CONESTOGA-ROVERS & ASSOCIATES

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TRANSMITTAL

DATE: May 31, 2011

REFERENCE NO.: 240902

PROJECT NAME: 230 West MacArthur Boulevard, Oakland

TO: Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

RECEIVED
11:44 am, Jun 06, 2011
Alameda County
Environmental Health

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QUANTITY	DESCRIPTION
1	Closure Request

- ☐ As Requested
- ☐ For Your Use
- ☒ For Review and Comment
- ☐
- ☐

COMMENTS:
If you have any questions regarding the contents of this document, please call Peter Schaefer at (510) 420-3319.

Copy to: Denis Brown, Shell Oil Products US (electronic copy)
Au Energy LLC, c/o Nick Goyle, Vintners Distributors, Inc, 41805 Albrae Street, 2nd Floor, Fremont, CA 94538

Completed by: Peter Schaefer Signed: Peter Schaefer

Filing: **Correspondence File**

Denis L. Brown
Shell Oil Products US
HSE – Environmental Services
20945 S. Wilmington Ave.
Carson, CA 90810-1039
Tel (707) 865 0251
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Email denis.l.brown@shell.com

Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: Shell-branded Service Station
230 West MacArthur Boulevard
Oakland, California
SAP Code 135676
Incident No. 98995741
ACEH Case No. RO0000303

Dear Mr. Wickham:

The attached document is provided for your review and comment. Upon information and belief, I declare, under penalty of perjury, that the information contained in the attached document is true and correct.

If you have any questions or concerns, please call me at (707) 865-0251.

Sincerely,

Denis L. Brown
Senior Program Manager

CLOSURE REQUEST

SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

SAP CODE	135676
INCIDENT NO.	98995741
AGENCY NO.	RO0000303

Prepared by:
Conestoga-Rovers & Associates

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MAY 31, 2011
REF. NO. 240902 (8)
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1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA) prepared this request on behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell).

The site is a Shell-branded service station located on the northern corner of West MacArthur Boulevard and Piedmont Avenue in Oakland, California (Figure 1). Currently, the site layout consists of a kiosk, three underground storage tanks (USTs), and two dispenser islands (Figure 2). The surrounding area is primarily commercial. A former Gulf service station, now Oakland Auto Works, is located northwest of and adjacent to the site. The Kaiser Oakland Medical Center occupies a portion of the building located directly across West MacArthur Boulevard from the subject site.

A summary of previous work performed at the site is contained in Appendix A. Historical groundwater data are presented on Tables 1 and 2, and historical soil analytical data are presented on Table 3.

2.0 LOW-RISK CASE CRITERIA

Site data demonstrate that the site conditions meet the low-risk groundwater case criteria outlined in the San Francisco Bay Regional Water Quality Control Board's (RWQCB's) January 5, 1996 *Regional Board Supplemental Instructions to State Water Board December 8, 1995, Interim Guidance on Required Cleanup at Low-Risk Fuel Sites.* These criteria are addressed below.

Note that the RWQCB Groundwater Committee's June 1999 *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report for Alameda and Contra Costa Counties, CA*, states that the City of Oakland (among other cities) "does not have plans to develop local groundwater resources for drinking water purposes, because of existing or potential saltwater intrusion, contamination, or poor or limited quantity." Although groundwater in this area cannot be precluded from being a potential future source of drinking water, it is not currently a source of drinking water, and given the shallow depth, it is unlikely that the first water-bearing zone would be used as a source of drinking water. Thus, RWQCB non-drinking water environmental screening levels (ESLs)[1] are the appropriate screening levels for this site.

---

1 *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater,* California Regional Water Quality Control Board, Interim Final - November 2007 [Revised May 2008]

2.1 THE LEAK HAS BEEN STOPPED AND ONGOING SOURCES HAVE BEEN REMOVED OR REMEDIATED

No active leak has been identified. Facility upgrades and dispenser modifications were completed in 1998 and 2005, and the USTs, piping, and dispensers were replaced in 1987. As of January 1, 2003, methyl tertiary-butyl ether (MTBE) is no longer included in the formulation of Shell gasoline. Total petroleum hydrocarbons as gasoline (TPHg), benzene, and ethylbenzene concentrations in groundwater are stable or decreasing, and toluene, xylenes, MTBE, and tertiary-butyl alcohol (TBA, a degradation product of MTBE) have not been detected in groundwater samples at concentrations exceeding RWQCB's ESLs for groundwater where groundwater is not a potential source of drinking water since the fourth quarter of 2000, indicating that there is no ongoing source.

2.2 THE SITE HAS BEEN ADEQUATELY CHARACTERIZED

2.2.1 GROUNDWATER

Historical data from monitoring wells MW-1 through MW-4 and grab groundwater samples from borings SB-9 through SB-11 define benzene, toluene, ethylbenzene, and xylenes (BTEX), MTBE, and TBA impacts horizontally in groundwater to below applicable ESLs. It should be noted that the ESL document states that "TPH ESLs must be used in conjunction with ESLs for related chemicals," in this case BTEX, MTBE, and TBA.

The source area has been adequately characterized by data from monitoring wells MW-4 and MW-5 (SB-8) and grab groundwater samples from borings GS-2, GS-3, and SB-12. Groundwater samples from monitoring wells and grab groundwater samples collected from the dispenser area and UST complex area have contained concentrations of TPHg, BTEX, and MTBE which exceeded the ESLs. Groundwater monitoring data from the first quarter of 2011 (Figure 3 and Table 1) indicate that only TPHg in MW-4 and MW-5 and benzene and ethylbenzene in MW-5 currently exceed the ESLs.

2.2.2 SOIL

The source area has been adequately characterized by soil samples collected during 1987 fuel system replacement, 2005 fuel system upgrades, and soil samples collected during numerous subsequent subsurface investigations.

Analyses of shallow soil samples (less than 12 feet below grade [fbg]) have shown that BTEX and fuel oxygenate detections are below commercial ESLs, with the exceptions listed in the following table. Vadose zone samples from a UST investigation in August 1987 are not considered because these locations were excavated during fuel system replacement in November 1987. Dispenser soil samples D-2 and D-3 and piping samples P-3 and P-5 from 2005 fuel system upgrade activities are also not considered because these locations were subsequently over-excavated.

TABLE A

Sample Location/Year	*Analyte*	*Concentration*	*Commercial ESL*
P-4 at 4 fbg/2005	Benzene	4.2 mg/kg	0.27 mg/kg
	Ethylbenzene	39 mg/kg	4.7 mg/kg
	Xylenes	78 mg/kg	11 mg/kg
SB-5 at 3 fbg/2006	Benzene	2.90 mg/kg	0.27 mg/kg
	Toluene	9.47 mg/kg	9.3 mg/kg
	Ethylbenzene	9.46 mg/kg	4.7 mg/kg
	Xylenes	70.6 mg/kg	11 mg/kg

Note: mg/kg = Milligrams per kilogram.

Four deeper soil samples (greater than 12 fbg) contained concentrations of benzene, ethylbenzene, and/or xylenes which exceeded commercial ESLs; however, these results are likely due to groundwater impacts. No toluene, MTBE, or TBA concentrations in deeper soil samples exceeded commercial ESLs.

2.3 THE DISSOLVED HYDROCARBON PLUME IS NOT MIGRATING

As discussed above, BTEX, MTBE, and TBA detections are horizontally defined below ESLs, demonstrating that the plume is not migrating. Decreasing constituent of concern (COC) concentrations in source area well MW-4 indicate that the on-site plume is shrinking (Figure 4). It is anticipated that the currently stable concentrations of TPHg,

benzene, and ethylbenzene in MW-5 (Figure 5) will decline as the plume continues to shrink.

2.4 MINIMAL GROUNDWATER IMPACT CURRENTLY EXISTS, FEW CONTAMINANTS ARE FOUND AT LEVELS ABOVE ESTABLISHED MCLS OR OTHER APPLICABLE WATER-QUALITY OBJECTIVES

Maximum groundwater concentrations from samples collected during the first quarter of 2011 are compared with drinking water ESLs in the following table.

TABLE B

COCs	*Current Maximum Concentrations in Site Groundwater (3/25/11, except TBA:7/6/10) Units in µg/l*	*ESLs Where Groundwater is not a Potential Source of Drinking Water (Tables B and D) Units in µg/l*
TPHg	**7,600**	210
Benzene	**150**	46
Toluene	10	130
Ethylbenzene	**270**	43
Xylenes	43	100
MTBE	2.3	1,800
TBA	ND	18,000

Note: µg/l = Micrograms per liter
ND = Not detected, reporting limits vary

During the first quarter of 2011, all groundwater detections were at or below applicable drinking water ESLs with the exception of TPHg in wells MW-4 and MW-5 and benzene and ethylbenzene in MW-5. As stated above, the ESL document states that "TPH ESLs must be used in conjunction with ESLs for related chemicals," in this case BTEX, MTBE, and TBA. Figure 4 shows MTBE concentrations in groundwater versus time for well MW-4, and Figure 5 shows benzene and ethylbenzene concentrations in groundwater versus time for well MW-5.

2.5 NO WATER WELLS, DEEPER DRINKING WATER AQUIFERS, SURFACE WATER, OR OTHER SENSITIVE RECEPTORS ARE LIKELY TO BE IMPACTED

Cambria Environmental Technology, Inc.'s (Cambria's) October 31, 2002 *Sensitive Receptor Survey, Conduit Study, and Subsurface Investigation Work Plan* identified two wells

of unknown use approximately one-half mile west (down gradient) and one well of unknown use approximately 1,500 feet east (up gradient). The well locations are shown on Figure 1. The closest surface water body is an engineered channel of Glen Echo Creek, located 600 feet cross gradient to the south of the site.

Based on the directions and distances to these potential receptors, it is unlikely that they would be impacted by residual soil and groundwater impacts at the site.

2.6 THE SITE PRESENTS NO SIGNIFICANT RISK TO HUMAN HEALTH OR THE ENVIRONMENT

No formal risk assessment has been performed for the site. A discussion of potential risks associated with COCs in groundwater, soil vapor, and soil is presented below.

2.6.1 GROUNDWATER

Down-gradient groundwater concentrations of BTEX, MTBE, and TBA in grab groundwater samples SB-9 through SB-11 collected in 2008 were below the ESLs where groundwater is not a current or potential drinking water source, demonstrating that they do not pose a risk to human health or the environment. The only current exceedences of ESLs are in on-site wells MW-4 and MW-5, which are shallow wells located adjacent to the likely petroleum hydrocarbon source area. As noted above, although groundwater in this area cannot be precluded from being a potential future source of drinking water, it is not currently a source of drinking water, and given the shallow depth, it is highly unlikely that the first water-bearing zone on site would be used as a source of drinking water.

2.6.2 SOIL VAPOR

Risk of soil vapor intrusion due to impacted groundwater can be evaluated by comparing groundwater concentrations with available ESLs. As shown in the following table, current groundwater concentrations meet the most stringent residential standards and do not present a risk for soil vapor intrusion.

TABLE C		
COCs	*Current Maximum Groundwater Concentrations (3/25/11)* *Units in µg/l*	*Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion Concerns – Residential Land Use (Table E-1)* *Units in µg/l*
Benzene	150	540
Toluene	10	380,000
Ethylbenzene	270	170,000
Xylenes	43	160,000
MTBE	2.3	24,000

Because vadose zone soil impacts above ESLs are limited, there is little potential for soil vapor migration to impact on-site workers and potential future occupants of the site. Since the air-exchange from customers entering and exiting the station building during all business hours would not allow for significant buildup of vapors from subsurface migration, inhalation risk from vapor intrusion is considered to be low. It is anticipated that the site will remain a service station. This station is part of a service station sale with contract provisions for long term use of the Shell Brand and specific restrictions on site development to commercial uses excluding child day care, elder care, or other similar sensitive uses. These data and site conditions suggest that soil concentrations are unlikely to present significant risk to human health.

2.6.3 SOIL

As shown in the following table, vadose zone soil concentrations of MTBE and TBA (based on 51 samples) do not exceed the commercial land use ESL for shallow soils (less than 12 fbg). Benzene, ethylbenzene, and xylenes detections exceed ESLs in two samples, and one toluene detection exceeds the ESL. These detections are limited to the area of the southwest dispenser island. Vadose zone samples from a UST investigation in August 1987 are not considered because these locations were excavated during fuel system replacement in November 1987. Dispenser soil samples D-2 and D-3 and piping samples P-3 and P-5 from 2005 fuel system upgrade activities are also not considered because these locations were subsequently over-excavated.

TABLE D		
COCs	*Vadose Zone Soil Sample Maximum Concentrations* *Units in mg/kg*	*ESLs for Soils Where Groundwater is Not a Source of Drinking Water, Commercial Land Use (Tables B and D)* *Units in mg/kg*
Benzene	**4.2** P-4-4.0/2005	0.27
Toluene	**9.47** SB-5-3/2006	9.3
Ethylbenzene	**39** P-4-4.0/2005	4.7
Xylenes	**78** P-4-4.0/2005	11
MTBE	0.30 P-4-4.0/2005	8.4
TBA	0.18 P-3-3.5/2005	110

The site is paved, so the only direct exposures would likely occur during construction at the station. Any worker doing trenching or excavating at a current or former gasoline station would be properly trained and prepared for encountering potentially impacted soil, and would wear personal protective equipment, as necessary. Therefore, the residual impacted soils do not appear to pose a significant threat to construction workers who may occasionally come in contact with the potentially-impacted soils on site, and any work at this site would require contractors to have appropriate health and safety training to perform the work.

3.0 CLOSURE REQUEST

The site is likely to remain in use as a service station. This station is part of a service station sale with contract provisions for long term use of the Shell Brand and specific restrictions on site development to commercial uses excluding child day care, elder care, or other similar sensitive uses. Given the concentrations of COCs in site soil and groundwater compared to the ESLs as presented above, CRA concludes that the residual petroleum and fuel oxygenate impacts at this site pose very little or no risk to human health or the environment.

This site meets the RWQCB criteria for a low-risk fuel site. Therefore, on behalf of Shell, we respectfully request closure of this case. CRA requests that Alameda County Environmental Health suspend the groundwater monitoring program during the closure review.

All of Which is Respectfully Submitted,
CONESTOGA-ROVERS & ASSOCIATES

Peter Schaefer, CHG, CEG

Aubrey K. Cool, PG

FIGURES

11/06/09

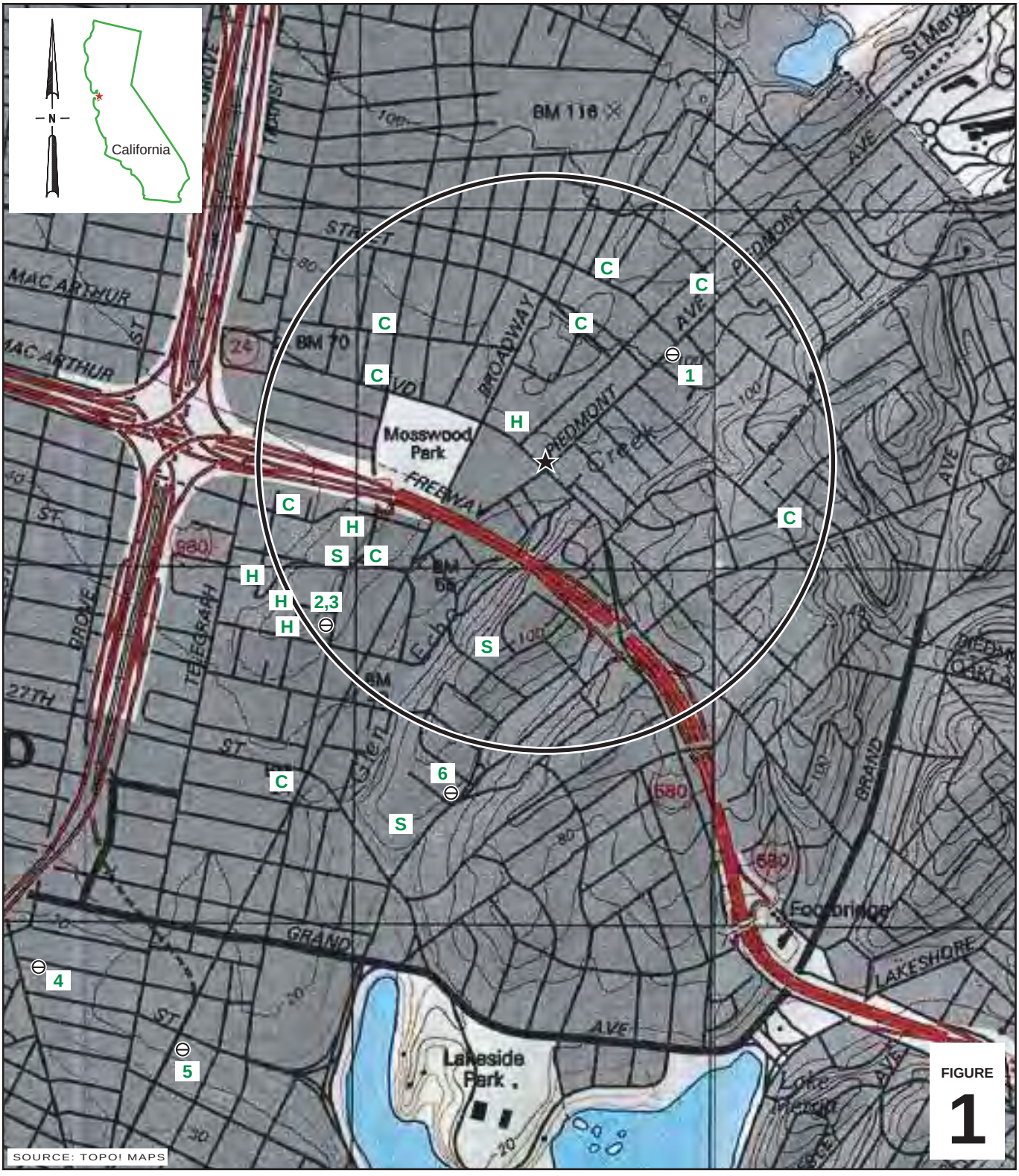

FIGURE 1

0 1/8 1/4 1/2 1

SCALE : 1" = 1/4 MILE

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Shell-branded Service Station

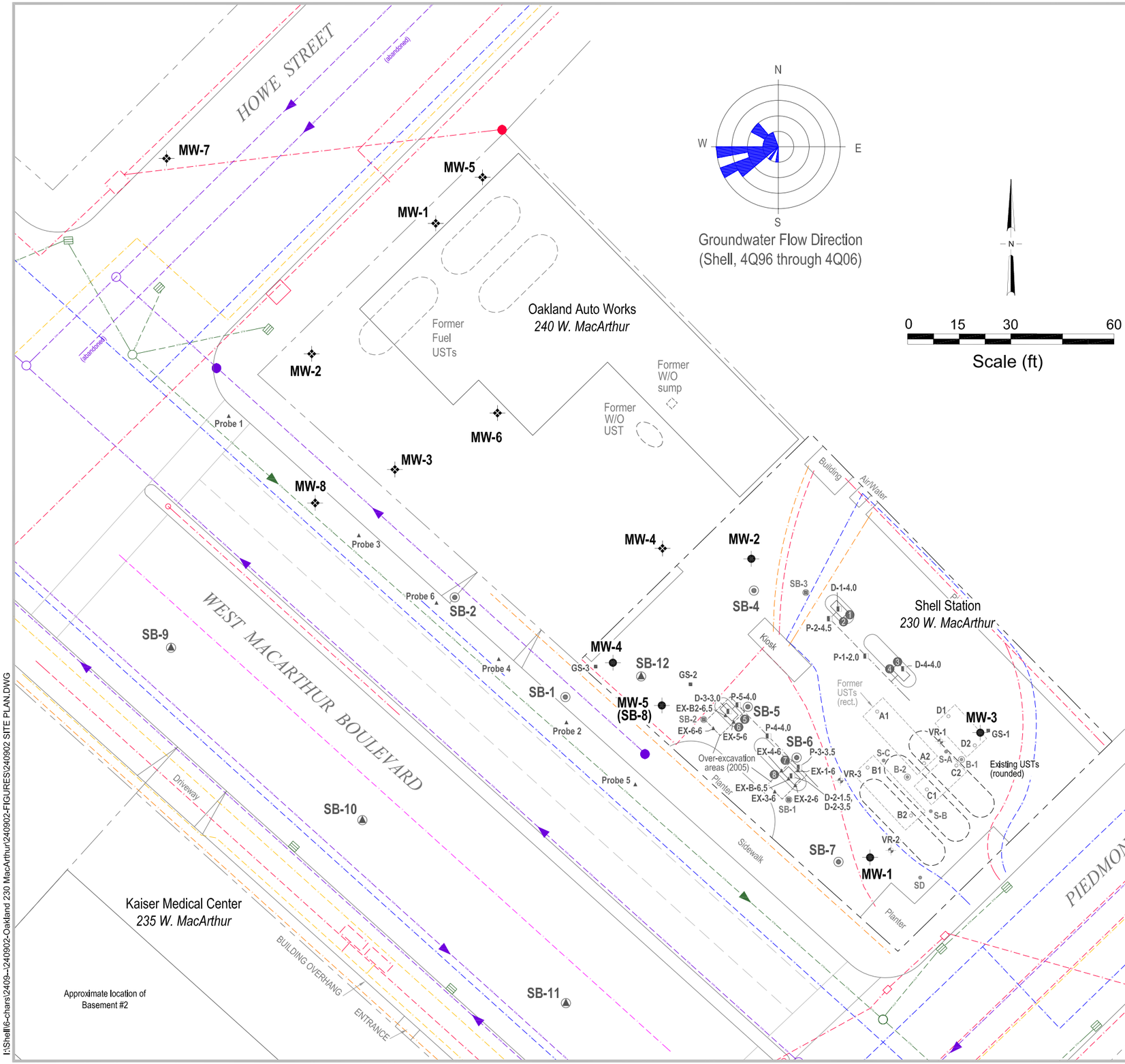
230 West MacArthur Boulevard

Oakland, California

CONESTOGA-ROVERS & ASSOCIATES

Vicinity Map

05/27/2011



EXPLANATION

SB-9	Soil boring location (2/2008)
SB-4	Soil boring location (4/2006)
EX-1-6	Over-excavation soil sample location (4/2005)
D-1-4.0	Soil sample location (4/2005)
SB-1	Soil boring location (3/2004)
Probe 1	Grab groundwater sample location (5/1990)
GS-1	Grab groundwater sample location (10/1989)
SB-1	Soil boring location (8/1989)
A1	Soil sample location (11/1987)
B-1	Soil boring location (8/1987)
VR-1	Soil venting well location (3/1987)
S-A	Soil boring location (4/1986)
MW-1	Monitoring well location (Shell)
MW-1	Monitoring well location (240 W. MacArthur)
	Flow direction
	Storm drain inlet
MH	Manhole
	Sump
1	Product dispenser number
	Electrical line (E)
	Telecommunication line (T)
	Unknown utility line
	Gas line (G)
	Storm drain line (STM)
	Sanitary sewer line (SAN)
	Water line (W)
	Product piping line (P)

Site features for 240 W. MacArthur based on figure provided by Stellar Environmental Solutions, Inc.

Basement locations are approximate and based on field reconnaissance done by CRA, and are not based on any actual as-built drawings for the building.

FIGURE

2

Site Plan

Shell-branded Service Station

230 West MacArthur Boulevard

Oakland, California

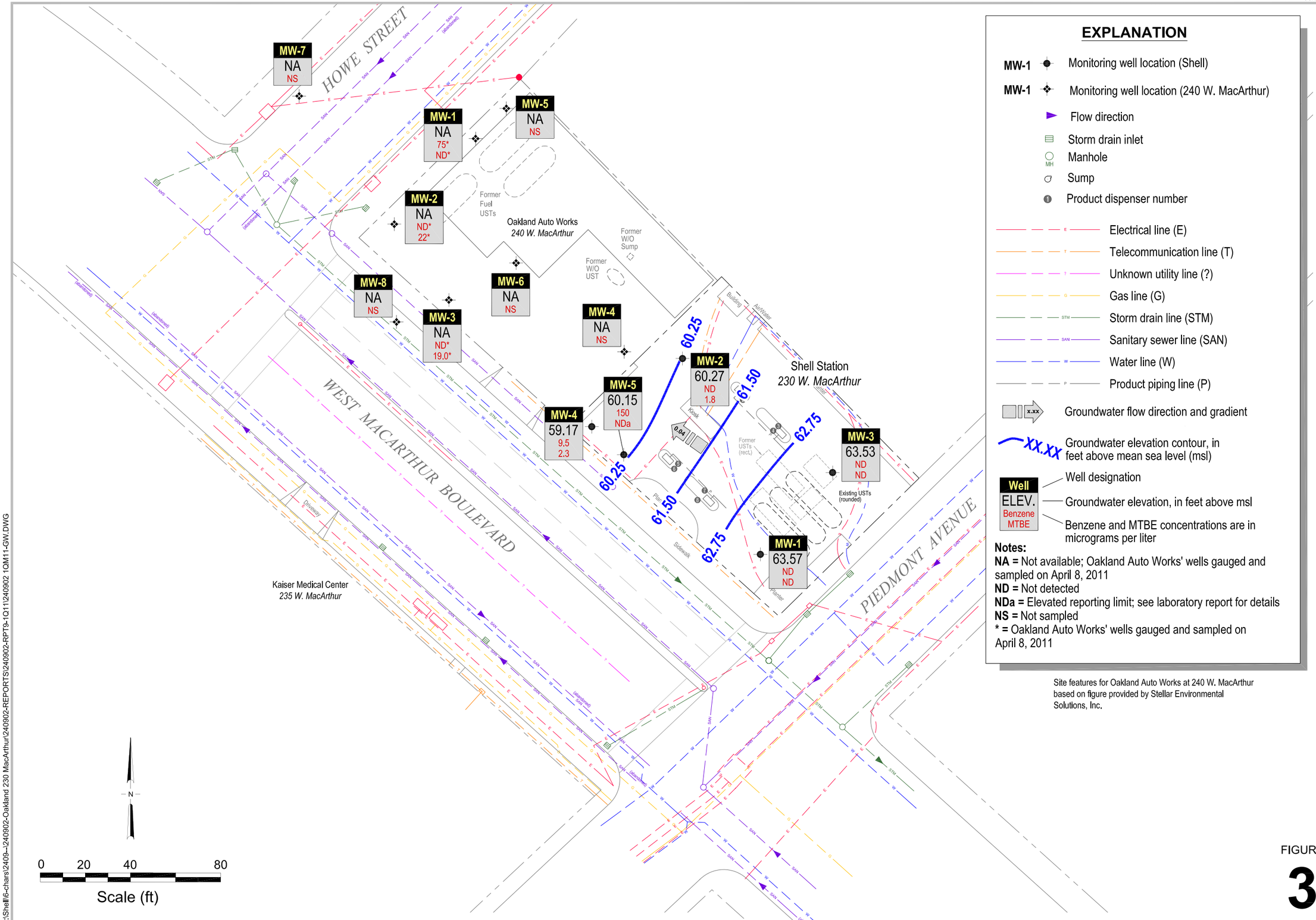
CONESTOGA-ROVERS & ASSOCIATES

I:\Shell\6-chars\2409--\240902-Oakland 230 MacArthur\240902-FIGURES\240902 SITE PLAN.DWG

05/23/2011

Groundwater Contour and Chemical Concentration Map

March 25, 2011



EXPLANATION

- MW-1 — Monitoring well location (Shell)
- MW-1 — Monitoring well location (240 W. MacArthur)
- Flow direction
- Storm drain inlet
- MH — Manhole
- Sump
- Product dispenser number
- Electrical line (E)
- Telecommunication line (T)
- Unknown utility line (?)
- Gas line (G)
- Storm drain line (STM)
- Sanitary sewer line (SAN)
- Water line (W)
- Product piping line (P)
- x.xx — Groundwater flow direction and gradient
- xx.xx — Groundwater elevation contour, in feet above mean sea level (msl)

Well
ELEV.
Benzene
MTBE

- Well designation
- Groundwater elevation, in feet above msl
- Benzene and MTBE concentrations are in micrograms per liter

Notes:

NA = Not available; Oakland Auto Works' wells gauged and sampled on April 8, 2011

ND = Not detected

NDa = Elevated reporting limit; see laboratory report for details

NS = Not sampled

*** =** Oakland Auto Works' wells gauged and sampled on April 8, 2011

Site features for Oakland Auto Works at 240 W. MacArthur based on figure provided by Stellar Environmental Solutions, Inc.

FIGURE

3

Shell-branded Service Station

230 West MacArthur Boulevard

Oakland, California

CONESTOGA-ROVERS & ASSOCIATES

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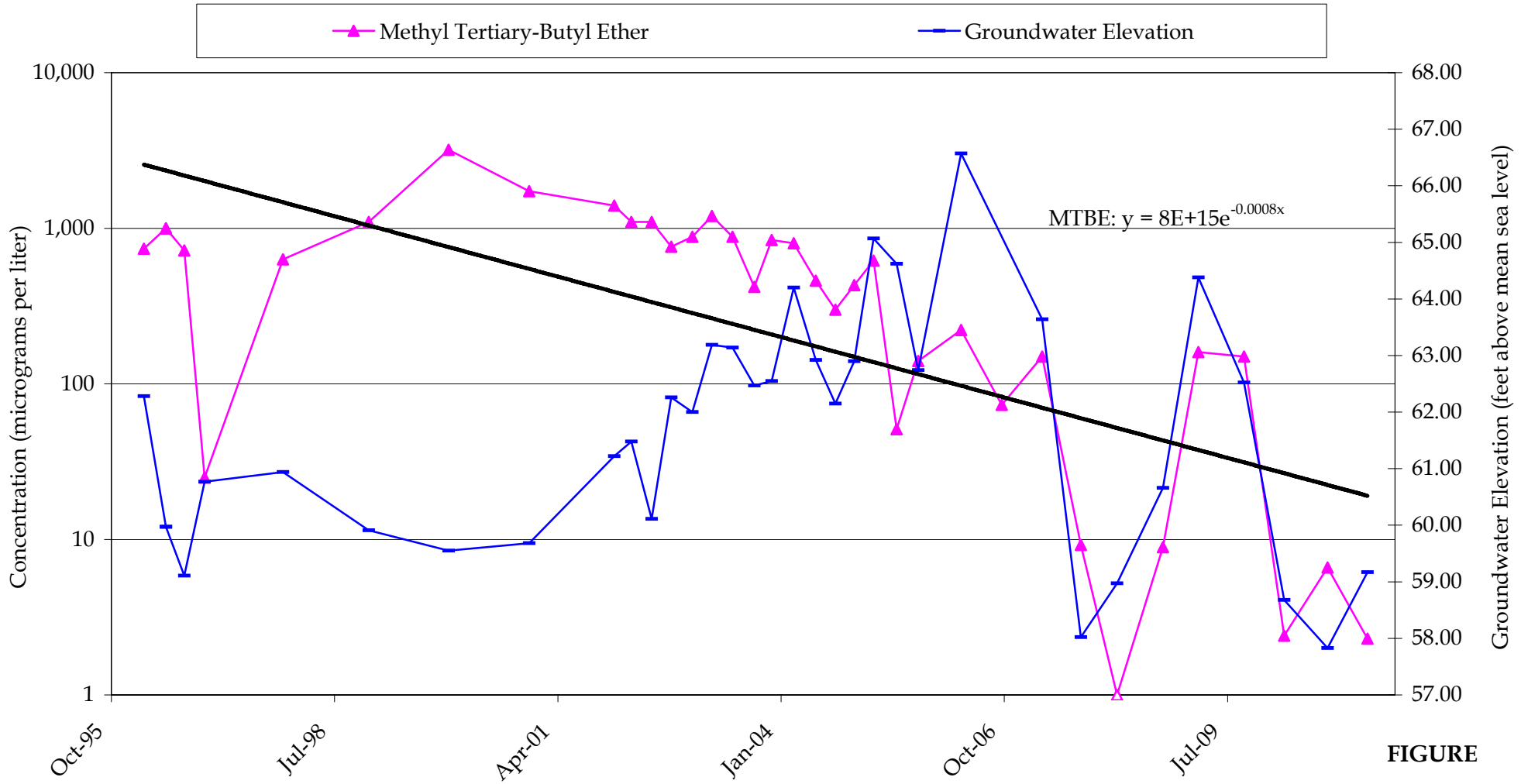


Note: Transparent data points were not detected. The laboratory reporting limits were plotted.

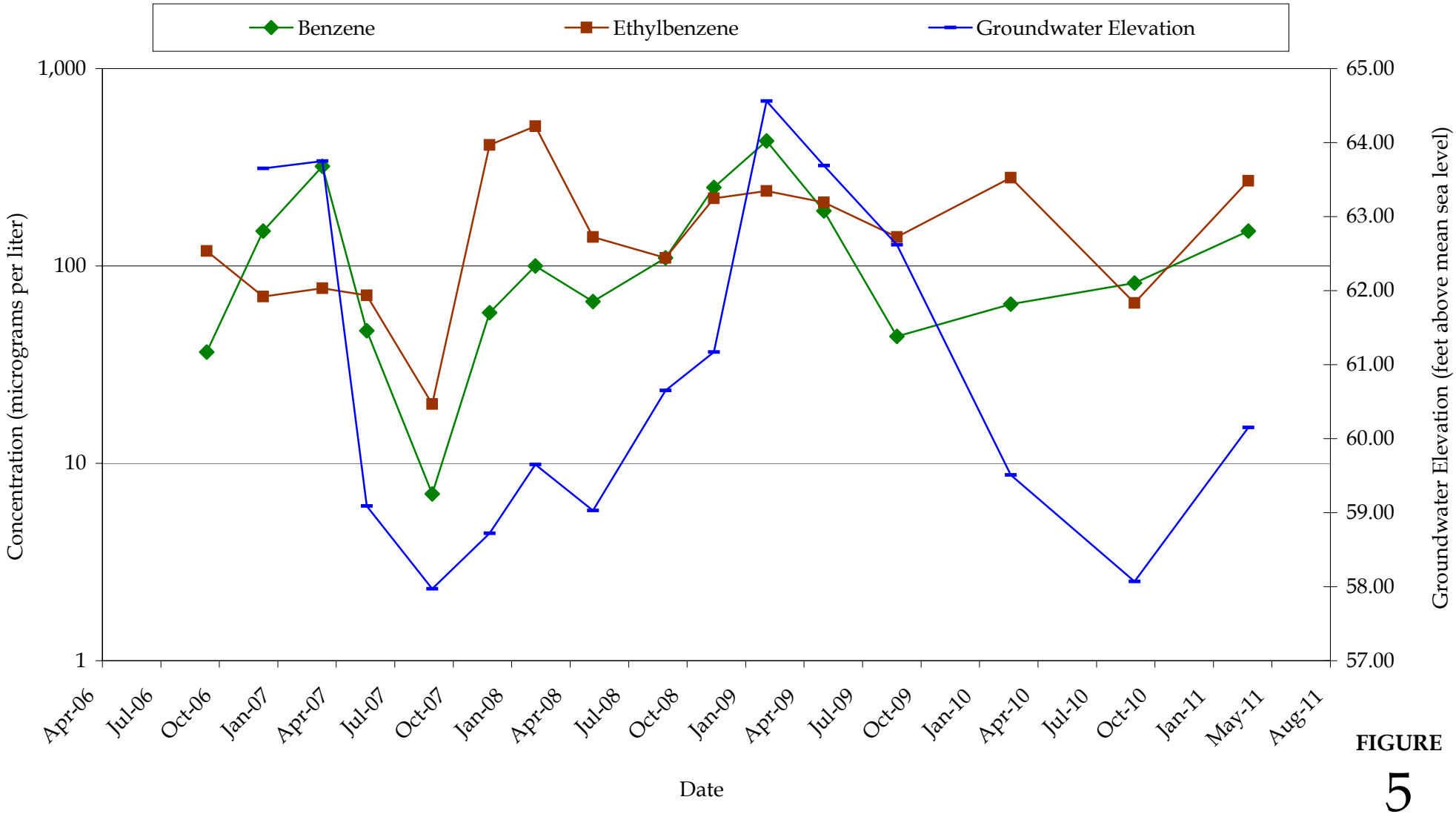
FIGURE

4

Shell-branded Service Station
230 West MacArthur Boulevard
Oakland, California

CONESTOGA-ROVERS & ASSOCIATES

MW-4:
MTBE Concentration and Groundwater Elevation vs. Time



FIGURE

5

Shell-branded Service Station
230 West MacArthur Boulevard
Oakland, California

CONESTOGA-ROVERS & ASSOCIATES

MW-5:
Benzene and Ethylbenzene Concentrations and Groundwater Elevation versus Time

TABLES

TABLE 1

GROUNDWATER DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Well ID	*Date*	*TPPH* (ug/L)	*B* (ug/L)	*T* (ug/L)	*E* (ug/L)	*X* (ug/L)	*MTBE 8020* (ug/L)	*MTBE 8260* (ug/L)	*DIPE* (ug/L)	*ETBE* (ug/L)	*TAME* (ug/L)	*TBA* (ug/L)	*1,2-DCA* (ug/L)	*EDB* (ug/L)	*TOC* (MSL)	*Depth to Water* (ft.)	*GW Elevation* (MSL)
MW-1	7/14/1988	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	13.30	60.59
MW-1	10/4/1988	ND	8	4.3	ND	9	---	---	---	---	---	---	---	---	73.89	13.65	60.24
MW-1	11/10/1988	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	13.55	60.34
MW-1	12/9/1988	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	13.22	60.67
MW-1	1/10/1989	ND	ND	ND	ND	---	---	---	---	---	---	---	---	---	73.89	12.86	61.03
MW-1	1/20/1989	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	73.89	12.91	60.98
MW-1	2/6/1989	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	12.94	60.95
MW-1	3/10/1989	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	12.59	61.30
MW-1	6/6/1989	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	14.05	59.84
MW-1	9/7/1989	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	14.92	58.97
MW-1	12/18/1989	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	14.88	59.01
MW-1	3/8/1990	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	14.08	59.81
MW-1	6/7/1990	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	13.89	60.00
MW-1	9/5/1990	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	14.83	59.06
MW-1	12/3/1990	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	15.05	58.84
MW-1	3/1/1991	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	14.34	59.55
MW-1	6/3/1991	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	14.16	59.73
MW-1	9/4/1991	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	14.60	59.29
MW-1	3/13/1992	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	13.40	60.49
MW-1	6/3/1992	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	13.76	60.13
MW-1	8/19/1992	87	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	14.57	59.32
MW-1	11/16/1992	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	14.78	59.11
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MW-1	6/1/1993	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	13.30	60.59
MW-1	8/30/1993	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	14.32	59.57
MW-1	12/13/1993	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	14.06	59.83
MW-1	3/3/1994	100	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	13.12	60.77
MW-1	6/6/1994	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	14.20	59.69
MW-1	9/12/1994	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	15.72	58.17
MW-1	12/15/1994	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	12.98	60.91
MW-1	3/13/1995 b	60	4.7	9.8	ND	2.9	---	---	---	---	---	---	---	---	73.89	11.74	62.15
MW-1	4/21/1995	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	---	---
MW-1	6/26/1995	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	13.00	60.89
MW-1	9/12/1995	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	73.89	14.14	59.75
MW-1	3/21/1996	<50	<0.5	<0.5	<0.5	<0.5	ND	---	---	---	---	---	---	---	73.89	11.03	62.86
MW-1	6/28/1996	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---	---	---	---	---	---	---	73.89	13.53	60.36
MW-1	9/19/1996	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---	---	---	---	---	---	---	73.89	14.33	59.56
MW-1	12/19/1996	---	---	---	---	---	---	---	---	---	---	---	---	---	73.89	13.20	60.69
MW-1	12/5/1997	---	---	---	---	---	---	---	---	---	---	---	---	---	73.89	12.39	61.50

TABLE 1

GROUNDWATER DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Well ID	*Date*	*TPPH* (ug/L)	*B* (ug/L)	*T* (ug/L)	*E* (ug/L)	*X* (ug/L)	*MTBE 8020* (ug/L)	*MTBE 8260* (ug/L)	*DIPE* (ug/L)	*ETBE* (ug/L)	*TAME* (ug/L)	*TBA* (ug/L)	*1,2-DCA* (ug/L)	*EDB* (ug/L)	*TOC* (MSL)	*Depth to Water* (ft.)	*GW Elevation* (MSL)
MW-1	12/24/1998	---	---	---	---	---	---	---	---	---	---	---	---	---	73.89	13.59	60.30
MW-1	12/23/1999	---	---	---	---	---	---	---	---	---	---	---	---	---	73.89	15.63	58.26
MW-1	12/11/2000	---	---	---	---	---	---	---	---	---	---	---	---	---	73.89	15.36	58.53
MW-1	12/27/2001	---	---	---	---	---	---	---	---	---	---	---	---	---	73.89	12.09	61.80
MW-1	3/12/2002	---	---	---	---	---	---	---	---	---	---	---	---	---	73.89	12.33	61.56
MW-1	3/14/2002	<50	<0.50	<0.50	<0.50	<0.50	---	<5.0	---	---	---	---	---	---	73.89	12.08	61.81
MW-1	6/13/2002	---	---	---	---	---	---	---	---	---	---	---	---	---	73.89	13.47	60.42
MW-1	9/9/2002	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	14.30	62.62
MW-1	12/12/2002	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	14.48	62.44
MW-1	3/10/2003	<50	<0.50	<0.50	<0.50	<0.50	---	<5.0	---	---	---	---	---	---	76.92	12.76	64.16
MW-1	6/10/2003	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	13.17	63.75
MW-1	9/16/2003	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	14.10	62.82
MW-1	12/3/2003	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	13.93	62.99
MW-1	3/11/2004	<50	<0.50	<0.50	<0.50	<1.0	---	<0.50	---	---	---	---	---	---	76.92	12.04	64.88
MW-1	6/17/2004	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	13.75	63.17
MW-1	9/13/2004	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	14.47	62.45
MW-1	12/7/2004	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	13.04	63.88
MW-1	3/3/2005	<50	<0.50	<0.50	<0.50	<1.0	---	<0.50	<2.0	<2.0	<2.0	<5.0	---	---	76.92	11.31	65.61
MW-1	6/14/2005	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	11.87	65.05
MW-1	9/19/2005	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	13.91	63.01
MW-1	3/30/2006	<50.0	<0.500	<0.500	<0.500	<0.500	---	<0.500	---	---	---	---	<0.500	<0.500	76.92	10.60	66.32
MW-1	9/27/2006	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	14.06	62.86
MW-1	9/28/2006	<50.0	<0.500	<0.500	<0.500	<0.500	---	<0.500	<0.500	<0.500	<0.500	<10.0	---	---	76.92	---	---
MW-1	12/26/2006	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	13.05	63.87
MW-1	3/29/2007	<50	<0.50	<1.0	<1.0	<1.0	---	<1.0	---	---	---	---	---	---	76.92	12.87	64.05
MW-1	6/7/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	15.53	61.39
MW-1	9/18/2007	<50 g	<0.50	<1.0	<1.0	<1.0	---	<1.0	<2.0	<2.0	<2.0	<10	---	---	76.92	15.64	61.28
MW-1	12/17/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	15.15	61.77
MW-1	2/27/2008	<50 g	<0.50	<1.0	<1.0	<1.0	---	<1.0	---	---	---	---	---	---	76.92	14.41	62.51
MW-1	5/28/2008	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	14.40	62.52
MW-1	9/19/2008	59	<0.50	<1.0	<1.0	<1.0	---	<1.0	<2.0	<2.0	<2.0	<10	---	---	76.92	14.74	62.18
MW-1	12/4/2008	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	14.80	62.12
MW-1	2/25/2009	<50	<0.50	<1.0	<1.0	<1.0	---	<1.0	---	---	---	---	---	---	76.92	11.91	65.01
MW-1	5/26/2009	---	---	---	---	---	---	---	---	---	---	---	---	---	76.92	12.73	64.19
MW-1	9/18/2009	<50	<0.50	<1.0	<1.0	<1.0	---	<1.0	<2.0	<2.0	<2.0	<10	---	---	76.92	13.82	63.10
MW-1	3/16/2010	<50	<0.50	<1.0	<1.0	<1.0	---	<1.0	---	---	---	---	---	---	76.92	14.60	62.32
MW-1	9/27/2010	<50	<0.50	<1.0	<1.0	<1.0	---	<1.0	<2.0	<2.0	<2.0	<10	---	---	76.92	15.46	61.46
MW-1	**3/25/2011**	**<50**	**<0.50**	**<.0.50**	**<0.50**	**<1.0**	**---**	**<1.0**	**---**	**---**	**---**	**---**	**---**	**---**	**76.92**	**13.35**	**63.57**

TABLE 1

GROUNDWATER DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Well ID	*Date*	*TPPH* (ug/L)	*B* (ug/L)	*T* (ug/L)	*E* (ug/L)	*X* (ug/L)	*MTBE 8020* (ug/L)	*MTBE 8260* (ug/L)	*DIPE* (ug/L)	*ETBE* (ug/L)	*TAME* (ug/L)	*TBA* (ug/L)	*1,2-DCA* (ug/L)	*EDB* (ug/L)	*TOC* (MSL)	*Depth to Water* (ft.)	*GW Elevation* (MSL)
MW-2	7/14/1988	ND	7.9	2.6	1.1	4	---	---	---	---	---	---	---	---	75.24	15.18	60.06
MW-2	10/4/1988	90	ND	1.3	2.3	12	---	---	---	---	---	---	---	---	75.24	15.30	59.94
MW-2	11/10/1988	ND	ND	ND	ND	2	---	---	---	---	---	---	---	---	75.24	15.17	60.07
MW-2	12/9/1988	ND	ND	0.6	ND	3	---	---	---	---	---	---	---	---	75.24	14.82	60.42
MW-2	1/20/1989	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	14.54	60.70
MW-2	2/6/1989	---	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	14.59	60.65
MW-2	3/10/1989	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	14.88	60.36
MW-2	6/6/1989	ND	ND	0.5	ND	ND	---	---	---	---	---	---	---	---	75.24	15.30	59.94
MW-2	9/7/1989	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	16.76	58.48
MW-2	12/18/1989	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	16.65	58.59
MW-2	3/8/1990	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	15.92	59.32
MW-2	6/7/1990	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	16.10	59.14
MW-2	9/5/1990	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	16.61	58.63
MW-2	12/3/1990	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	17.06	58.18
MW-2	3/1/1991	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	16.62	58.62
MW-2	6/3/1991	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	16.65	58.59
MW-2	9/4/1991	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	16.57	58.67
MW-2	3/13/1992	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	14.66	60.58
MW-2	6/3/1992	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	15.90	59.34
MW-2	8/19/1992	67	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	16.72	58.52
MW-2	11/16/1992	50	ND	ND	ND	1.2	---	---	---	---	---	---	---	---	75.24	16.66	58.58
MW-2	2/18/1993	52 a	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	13.88	61.36
MW-2 (D)	2/18/1993	52 a	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	13.88	61.36
MW-2	6/1/1993	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	14.74	60.50
MW-2	8/30/1993	70 a	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	15.85	59.39
MW-2	12/13/1993	68 a	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	15.83	59.41
MW-2	3/3/1994	280 a	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	14.80	60.44
MW-2	6/6/1994	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	16.65	58.59
MW-2	9/12/1994	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	16.72	58.52
MW-2	12/15/1994	230 a	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	15.25	59.99
MW-2	3/13/1995	ND	2.9	6.3	ND	2.7	---	---	---	---	---	---	---	---	75.24	15.32	59.92
MW-2	4/21/1995	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	---	---
MW-2	6/26/1995	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	14.65	60.59
MW-2	9/12/1995	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	75.24	15.78	59.46
MW-2	3/21/1996	<50	<0.5	<0.5	<0.5	<0.5	ND	---	---	---	---	---	---	---	75.24	12.72	62.52
MW-2	6/28/1996	<50	<0.5	<0.5	<0.5	<0.5	160	---	---	---	---	---	---	---	75.24	14.95	60.29
MW-2	9/19/1996	<50	<0.5	<0.5	<0.5	<0.5	27	---	---	---	---	---	---	---	75.24	15.64	59.60
MW-2	12/19/1996	---	---	---	---	---	---	---	---	---	---	---	---	---	75.24	14.47	60.77
MW-2	12/5/1997	---	---	---	---	---	---	---	---	---	---	---	---	---	75.24	14.22	61.02

TABLE 1

GROUNDWATER DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Well ID	*Date*	*TPPH* (ug/L)	*B* (ug/L)	*T* (ug/L)	*E* (ug/L)	*X* (ug/L)	*MTBE 8020* (ug/L)	*MTBE 8260* (ug/L)	*DIPE* (ug/L)	*ETBE* (ug/L)	*TAME* (ug/L)	*TBA* (ug/L)	*1,2-DCA* (ug/L)	*EDB* (ug/L)	*TOC* (MSL)	*Depth to Water* (ft.)	*GW Elevation* (MSL)
MW-2	12/24/1998	---	---	---	---	---	---	---	---	---	---	---	---	---	75.24	14.97	60.27
MW-2	12/23/1999	---	---	---	---	---	---	---	---	---	---	---	---	---	75.24	16.07	59.17
MW-2	12/11/2000	---	---	---	---	---	---	---	---	---	---	---	---	---	75.24	15.78	59.46
MW-2	12/27/2001	---	---	---	---	---	---	95	---	---	---	---	---	---	75.24	14.25	60.99
MW-2	3/14/2002	120	<0.50	<0.50	<0.50	<0.50	---	31	---	---	---	---	---	---	75.24	14.59	60.65
MW-2	6/13/2002	100	<0.50	<0.50	<0.50	<0.50	---	32	---	---	---	---	---	---	75.24	14.58	60.66
MW-2	9/9/2002	90	<0.50	<0.50	<0.50	<0.50	---	54	---	---	---	---	---	---	78.25	15.49	62.76
MW-2	12/12/2002	92	<0.50	<0.50	<0.50	<0.50	---	21	---	---	---	---	---	---	78.25	16.21	62.04
MW-2	3/10/2003	110	<0.50	<0.50	<0.50	<0.50	---	33	---	---	---	---	---	---	78.25	14.33	63.92
MW-2	6/10/2003	<50	<0.50	<0.50	<0.50	<1.0	---	49	---	---	---	---	---	---	78.25	14.48	63.77
MW-2	9/16/2003	<50	<0.50	<0.50	<0.50	<1.0	---	39	---	---	---	---	---	---	78.25	15.45	62.80
MW-2	12/3/2003	56 a	<0.50	<0.50	<0.50	<1.0	---	3.6	---	---	---	---	---	---	78.25	15.60	62.65
MW-2	3/11/2004	58 a	<0.50	<0.50	<0.50	<1.0	---	67	---	---	---	---	---	---	78.25	13.78	64.47
MW-2	6/17/2004	<50	<0.50	<0.50	<0.50	<1.0	---	40	---	---	---	---	---	---	78.25	14.87	63.38
MW-2	9/13/2004	68 d	<0.50	<0.50	<0.50	<1.0	---	44	<2.0	<2.0	<2.0	<5.0	---	---	78.25	15.85	62.40
MW-2	12/7/2004	<50 e	<0.50	<0.50	<0.50	<1.0	---	54	---	---	---	---	---	---	78.25	15.17	63.08
MW-2	3/3/2005	110 e	<0.50	<0.50	<0.50	<1.0	---	82	---	---	---	---	---	---	78.25	13.38	64.87
MW-2	6/14/2005	<50 e	<0.50	<0.50	<0.50	<1.0	---	29	---	---	---	---	---	---	78.25	13.95	64.30
MW-2	9/19/2005	<50	<0.50	<0.50	<0.50	<1.0	---	31	<2.0	<2.0	<2.0	5.6	---	---	78.25	14.78	63.47
MW-2	3/30/2006	<50.0	<0.500	<0.500	<0.500	<0.500	---	39.1	---	---	---	---	<0.500	<0.500	78.25	11.60	66.65
MW-2	9/27/2006	---	---	---	---	---	---	---	---	---	---	---	---	---	78.25	15.42	62.83
MW-2	9/28/2006	<50.0	<0.500	<0.500	<0.500	<0.500	---	16.7	<0.500	<0.500	<0.500	<10.0	---	---	78.25	---	---
MW-2	12/26/2006	---	---	---	---	---	---	---	---	---	---	---	---	---	78.25	14.60	63.65
MW-2	3/29/2007	<50	<0.50	<1.0	<1.0	<1.0	---	13	---	---	---	---	---	---	78.25	14.28	63.97
MW-2	6/7/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	78.25	18.20	60.05
MW-2	9/18/2007	72 g	<0.50	<1.0	<1.0	<1.0	---	1.3	<2.0	<2.0	<2.0	<10	---	---	78.25	19.70	58.55
MW-2	12/17/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	78.25	15.50	62.75
MW-2	2/27/2008	60 g	<0.50	<1.0	<1.0	<1.0	---	18	---	---	---	---	---	---	78.25	18.12	60.13
MW-2	5/28/2008	---	---	---	---	---	---	---	---	---	---	---	---	---	78.25	18.75	59.50
MW-2	9/19/2008	210	<0.50	<1.0	<1.0	<1.0	---	15	<2.0	<2.0	<2.0	<10	---	---	78.25	17.35	60.90
MW-2	12/4/2008	---	---	---	---	---	---	---	---	---	---	---	---	---	78.25	16.78	61.47
MW-2	2/25/2009	120	<0.50	<1.0	<1.0	<1.0	---	11	---	---	---	---	---	---	78.25	13.92	64.33
MW-2	5/26/2009	---	---	---	---	---	---	---	---	---	---	---	---	---	78.25	14.50	63.75
MW-2	9/18/2009	130	<0.50	<1.0	<1.0	<1.0	---	5.6	<2.0	<2.0	<2.0	<10	---	---	78.25	14.92	63.33
MW-2	3/16/2010	110	<0.50	<1.0	<1.0	<1.0	---	7.6	---	---	---	---	---	---	78.25	18.16	60.09
MW-2	9/27/2010	270	<0.50	<1.0	<1.0	<1.0	---	<1.0	<2.0	<2.0	<2.0	<10	---	---	78.25	20.81	57.44
MW-2	**3/25/2011**	**120 h**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**---**	**1.8**	**---**	**---**	**---**	**---**	**---**	**---**	**78.25**	**17.98**	**60.27**
MW-3	7/14/1988	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	14.05	60.63

TABLE 1

GROUNDWATER DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Well ID	*Date*	*TPPH* (ug/L)	*B* (ug/L)	*T* (ug/L)	*E* (ug/L)	*X* (ug/L)	*MTBE 8020* (ug/L)	*MTBE 8260* (ug/L)	*DIPE* (ug/L)	*ETBE* (ug/L)	*TAME* (ug/L)	*TBA* (ug/L)	*1,2-DCA* (ug/L)	*EDB* (ug/L)	*TOC* (MSL)	*Depth to Water* (ft.)	*GW Elevation* (MSL)
MW-3	10/4/1988	ND	ND	ND	ND	5	---	---	---	---	---	---	---	---	74.68	14.60	60.08
MW-3	11/10/1988	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	14.35	60.33
MW-3	12/9/1988	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	14.04	60.64
MW-3	1/10/1989	ND	ND	ND	ND	---	---	---	---	---	---	---	---	---	74.68	13.70	60.98
MW-3	1/20/1989	---	---	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	13.72	60.96
MW-3	2/6/1989	70	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	13.75	60.93
MW-3	3/10/1989	150	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	13.42	61.26
MW-3	6/6/1989	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	14.52	60.16
MW-3	9/7/1989	ND	0.65	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	15.52	59.16
MW-3	12/18/1989	46	1.3	ND	0.44	0.66	---	---	---	---	---	---	---	---	74.68	19.59	55.09
MW-3	3/8/1990	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	14.72	59.96
MW-3	6/7/1990	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	14.65	60.03
MW-3	9/5/1990	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	15.51	59.17
MW-3	12/3/1990	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	14.85	59.83
MW-3	3/1/1991	1.9	59	ND	22	ND	---	---	---	---	---	---	---	---	74.68	14.92	59.76
MW-3	6/3/1991	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	14.75	59.93
MW-3	9/4/1991	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	15.14	59.54
MW-3	3/13/1992	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	13.50	61.18
MW-3	6/3/1992	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	14.39	60.29
MW-3	8/19/1992	92	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	15.08	59.60
MW-3 (D)	8/19/1992	76	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	15.08	59.60
MW-3	11/16/1992	200 a	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	15.43	59.25
MW-3 (D)	11/16/1992	140 a	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	15.43	59.25
MW-3	2/18/1993	680 a	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	12.96	61.72
MW-3	6/1/1993	160 a	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	13.98	60.70
MW-3 (D)	6/1/1993	150 a	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	13.98	60.70
MW-3	8/30/1993	110 a	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	14.82	59.86
MW-3	12/13/1993	140 a	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	14.70	59.98
MW-3 (D)	12/13/1993	110 a	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	14.70	59.98
MW-3	3/3/1994	61 a	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	13.92	60.76
MW-3	6/6/1994	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	14.73	59.95
MW-3	9/12/1994	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	15.42	59.26
MW-3	12/15/1994	ND	ND	0.9	ND	0.6	---	---	---	---	---	---	---	---	74.68	13.80	60.88
MW-3	3/13/1995	100 a	7.9	17	0.7	6.1	---	---	---	---	---	---	---	---	74.68	12.41	62.27
MW-3	4/21/1995	60	0.9	1.1	ND	1	---	---	---	---	---	---	---	---	74.68	---	---
MW-3	6/26/1995	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	13.79	60.89
MW-3	09/12/1995 b	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	74.68	14.77	59.91
MW-3	3/21/1996	<50	<0.5	<0.5	<0.5	<0.5	17	---	---	---	---	---	---	---	74.68	11.80	62.88
MW-3	6/28/1996	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	74.68	14.19	60.49

TABLE 1

GROUNDWATER DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Well ID	*Date*	*TPPH* (ug/L)	*B* (ug/L)	*T* (ug/L)	*E* (ug/L)	*X* (ug/L)	*MTBE 8020* (ug/L)	*MTBE 8260* (ug/L)	*DIPE* (ug/L)	*ETBE* (ug/L)	*TAME* (ug/L)	*TBA* (ug/L)	*1,2-DCA* (ug/L)	*EDB* (ug/L)	*TOC* (MSL)	*Depth to Water* (ft.)	*GW Elevation* (MSL)
MW-3	9/19/1996	<50	<0.5	<0.5	<0.5	<0.5	<2.5	---	---	---	---	---	---	---	74.68	14.85	59.83
MW-3	12/19/1996	---	---	---	---	---	---	---	---	---	---	---	---	---	74.68	13.61	61.07
MW-3	12/5/1997	---	---	---	---	---	---	---	---	---	---	---	---	---	74.68	13.16	61.52
MW-3	12/24/1998	---	---	---	---	---	---	---	---	---	---	---	---	---	74.68	14.08	60.60
MW-3	12/23/1999	---	---	---	---	---	---	---	---	---	---	---	---	---	74.68	15.92	58.76
MW-3	12/11/2000	---	---	---	---	---	---	---	---	---	---	---	---	---	74.68	15.31	59.37
MW-3	12/27/2001	---	---	---	---	---	---	---	---	---	---	---	---	---	74.68	12.84	61.84
MW-3	3/12/2002	---	---	---	---	---	---	---	---	---	---	---	---	---	74.68	12.54	62.14
MW-3	3/14/2002	<50	<0.50	<0.50	<0.50	<0.50	---	40	---	---	---	---	---	---	74.68	12.78	61.90
MW-3	6/13/2002	---	---	---	---	---	---	---	---	---	---	---	---	---	74.68	14.06	60.62
MW-3	9/9/2002	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	14.77	62.92
MW-3	12/12/2002	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	15.11	62.58
MW-3	3/10/2003	<50	<0.50	<0.50	<0.50	<0.50	---	5.4	---	---	---	---	---	---	77.69	13.52	64.17
MW-3	6/10/2003	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	13.82	63.87
MW-3	9/16/2003	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	14.60	63.09
MW-3	12/3/2003	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	14.53	63.16
MW-3	3/11/2004	<50	<0.50	<0.50	<0.50	<1.0	---	3.5	---	---	---	---	---	---	77.69	12.38	65.31
MW-3	6/17/2004	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	14.28	63.41
MW-3	9/13/2004	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	14.78	62.91
MW-3	12/7/2004	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	13.77	63.92
MW-3	3/3/2005	120	1.3	<0.50	<0.50	2.7	---	2.3	<2.0	<2.0	<2.0	37	---	---	77.69	11.84	65.85
MW-3	6/14/2005	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	12.29	65.40
MW-3	9/19/2005	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	14.33	63.36
MW-3	3/30/2006	<50.0	<0.500	<0.500	<0.500	<0.500	---	1.72	---	---	---	---	<0.500	<0.500	77.69	10.30	67.39
MW-3	9/27/2006	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	14.62	63.07
MW-3	9/28/2006	610	<0.500	<0.500	<0.500	<0.500	---	2.83	<0.500	<0.500	<0.500	<10.0	---	---	77.69	---	---
MW-3	12/26/2006	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	13.82	63.87
MW-3	3/29/2007	<50	<0.50	<1.0	<1.0	<1.0	---	0.78 f	---	---	---	---	---	---	77.69	13.55	64.14
MW-3	6/7/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	16.38	61.31
MW-3	9/18/2007	<50 g	<0.50	<1.0	<1.0	<1.0	---	1.1	<2.0	<2.0	<2.0	<10	---	---	77.69	16.24	61.45
MW-3	12/17/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	19.24	58.45
MW-3	2/27/2008	<50 g	<0.50	<1.0	<1.0	<1.0	---	1.4	---	---	---	---	---	---	77.69	14.65	63.04
MW-3	5/28/2008	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	15.33	62.36
MW-3	9/19/2008	100	<0.50	<1.0	<1.0	<1.0	---	<1.0	<2.0	<2.0	<2.0	<10	---	---	77.69	15.53	62.16
MW-3	12/4/2008	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	15.38	62.31
MW-3	2/25/2009	88	<0.50	<1.0	<1.0	<1.0	---	<1.0	---	---	---	---	---	---	77.69	12.60	65.09
MW-3	5/26/2009	---	---	---	---	---	---	---	---	---	---	---	---	---	77.69	13.40	64.29
MW-3	9/18/2009	330	<0.50	<1.0	<1.0	<1.0	---	<1.0	<2.0	<2.0	<2.0	<10	---	---	77.69	14.66	63.03
MW-3	3/16/2010	170	<0.50	<1.0	<1.0	<1.0	---	<1.0	---	---	---	---	---	---	77.69	14.73	62.96

TABLE 1

GROUNDWATER DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Well ID	*Date*	*TPPH* (ug/L)	*B* (ug/L)	*T* (ug/L)	*E* (ug/L)	*X* (ug/L)	*MTBE 8020* (ug/L)	*MTBE 8260* (ug/L)	*DIPE* (ug/L)	*ETBE* (ug/L)	*TAME* (ug/L)	*TBA* (ug/L)	*1,2-DCA* (ug/L)	*EDB* (ug/L)	*TOC* (MSL)	*Depth to Water* (ft.)	*GW Elevation* (MSL)
MW-3	9/27/2010	<50	<0.50	<1.0	<1.0	<1.0	---	<1.0	<2.0	<2.0	<2.0	<10	---	---	77.69	16.09	61.60
MW-3	**3/25/2011**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**---**	**<1.0**	**---**	**---**	**---**	**---**	**---**	**---**	**77.69**	**14.16**	**63.53**
MW-4	1/23/1990	1,600	100	10	30	20	---	---	---	---	---	---	---	---	73.83	14.68	59.15
MW-4	3/8/1990	4,200	260	18	88	39	---	---	---	---	---	---	---	---	73.83	14.38	59.45
MW-4	6/7/1990	2,000	150	6.9	14	17	---	---	---	---	---	---	---	---	73.83	14.27	59.56
MW-4	9/5/1990	1,700	130	10	7.2	19	---	---	---	---	---	---	---	---	73.83	15.40	58.43
MW-4	12/3/1990	2,600	108	41	17	59	---	---	---	---	---	---	---	---	73.83	15.90	57.93
MW-4	6/3/1991	2,800	160	15	8.8	32	---	---	---	---	---	---	---	---	73.83	14.60	59.23
MW-4	9/4/1991	Sheen	---	---	---	---	---	---	---	---	---	---	---	---	73.83	15.25	58.58
MW-4	3/13/1992	2,700	180	70	5.9	29	---	---	---	---	---	---	---	---	73.83	12.72	61.11
MW-4	6/3/1992	1,700	190	ND	30	23	---	---	---	---	---	---	---	---	73.83	14.33	59.50
MW-4	8/19/1992	170	4.2	ND	0.6	1	---	---	---	---	---	---	---	---	73.83	15.18	58.65
MW-4	11/16/1992	2,600	92	49	50	81	---	---	---	---	---	---	---	---	73.83	15.39	58.44
MW-4	2/18/1993	7,400	120	38	51	87	---	---	---	---	---	---	---	---	73.83	12.62	61.21
MW-4	6/1/1993	7,000	1,800	1,700	1,600	1,700	---	---	---	---	---	---	---	---	73.83	13.68	60.15
MW-4	8/30/1993	2,100	80	11	ND	11	---	---	---	---	---	---	---	---	73.83	14.83	59.00
MW-4 (D)	8/30/1993	2,100	77	5.6	ND	5.5	---	---	---	---	---	---	---	---	73.83	14.83	59.00
MW-4	12/13/1993	2,000 a	20	ND	21	52	---	---	---	---	---	---	---	---	73.83	14.50	59.33
MW-4	3/3/1994	3,500	150	86	85	90	---	---	---	---	---	---	---	---	73.83	13.48	60.35
MW-4 (D)	3/3/1994	3,200	130	73	74	76	---	---	---	---	---	---	---	---	73.83	13.48	60.35
MW-4	6/6/1994	590	25	ND	ND	ND	---	---	---	---	---	---	---	---	73.83	14.26	59.57
MW-4 (D)	6/6/1994	400	16	ND	ND	ND	---	---	---	---	---	---	---	---	73.83	14.26	59.57
MW-4	9/12/1994	1,800	42	ND	3.7	4.7	---	---	---	---	---	---	---	---	73.83	15.42	58.41
MW-4 (D)	9/12/1994	2,000	40	ND	5.7	8	---	---	---	---	---	---	---	---	73.83	15.42	58.41
MW-4	12/15/1994	2,900	78	14	94	17	---	---	---	---	---	---	---	---	73.83	13.43	60.40
MW-4 (D)	12/15/1994	2,900	90	7	96	18	---	---	---	---	---	---	---	---	73.83	13.43	60.40
MW-4	3/13/1995	2,700	240	24	99	34	---	---	---	---	---	---	---	---	73.83	12.13	61.70
MW-4 (D)	3/13/1995	2,500	300	24	140	28	---	---	---	---	---	---	---	---	73.83	12.13	61.70
MW-4	6/25/1995	2,100	87	10	67	25	---	---	---	---	---	---	---	---	73.83	13.26	60.57
MW-4 (D)	6/25/1995	2,300	92	12	74	26	---	---	---	---	---	---	---	---	73.83	13.26	60.57
MW-4	09/12/1995 b	1,300	33	13	9.3	15	---	---	---	---	---	---	---	---	73.83	14.64	59.19
MW-4 (D)	09/12/1995 b	1,500	2.1	16	11	17	---	---	---	---	---	---	---	---	73.83	14.64	59.19
MW-4	3/21/1996	2,100	50	3.2	40	5.4	ND	---	---	---	---	---	---	---	73.83	11.55	62.28
MW-4 (D)	3/21/1996	1,700	24	<0.5	39	7.2	740	---	---	---	---	---	---	---	73.83	11.55	62.28
MW-4	6/28/1996	1,300	61	6.2	53	11	1,000	---	---	---	---	---	---	---	73.83	13.86	59.97
MW-4 (D)	6/28/1996	1,200	29	6.2	50	8.3	1,000	---	---	---	---	---	---	---	73.83	13.86	59.97
MW-4	9/19/1996	820	12	<2.5	2.8	4.3	720	---	---	---	---	---	---	---	73.83	14.72	59.11
MW-4 (D)	9/19/1996	580	9.6	<2.5	<2.5	<2.5	760	1,200	---	---	---	---	---	---	73.83	14.72	59.11

TABLE 1

GROUNDWATER DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Well ID	*Date*	*TPPH* (ug/L)	*B* (ug/L)	*T* (ug/L)	*E* (ug/L)	*X* (ug/L)	*MTBE 8020* (ug/L)	*MTBE 8260* (ug/L)	*DIPE* (ug/L)	*ETBE* (ug/L)	*TAME* (ug/L)	*TBA* (ug/L)	*1,2-DCA* (ug/L)	*EDB* (ug/L)	*TOC* (MSL)	*Depth to Water* (ft.)	*GW Elevation* (MSL)
MW-4	12/19/1996	1,200	28	<5.0	<5.0	<5.0	<25	---	---	---	---	---	---	---	73.83	13.06	60.77
MW-4	12/5/1997	1,900	36	9	16	18	630	---	---	---	---	---	---	---	73.83	12.89	60.94
MW-4	12/24/1998	1,100	23	5.3	38	7.9	1,100	---	---	---	---	---	---	---	73.83	13.92	59.91
MW-4	12/17/1999	1,100	22	21	13	11	3,800	3,200	---	---	---	---	---	---	73.83	14.28	59.55
MW-4	12/23/1999	---	---	---	---	---	---	---	---	---	---	---	---	---	73.83	16.24	57.59
MW-4	12/11/2000	975	25.0	11.3	<5.00	<5.00	1,960	1,730 c	---	---	---	---	---	---	73.83	14.15	59.68
MW-4	12/27/2001	2,000	9.9	<5.0	18	<5.0	---	1,400	---	---	---	---	---	---	73.83	12.61	61.22
MW-4	3/14/2002	1,700	6.6	<2.0	2.1	2.1	---	1,100	---	---	---	---	---	---	73.83	12.35	61.48
MW-4	6/13/2002	1,200	4.7	<2.0	<2.0	<2.0	---	1,100	---	---	---	---	---	---	73.83	13.72	60.11
MW-4	9/9/2002	620	3.7	<2.0	<2.0	<2.0	---	760	---	---	---	---	---	---	76.82	14.56	62.26
MW-4	12/12/2002	1,500	3.9	<2.0	<2.0	<2.0	---	880	---	---	---	---	---	---	76.82	14.82	62.00
MW-4	3/10/2003	2,300	5.7	0.95	3.8	0.63	---	1,200	---	---	---	---	---	---	76.82	13.63	63.19
MW-4	6/10/2003	2,200	5.3	<5.0	<5.0	<10	---	880	---	---	---	---	---	---	76.82	13.68	63.14
MW-4	9/16/2003	1,400	<5.0	<5.0	<5.0	<10	---	420	---	---	---	---	---	---	76.82	14.35	62.47
MW-4	12/3/2003	2,600	5.0	<5.0	<5.0	<10	---	840	---	---	---	---	---	---	76.82	14.27	62.55
MW-4	3/11/2004	1,900 a	6.3	<5.0	<5.0	<10	---	800	---	---	---	---	---	---	76.82	12.62	64.20
MW-4	6/17/2004	1,000	7.4	<2.5	<2.5	<5.0	---	460	---	---	---	---	---	---	76.82	13.90	62.92
MW-4	9/13/2004	1,100	4.6	<2.5	<2.5	<5.0	---	300	<10	<10	<10	160	---	---	76.82	14.67	62.15
MW-4	12/7/2004	2,200	4.6	<2.5	<2.5	<5.0	---	430	---	---	---	---	---	---	76.82	13.92	62.90
MW-4	3/3/2005	2,500	5.3	<2.5	<2.5	<5.0	---	620	---	---	---	---	---	---	76.82	11.75	65.07
MW-4	6/14/2005	<50	<0.50	<0.50	<0.50	<1.0	---	51	---	---	---	---	---	---	76.82	12.20	64.62
MW-4	9/19/2005	1,200	2.7	<0.50	<0.50	<1.0	---	140	8.4	<2.0	<2.0	280	---	---	76.82	14.08	62.74
MW-4	3/30/2006	2,740	2.01	<0.500	<0.500	<0.500	---	222	---	---	---	---	<0.500	<0.500	76.82	10.25	66.57
MW-4	9/27/2006	---	---	---	---	---	---	---	---	---	---	---	---	---	76.82	14.18	62.64
MW-4	9/28/2006	1,660	0.950	<0.500	<0.500	<0.500	---	73.3	6.92	<0.500	<0.500	77.0	---	---	76.82	---	---
MW-4	12/26/2006	---	---	---	---	---	---	---	---	---	---	---	---	---	76.82	13.25	63.57
MW-4	3/29/2007	2,100	12	0.49 f	<1.0	0.21 f	---	150	---	---	---	---	---	---	76.82	13.18	63.64
MW-4	6/7/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	76.82	18.01	58.81
MW-4	9/18/2007	330 g	1.7	<1.0	<1.0	<1.0	---	9.2	0.86 f	<2.0	<2.0	<10	---	---	76.82	18.80	58.02
MW-4	12/17/2007	---	---	---	---	---	---	---	---	---	---	---	---	---	76.82	18.50	58.32
MW-4	2/27/2008	210 g	0.61	<1.0	<1.0	<1.0	---	<1.0	---	---	---	---	---	---	76.82	17.85	58.97
MW-4	5/28/2008	---	---	---	---	---	---	---	---	---	---	---	---	---	76.82	18.26	58.56
MW-4	9/19/2008	200	4.5	<1.0	<1.0	1.3	---	8.9	<2.0	<2.0	<2.0	<10	---	---	76.82	16.16	60.66
MW-4	12/4/2008	---	---	---	---	---	---	---	---	---	---	---	---	---	76.82	15.67	61.15
MW-4	2/25/2009	1,700	12	<2.0	4.2	<2.0	---	160	---	---	---	---	---	---	76.82	12.44	64.38
MW-4	5/26/2009	---	---	---	---	---	---	---	---	---	---	---	---	---	76.82	13.30	63.52
MW-4	9/18/2009	1,300	0.72	<1.0	<1.0	<1.0	---	150	56	<2.0	<2.0	160	---	---	76.82	14.30	62.52
MW-4	3/16/2010	300	1.2	<1.0	<1.0	<1.0	---	2.4	---	---	---	---	---	---	76.82	18.14	58.68
MW-4	9/27/2010	150	1.3	<1.0	<1.0	<1.0	---	6.6	<2.0	<2.0	<2.0	<10	---	---	76.82	18.99	57.83

TABLE 1

GROUNDWATER DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Well ID	*Date*	*TPPH* (ug/L)	*B* (ug/L)	*T* (ug/L)	*E* (ug/L)	*X* (ug/L)	*MTBE 8020* (ug/L)	*MTBE 8260* (ug/L)	*DIPE* (ug/L)	*ETBE* (ug/L)	*TAME* (ug/L)	*TBA* (ug/L)	*1,2-DCA* (ug/L)	*EDB* (ug/L)	*TOC* (MSL)	*Depth to Water* (ft.)	*GW Elevation* (MSL)
MW-4	**3/25/2011**	**770**	**9.5**	**0.59**	**11**	**1.3**	**---**	**2.3**	**---**	**---**	**---**	**---**	**---**	**---**	**76.82**	**17.65**	**59.17**
MW-5	9/22/2006	---	---	---	---	---	---	---	---	---	---	---	---	---	76.97	14.21	62.76
MW-5	9/27/2006	---	---	---	---	---	---	---	---	---	---	---	---	---	76.97	14.35	62.62
MW-5	9/28/2006	10,800	36.6	2.08	119	9.04	---	15.1	3.61	<0.500	<0.500	<10.0	---	---	76.97	---	---
MW-5	12/26/2006	5,000	150	5.2	70	16	---	35	---	---	---	---	---	---	76.97	13.32	63.65
MW-5	3/29/2007	7,700	320	10	77	19.0 f	---	32	---	---	---	---	---	---	76.97	13.22	63.75
MW-5	6/7/2007	7,600	47	4.6	71	13.7	---	40	---	---	---	---	---	---	76.97	17.88	59.09
MW-5	9/18/2007	4,300 g	7.0	1.1	20	1.93 f	---	21	0.82 f	<2.0	<2.0	15	---	---	76.97	19.00	57.97
MW-5	12/17/2007	6,900 g	58.0	9.9	410	15.8	---	<5.0	---	---	---	---	---	---	76.97	18.25	58.72
MW-5	2/27/2008	6,500 g	100	13	510	32.1	---	26	---	---	---	---	---	---	76.97	17.32	59.65
MW-5	5/28/2008	3,200	66	5.7	140	6.7	---	46	---	---	---	---	---	---	76.97	17.94	59.03
MW-5	9/19/2008	3,200	110	6.3	110	12.0	---	<1.0	7.0	<2.0	<2.0	10	---	---	76.97	16.32	60.65
MW-5	12/4/2008	5,900	250	14	220	28.3	---	<2.0	---	---	---	---	---	---	76.97	15.80	61.17
MW-5	2/25/2009	7,400	430	28	240	73	---	17	---	---	---	---	---	---	76.97	12.41	64.56
MW-5	5/26/2009	6,800	190	18	210	83	---	5.5	---	---	---	---	---	---	76.97	13.28	63.69
MW-5	9/18/2009	4,200	44	<5.0	140	20	---	6.0	<10	<10	<10	<50	---	---	76.97	14.35	62.62
MW-5	3/16/2010	15,000	64	5.7	280	21	---	6.4	---	---	---	---	---	---	76.97	17.46	59.51
MW-5	9/27/2010	6,100	82	<10	65	13	---	<10	<20	<20	<20	<100	---	---	76.97	18.90	58.07
MW-5	**3/25/2011**	**7,600**	**150**	**10**	**270**	**43**	**---**	**<5.0**	**---**	**---**	**---**	**---**	**---**	**---**	**76.97**	**16.82**	**60.15**

Abbreviations:
TPPH = Total petroleum hydrocarbons as gasoline by EPA Method 8260B; prior to December 27, 2001, by EPA Method 8015.
BTEX = Benzene, toluene, ethylbenzene, xylenes by EPA Method 8260B; prior to December 27, 2001, by EPA Method 8020.
MTBE = Methyl tertiary-butyl ether
DIPE = Di-isopropyl ether, analyzed by EPA Method 8260B
ETBE = Ethyl tertiary-butyl ether, analyzed by EPA Method 8260B
TAME = Tertiary-amyl methyl ether, analyzed by EPA Method 8260B
TBA = Tertiary-butyl alcohol, analyzed by EPA Method 8260B
1,2-DCA = 1,2-Dichloroethane, analyzed by EPA Method 8260B
EDB = 1,2-Dibromoethane or Ethylene Dibromide, analyzed by EPA Method 8260B
TOC = Top of casing elevation
GW = Groundwater
ug/L = Micrograms per liter
MSL = Mean sea level
ft. = Feet
<n = Below detection limit
(D) = Duplicate sample
ND = Not detected at or above the quantitative limit.

TABLE 1

GROUNDWATER DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Well ID	*Date*	*TPPH*	*B*	*T*	*E*	*X*	*MTBE 8020*	*MTBE 8260*	*DIPE*	*ETBE*	*TAME*	*TBA*	*1,2-DCA*	*EDB*	*TOC*	*Depth to Water*	*GW Elevation*
		(ug/L)	*(ug/L)*	*(ug/L)*	*(ug/L)*	*(ug/L)*	*(ug/L)*	*(ug/L)*	*(ug/L)*	*(ug/L)*	*(ug/L)*	*(ug/L)*	*(ug/L)*	*(ug/L)*	*(MSL)*	*(ft.)*	*(MSL)*

--- = Not applicable

Notes:
a = Chromatogram pattern indicates the presence of an unidentified hydrocarbon/Hydrocarbon does not match pattern of laboratory's standard.
b = The laboratory noted the sample was analyzed after the method specified holding time.
c = This sample was analyzed outside of EPA recommended hold time.
d = Sample contains discrete peak in gasoline range.
e = The concentration reported reflects individual or discrete unidentified peaks not matching a typical fuel pattern.
f = Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
g = Analyzed by EPA Method 8015B (M).
h = Hydrocarbon result partly due to individual peak(s) in quantitation range
Site surveyed January 30, 2002 by Virgil Chavez Land Surveying of Vallejo, CA.
Well MW-5 surveyed on May 10, 2006 by Virgil Chavez Land Surveying of Vallejo, CA.

TABLE 2

HISTORICAL GRAB GROUNDWATER ANALYTICAL DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Sample ID	*Date*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*TBA*	*DIPE*	*ETBE*	*TAME*
GS-1[a]	10/17/1989	<50[b]	<0.5[b]	<0.5[b]	<0.6[b]	<1.5[b]	---	---	---	---	---
GS-2[a]	10/17/1989	**5,600[b]**	**340[b]**	27[b]	**1,200[b]**	62[b]	---	---	---	---	---
GS-3[a]	10/17/1989	**8,800[b]**	**380[b]**	6[b]	**580[b]**	42[b]	---	---	---	---	---
Probe 1	5/19/1990	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
Probe 2	5/19/1990	**25,000**	**280**	**290**	**160**	**470**	---	---	---	---	---
Probe 3	5/19/1990	<50	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---
Probe 4	5/19/1990	<50	5	<0.5	2	<0.5	---	---	---	---	---
Probe 5	5/19/1990	<50	1	2	1	4	---	---	---	---	---
Probe 6	5/19/1990	**31,000**	**430**	**600**	**240**	**1,400**	---	---	---	---	---
SB-1-W	3/24/2004	**10,000**	**430**	75	**98**	44	110	---	---	---	---
SB-2-W	3/24/2004	**520**	4.9	<1.0	<1.0	<2.0	320	---	---	---	---
SB-4-W1	4/5/2006	<50.0	<1.00	50.4	3.92	13.3	29.2	15.1	<1.00	<1.00	<1.00
SB-7-W1	4/6/2006	<50.0	<1.00	<1.00	<1.00	<3.00	<1.00	<10.0	<1.00	<1.00	<1.00
SB-8-W1	4/6/2006	**34,000**	**404**	22.5	**110**	56.8	15.0	40.2	26.6	<1.00	<1.00
SB-9	2/1/2008	**1,700[c]**	<0.50	<1.0	<1.0	<1.0	120	<10	<2.0	<2.0	<2.0
SB-10	2/1/2008	<50[c]	<0.50	<1.0	<1.0	<1.0	94	<10	<2.0	<2.0	<2.0
SB-11	2/1/2008	<50[c]	<0.50	14	<1.0	<1.0	2.6	<10	<2.0	<2.0	<2.0
SB-12	2/1/2008	**4,900[c]**	**120**	11	**170**	42.2	33	100	11	<2.0	<2.0
Groundwater (≤10 fbg) ESL [d]:		210	46	130	43	100	1,800	18,000	NA	NA	NA

Notes:

All results in micrograms per liter (µg/l) unless otherwise indicated.
TPHg = Total petroleum hydrocarbons as gasoline analyzed by EPA Method 8260B; before 2004, analyzed by EPA Method 8015 unless otherwise noted
Benzene, toluene, ethylbenzene, and xylenes analyzed by EPA Method 8260B; before 2004, analyzed by EPA Method 8015 unless otherwise noted
MTBE = Methyl tertiary-butyl ether analyzed by EPA Method 8260B
TBA = Tertiary-butyl alcohol analyzed by EPA Method 8260B
DIPE = Di-isopropyl ether analyzed by EPA Method 8260B
ETBE = Ethyl tertiary-butyl ether analyzed by EPA Method 8260B
TAME = Tertiary-amyl methyl ether analyzed by EPA Method 8260B
<x = Not detected at reporting limit x
--- = Not analyzed

TABLE 2

HISTORICAL GRAB GROUNDWATER ANALYTICAL DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

ESL = Environmental screening level
NA= No available ESL
Results in **bold** equal or exceed applicable ESL

a = Sample collected from temporary well
b = Analyzed by unknown method
c = Analyzed by EPA Method 8015M
d = San Francisco Bay Regional Water Quality Control Board ESL for groundwater where groundwater is not a source of drinking water (Tables B and D of *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater* , California Regional Water Quality Control Board, Interim Final - November 2007 [Revised May 2008]).

TABLE 3

HISTORICAL SOIL ANALYTICAL DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*TBA*	*DIPE*	*ETBE*	*TAME*	*Total Lead*	*Organic Lead*
S-A	4/14/1986	4 - 5.5	17[a]	--	--	--	--	--	--	--	--	--	--	--
S-A	4/14/1986	8.5 - 10	**1,200**[a]	--	--	--	--	--	--	--	--	--	--	--
S-A	4/14/1986	11 - 12.5	**4,300**[a]	--	--	--	--	--	--	--	--	--	--	--
S-A	4/14/1986	13.5 - 15	ND[a]	--	--	--	--	--	--	--	--	--	--	--
S-B	4/14/1986	5 - 6.5	36[a]	--	--	--	--	--	--	--	--	--	--	--
S-B	4/14/1986	8 - 9.5	78[a]	--	--	--	--	--	--	--	--	--	--	--
S-B	4/14/1986	12 - 13	6.4[a]	--	--	--	--	--	--	--	--	--	11.0[b]	--
S-C	4/14/1986	4 - 5.5	ND[a]	--	--	--	--	--	--	--	--	--	--	--
S-C	4/14/1986	7 - 8.5	ND[a]	--	--	--	--	--	--	--	--	--	--	--
S-C	4/14/1986	11 - 12.5	ND[a]	--	--	--	--	--	--	--	--	--	--	--
S-C	4/14/1986	13.5 - 15	**5,700**[a]	--	--	--	--	--	--	--	--	--	--	--
S-D	4/14/1986	Composite	**571**[a]	--	--	--	--	--	--	--	--	--	--	--
B-1 @ 4'	8/28/1987	4	**412**	<0.05	<0.05	<0.1	5.4	--	--	--	--	--	65.9[d]	--
B-1 @ 6'	8/28/1987	6	**1,440**	<0.05	<0.05	<0.1	**130**	--	--	--	--	--	26.4[d]	--
B-1 @ 8'	8/28/1987	8	**1,870**	<0.05	4.3	**14**	**325**	--	--	--	--	--	14.3[d]	--
B-1 @ 10'	8/28/1987	10	<10	<0.05	<0.050	<0.1	<0.1	--	--	--	--	--	<5[d]	--
B-1 @ 12'	8/28/1987	12	122	0.60	0.36	0.38	0.33	--	--	--	--	--	<5[d]	--
B-1 @ 14'	8/28/1987	14	52	<0.05	<0.05	<0.1	<0.1	--	--	--	--	--	<5[d]	--
B-2 @ 5'	8/28/1987	5	<10	<0.05	1.5	**5.7**	<0.1	--	--	--	--	--	<5[d]	--
B-2 @ 6-7'	8/28/1987	6 - 7	<10	<0.05	0.37	0.55	<0.1	--	--	--	--	--	<5[d]	--

TABLE 3

HISTORICAL SOIL ANALYTICAL DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*TBA*	*DIPE*	*ETBE*	*TAME*	*Total Lead*	*Organic Lead*
B-2 @ 8-9'	8/28/1987	8 - 9	<10	**0.5**	0.4	0.3	<0.1	--	--	--	--	--	<5[d]	--
B-2 @ 10'	8/28/1987	10	<10	<0.05	<0.05	<0.1	<0.1	--	--	--	--	--	<5[d]	--
B-2 @ 12'	8/28/1987	12	<10	<0.05	<0.05	<0.1	<0.1	--	--	--	--	--	<5[d]	--
A1	11/5/1987	15	**380**	1.6	2.2	--	**55**	--	--	--	--	--	--	--
A2	11/5/1987	15	**310**	1.3	1.3	--	**33**	--	--	--	--	--	--	--
B1	11/5/1987	15	**480**	**4.3**	0.5	--	**22**	--	--	--	--	--	--	--
B2	11/5/1987	15	9.1	1.6	0.3	--	0.1	--	--	--	--	--	--	--
C1	11/5/1987	15	12	1.5	<0.1	--	1.1	--	--	--	--	--	--	--
C2	11/5/1987	15	170	**4.1**	<0.1	--	2.4	--	--	--	--	--	--	--
D1	11/5/1987	15	8.6	<0.1	<0.1	--	<0.10	--	--	--	--	--	--	--
D2	11/5/1987	15	44	<0.1	<0.1	--	5.3	--	--	--	--	--	--	--
MW1-2	7/11/1988	10	<10	<0.003	0.0116	<0.003	<0.003	--	--	--	--	--	--	--
MW1-3	7/11/1988	15	<10	<0.003	0.0129	<0.003	0.0051	--	--	--	--	--	--	--
MW1-4	7/11/1988	20	<10	<0.003	0.0230	<0.003	<0.003	--	--	--	--	--	--	--
MW2-1	7/11/1988	5	<10	<0.003	0.0161	<0.003	<0.003	--	--	--	--	--	--	--
MW2-2	7/11/1988	10	<10	<0.003	0.0093	<0.003	<0.003	--	--	--	--	--	--	--
MW2-3	7/11/1988	15	<10	<0.003	0.010	<0.003	<0.003	--	--	--	--	--	--	--
MW3-1	7/12/1988	10	**278**	<0.050	0.388	<0.003	0.411	--	--	--	--	--	11[e]	--
MW3-2	7/12/1988	15	<10	<0.003	0.0367	<0.003	<0.003	--	--	--	--	--	8.3[e]	--
MW3-3	7/12/1988	20	<10	<0.003	0.0304	0.0076	<0.003	--	--	--	--	--	--	--

TABLE 3

HISTORICAL SOIL ANALYTICAL DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*TBA*	*DIPE*	*ETBE*	*TAME*	*Total Lead*	*Organic Lead*
SB1-1	8/16/1989	5	<1.0	<0.05	<0.1	<0.1	<0.1	--	--	--	--	--	--	--
SB1-2	8/16/1989	10	<1.0	<0.05	<0.1	<0.1	<0.1	--	--	--	--	--	--	--
SB1-3	8/16/1989	15	<1.0	<0.05	<0.1	<0.1	<0.1	--	--	--	--	--	--	--
SB1 (composite)	8/16/1989	Composite	--	--	--	--	--	--	--	--	--	--	4.5[a]	<0.05
SB2-1	8/16/1989	5.5	<1.0	<0.05	<0.1	<0.1	<0.1	--	--	--	--	--	--	--
SB2-2	8/16/1989	10.5	<1.0	<0.05	<0.1	<0.1	<0.1	--	--	--	--	--	--	--
SB2-3	8/16/1989	15.5	**490**	<0.05	0.28	1.3	1.0	--	--	--	--	--	--	--
SB2 (composite)	8/16/1989	Composite	--	--	--	--	--	--	--	--	--	--	2.5[a]	<0.05
SB3-1	8/16/1989	4.5	6.6	<0.05	0.26	0.14	0.63	--	--	--	--	--	--	--
SB3-2	8/16/1989	9.5	<1.0	<0.05	<0.1	<0.1	<0.1	--	--	--	--	--	--	--
SB3-3	8/16/1989	15.5	<1.0	<0.05	<0.1	<0.1	<0.1	--	--	--	--	--	--	--
SB3 (composite)	8/16/1989	Composite	--	--	--	--	--	--	--	--	--	--	5.5[a]	<0.05
SB-1-5'	3/24/2004	5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--
SB-1-10'	3/24/2004	10	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--
SB-1-15'	3/24/2004	15	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.0078	--	--	--	--	--	--
SB-1-17'	3/24/2004	17	12	<0.025	<0.025	<0.025	<0.025	<0.025	--	--	--	--	--	--
SB-1-19.5'	3/24/2004	19.5	43	<0.024	<0.024	<0.024	<0.024	<0.024	--	--	--	--	--	--
SB-2-5'	3/24/2004	5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--
SB-2-10'	3/24/2004	10	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--
SB-2-15'	3/24/2004	15	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--
SB-2-17'	3/24/2004	17	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.0099	--	--	--	--	--	--

TABLE 3

HISTORICAL SOIL ANALYTICAL DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*TBA*	*DIPE*	*ETBE*	*TAME*	*Total Lead*	*Organic Lead*
SB-2-19.5'	3/24/2004	19.5	10	<0.025	<0.025	<0.025	<0.025	<0.025	--	--	--	--	--	--
D-1-4.0	4/18/2005	4.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	6.2	--
D-2-1.5	4/18/2005	1.5	**1,700**	<0.40	2.4	3.8	5.4	<0.40	<2.0	<0.40	<0.40	<0.40	130	--
D-2-3.5	4/18/2005	3.5	**940**	0.060	6.6	**9.5**	**85**	<0.025	<0.15	<0.025	<0.025	<0.025	8.0	--
D-3-3.0	4/18/2005	3.0	2.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	6.5	--
D-4-4.0	4/18/2005	4.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	8.1	--
P-1-2.0	4/18/2005	2.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	4.2	--
P-2-4.5	4/18/2005	4.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	9.7	--
P-3-3.5	4/18/2005	3.5	**620**	<0.025	0.20	1.6	6.1	0.066	0.18	<0.025	<0.025	<0.025	22	--
P-4-4.0	4/18/2005	4.0	**2,700**	**4.2**	1.6	**39**	**78**	0.30	<1.5	<0.25	<0.25	<0.25	140	--
P-5-4.0	4/18/2005	4.0	**1,600**	**0.98**	0.28	**7.4**	**13**	<0.25	<1.5	<0.25	<0.25	<0.25	11	--
EX-1-6	4/28/2005	6.0	**830**	<0.50	1.4	4.1	<0.50	<0.50	<2.5	<1.0	<0.50	<0.50	7.2	--
EX-2-6	4/28/2005	6.0	**200**	<0.50	<0.50	<0.50	<0.50	<0.50	<2.5	<1.0	<0.50	<0.50	7.1	--
EX-3-6	4/28/2005	6.0	7.3	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.015	<0.010	<0.0050	<0.0050	4.1	--
EX-4-6	4/28/2005	6.0	21	<0.023	<0.023	<0.023	<0.023	<0.023	<0.046	<0.023	<0.023	<0.023	12	--

TABLE 3

HISTORICAL SOIL ANALYTICAL DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*TBA*	*DIPE*	*ETBE*	*TAME*	*Total Lead*	*Organic Lead*
EX-B-6.5	4/28/2005	6.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.017	<0.010	<0.0050	<0.0050	3.6	--
EX-5-6	4/28/2005	6.0	7.6	<0.019	<0.019	<0.019	0.10	<0.019	<0.038	<0.038	<0.019	<0.019	4.1	--
EX-6-6	4/28/2005	6.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.013	<0.010	<0.0050	<0.0050	7.3	--
EX-B2-6.5	4/28/2005	6.5	**260**	<0.50	<0.50	1.6	1.5	<0.50	<2.5	3.3	<0.50	<0.50	4.0	--
SB-4-5	4/4/2006	5.0	<0.100	<0.00200	<0.00200	<0.00200	<0.00500	<0.00200	<0.0500	<0.00200	<0.00500	<0.00200	--	--
SB-4-11.5	4/5/2006	11.5	<0.100	<0.00200	<0.00200	<0.00200	<0.00500	<0.00200	<0.0500	<0.00200	<0.00500	<0.00200	--	--
SB-4-15.5	4/5/2006	15.5	0.544	<0.00200	0.119	0.00995	0.0388	<0.00200	<0.0500	<0.00200	<0.00500	<0.00200	--	--
SB-5-3	4/4/2006	3.0	**1,510**[f]	**2.90**[f]	**9.47**[f]	**9.46**[f]	**70.6**[f]	0.00403	<0.0500	0.0142	<0.00500	<0.00200	--	--
SB-6-3	4/4/2006	3.0	0.638	<0.00200	<0.00200	<0.00200	<0.00500	<0.00200	<0.0500	<0.00200	<0.00500	<0.00200	--	--
SB-6-6.5	4/5/2006	6.5	<0.100	<0.00200	<0.00200	<0.00200	<0.00500	0.00418	<0.0500	<0.00200	<0.00500	<0.00200	--	--
SB-6-9.5	4/5/2006	9.5	2.43	0.0168	<0.00200	0.00746	<0.00500	0.00970	<0.0500	<0.00200	<0.00500	<0.00200	--	--
SB-6-12	4/6/2006	12.0	6.16	0.0160	<0.00200	0.0319	0.0222	0.00541	<0.0500	<0.00200	<0.00500	<0.00200	--	--
SB-7-5	4/4/2006	5.0	0.452	<0.00200	<0.00200	0.00325	0.0199	<0.00200	<0.0500	<0.00200	<0.00500	<0.00200	--	--
SB-7-10	4/6/2006	10.0	<0.100	<0.00200	<0.00200	<0.00200	<0.00500	0.00221	<0.0500	<0.00200	<0.00500	<0.00200	--	--
SB-7-15	4/6/2006	15.0	<0.100	<0.00200	<0.00200	<0.00200	<0.00500	<0.00200	<0.0500	<0.00200	<0.00500	<0.00200	--	--
SB-8-5	4/4/2006	5.0	<0.100	<0.00200	<0.00200	<0.00200	<0.00500	<0.00200	<0.0500	<0.00200	<0.00500	<0.00200	--	--
SB-8-10	4/6/2006	10.0	<0.100	0.00340	<0.00200	<0.00200	<0.00500	<0.00200	<0.0500	<0.00200	<0.00500	<0.00200	--	--
SB-8-14	4/6/2006	14.0	0.942	0.0588	0.00204	0.00416	<0.00500	0.00855	<0.0500	0.0132	<0.00500	<0.00200	--	--
SB-9-7	2/1/2008	7	<0.50[g]	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.010	<0.010	<0.010	--	--

TABLE 3

HISTORICAL SOIL ANALYTICAL DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*TBA*	*DIPE*	*ETBE*	*TAME*	*Total Lead*	*Organic Lead*
SB-9-11.5	2/1/2008	11.5	<0.50[g]	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.010	<0.010	<0.010	--	--
SB-9-15.5	2/1/2008	15.5	<0.50[g]	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.010	<0.010	<0.010	--	--
SB-10-7	2/1/2008	7	<0.50[g]	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.010	<0.010	<0.010	--	--
SB-10-11.5	2/1/2008	11.5	<0.50[g]	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.010	<0.010	<0.010	--	--
SB-10-15.5	2/1/2008	15.5	<0.50[g]	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.010	<0.010	<0.010	--	--
SB-11-7.5	2/1/2008	7.5	<0.50[g]	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.010	<0.010	<0.010	--	--
SB-11-11.5	2/1/2008	11.5	<0.50[g]	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.010	<0.010	<0.010	--	--
SB-11-15.5	2/1/2008	15.5	<0.50[g]	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.010	<0.010	<0.010	--	--
SB-12-7.5	2/1/2008	7.5	<0.50[g]	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.010	<0.010	<0.010	--	--
SB-12-11	2/1/2008	11	<0.50[g]	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.010	<0.010	<0.010	--	--
SB-12-15.5	2/1/2008	15.5	<0.50[g]	<0.0050	<0.0050	<0.0050	<0.010	0.0053	<0.050	<0.010	<0.010	<0.010	--	--
Shallow Soil (≤10 fbg) ESL[h]:			180	0.27	9.3	4.7	11	8.4	110	NA	NA	NA	750	NA
Deep Soil (>10 fbg) ESL[h]:			180	2.0	9.3	4.7	11	8.4	110	NA	NA	NA	750	NA

Notes:

All results in milligrams per kilogram (mg/kg) unless otherwise indicated.
fbg = Feet below grade
TPHg = Total petroleum hydrocarbons as gasoline analyzed by EPA Method 8260B; before 2004, analyzed by EPA Method 8015 unless otherwise noted
Benzene, toluene, ethylbenzene, and xylenes analyzed by EPA Method 8260B; before 2004, analyzed by EPA Method 8020
MTBE = Methyl tertiary-butyl ether analyzed by EPA Method 8260B
TBA = Tertiary-butyl alcohol analyzed by EPA Method 8260B
DIPE = Di-isopropyl ether analyzed by EPA Method 8260B

TABLE 3

HISTORICAL SOIL ANALYTICAL DATA
SHELL-BRANDED SERVICE STATION
230 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Sample ID	*Date*	*Depth (fbg)*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Total Xylenes*	*MTBE*	*TBA*	*DIPE*	*ETBE*	*TAME*	*Total Lead*	*Organic Lead*

ETBE = Ethyl tertiary-butyl ether analyzed by EPA Method 8260B
TAME = Tertiary-amyl methyl ether analyzed by EPA Method 8260B
Total Lead analyzed by EPA Method 6010 unless otherwise noted
Organic lead analyzed by Cal LUFT Manual, 12/87 unless otherwise noted
ND = Not detected; detection limit unknown
<x = Not detected at reporting limit x
-- = Not analyzed
ESL = Environmental screening level
NA= No available ESL
Results in **bold** equal or exceed applicable ESL
Shading indicates that soil sample location was subsequently excavated; results are not representative of residual soil.

a = Analytical method is unknown
b = Total lead analyzed by unknown method
c = Composite of four samples taken from depths of 4 - 5 fbg, 7 - 8.5 fbg, 11 - 12.5 fbg, and 13.5 - 15 fbg
d = Lead analyzed by EPA Method 7421
e = Total lead analyzed by EPA Method 7240
f = Initial analysis within holding time. Reanalysis for the required dilution or confirmation was past holding time.
g = Analyzed by EPA Method 8015M
h = San Francisco Bay Regional Water Quality Control Board commercial/industrial ESL for soil where groundwater is not a source of drinking water (Tables B and D of *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater* , California Regional Water Quality Control Board, Interim Final - November 2007 [Revised May 2008]).

APPENDIX A

SITE HISTORY

SITE HISTORY

1986 Site Investigation: In April 1986, Emcon Associates of San Jose, California drilled four exploratory borings (S-A through S-D) within the tank complex to total depths of 20.5 feet below grade (fbg). Groundwater was encountered at approximately 13 fbg. Soil samples contained up to 5,700 milligrams per kilogram (mg/kg) total hydrocarbons.

1986 Additional Site Assessment: In December 1986, W.W. Irwin, Inc. (Irwin) drilled 38 soil vapor probes. Irwin concluded that hydrocarbons were primarily in the area of the underground storage tanks (USTs) and dispenser islands.

1987 Soil Vapor Extraction (SVE): In March 1987, Wayne Perry Construction, Inc. (WP) installed SVE wells (VR-1, VR-2, and VR-3) and operated an SVE and treatment system between April and November 1987. In their January 26, 1988 *Review of Venting Operations*, WP concluded that the venting operation had significantly decreased the contamination levels.

1987 Subsurface Investigation: In August 1987, WP drilled two soil borings (B-1 and B-2) to characterize petroleum hydrocarbons remaining in the soil. Soil samples contained up to 1,870 mg/kg total hydrocarbons as gasoline (TPHg; B-1 at 8 fbg). WP's January 26, 1988 *Review of Venting Operations* documents this investigation.

1987 UST Replacement: In November 1987, Crosby & Overton, Inc. removed two 8,000-gallon gasoline USTs and one 10,000-gallon gasoline UST, and Kaprealian Associates (KA) collected soil samples from the bottom of the UST excavation. Soil samples contained up to 480 mg/kg TPHg, 4.3 mg/kg benzene, 2.2 mg/kg toluene, and 55 mg/kg xylenes. KA's December 1, 1987 *Soil Sampling Investigation* report documents the UST removal and sampling. New USTs were installed in the same excavation.

1988 Subsurface Investigation: In July 1988, Ensco Environmental Services Inc. (Ensco) installed three groundwater monitoring wells (MW-1 through MW-3). Soil samples from the well borings contained up to 278 mg/kg TPHg (MW-3 at 10 fbg). Ensco's September 30, 1988 *Soil and Groundwater Investigation* report documents this investigation.

1989 Subsurface Investigation: In August 1989, Ensco drilled three soil borings (SB-1 through SB-3) in the area adjacent to the pump islands. Soil samples contained up to 490 mg/kg TPHg. Benzene was not detected in these soil samples. Ensco's October 9, 1989 *September Quarterly Report* documents investigation results.

1989 Groundwater Survey: On October 10, 1989, NET Pacific drilled three borings (GS-1 through GS-3) to obtain grab groundwater samples from the area adjacent to the pump islands. Grab groundwater samples contained up to 8,800 micrograms per liter (µg/l) TPHg, 380 µg/l benzene, 27 µg/l toluene, 1,200 µg/l ethylbenzene, and 62 µg/l xylenes. TPHg and benzene, toluene, ethylbenzene, and xylenes (BTEX) were not detected in the grab groundwater sample from boring GS-1. Ensco's January 19, 1990, *December Quarterly Report* presents the investigation results.

1990 Well Installation: In January 1990, Ensco installed one monitoring well (MW-4). Ensco's March 29, 1990 *March Quarterly Report* documents the well installation.

1990 Subsurface Investigation: In May 1990, CHIPS Environmental Consulting, Inc. drilled six borings (Probe 1 through Probe 6) in the sidewalk along West MacArthur Boulevard to obtain shallow grab groundwater samples. Grab groundwater samples contained up to 31,000 µg/l TPHg, 430 µg/l benzene, 600 µg/l toluene, 240 µg/l ethylbenzene, and 1,400 µg/l xylenes. TPHg and BTEX were not detected in the grab groundwater samples from borings Probe 1 or Probe 3. Exceltech, Inc.'s July 3, 1990 *June Quarterly Report* documents this investigation.

1998 Dispenser and Turbine Sump Upgrades: In February 1998, Paradiso Mechanical, Inc. added secondary containment to the existing dispensers and the turbine sumps above the USTs. Cambria Environmental Technology, Inc. (Cambria) inspected the dispenser and tank excavation areas. The City of Oakland inspector did not require soil sampling from the dispenser or tank excavations. No field indications of hydrocarbons, such as staining or odor, were observed in the excavations. Cambria's March 10, 1998 *1998 Upgrade Site Inspection Report* details these observations.

2002 Sensitive Receptor Survey (SRS), Conduit Study Report, and Subsurface Investigation Work Plan: Cambria's conduit study identified a storm drain located just west of the site, along West MacArthur Boulevard, that may act as a preferential pathway for contaminant migration. The SRS identified two wells of unknown use located approximately one-half mile down gradient and one well of unknown use located approximately 1,500 feet up gradient. Due to the distance from the site to the nearest identified wells, operations at the site are unlikely to impact these receptors. Cambria identified Glen Echo Creek, located approximately 600 feet south of the site, as the nearest surface water body. Since groundwater flow has historically been to the west-southwest, petroleum hydrocarbons and fuel oxygenates from the site are not expected to impact Glen Echo Creek. Cambria's October 31, 2002 *Sensitive Receptor*

Survey, Conduit Study Report, and Subsurface Investigation Work Plan presents details of the SRS and conduit study.

2003 SRS: In October 2003, Cambria completed an additional SRS. The SRS was conducted to identify basements within 200 feet, surface water and sensitive habitats within 500 feet, hospitals, residential care and childcare facilities within 1,000 feet, and water wells within one-half mile. No basements were observed within 200 feet. No surface water or sensitive habitats were observed within 500 feet. Snow White Day Care (214 West MacArthur Boulevard) is located approximately 150 feet from the site. Kaiser Permanente Hospital (280 West MacArthur Boulevard) is located approximately 450 feet from the site. National Hispanic University (262 Grand Avenue) is located approximately 825 feet from the site. No additional water wells were identified within one-half mile of the site.

2004 Subsurface Investigation: In March 2004, two soil borings (SB-1 and SB-2) were drilled adjacent to the storm drain located just west of the site, and soil and groundwater samples were collected. Soil samples contained up to 43 mg/kg TPHg and 0.0099 mg/kg methyl tertiary-butyl ether (MTBE). BTEX were not detected in soil samples. The soil samples containing TPHg and/or MTBE were from saturated soils or from within the capillary fringe and were likely an indication of groundwater impacts. Grab groundwater samples contained up to 10,000 µg/l TPHg, 430 µg/l benzene, 75 µg/l toluene, 98 µg/l ethylbenzene, 44 µg/l xylenes, and 320 µg/l MTBE. Cambria's July 2, 2004 *Subsurface Investigation Report* documents the investigation.

2005 Fueling System Upgrade: In April 2005, Cambria collected soil samples from beneath the site's dispensers and piping following an upgrade of the site's fueling system. Five dispenser soil samples and five piping trench soil samples were collected. Soil samples contained up to 2,700 mg/kg TPHg, 4.2 mg/kg benzene, 6.6 mg/kg toluene, 39 mg/kg ethylbenzene, 85 mg/kg xylenes, and 0.30 mg/kg MTBE. Based on these initial soil sampling results, Shell filed an UST Unauthorized Release (Leak)/Contamination Site Report on April 26, 2005 and conducted over-excavation of impacted soils. Following over-excavation, Cambria collected eight over-excavation bottom and side-wall samples. Soil samples contained up to 830 mg/kg TPHg, 1.4 mg/kg toluene, 4.1 mg/kg ethylbenzene, 1.5 mg/kg xylenes, and 0.017 mg/kg MTBE. Details of the sampling are included in Cambria's June 23, 2005 *Dispenser and Piping Upgrade and Limited Over-Excavation Soil Sampling Report.*

2005 Site Conceptual Model (SCM): In September 2005, Cambria submitted an SCM which recommended additional soil sampling, a semiannual groundwater monitoring schedule for all site wells, continued coordinated monitoring with 240 W. MacArthur

Boulevard, and risk evaluation. Cambria's September 23, 2005 SCM details these recommendations.

2006 Subsurface Investigation: In April 2006, Cambria drilled four soil borings (SB-4, SB-6, SB-7, and SB-8) at the site. Soil boring SB-8 was converted into on-site groundwater monitoring well MW-5. Soil samples from the borings contained up to 1,510 mg/kg TPHg, 2.90 mg/kg benzene, 9.47 mg/kg toluene, 9.46 mg/kg ethylbenzene, 70.6 mg/kg xylenes, 0.00970 mg/kg MTBE, and 0.0142 mg/kg di-isopropyl ether (DIPE). Grab groundwater samples contained up to 34,000 µg/l TPHg, 404 µg/l benzene, 22.5 µg/l toluene, 110 µg/l ethylbenzene, 56.8 µg/l xylenes, 29.2 µg/l MTBE, 40.2 µg/l tertiary-butyl alcohol (TBA), and 26.6 µg/l DIPE. Cambria's May 30, 2006 *Subsurface Investigation and Monitoring Well Installation Report* documents the investigation.

2008 Subsurface Investigation: In February 2008, Conestoga-Rovers & Associates (CRA) drilled three off-site soil borings (SB-9, SB-10, and SB-11) southwest and west of well MW-5 to further delineate groundwater impacts down gradient, and one on-site soil boring (SB-12) was drilled adjacent to well MW-5 for groundwater data comparison. Only one soil sample contained MTBE (0.0053 mg/kg in SB-12 at 15.5 fbg). TPHg, BTEX, TBA, DIPE, ethyl tertiary-butyl ether (ETBE), and tertiary-amyl methyl ether (TAME) were not detected in the soil samples. Off-site grab groundwater samples contained up to 1,700 µg/l TPHg, 14 µg/l toluene, and 120 µg/l MTBE. Benzene, ethylbenzene, xylenes, TBA, DIPE, ETBE, and TAME were not detected in the off-site grab groundwater samples. The on-site grab groundwater sample contained 4,900 µg/l TPHg, 120 µg/l benzene, 11 µg/l toluene, 170 µg/l ethylbenzene, 42.2 µg/l xylenes, 33 µg/l MTBE, 100 µg/l TBA, and 11 µg/l DIPE. CRA's April 25, 2008 *Site Investigation Report* documents this investigation.

Groundwater Monitoring: Groundwater monitoring has been conducted at the site since July 1988. Since the fourth quarter of 2003, coordinated monitoring and sampling has been conducted with the adjacent former gas station (currently Oakland Auto Works) at 240 West MacArthur Boulevard. The depth to groundwater at the site has ranged from 11.31 and 16.76 fbg. Groundwater flow direction is typically toward the west to southwest, but has occasionally ranged to the northwest.