150.45	--	--	--	--	--	--	--	--	
12/31/2001	--		7.00	27.00	5.50	153.41	--	--	--	--	--	--	--	--	
3/21/2002	--		7.00	27.00	4.71	154.20	<5,000	<50	<50	<50	<50	2,000	--	--	
4/17/2002	--		7.00	27.00	5.54	153.37	--	--	--	--	--	--	--	--	
8/12/2002	--		7.00	27.00	7.77	151.14	--	--	--	--	--	--	--	--	
12/6/2002	--		7.00	27.00	7.65	151.26	--	--	--	--	--	--	--	--	
1/29/2003	--		7.00	27.00	5.88	153.03	--	--	--	--	--	--	--	--	b
5/23/2003	--		7.00	27.00	5.62	153.29	<10,000	<100	<100	<100	<100	1,600	1.3	7.1	
9/4/2003	--		7.00	27.00	7.85	151.06	--	--	--	--	--	--	--	--	
11/20/2003	P		7.00	27.00	8.17	150.74	1,600	<10	<10	<10	<10	1,500	1.7	6.7	
02/02/2004	P	164.57	7.00	27.00	6.71	157.86	--	--	--	--	--	--	1.0	--	f
05/14/2004	P		7.00	27.00	7.08	157.49	<2,500	<25	<25	<25	<25	1,200	1.4	6.6	
09/02/2004	P		7.00	27.00	8.12	156.45	580	<5.0	<5.0	<5.0	<5.0	660	3.8	6.7	
11/04/2004	P		7.00	27.00	7.38	157.19	1,700	<10	<10	<10	<10	580	6.0	6.5	
02/08/2005	P		7.00	27.00	6.60	157.97	<1,000	<10	<10	<10	<10	610	0.71	6.5	
05/09/2005	P		7.00	27.00	6.84	157.73	540	<5.0	<5.0	<5.0	5.5	620	3.12	6.6	e
08/11/2005	P		7.00	27.00	7.36	157.21	540	<2.5	<2.5	<2.5	4.0	390	0.8	6.6	
11/18/2005	P		7.00	27.00	8.02	156.55	350	<2.5	<2.5	<2.5	<2.5	340	2.6	6.7	e
02/16/2006	P		7.00	27.00	6.44	158.13	350	<2.5	<2.5	<2.5	<2.5	340	1.6	6.7	e
5/30/2006	P		7.00	27.00	6.87	157.70	270	<2.5	<2.5	<2.5	<2.5	420	4.73	6.4	
8/24/2006	P		7.00	27.00	7.75	156.82	95	<5.0	<5.0	<5.0	<5.0	180	0.65	6.9	
11/1/2006	P		7.00	27.00	8.28	156.29	120	<5.0	<5.0	<5.0	<5.0	220	1.65	7.07	
2/7/2007	NP		7.00	27.00	7.40	157.17	120	<5.0	<5.0	<5.0	<5.0	190	1.88	7.45	e

TABLE 1
 CUMULATIVE RESULTS OF LABORATORY ANALYSES
 OF SOIL SAMPLES
 ARCO Station 374
 6407 Telegraph Avenue
 Oakland, California
 (Page 1 of 2)

Sample Number	TPHg	Benzene	Toluene	Ethylbenzene	Total Xylenes
<u>April 1988 - Limited Environmental Site Assessment</u>					
S-05-B1	165	NA	NA	NA	NA
S-10-B1	48	NA	NA	NA	NA
S-05-B2	260	NA	NA	NA	NA
S-8.5-B2	60	NA	NA	NA	NA
S-05-B3	64	NA	NA	NA	NA
S-09-B3	62	NA	NA	NA	NA
S-05-B4	389	NA	NA	NA	NA
S-8.5-B4	930	NA	NA	NA	NA
<u>June 1988 - Excavation and Removal of USTs</u>					
S-11-T1A	399	14.7	20.0	20.5	91.9
S-11-T1B	8	2.57	0.74	0.39	2.75
S-12-T2A	4	0.35	0.10	0.38	0.70
S-12-T2B	75	0.91	1.77	3.61	11.92
S-12-T3A	4	2.54	0.13	<0.05	0.13
S-12-T3B	<2	<0.05	<0.05	<0.05	<0.05
S-12-T4A	1,097	16.3	34.5	81.6	188.2
S-12-T4A2**	795	23.1	24.9	67.1	130.9
S-12-T4B	3	0.76	<0.05	<0.05	<0.05
S-13-PIT	3.6	0.738	0.038	0.154	0.566
<u>July 1989 - Limited Subsurface Investigation</u>					
S-3.5-B1/MW-1	<2	<0.05	<0.05	<0.05	<0.05
S-8.5-B1/MW-1	60	0.66	2.9	0.99	5.2
S-3.5-B2/MW-2	<2	<0.05	<0.05	<0.05	<0.05
S-13.5-B2/MW-2	<2	<0.05	<0.05	<0.05	<0.05
S-18.5-B2/MW-2	<2	<0.05	<0.05	<0.05	<0.05
S-3.5-B3/MW-3	<2	<0.05	<0.05	<0.05	<0.05
S-3.5-B4/MW-4	<2	<0.05	<0.05	<0.05	<0.05
S-13.5-B4/MW-4	<2	<0.05	<0.05	<0.05	<0.05
S-18.5-B4/MW-4	<2	<0.05	<0.05	<0.05	<0.05
S-0731-B4 (1a,b,c,d)*	21	<0.05	<0.05	<0.05	0.37
<u>April 1, 1992 - Offsite Investigation</u>					
S-5.5-B5	<1.0	<0.005	<0.005	<0.005	<0.005
S-14.5-B5	<1.0	<0.005	<0.005	<0.005	<0.005
S-5.5-B6	<1.0	<0.005	<0.005	<0.005	<0.005

See notes on Page 2 of 2.

TABLE 1
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF SOIL SAMPLES
ARCO Station 374
6407 Telegraph Avenue
Oakland, California
(Page 2 of 2)

Results are in parts per million (ppm).

TPHg: Total petroleum hydrocarbons as gasoline.

<: Below the reporting limits of the analytical method.

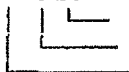
*: Signifies composite sample following aeration.

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

NA: Not analyzed.

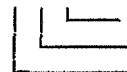
Sample designations:

S-5.5-B6



Boring number
Sample depth in feet
Soil sample

S-12-T4B



Tank number and location
Sample depth in feet
Soil sample

Table 1
Soil Analytical Data
Product Line and Dispenser Excavation
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, and Total Lead)

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Sample ID	Date Sampled	Sample Depth (feet)	TPPH as Gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylenes (ppm)	Total Lead (ppm)
Product Lines								
TR-A-1	9/21/95	3	NA	NA	NA	NA	NA	15
TR-A-2	9/21/95	3	<1	<0.0050	<0.0050	<0.0050	<0.0050	NA
TR-A-3	9/21/95	3	<1	<0.0050	<0.0050	<0.0050	<0.0050	NA
TR-A-8	9/21/95	3	65	<0.025	0.15	0.096	6.7	NA
TR-A-9	9/21/95	3	<1	<0.0050	<0.0050	<0.0050	<0.0050	NA
TR-A-10	9/21/95	3	<1	<0.0050	<0.0050	<0.0050	<0.0050	NA
TR-A-11	9/21/95	3	1.9	<0.0050	<0.0050	0.0050	<0.0050	NA
TR-A-12	9/21/95	3	6.2	<0.0050	<0.0050	0.0067	<0.0050	NA
TR-A-13	9/21/95	3	48	0.30	2.2	0.53	3.6	NA
Product Dispensers								
TR-A-4	9/21/95	3	<1	<0.0050	<0.0050	<0.0050	<0.0050	NA
TR-A-6	9/21/95	3	140	<0.50	1.1	0.80	1.5	NA
TR-A-14	9/21/95	3	89	2.1	8.5	1.7	9.4	NA
TR-A-15	9/21/95	3	19	0.0089	0.37	0.045	1.9	NA
ppm = Parts per million								
NA = Not analyzed								
< = Indicates the concentration is below the detection limit.								

Table 1. Soil Sampling Analytical Data
Atlantic Richfield Company Station #374
6407 Telegraph Avenue, Oakland, California

Soil Sample ID	Sampling Depth (feet bgs)	Sampling Date	Laboratory Analytical Results (mg/kg)													
			GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	TBA	DIPE	ETBE	TAME	Ethanol	1,2 DCA	EDB	Lead
D1-2.5'	2.5	12/4/2008	120	0.15	<0.10	1.8	9.7	<0.10	<1.0	<0.20	<0.20	<0.20	<10	<0.10	<0.10	4.76
D2-2.5'	2.5	12/4/2008	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.010	<0.0020	<0.0020	<0.0020	<0.10	<0.0010	<0.0010	5.50
D3-2.5'	2.5	12/4/2008	17	0.46	<0.10	0.91	1.8	<0.10	<1.0	<0.20	<0.20	<0.20	<10	<0.10	<0.10	11.70
D4-2.5'	2.5	12/4/2008	1,500	3.6	0.12	3.6	2.9	<0.10	<1.0	<0.20	<0.20	<0.20	<10	<0.10	<0.10	8.65
D-4 5'	5.0	12/9/2008	5,300	19	1.1	23	31	<0.50	<5.0	<1.0	<1.0	<1.0	<50	<0.50	<0.50	11.2
D5-2.5'	2.5	12/4/2008	2.9	<0.0010	0.0019	<0.0010	0.0021	0.0038	<0.010	<0.0020	<0.0020	<0.0020	<0.10	<0.0010	<0.0010	5.38
D6-2.5'	2.5	12/4/2008	1.7	0.0054	0.015	0.0037	0.021	0.0055	<0.010	<0.0020	<0.0020	<0.0020	0.19	<0.0010	<0.0010	5.81
PL1-3'	3.0	12/4/2008	8.0	<0.0010	<0.0010	<0.0010	<0.0010	0.046	0.019	<0.0020	<0.0020	0.0027	<0.10	<0.0010	<0.0010	5.49
PL2-3'	3.0	12/4/2008	<0.50	0.0059	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	<0.0020	<0.0020	<0.0020	<0.10	<0.0010	<0.0010	6.03
PL3-3'	3.0	12/4/2008	6,500	18	0.74	25	12	<0.20	<2.0	<0.40	<0.40	<0.40	<20	<0.20	<0.20	12.20
PL-3 5'	5.0	12/9/2008	0.78	0.035	<0.0010	0.019	0.0021	0.012	<0.010	<0.0020	<0.0020	<0.0020	<0.10	<0.0010	<0.0010	5.43
PL4-3'	3.0	12/4/2008	26	<0.10	<0.10	0.35	<0.10	0.16	<1.0	<0.20	<0.20	<0.20	<10	<0.10	<0.10	5.16
PL5-3'	3.0	12/4/2008	15	<0.10	<0.10	0.36	0.10	<0.10	<1.0	<0.20	<0.20	<0.20	<10	<0.10	<0.10	4.89
Soil Waste Composite 1	NA	12/4/2008	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.010	<0.0020	<0.0020	<0.0020	<0.10	<0.0010	<0.0010	5.37
Soil Waste Composite 2	NA	12/4/2008	77	0.11	0.71	0.28	0.62	<0.10	<1.0	<0.20	<0.20	<0.20	<10	<0.10	<0.10	8.24

NOTES:

Concentrations detected above laboratory reporting limits are in bold

bgs = Below ground surface
mg/kg = Milligrams per kilogram
NA = Not applicable
GRO = Gasoline Range Organics
MTBE = Methyl Tert-Butyl Ether

TBA = Tert-Butyl Alcohol
DIPE = Di-Isopropyl Ether
ETBE = Ethyl Tert-Butyl Ether
TAME = Tert-Amyl Methyl Ether
1,2-DCA = 1,2-Dichloroethane
EDB = 1,2-Dibromoethane

Laboratory Analytical Results from On-Site Soil Investigation, 13 November 2008
Atlantic Richfield Company Service Station #374, 6407 Telegraph Avenue, Oakland, California
ACEH Case #RO0000078

Soil Boring Samples
(Concentrations in milligrams per kilogram, mg/kg)

Sample ID	GRO	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	ETBE	TAME	DIPE	1,2-DCA	EDB	TBA	Ethanol
B-11-15	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	0.014	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	<0.010	<0.10
B-12-15.5	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	0.0072	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	0.011	<0.10
Waste Comp.	NA	<0.0010	<0.0010	<0.0010	<0.0010	0.0084	<0.0020	<0.0020	<0.0020	NA	NA	<0.010	NA

Notes:

- GRO: Gasoline Range Organics, hydrocarbon chain lengths C6-C12
- MTBE: Methyl-tertiary Butyl Ether
- ETBE: Ethyl Tert-Butyl Ether
- TAME: Tert-Amyl Methyl Ether
- DIPE: Di-Isopropyl Ether
- 1,2-DCA: 1,2-Dichloroethane
- EDB: 1,2-Dibromomethane
- TBA: Tert-Butyl Alcohol
- <: Analyte not detected above the laboratory reporting limit given
- NA: Analysis not requested or performed

Laboratory Analytical Results from On-Site Soil & Ground-Water Investigation, 21 September 2009
Atlantic Richfield Company Service Station #374, 6407 Telegraph Avenue, Oakland, California
ACEH Case #RO0000078

Soil Boring Samples
(Concentrations in milligrams per kilogram, mg/kg)

Sample ID	GRO	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	ETBE	TAME	DIPE	1,2-DCA	EDB	TBA	Ethanol
B-13 4.5'	1.7	0.048	0.0017	0.036	0.019	0.024	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	0.052	<0.10
B-13 6.5'	67	0.38	<0.10	0.82	1.8	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<1.0	<10
B-13 8.5'	1,800	8.2	71	32	190	<1.0	<2.0	<2.0	<2.0	<1.0	<1.0	<10	<100
B-14 4.5'	<0.50	0.0018	<0.0010	<0.0010	<0.0010	0.012	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	0.014	<0.10
B-14 6.5'	0.73	0.011	<0.0010	0.0023	<0.0010	0.025	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	0.031	<0.10
B-14 8.5'	390	0.56	<0.10	6.3	0.70	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<1.0	<10
B-15 4.5'	1,400	0.87	<0.10	4.3	3.0	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<1.0	<10
B-15 6.5'	170	0.91	<0.10	2.8	7.5	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<1.0	<10
B-15 8.5'	940	2.2	<1.0	13	52	<1.0	<2.0	<2.0	<2.0	<1.0	<1.0	<10	<100
ESL - DW	83	0.044	2.9	2.3	2.3	0.023	NE	NE	NE	0.0045	0.0033	0.075	NE
ESL - NDW	100	0.12	9.3	2.3	11	8.4	NE	NE	NE	0.22	0.019	100	NE

Ground-Water Grab Sample
(Concentrations in micrograms per Liter, µg/L)

Sample ID	GRO	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	ETBE	TAME	DIPE	1,2-DCA	EDB	TBA	Ethanol
B-15W	19,000	3,700	54	840	1,600	250	<20	<20	<20	<20	<20	<400	<12,000
ESL - DW	100	1.0	40	30	20	5.0	NE	NE	NE	0.5	0.05	12	NE
ESL - NDW	210	46	130	43	100	1,800	NE	NE	NE	200	150	18,000	NE

Notes for both tables:

GRO: Gasoline Range Organics, hydrocarbon chain lengths C6-C12

MTBE: Methyl-tertiary Butyl Ether

ETBE: Ethyl Tert-Butyl Ether

TAME: Tert-Amyl Methyl Ether

DIPE: Di-Isopropyl Ether

1,2-DCA: 1,2-Dichloroethane

EDB: 1,2-Dibromomethane

TBA: Tert-Butyl Alcohol

<: Analyte not detected above the laboratory reporting limit given

Conc: Concentration in *Italics* exceeds ESL-DW; Concentration in ***Bold Italics*** exceeds ESL-NDW

ESL - DW: Residential Environmental Screening Level (in soil or ground water, as approp.), for shallow soil, where ground water is potential drinking water resource

ESL - NDW: Residential Environmental Screening Level (in soil or ground water, as approp.), for shallow soil, where ground water is not potential drinking water resource

NE: ESL not established

Table 1. Laboratory Soil Analytic Results from On-Site Investigation, November 22 to 24, 2010

ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Boring and Sample Date	Sample ID	Sample Depth (feet)	Concentrations in (mg/Kg)													Comments
			GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE	Ethanol	TBA	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW			83	0.044	2.9	2.3	2.3	0.023	NE	0.075	NE	NE	NE	0.0045	0.0033	
ESL - NDW			100	0.12	9.3	2.3	11	8.4	NE	100	NE	NE	NE	0.22	0.019	
B-19																
11/23/2010	B-19-3	3	2.7	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	B-19-5	5	2.6	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	B-19-6	6	<0.50	0.0053	<0.0010	<0.0010	<0.0010	0.0032	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	B-19-8	8	190	0.84	0.0065	5.5	0.044	0.015	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	B-19-9.5	9.5	250	0.19	0.0016	1.4	0.0094	0.011	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	B-19-11	11	18	<0.10	<0.10	<0.10	<0.10	<0.10	<10	<1.0	<0.20	<0.20	<0.20	<0.10	<0.10	DF
11/23/2010	B-19-12.5	12.5	47	0.018	<0.0010	0.026	0.0025	0.0013	<0.10	0.013	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	B-19-14	14	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	B-19-15.5	15.5	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	0.0034	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
MW-7																
11/22/2010	MW-7-3	3	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/22/2010	MW-7-5	5	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	0.0017	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/22/2010	MW-7-6	6	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	0.0023	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/24/2010	MW-7-8	8	650	0.0047	<0.0010	9.2	9.3	<0.0010	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/24/2010	MW-7-9.5	9.5	<0.50	<0.0010	<0.0010	0.0014	0.0014	<0.0010	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/24/2010	MW-7-11	11	<0.50	<0.0010	<0.0010	0.0015	0.0017	<0.0010	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/24/2010	MW-7-12.5	12.5	<0.50	<0.0010	<0.0010	0.0018	0.0021	0.0017	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/24/2010	MW-7-14	14	1.2	<0.0010	<0.0010	0.0020	0.0024	0.0080	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
MW-8																
11/22/2010	MW-8-3	3	2.6	0.0099	<0.0010	<0.0010	0.0023	0.011	<0.10	0.013	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/22/2010	MW-8-5	5	1.7	0.057	<0.0010	0.028	0.0033	0.0075	<0.10	0.013	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/22/2010	MW-8-6	6	3.2	0.23	<0.10	0.75	<0.10	<0.10	<10	<1.0	<0.20	<0.20	<0.20	<0.10	<0.10	
11/23/2010	MW-8-8	8	510	2.7	<0.10	8.8	5.0	0.13	<10	<1.0	<0.20	<0.20	<0.20	<0.10	<0.10	
11/23/2010	MW-8-9.5	9.5	900	1.2	<0.10	12	6.7	<0.10	<10	<1.0	<0.20	<0.20	<0.20	<0.10	<0.10	
11/23/2010	MW-8-11	11	1,400	<0.10	<0.10	<0.10	0.11	<0.10	<10	<1.0	<0.20	<0.20	<0.20	<0.10	<0.10	
11/23/2010	MW-8-12.5	12.5	0.93	0.0041	<0.0010	0.0036	0.0018	0.0014	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	MW-8-14.5	14.5	0.57	0.022	<0.0010	0.011	0.0056	0.036	<0.10	0.011	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	

Table 1. Laboratory Soil Analytic Results from On-Site Investigation, November 22 to 24, 2010
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Boring and Sample Date	Sample ID	Sample Depth (feet)	Concentrations in (mg/Kg)													Comments
			GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE	Ethanol	TBA	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW			83	0.044	2.9	2.3	2.3	0.023	NE	0.075	NE	NE	NE	0.0045	0.0033	
ESL - NDW			100	0.12	9.3	2.3	11	8.4	NE	100	NE	NE	NE	0.22	0.019	
MW-9																
11/22/2010	MW-9-3	3	5.2	0.0069	<0.0010	0.0012	0.0028	0.046	<0.10	0.026	<0.0020	<0.0020	0.0030	<0.0010	<0.0010	
11/22/2010	MW-9-5	5	1.4	0.0024	<0.0010	0.0052	<0.0010	0.031	<0.10	0.037	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/22/2010	MW-9-6	6	3.5	0.025	<0.0010	0.060	0.0036	0.033	<0.10	0.036	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	MW-9-8	8	710	1.2	<0.20	16	28	<0.20	<20	<2.0	<0.40	<0.40	<0.40	<0.20	<0.20	
11/23/2010	MW-9-11	11	54	<0.10	<0.10	<0.10	<0.10	<0.10	<10	<1.0	<0.20	<0.20	<0.20	<0.10	<0.10	DF
11/23/2010	MW-9-12.5	12.5	46	<0.0010	<0.0010	<0.0010	0.0014	<0.0010	0.12	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	MW-9-14	14	9.3	0.0012	<0.0010	0.0013	0.0017	<0.0010	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	MW-9-15.5	15.5	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	0.031	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	

SYMBOLS AND ABBREVIATIONS:

< = Not detected at or above specified laboratory reporting limit

GRO = Gasoline range organics

MTBE = Methyl tert-butyl ether

TBA = tert-Butyl alcohol

MTBE = Methyl tert-butyl ether

DIPE = Di-isopropyl ether

ETBE = Ethyl tert-butyl ether

TAME = tert-Amyl methyl ether

1,2-DCA = 1,2-Dichloroethane

EDB = 1,2-Dibromoethane

mg/kg = Milligrams per Kilogram

DF = Reporting limits elevated due to matrix interference

ESL - DW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil Groundwater, Interim Final-November 2007 (Revised May 2008).

ESL - NDW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is NOT a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil Groundwater, Interim Final-November 2007 (Revised May 2008).

NE = ESL not established

NOTES:

GRO (C6-C12) analyzed using EPA method 8015B.

Concentrations in *Italics* exceeds ESL-DW

Concentrations in ***Bold Italics*** exceeds ESL-NDW

Benzene, toluene, ethylbenzene, total xylenes, MTBE, ethanol and TBA analyzed using EPA method 8260B.

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-1 Cont.															
5/8/2007	P	164.57	7.00	27.00	6.50	158.07	<500	<5.0	<5.0	<5.0	<5.0	420	1.21	6.94	
8/8/2007	NP		7.00	27.00	8.17	156.40	82	<0.50	<0.50	<0.50	<0.50	110	1.16	7.00	e
11/14/2007	NP		7.00	27.00	8.01	156.56	170	<2.5	<2.5	<2.5	<2.5	210	1.92	6.49	
2/22/2008	P		7.00	27.00	6.00	158.57	<50	<0.50	<0.50	<0.50	<0.50	250	2.57	6.65	
5/24/2008	NP		7.00	27.00	7.58	156.99	<50	<5.0	<5.0	<5.0	<5.0	380	2.28	6.81	
8/21/2008	NP		7.00	27.00	8.60	155.97	<50	<2.5	<2.5	<2.5	<2.5	170	2.16	6.98	
11/19/2008	NP		7.00	27.00	8.88	155.69	<50	<0.50	<0.50	<0.50	<0.50	30	2.12	7.27	
2/23/2009	P		7.00	27.00	6.40	158.17	78	<2.5	<2.5	<2.5	<2.5	240	2.19	6.03	
5/14/2009	P		7.00	27.00	6.67	157.90	53	<0.50	<0.50	<0.50	<0.50	200	1.75	6.69	
8/20/2009	NP		7.00	27.00	8.25	156.32	150	<2.0	<2.0	<2.0	<2.0	170	2.14	6.25	i (GRO)
2/19/2010	P		7.00	27.00	6.07	158.50	<50	<0.50	<0.50	<0.50	<0.50	170	0.92	6.66	
8/10/2010	NP		7.00	27.00	7.58	156.99	<50	<2.5	<2.5	<2.5	<2.5	230	3.86	7.1	
12/16/2010	P	164.45	7.00	27.00	6.64	157.81	<50	<2.0	<2.0	<2.0	<2.0	140	1.20	6.86	j
2/14/2011	NP		7.00	27.00	7.10	157.35	<50	<2.5	<2.5	<2.5	<2.5	170	1.18	6.7	
5/20/2011	--		7.00	27.00	6.38	158.07	--	--	--	--	--	--	--	--	
8/15/2011	NP		7.00	27.00	7.24	157.21	<50	<2.5	<2.5	<2.5	<2.5	130	2.54	6.9	
2/2/2012	P		7.00	27.00	7.32	157.13	<50	<1.0	<1.0	<1.0	<1.0	66	1.01	7.1	
MW-2															
6/20/2000	--	157.92	7.00	27.00	7.67	150.25	--	--	--	--	--	--	--	--	
9/28/2000	--		7.00	27.00	8.51	149.41	--	--	--	--	--	--	--	--	
12/17/2000	--		7.00	27.00	8.14	149.78	--	--	--	--	--	--	--	--	
3/23/2001	--		7.00	27.00	7.21	150.71	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
6/21/2001	--		7.00	27.00	7.99	149.93	--	--	--	--	--	--	--	--	
9/23/2001	--		7.00	27.00	8.52	149.40	--	--	--	--	--	--	--	--	
12/31/2001	--		7.00	27.00	6.01	151.91	--	--	--	--	--	--	--	--	
3/21/2002	--		7.00	27.00	5.95	151.97	<50	<0.5	<0.5	<0.5	<0.5	45	--	--	
4/17/2002	--		7.00	27.00	6.45	151.47	--	--	--	--	--	--	--	--	
8/12/2002	--		7.00	27.00	8.08	149.84	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-2 Cont.															
12/6/2002	--	157.92	7.00	27.00	8.29	149.63	--	--	--	--	--	--	--	--	
1/29/2003	--		7.00	27.00	7.22	150.70	--	--	--	--	--	--	--	--	b
5/23/2003	--		7.00	27.00	6.85	151.07	<50	<0.50	<0.50	<0.50	<0.50	55	1.4	7.2	
9/4/2003	--		7.00	27.00	7.94	149.98	--	--	--	--	--	--	--	--	
11/20/2003	--		7.00	27.00	8.05	149.87	--	--	--	--	--	--	--	--	
02/02/2004	P	163.46	7.00	27.00	7.00	156.46	74	<0.50	<0.50	<0.50	<0.50	37	1.1	8.9	f
05/14/2004	--		7.00	27.00	7.97	155.49	--	--	--	--	--	--	--	--	
09/02/2004	P		7.00	27.00	8.19	155.27	<250	<2.5	<2.5	<2.5	<2.5	67	2.7	6.9	
11/04/2004	--		7.00	27.00	7.54	155.92	--	--	--	--	--	--	--	--	
02/08/2005	P		7.00	27.00	6.72	156.74	<50	<0.50	<0.50	<0.50	<0.50	30	0.86	6.7	
05/09/2005	--		7.00	27.00	7.16	156.30	--	--	--	--	--	--	--	--	
08/11/2005	P		7.00	27.00	7.85	155.61	<50	<0.50	<0.50	<0.50	<0.50	35	1.0	6.6	
11/18/2005	--		7.00	27.00	8.23	155.23	--	--	--	--	--	--	--	--	
02/16/2006	P		7.00	27.00	6.82	156.64	<50	<0.50	<0.50	<0.50	<0.50	39	1.3	7.0	
5/30/2006	--		7.00	27.00	7.23	156.23	--	--	--	--	--	--	--	--	
8/24/2006	P		7.00	27.00	8.00	155.46	60	<0.50	<0.50	<0.50	<0.50	25	0.90	6.8	
11/1/2006	--		7.00	27.00	8.38	155.08	--	--	--	--	--	--	--	--	
2/7/2007	NP		7.00	27.00	7.88	155.58	<50	0.50	<0.50	<0.50	<0.50	7.2	0.94	7.39	
5/8/2007	--		7.00	27.00	7.28	156.18	--	--	--	--	--	--	--	--	
8/8/2007	NP		7.00	27.00	8.38	155.08	88	3.2	<0.50	<0.50	<0.50	7.2	0.94	7.75	
11/14/2007	--		7.00	27.00	8.10	155.36	--	--	--	--	--	--	--	--	
2/22/2008	P		7.00	27.00	6.75	156.71	<50	<0.50	<0.50	<0.50	<0.50	24	2.18	7.02	
5/24/2008	--		7.00	27.00	7.98	155.48	--	--	--	--	--	--	--	--	
8/21/2008	NP		7.00	27.00	8.58	154.88	<50	2.6	<0.50	<0.50	<0.50	4.9	2.20	7.11	
11/19/2008	--		7.00	27.00	8.66	154.80	--	--	--	--	--	--	--	--	
2/23/2009	P		7.00	27.00	6.67	156.79	74	1.0	<0.50	<0.50	<0.50	24	2.25	6.16	
5/14/2009	--		7.00	27.00	7.02	156.44	--	--	--	--	--	--	--	--	
8/20/2009	NP		7.00	27.00	8.41	155.05	82	2.4	<0.50	<0.50	<0.50	8.4	2.19	6.37	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-2 Cont.															
2/19/2010	NP	163.46	7.00	27.00	7.36	156.10	<50	<0.50	<0.50	<0.50	<0.50	22	0.81	6.90	
8/10/2010	NP		7.00	27.00	7.69	155.77	<50	<0.50	<0.50	<0.50	<0.50	23	2.40	7.67	
12/16/2010	P	163.49	7.00	27.00	7.12	156.37	<50	<0.50	<0.50	<0.50	<0.50	17	0.69	7.06	j
2/14/2011	NP		7.00	27.00	7.35	156.14	<50	<0.50	<0.50	<0.50	<0.50	11	0.87	7.0	
5/20/2011	--		7.00	27.00	7.02	156.47	--	--	--	--	--	--	--	--	
8/15/2011	NP		7.00	27.00	7.62	155.87	<50	<0.50	<0.50	<0.50	<0.50	1.7	1.45	7.1	
2/2/2012	P		7.00	27.00	7.56	155.93	<50	<0.50	<0.50	<0.50	<0.50	1.8	0.85	7.3	
MW-3															
6/20/2000	--	153.64	7.00	27.00	6.42	147.22	<50	<0.5	<0.5	<0.5	<1.0	<10	--	--	
9/28/2000	--		7.00	27.00	7.31	146.33	--	--	--	--	--	--	--	--	
12/17/2000	--		7.00	27.00	6.45	147.19	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/23/2001	--		7.00	27.00	6.01	147.63	--	--	--	--	--	--	--	--	
6/21/2001	--		7.00	27.00	6.80	146.84	110	5.5	<0.5	5.4	4.1	2.5	--	--	
9/23/2001	--		7.00	27.00	7.32	146.32	--	--	--	--	--	--	--	--	
12/31/2001	--		7.00	27.00	4.48	149.16	<50	<0.5	<0.5	<0.5	<0.5	4.9	--	--	
3/21/2002	--		7.00	27.00	4.36	149.28	--	--	--	--	--	--	--	--	
4/17/2002	--		7.00	27.00	5.31	148.33	<50	<0.5	<0.5	<0.5	<0.5	8.7	--	--	
8/12/2002	--		7.00	27.00	7.00	146.64	--	--	--	--	--	--	--	--	
12/6/2002	--		7.00	27.00	7.32	146.32	<50	<0.5	<0.5	<0.5	<0.5	6.2	1.4	6.7	
1/29/2003	--		7.00	27.00	6.07	147.57	--	--	--	--	--	--	--	--	b
5/23/2003	--		7.00	27.00	6.45	147.19	<50	<0.50	<0.50	<0.50	<0.50	1.6	0.9	7.7	
9/4/2003	--		7.00	27.00	6.93	146.71	--	--	--	--	--	--	--	--	c
11/20/2003	--		7.00	27.00	7.04	146.60	--	--	--	--	--	--	--	--	c
02/02/2004	--	159.21	7.00	27.00	5.92	153.29	--	--	--	--	--	--	--	--	f
05/14/2004	--		7.00	27.00	7.52	151.69	--	--	--	--	--	--	--	--	
09/02/2004	P		7.00	27.00	7.19	152.02	<50	<0.50	<0.50	<0.50	<0.50	6.5	9.3	8.9	
11/04/2004	--		7.00	27.00	6.40	152.81	--	--	--	--	--	--	--	--	
02/08/2005	--		7.00	27.00	6.01	153.20	--	--	--	--	--	--	--	--	

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

ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-3 Cont.															
05/09/2005	--	159.21	7.00	27.00	6.74	152.47	--	--	--	--	--	--	--	--	
08/11/2005	P		7.00	27.00	6.77	152.44	<50	<0.50	<0.50	<0.50	<0.50	11	1.9	6.5	
11/18/2005	--		7.00	27.00	7.83	151.38	--	--	--	--	--	--	--	--	
02/16/2006	--		7.00	27.00	7.26	151.95	--	--	--	--	--	--	--	--	
5/30/2006	--		7.00	27.00	5.82	153.39	--	--	--	--	--	--	--	--	
8/24/2006	P		7.00	27.00	7.00	152.21	<50	<0.50	<0.50	<0.50	<0.50	7.6	1.15	6.4	
11/1/2006	--		7.00	27.00	7.50	151.71	--	--	--	--	--	--	--	--	
2/7/2007	--		7.00	27.00	6.90	152.31	--	--	--	--	--	--	--	--	
5/8/2007	--		7.00	27.00	5.95	153.26	--	--	--	--	--	--	--	--	
8/8/2007	NP		7.00	27.00	7.47	151.74	<50	<0.50	<0.50	<0.50	<0.50	1.2	1.21	6.93	
11/14/2007	--		7.00	27.00	7.05	152.16	--	--	--	--	--	--	--	--	
2/22/2008	--		7.00	27.00	5.50	153.71	--	--	--	--	--	--	--	--	
5/24/2008	--		7.00	27.00	7.03	152.18	--	--	--	--	--	--	--	--	
8/21/2008	NP		7.00	27.00	7.80	151.41	<50	<0.50	<0.50	<0.50	<0.50	3.1	2.11	6.84	
11/19/2008	--		7.00	27.00	7.69	151.52	--	--	--	--	--	--	--	--	
2/23/2009	--		7.00	27.00	7.28	151.93	--	--	--	--	--	--	--	--	
5/14/2009	--		7.00	27.00	6.17	153.04	--	--	--	--	--	--	--	--	
8/20/2009	NP		7.00	27.00	7.38	151.83	<50	<0.50	<0.50	<0.50	<0.50	2.2	2.05	7.01	
2/19/2010	--		7.00	27.00	5.31	153.90	--	--	--	--	--	--	--	--	
8/10/2010	NP		7.00	27.00	7.12	152.09	<50	<0.50	<0.50	<0.50	<0.50	1.6	1.27	7.33	
12/16/2010	--		7.00	27.00	5.65	153.56	--	--	--	--	--	--	--	--	j
2/14/2011	--		7.00	27.00	6.20	153.01	--	--	--	--	--	--	--	--	
5/20/2011	--		7.00	27.00	5.77	153.44	--	--	--	--	--	--	--	--	
8/15/2011	P		7.00	27.00	6.41	152.80	<50	<0.50	<0.50	<0.50	<0.50	1.2	1.04	7.0	
2/2/2012	--		7.00	27.00	6.34	152.87	--	--	--	--	--	--	--	--	
MW-4															
6/20/2000	--	156.53	7.00	27.00	7.50	149.03	20,000	5,100	440	1,000	1,700	<250	--	--	c
9/28/2000	--		7.00	27.00	8.20	148.33	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-4 Cont.															
12/17/2000	--	156.53	7.00	27.00	8.11	148.42	4,320	1,240	<20	27.2	249	<100	--	--	
3/23/2001	--		7.00	27.00	6.69	149.84	--	--	--	--	--	--	--	--	
6/21/2001	--		7.00	27.00	8.01	148.52	2,800	470	16	19	160	130	--	--	
9/23/2001	--		7.00	27.00	8.91	147.62	--	--	--	--	--	--	--	--	
12/31/2001	--		7.00	27.00	4.42	152.11	4,600	1,500	100	160	210	160	--	--	
3/21/2002	--		7.00	27.00	4.98	151.55	--	--	--	--	--	--	--	--	
4/17/2002	--		7.00	27.00	6.23	150.30	7,100	2,200	110	290	450	<250	--	--	
8/12/2002	--		7.00	27.00	8.24	148.29	--	--	--	--	--	--	--	--	
12/6/2002	--		7.00	27.00	8.42	148.11	1,500	410	6.8	20	29	43	1.1	6.7	a
1/29/2003	--		7.00	27.00	7.20	149.33	--	--	--	--	--	--	--	--	b
5/23/2003	--		7.00	27.00	7.18	149.35	< 5,000	1,300	89	210	260	< 50	1.4	6.9	
9/4/2003	--		7.00	27.00	8.15	148.38	--	--	--	--	--	--	--	--	c
11/20/2003	--		7.00	27.00	8.73	147.80	--	--	--	--	--	--	--	--	c
02/02/2004	P	163.25	7.00	27.00	6.25	157.00	980	280	21	29	38	29	1.4	10.6	c, f, g
05/14/2004	--		7.00	27.00	8.38	154.87	--	--	--	--	--	--	--	--	g
09/02/2004	P		7.00	27.00	8.36	154.89	260	11	<1.0	5.5	14	28	2.4	7.4	g
11/04/2004	--		7.00	27.00	7.71	155.54	--	--	--	--	--	--	--	--	c, g
02/08/2005	P		7.00	27.00	6.27	156.98	7,500	1,700	320	480	920	45	0.65	6.5	g
05/09/2005	--		7.00	27.00	5.90	157.35	--	--	--	--	--	--	--	--	g
08/11/2005	P		7.00	27.00	7.96	155.29	3,100	1,100	41	160	110	32	0.6	6.5	g
11/18/2005	--		7.00	27.00	8.57	154.68	--	--	--	--	--	--	--	--	g
02/16/2006	P		7.00	27.00	6.28	156.97	9,400	1,800	130	600	420	35	0.5	6.8	g
5/30/2006	--	162.47	7.00	27.00	7.02	155.45	--	--	--	--	--	--	--	--	g
8/24/2006	P		7.00	27.00	8.26	154.21	3,600	1,400	21	110	70	39	1.00	6.8	
11/1/2006	--		7.00	27.00	8.67	153.80	--	--	--	--	--	--	--	--	
2/7/2007	NP		7.00	27.00	8.02	154.45	3,100	570	17	170	110	67	0.95	7.07	
5/8/2007	--		7.00	27.00	7.03	155.44	--	--	--	--	--	--	--	--	
8/8/2007	NP		7.00	27.00	8.60	153.87	2,900	630	22	67	57	72	0.93	6.79	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-4 Cont.															
11/14/2007	--	162.47	7.00	27.00	8.53	153.94	--	--	--	--	--	--	--	--	
2/22/2008	P		7.00	27.00	6.25	156.22	3,900	880	39	180	92	70	2.31	6.87	
5/24/2008	--		7.00	27.00	--	--	--	--	--	--	--	--	--	--	d
8/21/2008	NP		7.00	27.00	8.96	153.51	3,700	1,100	26	85	130	53	2.26	6.80	
11/19/2008	--		7.00	27.00	9.20	153.27	--	--	--	--	--	--	--	--	
2/23/2009	P		7.00	27.00	6.35	156.12	3,000	220	9.1	23	19	39	2.21	6.51	
5/14/2009	--		7.00	27.00	7.00	155.47	--	--	--	--	--	--	--	--	
8/20/2009	NP		7.00	27.00	8.05	154.42	5,700	1,100	35	110	100	23	2.17	6.81	
2/19/2010	P		7.00	27.00	5.71	156.76	12,000	1,200	120	230	390	<5.0	0.81	6.70	i
8/10/2010	NP		7.00	27.00	7.59	154.88	9,700	1,500	120	400	400	<20	3.81	6.8	
12/16/2010	P	162.48	7.00	27.00	6.83	155.65	15,000	1,800	82	270	210	<25	0.49	6.81	j
2/14/2011	NP		7.00	27.00	7.33	155.15	260	<0.50	<0.50	2.7	11	13	0.80	7.10	
5/20/2011	--		7.00	27.00	6.89	155.59	--	--	--	--	--	--	--	--	
8/15/2011	P		7.00	27.00	7.59	154.89	8,600	2,100	86	250	210	<12	1.02	7.0	l
2/2/2012	P		7.00	27.00	7.71	154.77	4,600	1,000	34	23	33	<12	0.60	7.2	
MW-5															
6/20/2000	--	151.33	10.00	23.00	7.84	143.49	<50	<0.5	<0.5	<0.5	<1.0	<10	--	--	
9/28/2000	--		10.00	23.00	8.37	142.96	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/17/2000	--		10.00	23.00	8.36	142.97	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/23/2001	--		10.00	23.00	7.55	143.78	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
6/21/2001	--		10.00	23.00	8.20	143.13	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
9/23/2001	--		10.00	23.00	8.68	142.65	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/31/2001	--		10.00	23.00	7.57	143.76	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/21/2002	--		10.00	23.00	6.12	145.21	<50	<0.5	<0.5	<0.5	<0.5	3.2	--	--	
4/17/2002	--		10.00	23.00	6.61	144.72	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
8/12/2002	--		10.00	23.00	8.14	143.19	<50	<0.5	<0.5	<0.5	<0.5	<2.5	4.1	7.6	
12/6/2002	--		10.00	23.00	8.65	142.68	<50	<0.5	<0.5	<0.5	<0.5	<2.5	1.1	6.8	
1/29/2003	--		10.00	23.00	7.22	144.11	<50	<0.5	<0.5	<0.5	<0.5	<0.50	1	6.6	b

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-5 Cont.															
5/23/2003	--	151.33	10.00	23.00	7.31	144.02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.1	6.6	
9/4/2003	--		10.00	23.00	9.50	141.83	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.2	6.7	
11/20/2003	--		10.00	23.00	8.31	143.02	--	--	--	--	--	--	--	--	
02/02/2004	--		10.00	23.00	6.92	144.41	--	--	--	--	--	--	--	--	c, f, h
05/14/2004	--		10.00	23.00	8.56	142.77	--	--	--	--	--	--	--	--	h
09/02/2004	P		10.00	23.00	8.79	142.54	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.5	6.8	h
11/04/2004	--		10.00	23.00	8.33	143.00	--	--	--	--	--	--	--	--	c, h
02/08/2005	--		10.00	23.00	7.28	144.05	--	--	--	--	--	--	--	--	h
05/09/2005	--		10.00	23.00	8.19	143.14	--	--	--	--	--	--	--	--	h
08/11/2005	P		10.00	23.00	8.39	142.94	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.2	6.6	h
11/18/2005	--		10.00	23.00	11.25	140.08	--	--	--	--	--	--	--	--	h
02/16/2006	--		10.00	23.00	9.22	142.11	--	--	--	--	--	--	--	--	h
5/30/2006	--		10.00	23.00	7.52	143.81	--	--	--	--	--	--	--	--	h
8/24/2006	P		10.00	23.00	7.95	143.38	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.60	6.6	
11/1/2006	--		10.00	23.00	8.32	143.01	--	--	--	--	--	--	--	--	
2/7/2007	--		10.00	23.00	8.25	143.08	--	--	--	--	--	--	--	--	
5/8/2007	--		10.00	23.00	7.60	143.73	--	--	--	--	--	--	--	--	
8/8/2007	P		10.00	23.00	8.12	143.21	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.26	7.31	
11/14/2007	--		10.00	23.00	9.10	142.23	--	--	--	--	--	--	--	--	
2/22/2008	--		10.00	23.00	7.48	143.85	--	--	--	--	--	--	--	--	
5/24/2008	--		10.00	23.00	8.12	143.21	--	--	--	--	--	--	--	--	
8/21/2008	P		10.00	23.00	8.65	142.68	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.14	6.54	
11/19/2008	--		10.00	23.00	11.86	139.47	--	--	--	--	--	--	--	--	
2/23/2009	--		10.00	23.00	10.20	141.13	--	--	--	--	--	--	--	--	
5/14/2009	--		10.00	23.00	9.63	141.70	--	--	--	--	--	--	--	--	
8/20/2009	P		10.00	23.00	8.52	142.81	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.01	6.47	
2/19/2010	--		10.00	23.00	--	--	--	--	--	--	--	--	--	--	d
8/10/2010	P		10.00	23.00	8.05	143.28	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.15	7.1	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-5 Cont.															
12/16/2010	--	156.90	10.00	23.00	8.10	148.80	--	--	--	--	--	--	--	--	j
2/14/2011	--		10.00	23.00	--	--	--	--	--	--	--	--	--	--	d
5/20/2011	--		10.00	23.00	--	--	--	--	--	--	--	--	--	--	d
8/15/2011	P		10.00	23.00	7.91	148.99	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.46	7.4	
2/2/2012	--		10.00	23.00	8.08	148.82	--	--	--	--	--	--	--	--	
MW-6															
6/20/2000	--	153.84	5.00	15.00	4.79	149.05	--	--	--	--	--	--	--	--	
9/28/2000	--		5.00	15.00	5.39	148.45	--	--	--	--	--	--	--	--	
12/17/2000	--		5.00	15.00	4.71	149.13	--	--	--	--	--	--	--	--	
3/23/2001	--		5.00	15.00	4.69	149.15	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
6/21/2001	--		5.00	15.00	5.22	148.62	--	--	--	--	--	--	--	--	
9/23/2001	--		5.00	15.00	5.40	148.44	--	--	--	--	--	--	--	--	
12/31/2001	--		5.00	15.00	3.95	149.89	--	--	--	--	--	--	--	--	
3/21/2002	--		5.00	15.00	2.94	150.90	<50	<0.5	<0.5	<0.5	<0.5	5.2	--	--	
4/17/2002	--		5.00	15.00	5.11	148.73	--	--	--	--	--	--	--	--	
8/12/2002	--		5.00	15.00	5.23	148.61	--	--	--	--	--	--	--	--	
12/6/2002	--		5.00	15.00	5.29	148.55	--	--	--	--	--	--	--	--	
1/29/2003	--		5.00	15.00	4.79	149.05	--	--	--	--	--	--	--	--	b
5/23/2003	--		5.00	15.00	4.31	149.53	<50	<0.50	<0.50	<0.50	<0.50	9.4	1	6.7	
09/04/03	--		5.00	15.00	--	--	--	--	--	--	--	--	--	--	d
11/20/2003	--		5.00	15.00	6.31	147.53	--	--	--	--	--	--	--	--	
02/02/2004	--	159.41	5.00	15.00	4.78	154.63	--	--	--	--	--	--	--	--	f
05/14/2004	--		5.00	15.00	6.29	153.12	--	--	--	--	--	--	--	--	
09/02/2004	--		5.00	15.00	5.79	153.62	--	--	--	--	--	--	--	--	d
11/04/2004	--		5.00	15.00	--	--	--	--	--	--	--	--	--	--	d
02/08/2005	--		5.00	15.00	5.13	154.28	--	--	--	--	--	--	--	--	
05/09/2005	--		5.00	15.00	4.52	154.89	--	--	--	--	--	--	--	--	
08/11/2005	P		5.00	15.00	5.02	154.39	<50	<0.50	<0.50	<0.50	<0.50	7.9	2.1	6.6	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-6 Cont.															
11/18/2005	--	159.41	5.00	15.00	6.31	153.10	--	--	--	--	--	--	--	--	
02/16/2006	--		5.00	15.00	4.24	155.17	--	--	--	--	--	--	--	--	
5/30/2006	--		5.00	15.00	4.45	154.96	--	--	--	--	--	--	--	--	
8/24/2006	P		5.00	15.00	5.18	154.23	<50	<0.50	<0.50	<0.50	<0.50	12	3.4	6.8	
11/1/2006	--		5.00	15.00	6.05	153.36	--	--	--	--	--	--	--	--	
2/7/2007	--		5.00	15.00	5.00	154.41	--	--	--	--	--	--	--	--	
5/8/2007	--		5.00	15.00	4.30	155.11	--	--	--	--	--	--	--	--	
8/8/2007	NP		5.00	15.00	5.51	153.90	<50	<0.50	<0.50	<0.50	<0.50	0.57	2.94	6.87	
11/14/2007	--		5.00	15.00	5.38	154.03	--	--	--	--	--	--	--	--	
2/22/2008	--		5.00	15.00	4.70	154.71	--	--	--	--	--	--	--	--	
5/24/2008	--		5.00	15.00	5.25	154.16	--	--	--	--	--	--	--	--	
8/21/2008	NP		5.00	15.00	6.14	153.27	<50	<0.50	<0.50	<0.50	<0.50	1.9	1.99	7.13	
11/19/2008	--		5.00	15.00	5.94	153.47	--	--	--	--	--	--	--	--	
2/23/2009	--		5.00	15.00	5.00	154.41	--	--	--	--	--	--	--	--	
5/14/2009	--		5.00	15.00	4.60	154.81	--	--	--	--	--	--	--	--	
8/20/2009	NP		5.00	15.00	5.65	153.76	<50	<0.50	<0.50	<0.50	<0.50	2.0	1.98	6.81	
2/19/2010	--		5.00	15.00	7.28	152.13	--	--	--	--	--	--	--	--	
8/10/2010	NP		5.00	15.00	5.02	154.39	<50	<0.50	<0.50	<0.50	<0.50	4.3	1.99	6.93	
12/16/2010	--		5.00	15.00	4.50	154.91	--	--	--	--	--	--	--	--	j
2/14/2011	--		5.00	15.00	4.80	154.61	--	--	--	--	--	--	--	--	
5/20/2011	--		5.00	15.00	4.29	155.12	--	--	--	--	--	--	--	--	
8/15/2011	P		5.00	15.00	4.52	154.89	<50	<0.50	<0.50	<0.50	<0.50	2.2	1.55	7.1	
2/2/2012	--		5.00	15.00	--	--	--	--	--	--	--	--	--	--	d
MW-7															
12/16/2010	P	164.80	5.00	20.00	6.52	158.28	700	<0.50	<0.50	15	32	62	--	7.08	j
2/14/2011	NP		5.00	20.00	6.77	158.03	7,100	1,700	98	260	210	<20	1.02	6.8	
5/20/2011	NP		5.00	20.00	5.84	158.96	570	<0.50	<0.50	37	25	4.6	1.66	6.7	1 (GRO)
8/15/2011	P		5.00	20.00	6.96	157.84	420	<1.0	<1.0	49	6.7	14	0.58	6.9	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	P/NP	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	Footnote	
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes				MTBE
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-7 Cont.															
2/2/2012	P	164.80	5.00	20.00	7.15	157.65	<50	<0.50	<0.50	<0.50	<0.50	6.2	0.45	7.5	
MW-8															
12/16/2010	P	164.14	5.00	20.00	6.85	157.29	520	43	<0.50	4.1	21	150	0.46	7.12	j
2/14/2011	NP		5.00	20.00	7.30	156.84	<50	<2.0	<2.0	<2.0	<2.0	110	1.07	6.7	
5/20/2011	NP		5.00	20.00	6.88	157.26	<50	<2.0	<2.0	<2.0	<2.0	88	1.35	6.5	
8/15/2011	P		5.00	20.00	6.00	158.14	<50	5.2	<1.0	9.7	<1.0	57	0.51	6.7	
2/2/2012	P		5.00	20.00	7.57	156.57	<50	<0.50	<0.50	<0.50	<0.50	3.9	0.68	7.1	
MW-9															
12/16/2010	P	163.77	5.00	20.00	6.63	157.14	330	18	<0.50	11	38	390	0.57	6.97	j
2/14/2011	NP		5.00	20.00	6.85	156.92	<50	<4.0	<4.0	<4.0	<4.0	270	0.98	6.9	
5/20/2011	NP		5.00	20.00	6.39	157.38	66	<4.0	<4.0	<4.0	<4.0	280	1.64	6.7	1 (GRO)
8/15/2011	NP		5.00	20.00	7.09	156.68	<50	<2.0	<2.0	<2.0	<2.0	120	0.88	7.1	
2/2/2012	P		5.00	20.00	7.18	156.59	<50	<0.50	<0.50	<0.50	<0.50	34	0.65	7.2	

Symbols & Abbreviations:

-- = Not analyzed/applicable/measured/available
< = Not detected at or above laboratory reporting limit
DO = Dissolved oxygen
DTW = Depth to water in ft below TOC
ft bgs = Feet below ground surface
GRO = Gasoline range organics
GWE = Groundwater elevation measured in ft
mg/L = Milligrams per liter
MTBE = Methyl tert-butyl ether
NP = Well was not purged prior to sampling
P = Well was purged prior to sampling
TOC = Top of casing measured in ft
TPH-g = Total petroleum hydrocarbons as gasoline
µg/L = Micrograms per liter
BTEX = Benzene, toluene, ethylbenzene and xylenes

ESL - DW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil & Groundwater, Interim Final-November 2007 (Revised May 2008).

ESL - NDW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is NOT a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil & Groundwater, Interim Final-November 2007 (Revised May 2008).

NE = ESL not established

Footnotes:

a = Chromatogram pattern: Gasoline C6-C10 for GRO/TPH-g
b = Beginning this quarter, groundwater samples were analyzed by EPA method 8260B for TPH-g, BTEX, and fuel oxygenates
c = Wells gauged with ORC sock in well
d = Well inaccessible
e = The hydrocarbon result for GRO was partly due to individual peaks in the quantitative range
f = Well resurveyed on 1/27/2004 to NAVD88
g = Upon review of survey data (1/27/2004), TOC elevation for MW-4 is actually 162.47 ft.
h = Upon review of survey data (1/27/2004), MW-5 was not surveyed from the TOC. MW-5 was surveyed from the pavement due to inaccessibility to the TOC. Therefore, survey data for MW-5 from the TOC is unavailable. Historic data prior to 5/30/2006 (change in consultant) not modified
i = Quantitation of unknown hydrocarbon(s) in sample based on gasoline
j = Surveyed 12/9/2010
k = Grab groundwater sample
l = Quantitated against gasoline

Notes:

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

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

Values for DO and pH were obtained through field measurements

The DTW's and TOC's for wells MW-5 and MW-6 were taken from Delta Environmental sampling sheets because the well logs were not available

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

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 #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-1									
3/23/2001	--	--	2,710	--	--	--	--	--	
3/21/2002	--	--	2,000	--	--	--	--	--	
5/23/2003	<20,000	<4,000	1,600	<100	<100	<100	--	--	
11/20/2003	<2,000	<400	1,500	<10	<10	<10	--	--	a
05/14/2004	<5,000	<1,000	1,200	<25	<25	<25	<25	<25	
09/02/2004	<1,000	<200	660	<5.0	<5.0	<5.0	<5.0	<5.0	
11/04/2004	<2,000	<400	580	<10	<10	<10	<10	<10	
02/08/2005	<2,000	<400	610	<10	<10	<10	<10	<10	
05/09/2005	<1,000	<200	620	<5.0	<5.0	<5.0	<5.0	<5.0	a
08/11/2005	<500	250	390	<2.5	<2.5	2.6	<2.5	<2.5	a
11/18/2005	<500	<100	340	<2.5	<2.5	<2.5	<2.5	<2.5	a
02/16/2006	<1,500	<100	340	<2.5	<2.5	<2.5	<2.5	<2.5	
5/30/2006	<1,500	<100	420	<2.5	<2.5	<2.5	<2.5	<2.5	a
8/24/2006	<3,000	<200	180	<5.0	<5.0	<5.0	<5.0	<5.0	
11/1/2006	<3,000	<200	220	<5.0	<5.0	<5.0	<5.0	<5.0	a
2/7/2007	<3,000	<200	190	<5.0	<5.0	<5.0	<5.0	<5.0	
5/8/2007	<3,000	<200	420	<5.0	<5.0	<5.0	<5.0	<5.0	
8/8/2007	<300	<20	110	<0.50	<0.50	<0.50	<0.50	<0.50	
11/14/2007	<1,500	<100	210	<2.5	<2.5	<2.5	<2.5	<2.5	
2/22/2008	<300	<10	250	<0.50	<0.50	1.5	<0.50	<0.50	
5/24/2008	<3,000	<100	380	<5.0	<5.0	<5.0	<5.0	<5.0	
8/21/2008	<1,500	<50	170	<2.5	<2.5	<2.5	<2.5	<2.5	
11/19/2008	<300	<10	30	<0.50	<0.50	<0.50	<0.50	<0.50	
2/23/2009	<1,500	<50	240	<2.5	<2.5	<2.5	<2.5	<2.5	
5/14/2009	<300	<10	200	<0.50	<0.50	1.3	<0.50	<0.50	
8/20/2009	<1,200	<40	170	<2.0	<2.0	<2.0	<2.0	<2.0	
2/19/2010	<300	<10	170	<0.50	<0.50	1.2	<0.50	<0.50	
8/10/2010	<1,500	<50	230	<2.5	<2.5	<2.5	<2.5	<2.5	
12/16/2010	<1,200	<40	140	<2.0	<2.0	<2.0	<2.0	<2.0	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-1 Cont.									
2/14/2011	<1,500	<50	170	<2.5	<2.5	<2.5	<2.5	<2.5	
8/15/2011	<1,500	<50	130	<2.5	<2.5	<2.5	<2.5	<2.5	
2/2/2012	<600	<20	66	<1.0	<1.0	<1.0	<1.0	<1.0	
MW-2									
3/23/2001	--	--	<2.5	--	--	--	--	--	
3/21/2002	--	--	45	--	--	--	--	--	
5/23/2003	<100	<20	55	<0.50	<0.50	0.53	--	--	
02/02/2004	<100	<20	37	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<500	<100	67	<2.5	<2.5	<2.5	<2.5	<2.5	
02/08/2005	<100	<20	30	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	35	<0.50	<0.50	<0.50	<0.50	<0.50	a
02/16/2006	<300	<20	39	<0.50	<0.50	<0.50	<0.50	<0.50	
8/24/2006	<300	<20	25	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2007	<300	<20	7.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	7.2	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2008	<300	<10	24	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	4.9	<0.50	<0.50	<0.50	<0.50	<0.50	
2/23/2009	<300	<10	24	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	8.4	<0.50	<0.50	<0.50	<0.50	<0.50	
2/19/2010	<300	<10	22	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2010	<300	<10	23	<0.50	<0.50	<0.50	<0.50	<0.50	
12/16/2010	<300	<10	17	<0.50	<0.50	<0.50	<0.50	<0.50	
2/14/2011	<300	<10	11	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2011	<300	<10	1.7	<0.50	<0.50	<0.50	<0.50	<0.50	
2/2/2012	<300	<10	1.8	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-3									
6/20/2000	--	--	<10	--	--	--	--	--	
12/17/2000	--	--	<2.5	--	--	--	--	--	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-3 Cont.									
6/21/2001	--	--	2.5	--	--	--	--	--	
12/31/2001	--	--	4.9	--	--	--	--	--	
4/17/2002	--	--	8.7	--	--	--	--	--	
12/6/2002	--	--	6.2	--	--	--	--	--	
5/23/2003	<100	<20	1.6	<0.50	<0.50	<0.50	--	--	
09/02/2004	<100	<20	6.5	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	11	<0.50	<0.50	<0.50	<0.50	<0.50	a
8/24/2006	<300	<20	7.6	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	3.1	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	2.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2010	<300	<10	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2011	<300	<10	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-4									
6/20/2000	--	--	<250	--	--	--	--	--	
12/17/2000	--	--	<100	--	--	--	--	--	
6/21/2001	--	--	130	--	--	--	--	--	
12/31/2001	--	--	160	--	--	--	--	--	
4/17/2002	--	--	<250	--	--	--	--	--	
12/6/2002	--	--	43	--	--	--	--	--	
5/23/2003	<10,000	<2,000	<50	<50	<50	<50	--	--	
02/02/2004	<500	<100	29	<2.5	<2.5	2.6	<2.5	<2.5	
09/02/2004	<200	<40	28	<1.0	<1.0	<1.0	<1.0	<1.0	
02/08/2005	<5,000	<1,000	45	<25	<25	<25	<25	<25	
08/11/2005	<2,000	<400	32	<10	<10	<10	<10	<10	
02/16/2006	<6,000	<400	35	<10	<10	<10	<10	<10	
8/24/2006	<1,500	<100	39	<2.5	<2.5	<2.5	<2.5	<2.5	
2/7/2007	<6,000	<400	67	<10	<10	<10	<10	<10	
8/8/2007	<6,000	<400	72	<10	<10	<10	<10	<10	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-4 Cont.									
2/22/2008	<6,000	<200	70	<10	<10	<10	<10	<10	
8/21/2008	<12,000	<400	53	<20	<20	<20	<20	<20	
2/23/2009	<3,000	<100	39	<5.0	<5.0	<5.0	<5.0	<5.0	
8/20/2009	<12,000	<400	23	<20	<20	<20	<20	<20	
2/19/2010	<3,000	<100	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
8/10/2010	<12,000	<400	<20	<20	<20	<20	<20	<20	
12/16/2010	<15,000	<500	<25	<25	<25	<25	<25	<25	
2/14/2011	<300	<10	13	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2011	<7,500	<250	<12	<12	<12	<12	<12	<12	
2/2/2012	<7,500	<250	<12	<12	<12	<12	<12	<12	
MW-5									
6/20/2000	--	--	<10	--	--	--	--	--	
9/28/2000	--	--	<2.5	--	--	--	--	--	
12/17/2000	--	--	<2.5	--	--	--	--	--	
3/23/2001	--	--	<2.5	--	--	--	--	--	
6/21/2001	--	--	<2.5	--	--	--	--	--	
9/23/2001	--	--	<2.5	--	--	--	--	--	
12/31/2001	--	--	<2.5	--	--	--	--	--	
3/21/2002	--	--	3.2	--	--	--	--	--	
4/17/2002	--	--	<2.5	--	--	--	--	--	
8/12/2002	--	--	<2.5	--	--	--	--	--	
12/6/2002	--	--	<2.5	--	--	--	--	--	
1/29/2003	<40	<20	<0.50	<0.50	<0.50	<0.50	--	--	
5/23/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	--	--	
9/4/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/24/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-5 Cont.									
8/21/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-6									
3/23/2001	--	--	<2.5	--	--	--	--	--	
3/21/2002	--	--	5.2	--	--	--	--	--	
5/23/2003	<100	<20	9.4	<0.50	<0.50	<0.50	--	--	
08/11/2005	<100	<20	7.9	<0.50	<0.50	<0.50	<0.50	<0.50	a
8/24/2006	<300	<20	12	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	0.57	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2010	<300	<10	4.3	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2011	<300	<10	2.2	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-7									
12/16/2010	<300	<10	62	<0.50	<0.50	<0.50	<0.50	<0.50	
2/14/2011	<1,2000	<400	<20	<20	<20	<20	<20	<20	
5/20/2011	<300	<10	4.6	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2011	<600	<20	14	<1.0	<1.0	<1.0	<1.0	<1.0	
2/2/2012	<300	<10	6.2	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-8									
12/16/2010	<300	<10	150	<0.50	<0.50	1.7	<0.50	<0.50	
2/14/2011	<1,200	<40	110	<2.0	<2.0	<2.0	<2.0	<2.0	
5/20/2011	<1,200	<40	88	<2.0	<2.0	<2.0	<2.0	<2.0	
8/15/2011	<600	<20	57	<1.0	<1.0	<1.0	<1.0	<1.0	
2/2/2012	<300	<10	3.9	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-9									
12/16/2010	<300	40	390	<0.50	<0.50	4.1	<0.50	<0.50	
2/14/2011	<2,400	<80	270	<4.0	<4.0	<4.0	<4.0	<4.0	
5/20/2011	<2,400	<80	280	<4.0	<4.0	<4.0	<4.0	<4.0	
8/15/2011	<1,200	<40	120	<2.0	<2.0	<2.0	<2.0	<2.0	
2/2/2012	<300	<10	34	<0.50	<0.50	<0.50	<0.50	<0.50	

Symbols & Abbreviations:

-- = Not analyzed/applicable/measured/available

< = Not detected at or above the laboratory reporting limit

1,2-DCA = 1,2-Dichloroethane
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

ESL - DW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil & Groundwater, Interim Final-November 2007 (Revised May 2008).

ESL - NDW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is NOT a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil & Groundwater, Interim Final-November 2007 (Revised May 2008).

NE = ESL not established

Footnotes:

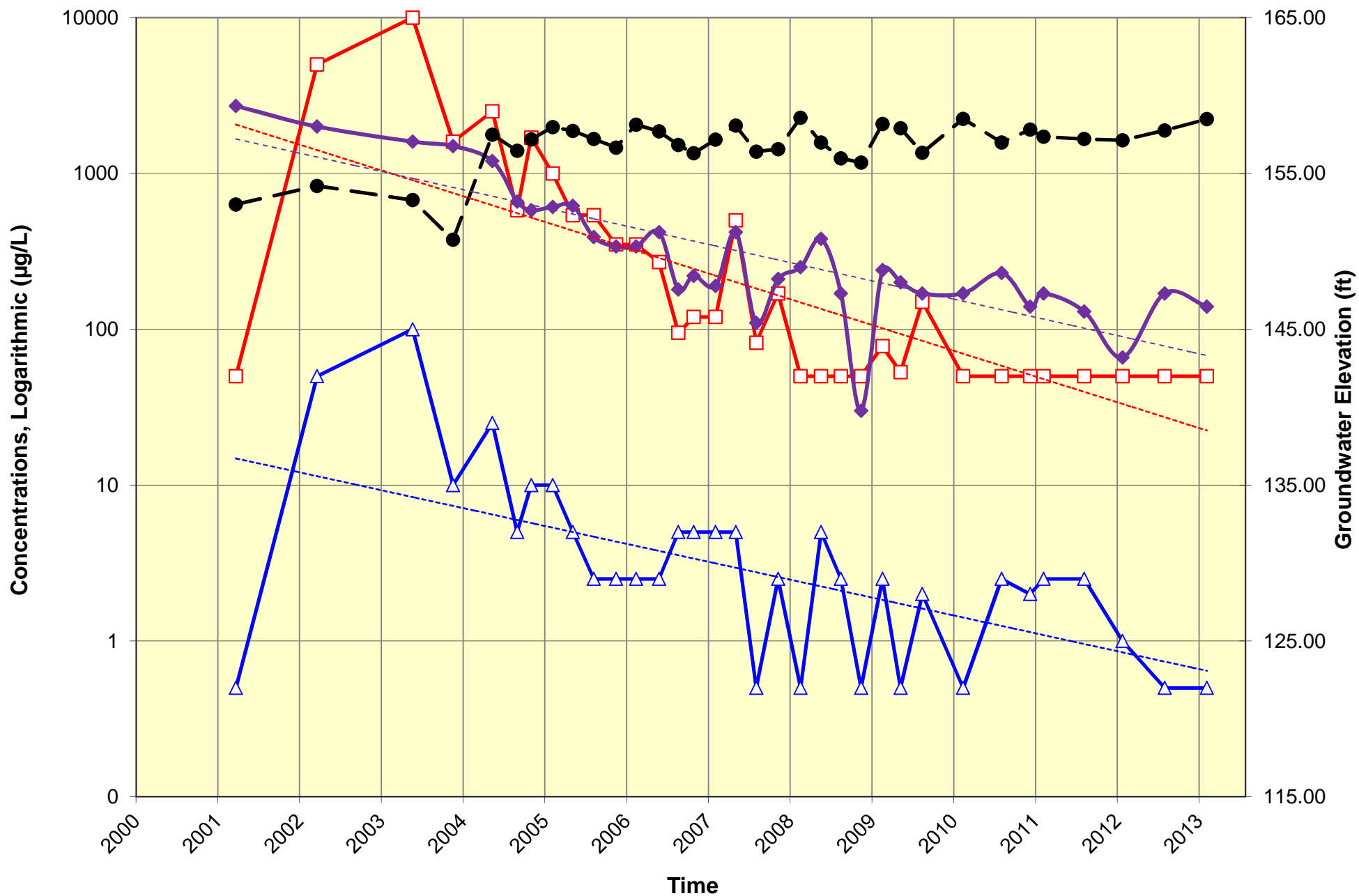
a = The continuing calibration verification for ethanol was outside of client contractual limits, however, it was within method acceptance limits. The data should still be useful for its intended purpose

Notes:

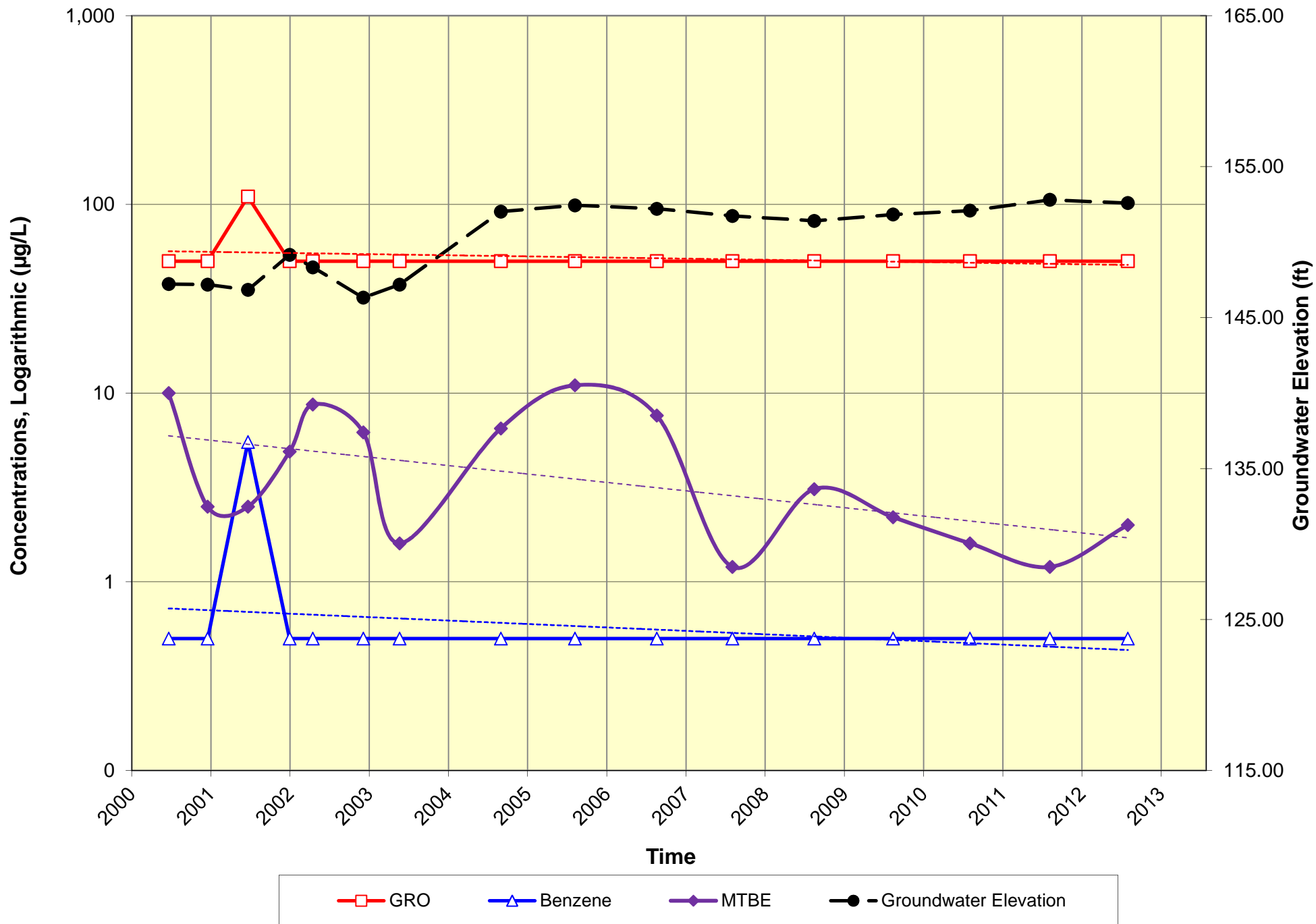
All volatile organic compounds analyzed using EPA Method 8260B

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

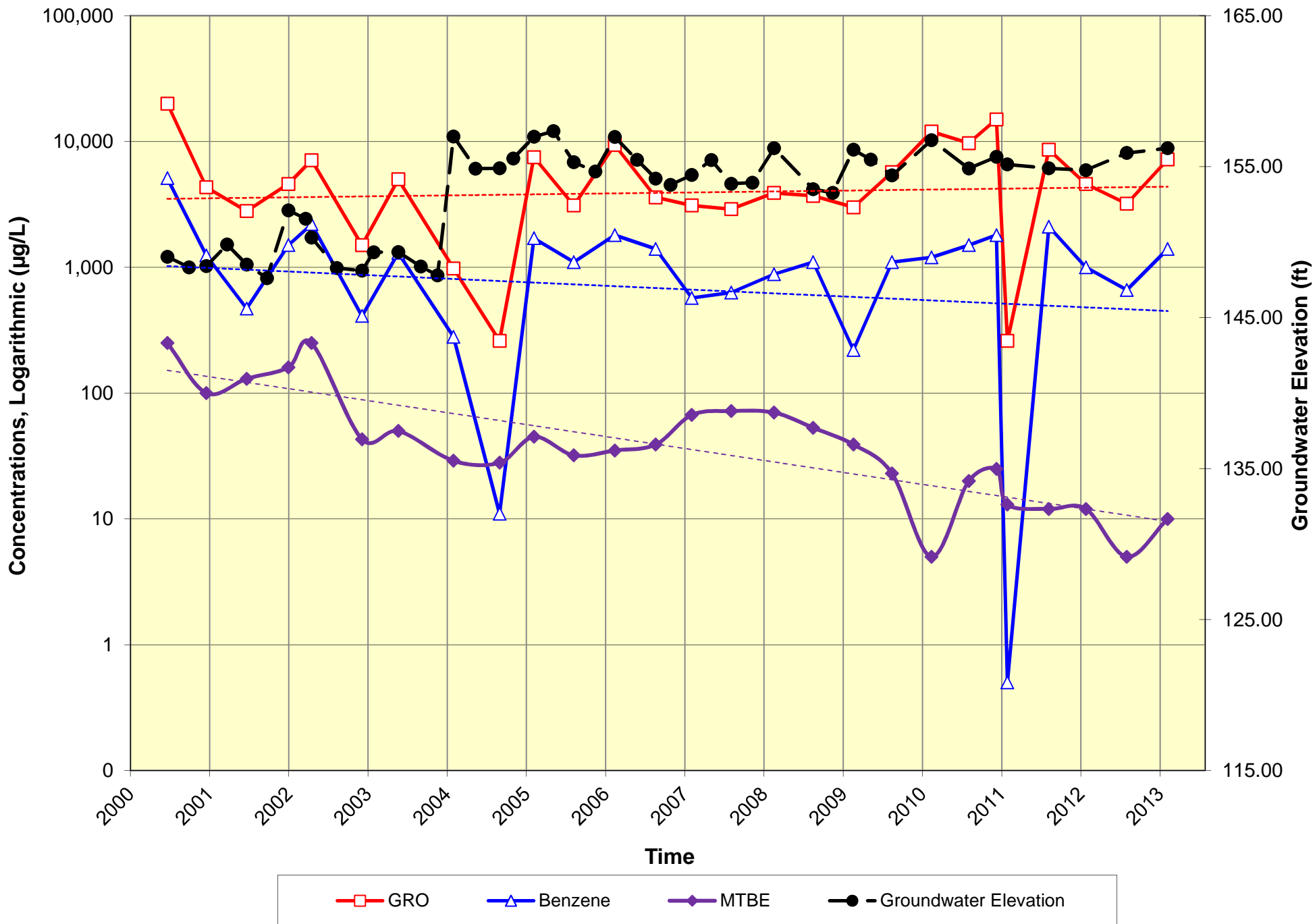
MW-1 Concentrations vs. Time



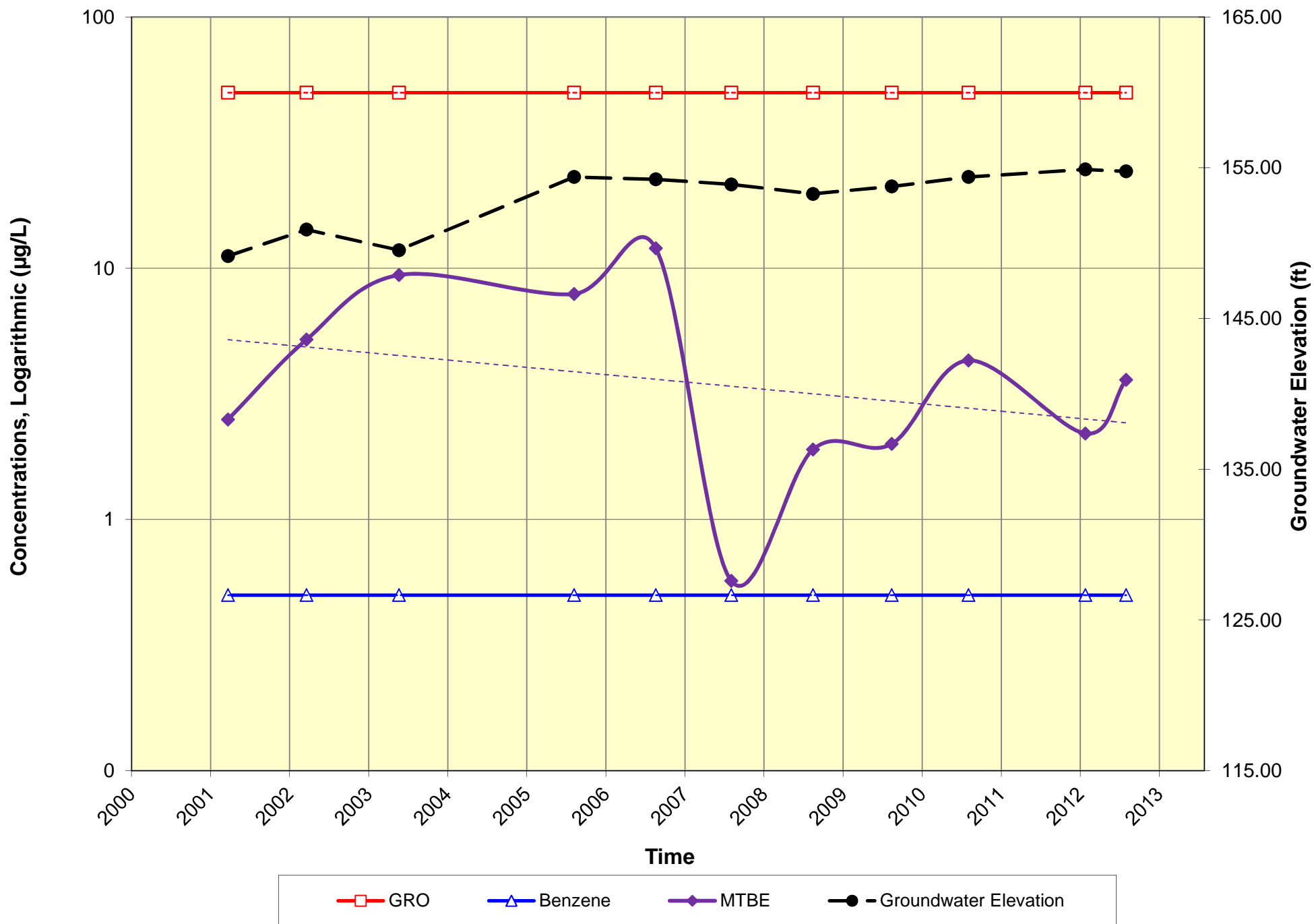
MW-3 Concentrations vs. Time



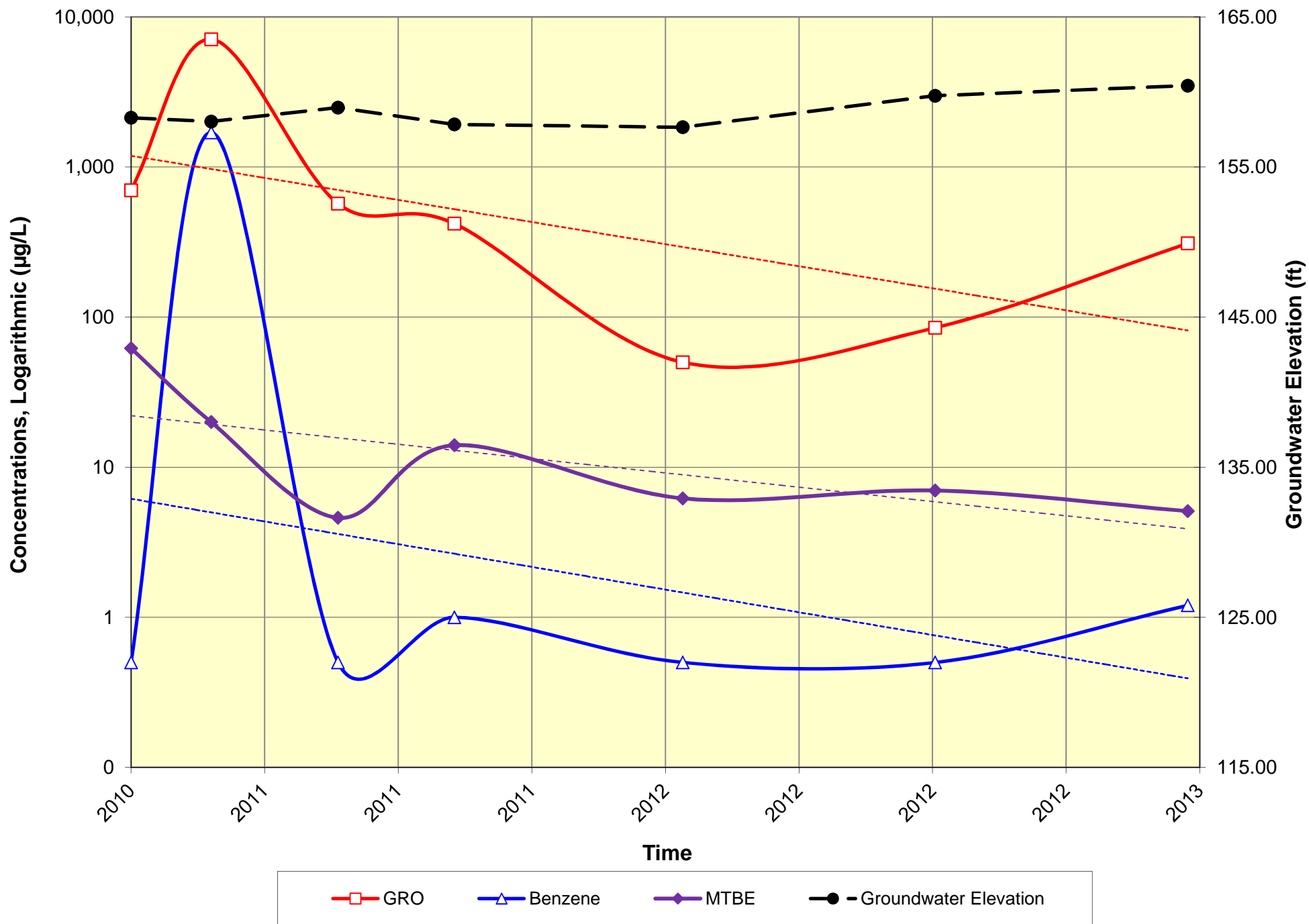
MW-4 Concentrations vs. Time



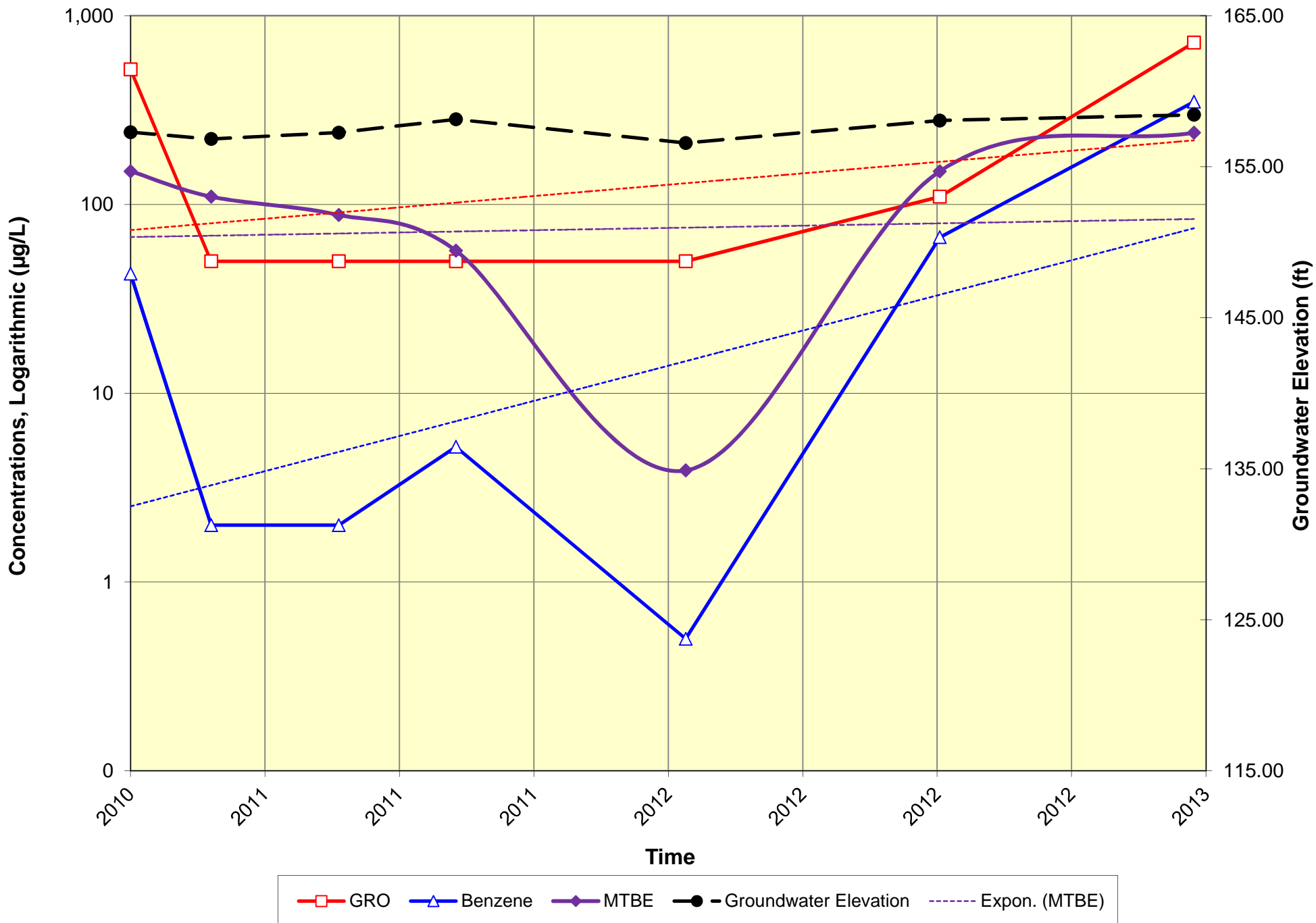
MW-6 Concentrations vs. Time



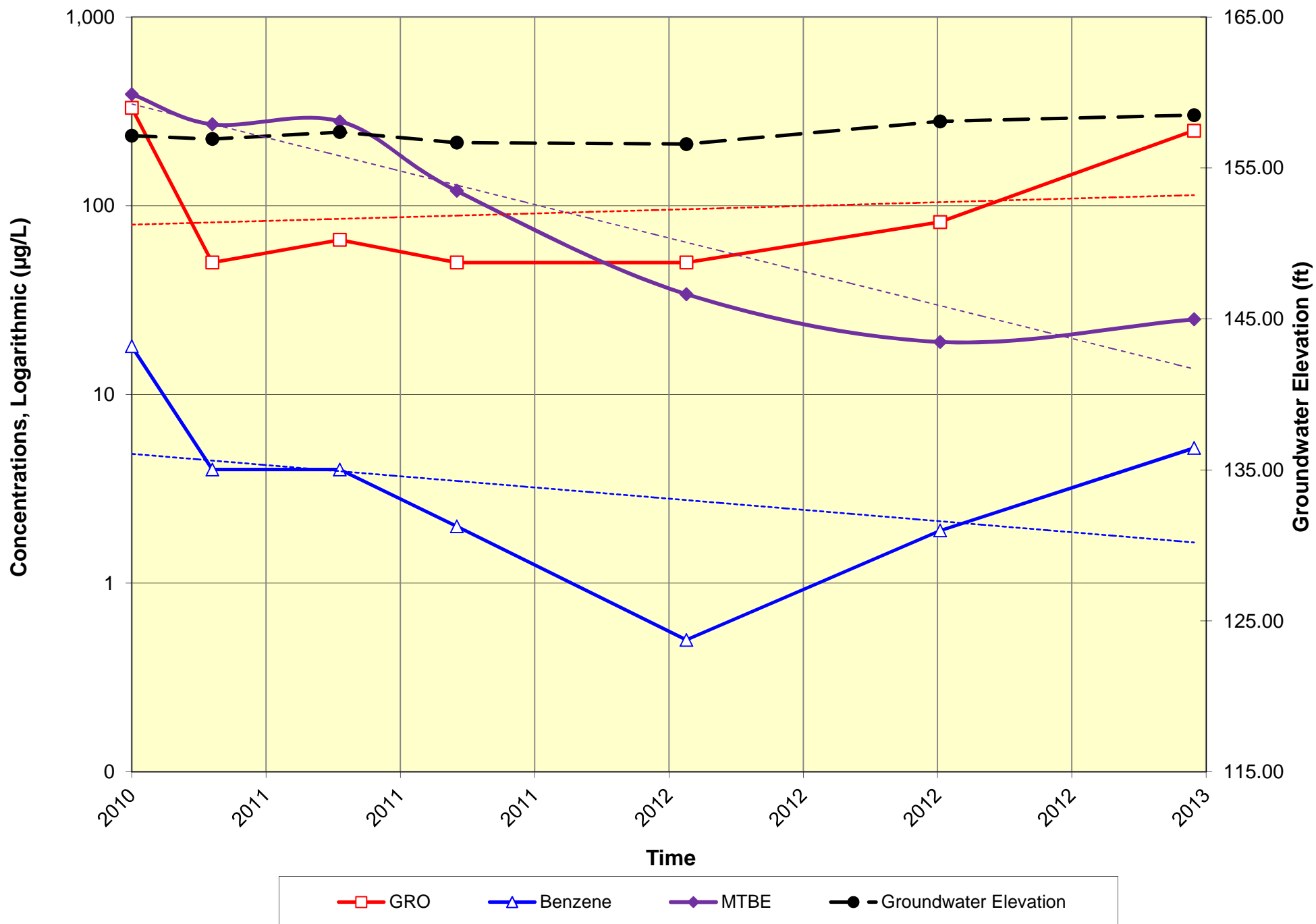
MW-7 Concentrations vs. Time



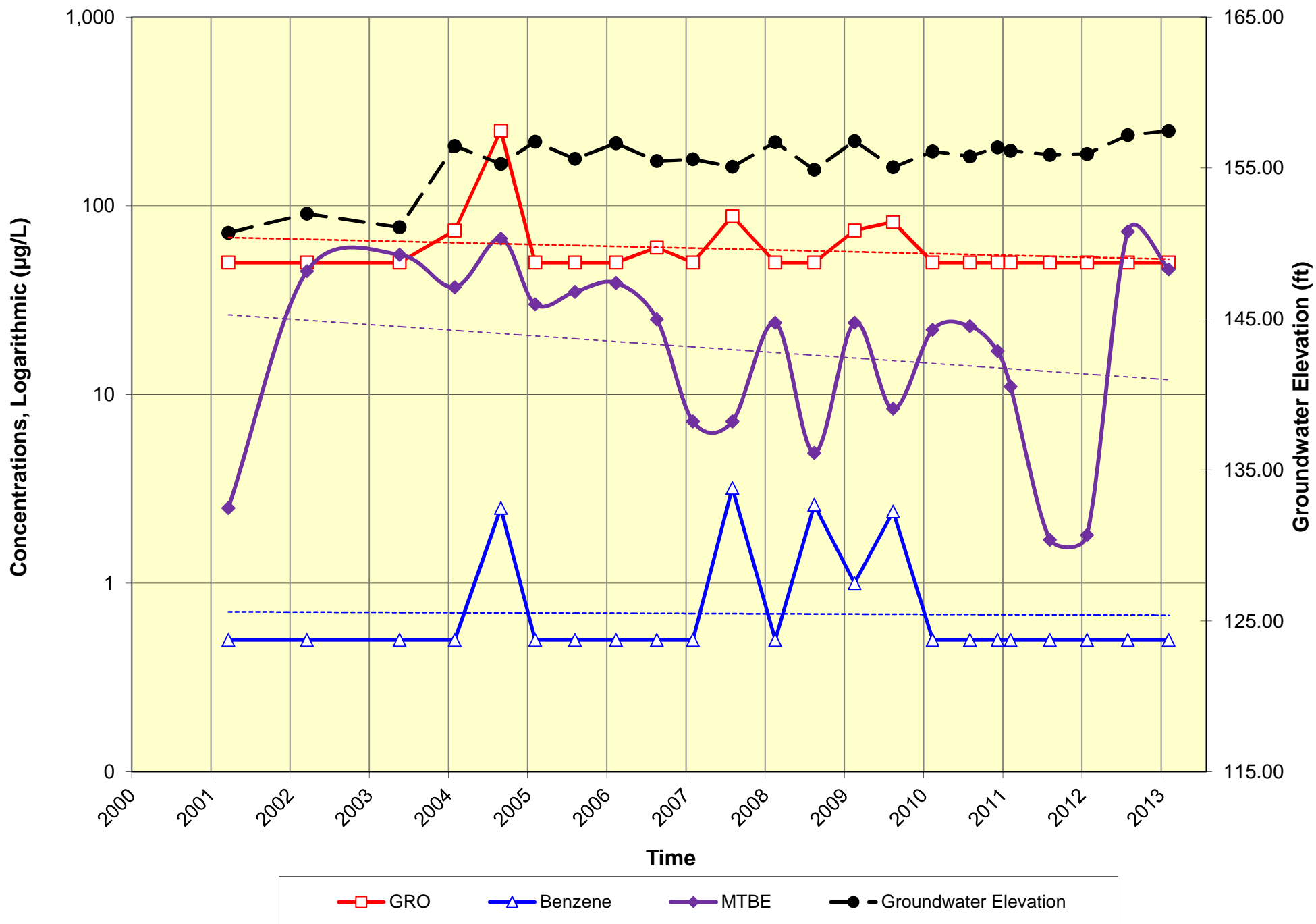
MW-8 Concentrations vs. Time



MW-9 Concentrations vs. Time

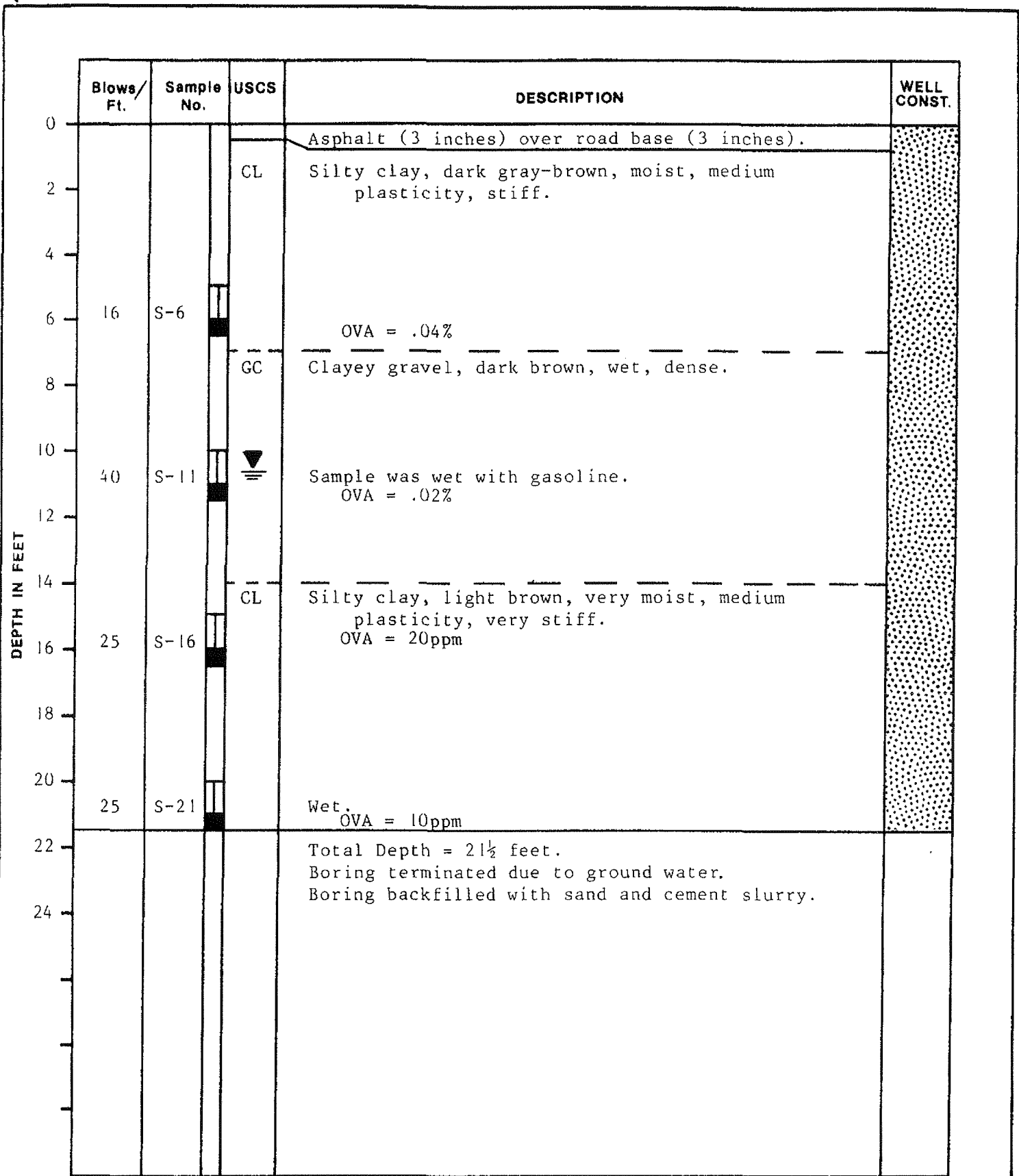


MW-2 Concentrations vs. Time



APPENDIX C

SOIL BORING AND WELL CONSTRUCTION LOGS



Applied GeoSystems
41253 Mission Blvd. Suite B Fremont, CA 94539 415-651-1906

LOG OF BORING B - 1

ARCO Station No. 374



Telegraph and Alcatraz Avenues

Oakland, California

PLATE

P-4

PROJECT NO. 18039-1

DEPTH IN FEET	Blows/ Ft.	Sample No.	USCS	DESCRIPTION	WELL CONST.
	0				Asphalt (3 inches) over road base (3 inches).
2			CL	Silty clay, with trace sand, gray-brown, damp, medium plasticity, very stiff.	
6	29	S-6		OVA = .05%	
8			SC	Clayey sand, gray-brown, wet, medium dense.	
10	18	S-9.5		OVA = 100ppm	
14		S-14		No sample recovered.	
16				Total Depth = 14½ feet. Boring terminated due to ground water. Boring backfilled with sand and cement slurry.	



Applied GeoSystems
41255 Miramar Blvd. Suite B Fremont, CA 94539 (415) 851-1906

LOG OF BORING B - 2

ARCO Station No. 374

Telegraph and Alcatraz Avenues
Oakland, California

PLATE

P-5

PROJECT NO. 18039-1

DEPTH IN FEET	Blows/ Ft.	Sample No.	USCS	DESCRIPTION	WELL CONST.
	0				Asphalt (3 inches) over road base (3 inches).
2			CL	Silty clay, with sand and gravel, gray-brown, damp, medium plasticity, stiff.	
6	13	S-6		OVA = 41ppm	
10	16	S-10		Silty clay, very moist. OVA = 82ppm	[Dotted pattern]
12				Total Depth = 11 feet. Boring backfilled with sand and cement slurry.	
14					
16					

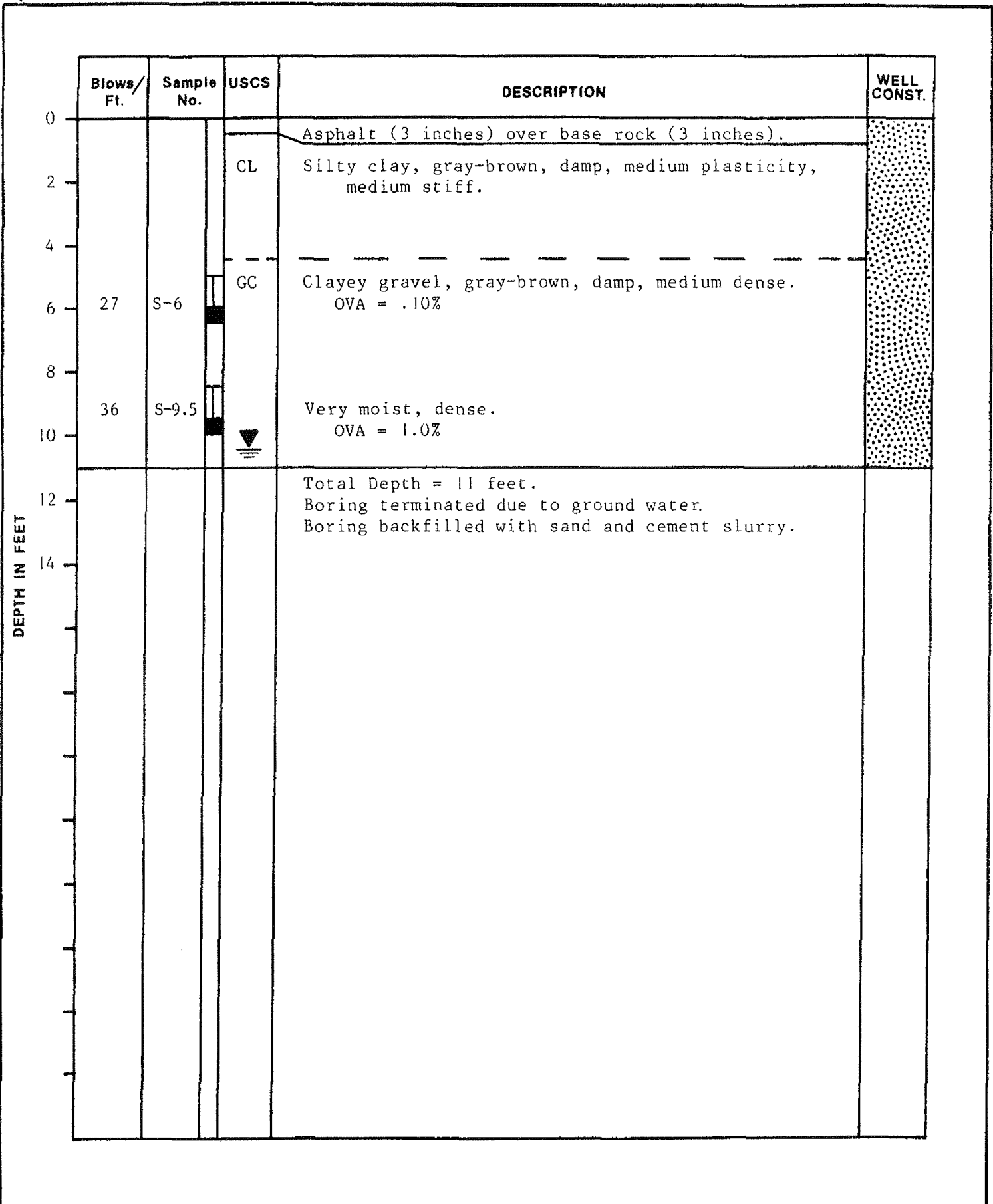


Applied GeoSystems
 31215 Mission Blvd. Suite B Fremont, CA 94539 (415) 651-1906

LOG OF BORING B - 3
ARCO Station No. 374
Telegraph and Alcatraz Avenues
Oakland, California

PLATE
P-6

PROJECT NO. **18039-1**



Applied GeoSystems
 41255 Mission Blvd. Suite B Fremont, CA 94539 (415) 651-1906

LOG OF BORING B - 4
 ARCO Station No. 374
 Telegraph and Alcatraz Avenues
 Oakland, California

PLATE
P-7

PROJECT NO. 18039-1

Total depth of boring: 28-1/2 feet **Diameter of boring:** 11 inches **Date drilled:** 7-6-89
Casing diameter: 4 inches **Length:** 27 feet **Slot size:** 0.020-inch
Screen diameter: 4 inches **Length:** 20 feet **Material type:** Sch 40 PVC
Drilling Company: Kviihaug Drilling Company, Inc. **Driller:** Rod and Leroy
Method Used: Hollow-Stem Auger **Field Geologist:** Becky and Keith

Signature of Registered Professional: _____

Registration No.: _____ **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt.	
2				CL	Silty clay, dark brown, slightly damp, medium plasticity, very stiff, rootlets, minor iron staining.	
4	S-3.5	4 12 18	0			
8	S-8.5	3 5 12	110	▽	Sandy clay, grading to clay with gravel, some mottling, slight plasticity, stiff, noticeable odor.	
12				▽		
14	S-13.5	15 18 20	81		Slightly green, hard.	
18	S-18.5	8 10 12	0		Silty clay, some sand and gravel, light brown, moist, medium plasticity, very stiff.	
20					(Section continues downward)	



PROJECT NO. 18039-3

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

PLATE
4

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



PROJECT NO. 18039-3

LOG OF BORING B-1/MW-1

ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE

5

Total depth of boring: 28-1/2 feet **Diameter of boring:** 11 inches **Date drilled:** 7-6-89
Casing diameter: 4 inches **Length:** 27 feet **Slot size:** 0.020-inch
Screen diameter: 4 inches **Length:** 20 feet **Material type:** Sch 40 PVC
Drilling Company: Kvilhaug Drilling Company, Inc. **Driller:** Rod and Leroy
Method Used: Hollow-Stem Auger **Field Geologist:** Becky and Keith
Signature of Registered Professional: _____
Registration No.: _____ **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0				CL	Sandy clay, dark brown, damp, slight plasticity, very stiff.	
4	S-3.5	6 10 12	0			
8	S-8.5	7 20 25	0	▽	Silty clay, with some gravel, light brown, damp, hard.	
14	S-13.5	5 7 15	0		Very stiff.	
18	S-18.5	7 20 25	0	▽	Silty clay with gravel, brown, moist, hard.	
20						

(Section continues downward)



PROJECT NO. 18039-3

LOG OF BORING B-2/MW-2

ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE

6

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
-22		.3		CL	Silty clay with gravel, brown, moist, hard.	[Well Const. Diagram]
-24	S-23	5 12	0		Silty clay, some fine gravel, dark brown, stiff.	
-26		.10				
-28	S-27	.20 25	0		Silty clay with sand, medium brown, slightly damp, slight plasticity, hard.	
					Total Depth = 28-1/2 feet.	
-30						
-32						
-34						
-36						
-38						
-40						
-42						
-44						
-46						
-48						
-50						



PROJECT NO. 18039-3

LOG OF BORING B-2/MW-2

ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE

7

Total depth of boring: 28-1/2 feet **Diameter of boring:** 11 inches **Date drilled:** 7-7-89
Casing diameter: 4 inches **Length:** 27 feet **Slot size:** 0.020-inch
Screen diameter: 4 inches **Length:** 20 feet **Material type:** Sch 40 PVC
Drilling Company: Kvilhaug Drilling Company, Inc. **Driller:** Rod and Leroy
Method Used: Hollow-Stem Auger **Field Geologist:** Becky and Keith

Signature of Registered Professional: _____
Registration No.: _____ **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Concrete (4 inches) over baserock (6 inches).	
2				CL	Silty clay, with sand and some gravel, medium brown, damp, slight plasticity, stiff, rootlets.	
4	S-3.5	3 10 10	0			
8	S-8.5	2 4 8	0		Damp.	
14	S-13.5	4 6 10	8.5		Some mottling, moist.	
18	S-18.5	.6 5 12	9.1		Silty clay, minor gravel, light to medium brown, damp, medium plasticity, stiff.	
20						

(Section continues downward)



PROJECT NO. 18039-3

LOG OF BORING B-3/MW-3

ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE

8

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



Applied GeoSystems

PROJECT NO. 18039-3

LOG OF BORING B-3/MW-3

ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE

9

Total depth of boring: 27-1/2 feet **Diameter of boring:** 11 inches **Date drilled:** 7-7-89
Casing diameter: 4 inches **Length:** 27 feet **Slot size:** 0.020-inch
Screen diameter: 4 inches **Length:** 20 feet **Material type:** Sch 40 PVC
Drilling Company: Kvilhaug Drilling Company, Inc. **Driller:** Rod and Leroy
Method Used: Hollow-Stem Auger **Field Geologist:** Becky and Keith
Signature of Registered Professional: _____
Registration No.: _____ **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
2		2				
3.5		3				
4		8	0	CL	Silty clay, some sand and fine-grained gravel, very dark brown, slightly damp, slight plasticity, stiff.	
6						
8		3				
8.5		4				
10		10	0			
12						
14	S-13.5	4				
14		10	41.6	GM	Sandy gravel, some silt, medium brown, very moist, medium dense, obvious odor.	
16						
18		15				
18	S-18.5	15				
18		20	0		Wet, dense.	
20						

(Section continues downward)



PROJECT NO. 18039-3

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

PLATE
10

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
				GM	Sandy gravel, some silt, medium brown, very moist, medium dense.	
-22		.6		CL	Silty clay, some sand and gravel, very stiff.	
-24	S-23.5	12 15	0			
-26		.7		0	Grades more gravelly.	
-27	S-27	20 20	0			
-28					Total Depth = 27-1/2 feet.	
-30						
-32						
-34						
-36						
-38						
-40						
-42						
-44						
-46						
-48						
-50						



PROJECT NO. 18039-3

LOG OF BORING B-4/MW-4 PLATE

ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

11

Depth of boring: 25-1/2 feet Diameter of boring: 10 inches Date drilled: 4/1/92
 Well depth: 23 feet Material type: Sch 40 PVC Casing diameter: 4 inches
 Screen interval: 10 to 23 feet Slot size: 0.020-inch
 Drilling Company: Gregg Drilling Driller: Steve Stone
 Method Used: Hollow-Stem Auger Field Geologist: Rob Campbell

Signature of Registered Professional: [Signature]
 Registration No.: RCE 044600 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Paved street: Alcatraz Avenue	
					Asphalt (6 inches).	
				SW	Gravelly sand, gray, damp, very dense: Fill (Baserock).	
2				CL	Silty clay with trace of coarse-grained sand, dark blue-gray, damp, medium plasticity, very stiff.	
4					Color change to light brown at 4 feet.	
6	S-5.5	7 18 22	0		Color change to light brown mottled with green, hard; caliche nodules present.	
8					Color change to green at 7-1/2 feet. (Water level - 4/9/92).	
10	S-10	5 10 20	0		Color change to dark green at 10 feet, moist.	
14	S-14.5	6 14 29	0	CL	Color change to light brown at 13 feet. Sandy clay with silt, light brown, very moist, medium plasticity, hard.	
16				CL	Gravelly clay with sand, light brown, very moist, low plasticity, hard.	
18				CL	Silty clay with sand, light brown, very moist, low plasticity, very stiff.	
20	S-19	8 10 12	0	SC	Clayey sand, brown, wet, medium dense.	
				CH	Silty clay, light brown, very moist, high plasticity, hard.	

(Section continues downward)



LOG OF BORING B-5/MW-5
 ARCO Station 374
 6407 Telegraph Avenue
 Oakland, California

PLATE
 4

PROJECT: 60025.05

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
-22				CH	Silty clay, light brown, very moist, high plasticity, hard.	
-24	S-24.5	10 22 35	0	ML	Sandy silt with clay, brown, moist, low plasticity, hard.	
-26					Total depth = 25-1/2 feet.	
-28						
-30						
-32						
-34						
-36						
-38						
-40						
-42						
-44						
-46						
-48						
-50						

RESNA
Working to Restore Nature

PROJECT 60025.05

LOG OF BORING B-5/MW-5
ARCO Station 374
6407 Telegraph Avenue
Oakland, California

PLATE

5

Depth of boring: 17 feet Diameter of boring: 10 inches Date drilled: 4/1/92
 Well depth: 15 feet Material type: Sch 40 PVC Casing diameter: 4 inches
 Screen interval: 5 to 15 feet Slot size: 0.020-inch
 Drilling Company: Gregg Drilling Driller: Steve Stone
 Method Used: Hollow-Stem Auger Field Geologist: Rob Campbell

Signature of Registered Professional: *Steve Stone*
 Registration No.: RCE 044600 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Paved Street: Irwin Court. Asphalt (7 inches).	
2				SW	Gravelly sand, gray, damp, very dense: Fill (baserock).	
4				CL	Silty clay, dark brown mottled with green, moist, medium plasticity, stiff.	
4				▽	Color change to light brown at 3-1/2 feet. (Water level - 4/9/92)	
6	S-5.5	4 6 9	0	CL	Sandy clay with silt, light brown, moist, low plasticity, stiff; some organic fragments and root holes.	
8				▽		
10	S-10	11 18 25 4	0	GP	Sandy gravel with some silt, light brown, wet, dense.	
12		8 16	0			
14		6 12 18				
16	S-15	11 25 32	0	CL	Silty clay with gravel, light brown, very moist, medium plasticity, hard.	
18					Total depth = 17 feet.	
20						



PROJECT: 60025.05

LOG OF BORING B-6/MW-6
 ARCO Station 374
 6407 Telegraph Avenue
 Oakland, California

PLATE

6

SOIL BORING LOG

Boring No. B-11

Sheet: 1 of 1

Client	ARCO 374	Date	November 13, 2008
Address	6407 Telegraph Avenue Oakland, CA	Drilling Co.	RSI rig type: Geoprobe GH-40
Project No.	E374	Driller	Juan Morales
Logged By:	Scott Bittinger	Method	Direct Push borehole diameter: 3"
Well Pack	grout: 16 ft. to 0 ft.	Sampler:	Acetate Liner

Sample Type	Sample		Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
	No.	Blow Count					
				1		Airknife to 5' bgs.	
				2		mixed fill material (fine grained soil, sand, and gravel mixtures) with plastic and other debris	
				3			
				4	CL		SILTY CLAY fill material, olive brown to greenish gray, dry to moist
				5			
				6			
				7			
				8			
				9	GP	GRAVEL (crushed rock fill material), fine gravel particle size, very wet	
				10			
				11			
				12			
				13			
				14			
S	B11-15		9:03	15	CL	SILTY CLAY, grayish brown (13.5' to 15'), light olive brown with orange iron oxide stains (15'-16'), wet (13.5'-15'), moist (15'-16'), stiff	4.2
				16			
				17			
				18			
				19			
				20			

Recovery _____

Sample _____

Comments: total depth = 16'

STRATUS
ENVIRONMENTAL, INC.



SOIL BORING LOG

Boring No. B-12

Sheet: 1 of 1

Client	ARCO 374	Date	November 13, 2008
Address	6407 Telegraph Avenue Oakland, CA	Drilling Co.	RSI rig type: Geoprobe GH-40
Project No.	E374	Driller	Juan Morales
Logged By:	Scott Bittinger	Method	Direct Push borehole diameter: 3"
Well Pack	grout: 16 ft. to 0 ft.	Sampler:	Acetate Liner

Sample Type	Sample		Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
	No.	Blow Count					
				1		Airknife to 5' bgs.	
				2		mixed fill material (fine grained soil, sand, and gravel mixtures) with plastic and other debris	
				3			
				4			
				5	CL	SILTY CLAY fill material, olive brown to greenish gray, dry to moist	
				6			
				7			
				8			
				9			
				10	GP	GRAVEL (crushed rock fill material), fine gravel particle size, very wet	
				11			
				12			
				13			
				14			
S	B12-15.5		9:50	15	CL	SILTY CLAY, light olive brown, damp to moist, stiff	6.3
				16			
				17			
				18			
				19			
				20			

Recovery _____

Sample _____

Comments: total depth = 16'

STRATUS
ENVIRONMENTAL, INC.



SOIL BORING LOG

Boring No. B-13

Sheet: 1 of 1

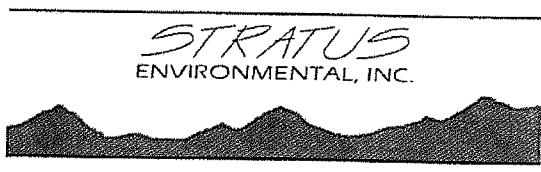
Client	ARCO 374	Date	September 21, 2009
Address	6407 Telegraph Avenue Oakland, CA	Drilling Co.	RSI Drilling rig type: Powerprobe 6600
Project No.	E374	Driller	Gilberto
Logged By:	Collin Fischer	Method	Geoprobe Hole Diameter: 2 inches
		Sampler:	Continuous Core

Type	Sample		Blow Count	Sample		Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
	No.			Time	Recov.				
						1		Cleared to 6.5' bgs with air knife.	
						2			
						3	CL	Silty clay with sand, CL, (0'-5.5'), dark gray, moist, medium plasticity 60% clay, 30% silt, 10% medium grained sand	
						4			
S	B-13 4.5'		N/A	1120	100	5			18
						6			
S	B-13 6.5'		N/A	1130	100	7	SC	Clayey sand with silt and gravel, SC, (5.5'-7.5'), dark gray, moist, HC odor 50% medium grained sand, 25% clay, 15% silt, 10% medium gravel	48
						8			
S	B-13 8.5'		N/A	1515	100	9	ML	Clayey silt, ML, (7.5'-8.5'), dark gray, moist, medium plasticity, HC odor 60% silt, 40% clay	3800
						10			
						11	SC	Clayey sand with silt and gravel, SC, (8.5'-12.5'), dark gray, moist to wet 50% coarse grained sand, 25% clay, 15% silt, 10% coarse gravel	
						12			
						13			
						14			
						15	CL	Silty clay with gravel, CL, (12.5'-18'), dark yellowish brown, moist, medium plasticity 70% clay 30% silt	
						16			
						17			
						18			
						19			
						20			

Recovery

Sample

Comments: Failed water sample from temporary screen interval from 8'-18' bgs.



SOIL BORING LOG

Boring No. B-14

Sheet: 1 of 1

Client	ARCO 374	Date	September 21, 2009
Address	6407 Telegraph Avenue Oakland, CA	Drilling Co.	RSI Drilling rig type: Powerprobe 6600
Project No.	E374	Driller	Gilberto
Logged By:	Collin Fischer	Method	Geoprobe Hole Diameter: 2 inches
		Sampler:	Continuous Core

Type	Sample		Blow Count	Time	Recov.	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
	No.	Time							
						1		Cleared to 6.5' bgs with air knife.	
						2			
						3	CL	Silty clay with sand, CL, (0'-5.5'), dark gray, moist, medium plasticity 60% clay, 30% silt, 10% medium grained sand	
S	B-14 4.5'	N/A	0940	100		4			0
						5			
S	B-14 6.5'	N/A	0950	100		6			0
						7		Clayey silt, ML, (5.5'-7'), dark gray, moist, medium plasticity, HC odor 60% silt 40% clay	
						8	ML		
S	B-14 8.5'	N/A	1100	100		9		Clayey silt with sand and gravel, ML, (7'-11'), dark gray, moist, medium plasticity HC odor, 50% silt, 30% clay, 10% fine grained sand, 10% medium gravel	62
						10			
						11			
						12			
						13			
						14			
						15	SC	Clayey sand with silt and gravel, SC, dark yellowish brown, wet 50% coarse grained sand, 25% clay, 15% silt, 10% coarse gravel	
						16			
						17			
						18			
						19			
						20			

Recovery

Sample

Comments: Failed water sample from temporary screen intervals from 4.5'-14.5' and 8'-18' bgs.

STRATUS
ENVIRONMENTAL, INC.

SOIL BORING LOG

Boring No. B-15

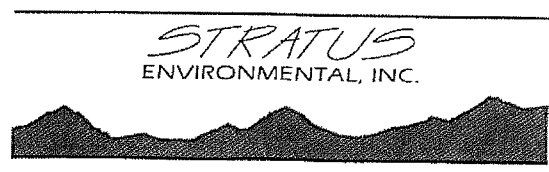
Sheet: 1 of 1

Client	ARCO 374	Date	September 21, 2009
Address	6407 Telegraph Avenue Oakland, CA	Drilling Co.	RSI Drilling rig type: Powerprobe 6600
Project No.	E374	Driller	Gilberto
Logged By:	Collin Fischer	Method	Geoprobe Hole Diameter: 2 inches
		Sampler:	Continuous Core

Type	Sample		Blow Count	Sample		Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
	No.			Time	Recov.				
						1		Cleared to 6.5' bgs with air knife.	
						2			
						3	CL	Silty clay with sand, CL, (0'-5.5'), dark gray, moist, medium plasticity 60% clay, 30% silt, 10% medium grained sand	
S	B-15 4.5'		N/A	1015	100	4			163
						5			
						6			
S	B-15 6.5'		N/A	1025	100	7			82
						8	ML	Clayey silt, ML, (5.5'-9.5'), dark gray, moist, medium plasticity, HC odor 60% silt, 40% clay	
S	B-15 8.5'		N/A	1210	100	9			146
						10			
						11		Clayey sand with silt and gravel, SC, (9.5'-11.5'), dark gray, wet, HC odor 50% medium grained sand, 25% clay, 15% silt, 10% coarse gravel	
						12	SC		
						13			
						14		Clayey sand with silt and gravel, SC, (11.5'-15'), dark yellowish brown, moist 50% medium to coarse grained sand, 25% clay, 15% silt, 10% coarse gravel	
						15			
						16			
						17	CL	Silty clay, CL, (15'-18'), dark yellowish brown, moist, medium plasticity 70% clay, 30% silt	
						18			
						19			
						20			

Recovery
Sample

Comments: Water sample taken from temporary screen interval (8'-18') bgs.



PROJECT NAME: BP/ARCO 374 SITE ADDRESS: 6407 Telegraph Ave., Oakland, CA

PROJECT NUMBER: 06-88-602 LEGAL DESC: _____ APN: _____

LOGGED BY: Aaron Sonerholm FACILITY ID OR WAIVER: _____ NOI NUMBER: _____

DATE: 11/24/2010 START: 0745 DRILLING COMPANY: Gregg DRILLER: Jason

WELL ID: B-16/MW-7 STOP: 1015 DRILLING METHOD: Hollow Stem Auger SAMPLE METHOD: Split Spoon

DEPTH (FEET)	MONITOR WELL CONSTRUCTION DIAMETER: 4"	SAMPLE ID	PID	MOISTURE			COLOR	CONSISTENCY	GRAIN SIZE	CLASSIFICATION	REMARKS & ODORS
1	GROUT										
2	BENTONITE										
3		MW-7-3	0.0 ppm	Moist		Gray to Dk. Gray		Silty clay - clayey silt with sand		CL	
4											
5		MW-7-5	0.0 ppm								
6		MW-7-6	8.7 ppm					Clayey silt with some sand and gravel		ML	
7											
8	#2/12 SAND	MW-7-8	385 ppm	Moist		Gray - Dk. gray	Stiff	Clayey silt with sand grading to silty sand and gravel			
9											
10		MW-7-9.5	0.0 ppm	Moist		Brown - Reddish brown	Med. Dense	Sand, fine grained poorly graded with trace silt		SP	
11		MW-7-11	9.4 ppm			Brown Dark brown		Silty sand with gravel		SM	
12											
13		MW-7-12.5	0.0 ppm	Very moist			Very stiff	Clayey silt and sand and gravel		CL	
14		MW-7-14	0.0 ppm								
15											
16		MW-7-15.5	0.0 ppm					Silty sands with gravels, fine to coarse grained		SM	
17		MW-7-17	0.0 ppm								
18	SCREEN INTERVAL 0.01"	MW-7-18.5	0.0 ppm	Very moist to wet			Stiff	Wet at 18 feet Silty clay with gravel		CL	
19											
20		MW-7-20	0.0 ppm								

TOTAL BORING DEPTH: 20.0' PAGE NO: 1 OF 1 ESTIMATED GROUNDWATER DEPTH: 7.44'

BROADBENT & ASSOCIATES, INC. LITHOLOGIC AND MONITOR WELL CONSTRUCTION LOG

ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

PROJECT NAME: BP/ARCO 374 SITE ADDRESS: 6407 Telegraph Ave., Oakland, CA

PROJECT NUMBER: 06-88-602 LEGAL DESC: _____ APN: _____

LOGGED BY: Aaron Sonerholm FACILITY ID OR WAIVER: _____ NOI NUMBER: _____

DATE: 11/23/2010 START: 1300 DRILLING COMPANY: Gregg DRILLER: Jason

WELL ID: B-17/MW-8 STOP: 1700 DRILLING METHOD: Hollow Stem Auger SAMPLE METHOD: Split Spoon

DEPTH (FEET)	MONITOR WELL CONSTRUCTION DIAMETER: 4"	SAMPLE ID	PID	MOISTURE			COLOR	CONSISTENCY	GRAIN SIZE	CLASSIFICATION	REMARKS & ODORS
1	GROUT										
2											
3	BENTONITE	MW-8-3	14.8 ppm					Silty clay with sand	CL		
4											
5	#2/12 SAND	MW-8-5	26.3 ppm								
6		MW-8-6	79.0 ppm					Clayey silt with fine to coarse sand and gravel	ML		
7											
8		MW-8-8	563 ppm	▼ Moist	Greenish gray to dk. gray	Stiff					
9											
10		MW-8-9.5	334 ppm		Brown - Reddish brown	Med. dense		Sand, poorly graded, fine grained with trace silt	SP		
11		MW-8-11	710 ppm					Silty sand with occasional gravel	SM		
12		MW-8-12.5	8.1 ppm	Moist	Brown with greenish gray	Very stiff		Clayey silt	ML		
13											
14		MW-8-14	0.0 ppm		Brown - reddish brown						
15	MW-8-15.5	0.0 ppm	Very moist to wet	Greenish gray	Med. dense		Silty sand with gravel	SM			
16			▽				Wet at 16.5 feet				
17	MW-8-17	0.0 ppm									
18	SCREEN INTERVAL 0.01"	MW-8-18.5	0.0 ppm	Moist		Stiff		Silty Clay with fine to coarse grained sand	CI		
19											
20		MW-8-20	0.0 ppm		Brown						

TOTAL BORING DEPTH: 20.0' PAGE NO: 1 OF 1 ESTIMATED GROUNDWATER DEPTH: 7.73'

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.



BROADBENT & ASSOCIATES, INC.

ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

LITHOLOGIC AND MONITOR WELL CONSTRUCTION LOG

PROJECT NAME: BP/ARCO 374

SITE ADDRESS: 6407 Telegraph Ave., Oakland, CA

PROJECT NUMBER: 06-88-602

LEGAL DESC: _____

APN: _____

LOGGED BY: Aaron Sonerholm

FACILITY ID OR WAIVER: _____

NOI NUMBER: _____

DATE: 11/23/2010

START: 0910

DRILLING COMPANY: Gregg

DRILLER: Jason

WELL ID: B-18/MW-9

STOP: 1200

DRILLING METHOD: Hollow Stem Auger

SAMPLE METHOD: Split Spoon

DEPTH (FEET)	MONITOR WELL CONSTRUCTION DIAMETER: 4"	SAMPLE ID	PID	MOISTURE			COLOR	CONSISTENCY	GRAIN SIZE	CLASSIFICATION	REMARKS & ODORS
1	GROUT										
2											
3	BENTONITE	MW-9-3	24.9 ppm								
4									CL		
5	#2/12 SAND	MW-9-5	13.5 ppm								
6		MW-9-6	75.0 ppm								
7											
8		MW-9-8	1386 ppm	Moist							
9											
10											
11		MW-9-11	2475 ppm								
12		MW-9-12.5	3794 ppm								
13											
14		MW-9-14	14.5 ppm	Moist							
15	MW-9-15.5	1.6 ppm	Very moist								
16											
17	MW-9-17	0.0 ppm	Wet								
18											
19	MW-9-18.5	0.0 ppm									
20	MW-9-20	0.0 ppm									

TOTAL BORING DEPTH: 20.0'

PAGE NO: 1 OF 1



ESTIMATED GROUNDWATER DEPTH: 7.31'

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

BROADBENT & ASSOCIATES, INC. LITHOLOGIC AND MONITOR WELL CONSTRUCTION LOG

ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

PROJECT NAME: BP/ARCO 374 SITE ADDRESS: 6407 Telegraph Ave., Oakland, CA

PROJECT NUMBER: 06-88-602 LEGAL DESC: _____ APN: _____

LOGGED BY: Aaron Sonerholm FACILITY ID OR WAIVER: _____ NOI NUMBER: _____

DATE: 11/23/2010 START: 0745 DRILLING COMPANY: Gregg DRILLER: Jason

WELL ID: B-19 STOP: 0843 DRILLING METHOD: Hollow Stem Auger SAMPLE METHOD: Split Spoon

DEPTH (FEET)	SOIL BORING	SAMPLE ID	PID	MOISTURE			COLOR	CONSISTENCY	GRAIN SIZE	CLASSIFICATION	REMARKS & ODORS
1	GROUT										
2					Moist	Gray to Dk. Gray	Stiff	Silty clay with sand	CL		
3		B-19-3	12.8 ppm								
4											
5		B-19-5	7.0 ppm					Silty clay or clayey silt with some sand and gravel			
6		B-19-6	17.5 ppm				Stiff	Clayey silt with coarse sand			
7									ML		
8		B-19-8	4602 ppm			Gray to Dk. gray					
9											
10		B-19-9.5	5896 ppm			Brown - Reddish brown					
11		B-19-11	4558 ppm		Moist to very moist		Stiff	Silty clay - clayey silt with thin sand and fine gravel lenses	CL		
12		B-19-12.5	514 ppm								
13											
14		B-19-14	7.7 ppm			Brown - reddish brown		Silty clay - clayey silt with occasional coarse sand			
15		B-19-15.5	4.5 ppm				Very stiff	Silty sands, coarse sand and gravel	SM		
16											
17		B-19-17	0.0 ppm		Very moist to Wet	Lt. Brown		Wet at 17.5 feet			
18		B-19-18.5	0.0 ppm								
19							Stiff	Sandy silt to clayey silt	ML		
20		B-19-20	0.0 ppm					Silt - clayey silt			

TOTAL BORING DEPTH: 20.0' PAGE NO: 1 OF 1 ESTIMATED GROUNDWATER DEPTH: 8.50'

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.