Nicole Arceneaux
Project Manager
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Chevron Environmental Management Company
6101 Bollinger Canyon Road
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Nicole.Arceneaux@chevron.com

November 21, 2014

RECEIVED
By Alameda County Environmental Health at 2:51 pm, Nov 24, 2014

Mr. Keith Nowell
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

RE: Focused Conceptual Site Model and Low Threat Closure Report
10151 International Blvd, Oakland, California
Fuel Leak Case No.: RO0002444

Dear Mr. Nowell,

I declare under penalty of perjury that to the best of my knowledge the information and/or recommendations contained in the attached report is/are true and correct.

If you have any questions or need additional information, please contact me at (925) 790-6912.

Sincerely,

Nicole Arceneaux
Union Oil of California – Project Manager

Attachment:
Focused Conceptual Site Model and Low Threat Closure Request

ARCADIS U.S., Inc.
2000 Powell Street
7th Floor
Emeryville
California 94608
Tel 510.652.4500
Fax 510.652.4906
www.arcadis-us.com

ENVIRONMENT

Mr. Keith Nowell
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Subject:
Focused Conceptual Site Model and Low Threat Closure Request
10151 International Blvd, Oakland, California
Fuel Leak Case No.: RO0002444

Date:
November 21, 2014

Contact:
Katherine Brandt

Phone:
510.596.9675

Email:
Katherine.Brandt@arcadis-us.com

Our ref:
B0047297

Dear Mr. Nowell:

On behalf of Chevron Environmental Management Company's affiliate, Union Oil Company of California ("Union Oil"), ARCADIS U.S., Inc. (ARCADIS) is pleased to submit the response to meeting comments and Focused Conceptual Site Model (CSM) and Low Threat Closure (LTC) request for the following facility (site):

Facility No.	**Case No.**	**Location**
7124	RO0002444	10151 International Blvd Oakland, California

The attached tables and figures provide additional or updated information to the CSM submitted January 31, 2014 (ARCADIS 2014).

Assessment of Site Conditions Relative to Low-Threat Closure Policy

The Low-Threat Closure Policy (SWRCB 2012a) outlines eight General Criteria to assess whether sites are candidates for low-threat case closure, and three categories of Media-Specific Criteria (groundwater, petroleum vapor intrusion to indoor air, and direct contact and outdoor air exposure) that also must be met. This section evaluates current site conditions against the General and Media-Specific Criteria. Based on this evaluation, ARCADIS concludes that the site meets the General and Media-Specific Criteria requirements for low-threat case closure.

Evaluation of Low-Threat Closure General Criteria

This section evaluates the site conditions related to each of the eight General Criteria.

Criteria A – The unauthorized release is located within the service area of a public water system

The site lies within the East Bay Plain Subbasin of the Santa Clara Valley Groundwater Basin. The site is located within the service area of the City of Oakland public water system. Water used within the City of Oakland public water system, which includes drinking water at the site, is imported water supplied by the East Bay Municipal Utilities District (EBMUD). Approximately 90 percent of the EBMUD's water supply comes from the Mokelumne River watershed in the Sierra Nevada Mountains (EBMUD 2013). A Department of Water Resources well survey was performed to determine the location of nearby sensitive receptors. The results indicate that there is one irrigation well (upgradient) and two cathodic protection wells (both cross-gradient) within 2,000 feet of the site (Figure 1).

Criteria B – The unauthorized release consists only of petroleum

Soil and groundwater impacts occurred as a result of releases from USTs, dispenser islands, and/or product piping. Contaminants of concern (COCs) at the site include total petroleum hydrocarbon as gasoline (TPH-g), benzene, toluene, ethylbenzene, and xylenes (collectively known as BTEX), and methyl tertiary butyl ether (MTBE), which are indicative of a petroleum release. There have been no non-petroleum impacts or releases documented at the site.

Criteria C – The unauthorized ("primary") release from the UST system has been stopped

In 2000, product lines and dispensers were removed and replaced and approximately 60 cubic yards of impacted soil was excavated. The unauthorized releases ceased with the removal of this infrastructure.

Criteria D – Free product has been removed to the maximum extent practicable

There has been no evidence of Non-Aqueous Phase Liquids (NAPL) at the site since groundwater monitoring began in 2002.

Criteria E – A conceptual site model that assesses the nature, extent, and mobility of the release has been developed

A CSM that includes a comprehensive site assessment and remediation history, regional and site-specific geology and hydrogeology, and a review of the soil and

groundwater conditions at the site is presented in the Site Investigation and Conceptual Site Model (ARCADIS 2014).

Criteria F – Secondary source has been removed to the extent practicable

Results of the regression analysis indicate significant attenuation of COC concentrations in groundwater beneath the site. These decreasing trends provide evidence that secondary source removal at the site has likely been achieved to the extent practicable through soil excavation during infrastructure replacement and natural attenuation.

Criteria G – Soil and groundwater have been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15

MTBE has been analyzed in soil samples collected since 2002 (Table 1) and in groundwater samples collected during site investigation and monitoring events from 2002 to the present using USEPA Method 8260B (Table 2). During the April 2014 sampling event, the maximum concentration of MTBE (150 micrograms per liter [µg/L]) was detected in the groundwater sample collected from monitoring well MW-3. Linear regression analyses indicate a significantly decreasing trend with MTBE concentrations below the SFRWQCB Environmental Screening Limit (ESL) by 2016.

Criteria H – Nuisance as defined by Water Code Section 13050 does not exist at the site

No nuisance exists at the site, as defined by Water Code Section 13050. Site conditions and the treatment and disposal of site wastes are not injurious to health, are not indecent or offensive to the senses, and do not obstruct free use of property or interfere with the comfortable enjoyment of life or property. Site conditions and the treatment and disposal of site wastes do not affect an entire community or neighborhood or any considerable number of persons. Site impacts are restricted to the subsurface and are present in a limited area that does not adversely affect the community at large.

Evaluation of Low-Threat Closure: Media-Specific Criteria

This section evaluates the site conditions related to each of the three categories of Media-Specific Criteria.

Groundwater

Groundwater at the site does not currently pose a risk to existing or anticipated future beneficial uses of groundwater and meets the groundwater-specific criteria outlined in the Low-Threat Closure Policy (SWRCB 2012a). The Low-Threat Closure Policy (SWRCB 2012a) states "the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites." The following sections summarize the plume stability and additional groundwater-specific criteria.

Plume Stability

According to the Technical Justification for Groundwater Media Specific Criteria (SWRCB 2012b), plume stability can be demonstrated in two ways:

- "[R]outinely observed non-detect values for groundwater parameters in down-gradient wells"

- "[S]table or decreasing concentration levels in down-gradient wells."

Linear regression analyses were performed and are summarized in Table 3 and the individual analyses are included in Appendix A. Results of the regression analysis generally indicate significant natural attenuation of the COC plume in groundwater beneath the site with COCs below the ESLs by 2016. Evaluation of groundwater monitoring data indicates plume stability at the site as defined by the Technical Justification for Groundwater Media-Specific Criteria (SWRCB 2012b).

The TPH-g and MTBE plume lengths were evaluated using the BIOSCREEN-AT model. BIOSCREEN-AT is a screening model that simulates remediation by natural attenuation of dissolved hydrocarbons at petroleum fuel release sites. The software is programmed in the Microsoft Excel spreadsheet environment and based on the Domenico Analytical Solute Transport Model, as modified by Karanovic et al. 2007. It was developed for the Air Force Center for Environmental Excellence (AFCEE) Technology Transfer Division at Brooks Air Force Base by Groundwater Services, Inc., Houston, Texas. It has the ability to simulate advection, dispersion, adsorption, and aerobic decay as well as anaerobic reactions that have been shown to be the dominant biodegradation processes at many petroleum release sites. BIOSCREEN-AT includes three different model types:

1. Solute transport without decay

2. Solute transport with biodegradation modeled as a first-order decay process
3. Solute transport with biodegradation modeled as an instantaneous biodegradation reaction.

Model type 2 was selected to evaluate the plume lengths; this model is most representative of site conditions. Various parameters can be used to calibrate this model. Biodegradation exhibited the most variability across the site; therefore, biodegradation was the selected parameter for calibration. The estimated biodegradation time of 2 years is consistent with linear regression analysis included in Appendix A. Additionally, since there is not an established organic partition coefficient (K_{oc}) for TPHg, the K_{oc} for MTBE was used to be conservative. All model input parameters and a summary of the results are provided in Table 4.

Additional Groundwater-Specific Criteria

As described in the Low-Threat Closure Policy (SWRCB 2012a), a site can meet the groundwater media-specific criteria through one of five main classes. This site falls into ***Class 1*** as described below.

- **The contaminant plume that exceeds water quality objectives is less than 100 feet in length.**
    - The COC plume that exceeds WQOs is less than 100 feet in length from the source (former UST area) to the farthest downgradient edge. During the April 2014 groundwater monitoring event, the only detections were at MW-3 for TPH-g (320 µg/) and MTBE (150 µg/L). The TPH-g and MTBE plume lengths (Figure 2 and 3) are 78 feet and 80 feet, respectively.
- **There is no free product.**
    - There has been no evidence of NAPL at the site.
- **The nearest existing water supply well or surface water body is greater than 250 feet from the defined plume boundary.**
    - Potable water for the City of Oakland is provided by EBMUD, which received 90% of its water supply from the Mokelumne River watershed in the Sierra Nevada Mountains. The nearest well is approximately 830 feet upgradient of the site (Figure 1).
    - There are no surface-water bodies located within 1,000 feet of the site.

Petroleum Vapor Intrusion to Indoor Air

As described in the Low-Threat Closure Policy (SWRCB 2012a), satisfaction of the Media-Specific Criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities where there are no site-specific characteristics that would pose an unacceptable health risk. The site is an active commercial petroleum fueling facility with no unacceptable risk characteristics. The site is exempt from the Media-Specific Criteria.

Potential vapor migration into offsite commercial or residential buildings is not expected to be a health risk. Comparing the current COC data in the offsite wells with the SFRWQCB Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion for residential land use indicates that the most recent offsite concentration of MTBE in groundwater is not a risk. The current concentration of MTBE in the sample collected from MW-3 is 150 µg/L, which is well below the most conservative screening level of 1,000 µg/L for all sand media (SFRWQCB 2013).

Direct Contact and Outdoor Air Exposure

As described in the Low-Threat Closure Policy (SWRCB 2012a), sites will meet the Media-Specific Criteria for direct contact with contaminated soil or inhalation of contaminants volatized to outdoor air if any of the following criteria are met:

- The maximum concentrations of COCs in soil are less than or equal to those listed in Table 1 of the Low-Threat Closure Policy (SWRCB 2012a).
- A site-specific risk assessment shows that COCs present in soil will not adversely affect human health.
- Exposure to COCs is mitigated through engineering controls.

This site meets the first criteria as summarized below:

- Because the site is completely covered with structures and pavement, there is little or no potential for direct human contact with site soil or for offsite wind dispersion of soil. Direct contact exposure pathways (i.e., ingestion, dermal contact, and inhalation of particulates) with soil are considered potentially complete in the occasion of construction work, but are insignificant due to the low concentrations of COCs in the soils.

- Historical soil data are included in Table 1. Soil sample locations are shown on Figure 4. Soil sample results for benzene, ethylbenzene, naphthalene and PAHs were evaluated using concentrations for commercial/industrial exposure (Table 1 of SWRCB 2012b). The maximum concentrations of benzene and ethylbenzene are below the No Significant Risk Values for commercial/industrial direct contact, volatilization to outdoor air, and utility worker direct contact in soil samples.

Chemical	Commercial/Industrial				Utility Worker	
	0 to 5 feet bgs mg/kg		Volatilization to outdoor air (5 to 10 feet bgs) mg/kg		0 to 10 feet bgs mg/kg	
	Low-Threat Closure Policy Table 1	Site Maximum	Low-Threat Closure Policy Table 1	Site Maximum	Low-Threat Closure Policy Table 1	Site Maximum
Benzene	8.2	< 0.0050	12	< 0.050	14	< 0.050
Ethylbenzene	89	< 0.0050	134	< 0.050	314	< 0.050
Naphthalene	45	< 0.10	45	< 0.10	219	< 0.10
PAHs	0.68	ND	NA	ND	4.5	ND

NA Not Applicable

ND Non-Detect

As shown in the table above, the maximum concentrations of benzene, ethylbenzene and naphthalene are below the No Significant Risk Values (Table 1 of SWRCB 2012b) for commercial/industrial direct contact and volatilization to outdoor air and utility worker direct contact in soil samples collected from 0 to 10 feet bgs.

Conclusions

Based on this Focused CSM and LTC Request, including the BIOSCREEN modeling results, the site meets the Low Threat Closure Policy and should be considered for closure. The above data is also summarized in the ACEH CSM Spreadsheet (Appendix C).

If you have any questions, please contact Katherine Brandt at 510.596.9675.

Sincerely,

ARCADIS

Katherine Brandt

Katherine Brandt P.G.
Certified Project Manager

Copies:
Ms. Nicole Arceneaux, Union Oil (electronic copy only)

Attachments:

Table 1: Soil Analytical Results
Table 2: Groundwater Gauging and Analytical Results
Table 3: Summary of Statistical Analysis of Groundwater Analytical Data
Table 4: Bioscreen Fate and Transport Model
Figure 1: Research Based TPH-g Plume Migration Analysis
Figure 2: TPH-G Concentration Map
Figure 3: MTBE Concentration Map
Figure 4: Soil Sample Location Map
Attachment A: Linear Regression Analysis
Attachment B: Historic Fluid Levels and Selected Analytical Results
Attachment C: ACEH CSM Spreadsheet

References:

ARCADIS. 2014. Site Investigation and Conceptual Site Model. January 2014.

East Bay Municipal Utilities District. 2013. http://ebmud.com/our-water/water-quality. Viewed on February 4.

Karanovic, M., C.J. Neville, and C.B. Andrews, 2007, “BIOSCREEN-AT: BIOSCREEN with an exact Analytical Solution,” Groundwater 45 (2), pp.242-244.

San Francisco Bay Regional Water Quality Control Board. 2013. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater. November 2013.

State Water Resources Control Board. 2012a. Low-Threat Underground Storage Tank Case Closure Policy. Adopted May 1, 2012, Effective August 17, 2012. ((http://www.swrcb.ca.gov/ust/lt_cls_plcy.shtml)

State Water Resources Control Board. 2012b. Technical Justification for Groundwater Media Specific Criteria. April 24. (http://www.swrcb.ca.gov/ust/docs/gw_tecjust.pdf)

ARCADIS

Tables

Table 1 - Soil Analytical Results
Union Oil Company of California
Service Station Number 7124
10151 International Boulevard, Oakland, California

Well Identification	Date Sampled	Sample Depth (ft bgs)	TPH-g	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA	TAME	DIPE	ETBE	EDB	1,2-DCE	PAHs	Ethanol	Naph-thalane
Environmental Screening Levels[2]			1,000	1.2	9.3	4.7	11	8.4	110	--	--	--	0.51	--	--	--	--
MW-1-6.5	02/28/2002	6.5	<5.0	<0.050	<0.050	<0.050	<0.050	<0.025	<0.50	<0.025	<0.025	<0.025	<0.025	--	--	<5.0	--
MW-1-16.5	02/28/2002	16.5	<5.0	<0.050	<0.050	<0.050	<0.050	<0.025	<0.50	<0.025	<0.025	<0.025	<0.025	--	--	<5.0	--
MW-1-26.5	02/28/2002	26.5	<5.0	<0.050	<0.050	<0.050	<0.050	<0.025	<0.50	<0.025	<0.025	<0.025	<0.025	--	--	<5.0	--
MW-2-6.5	03/01/2002	6.5	<5.0	<0.050	<0.050	<0.050	<0.050	<0.025	<0.50	<0.025	<0.025	<0.025	<0.025	--	--	<5.0	--
MW-2-16.5	03/01/2002	16.5	<5.0	<0.050	<0.050	<0.050	<0.050	0.085	<0.50	<0.025	<0.025	<0.025	<0.025	--	--	<5.0	--
MW-2-26.5	03/01/2002	26.5	16	<0.050	<0.050	<0.050	<0.050	0.16	<0.50	<0.025	<0.025	<0.025	<0.025	--	--	<5.0	--
MW-3-6	02/28/2002	6	<5.0	<0.050	<0.050	<0.050	<0.050	<0.025	<0.50	<0.025	<0.025	<0.025	<0.025	--	--	<5.0	--
MW-3-16	02/28/2002	16	42	<0.20	<0.20	0.36	0.26	1.2	<2.0	<0.10	<0.10	<0.10	<0.10	--	--	<20	--
MW-3-26.5	02/28/2002	26.5	<5.0	<0.050	<0.050	<0.050	<0.050	0.23	<0.50	<0.025	<0.025	<0.025	<0.025	--	--	<5.0	--
MW-4-6.5	03/01/2002	6.5	5.6	<0.050	<0.050	<0.050	<0.050	<0.025	<0.50	<0.025	<0.025	<0.025	<0.025	--	--	<5.0	--
MW-4-11.5	03/01/2002	11.5	<5.0	<0.050	<0.050	<0.050	<0.050	<0.025	<0.50	<0.025	<0.025	<0.025	<0.025	--	--	<5.0	--
MW-4-26.5	03/01/2002	26.5	<5.0	<0.050	<0.050	<0.050	<0.050	0.028	<0.50	<0.025	<0.025	<0.025	<0.025	--	--	<5.0	--
SB-1-5	09/05/2008	5	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-1-10	09/05/2008	10	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-1-15	09/05/2008	15	<0.20	<0.0050	<0.0050	<0.0050	<0.010	0.062	0.15	--	--	--	--	--	--	--	--
SB-1-20	09/05/2008	20	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-1-25	09/05/2008	25	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-1-30	09/05/2008	30	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-1-35	09/05/2008	35	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-1-40	09/05/2008	40	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-2-5	09/03/2008	5	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-2-10	09/03/2008	10	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-2-15	09/03/2008	15	0.30	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-2-20	09/03/2008	20	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-2-21.5	09/03/2008	21.5	7.0	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-2-25	09/03/2008	25	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-2-30	09/03/2008	30	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--

Table 1 - Soil Analytical Results
Union Oil Company of California
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Well Identification	Date Sampled	Sample Depth (ft bgs)	TPH-g	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA	TAME	DIPE	ETBE	EDB	1,2-DCE	PAHs	Ethanol	Naph-thalane
Environmental Screening Levels[2]			1,000	1.2	9.3	4.7	11	8.4	110	--	--	--	0.51	--	--	--	--
SB-3-5	09/04/2008	5	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-3-10	09/04/2008	10	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-3-15	09/04/2008	15	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-3-20	09/04/2008	20	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-3-25	09/04/2008	25	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-4-5	09/03/2008	5	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-4-10	09/03/2008	10	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-4-15	09/03/2008	15	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-4-19	09/03/2008	19	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-4-28	09/03/2008	28	4.6	<0.025	<0.025	<0.025	<0.050	<0.025	<0.25	--	--	--	--	--	--	--	--
SB-4-29.5	09/03/2008	29.5	1.1	<0.0050	<0.0050	<0.0050	<0.010	0.011	<0.050	--	--	--	--	--	--	--	--
SB-5-5	09/03/2008	5	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-5-10	09/03/2008	10	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-5-15	09/03/2008	15	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-5-20	09/03/2008	20	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-5-25	09/03/2008	25	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-5-30	09/03/2008	30	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-6-5	09/05/2008	5	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-6-10	09/05/2008	10	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-6-15	09/05/2008	15	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-6-20	09/05/2008	20	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-6-25	09/05/2008	25	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-6-30	09/05/2008	30	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-6-32	09/05/2008	32	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--

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Service Station Number 7124
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Environmental Screening Levels[2]			1,000	1.2	9.3	4.7	11	8.4	110	--	--	--	0.51	--	--	--	--
SB-7-5	09/04/2008	5	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-7-10	09/04/2008	10	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-7-15	09/04/2008	15	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-7-20	09/04/2008	20	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-7-25	09/04/2008	25	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
SB-7-30	09/04/2008	30	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	--	--	--	--	--	--	--	--
CPT-1-5	11/18/2013	5	<1.0	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	< 0.10
CPT-1-8	11/18/2013	8	<0.78	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	0.093	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	< 0.10
CPT-2-5	11/15/2013	5	<0.78	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	0.17	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	< 0.10
CPT-2-8	11/15/2013	8	<0.80	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	0.12	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	--
SB-8/CPT-2-15.5	11/18/2013	15.5	<0.74	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	< 0.10
SB-8/CPT-2-19.5	11/18/2013	19.5	<0.81	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	0.29	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	< 0.10
SB-8/CPT-2-22.5	11/18/2013	22.5	<0.74	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	< 0.10
SB-8/CPT-2-26.5	11/18/2013	26.5	7.6	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	< 0.10
SB-8/CPT-2-31.5	11/18/2013	31.5	<0.76	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	< 0.10
SB-8/CPT-2-36	11/18/2013	36	<0.71	<0.0050	<0.0050	<0.0050	<0.010	0.0060	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	< 0.10
SB-8/CPT-2-40	11/18/2013	40	<0.71	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	< 0.10
CPT-3-5	11/15/2013	5	<0.78	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	0.12	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	< 0.10
CPT-3-8	11/15/2013	8	<0.96	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	--
CPT-4-5	11/14/2013	5	<0.79	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	0.21	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	< 0.10
CPT-4-8	11/14/2013	8	<0.76	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	0.10	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	--
CPT-5-5	11/18/2013	5	<0.90	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	< 0.10
CPT-5-8	11/18/2013	8	<0.78	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<1.0	< 0.10

Table 1 - Soil Analytical Results
Union Oil Company of California
Service Station Number 7124
10151 International Boulevard, Oakland, California

Well Identification	Date Sampled	Sample Depth (ft bgs)	TPH-g	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA	TAME	DIPE	ETBE	EDB	1,2-DCE	PAHs	Ethanol	Naph-thalane
Environmental Screening Levels[2]			1,000	1.2	9.3	4.7	11	8.4	110	--	--	--	0.51	--	--	--	--

Notes

1) Analytical results reported in milligrams per kilogram (mg/kg), unless otherwise stated.
2) San Francisco Regional Water Quality Control Board (SFRWQCB) Environmental Screening Levels (ESLs) for deep soil samples (>3 meters below ground surface [bgs]), commercial/industrial land use, where groundwater is not a current or potential drinking water resource (Table D-2; SFRWQCB 2013).
3) All samples analyzed by EPA Method 8260B, except for TPH-g, which is analyzed by EPA Method 8015B.

Standard Abbreviations

<	Not detected at or above the laboratory detection limit
--	Not analyzed, measured, or collected
ft bgs	Feet below ground surface
Bold	Indicates detected concentration exceeded the Environmental Screening Level

Analytes

TPH-g	Total petroleum hydrocarbons - gasoline range organics
MTBE	Methyl tertiary-butyl ether
TBA	Tertiary-butyl alcohol
DIPE	Di-isopropyl ether
ETBE	Ethyl tert-butyl ether
TAME	Tert-amyl methyl ether
PAHs	Polycyclic aromatic hydrocarbons
EDB	1,2-Dibromoethane
1,2-DCE	1,2-Dichloroethane

Table 2 - Groundwater Gauging and Analytical Results
Union Oil Company of California
76 Station 7124
10151 International Boulevard, Oakland, California

Well ID	Date Sampled	TOC Elevation (feet MSL)	DTW (feet bTOC)	LPH Thickness (feet)	GW Elevation (feet MSL)	Previous Quarter GWE (feet MSL)	Change in Elevation (feet)	TPH-g (8015B)	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TBA	DIPE	TAME	ETBE	Ethanol	EDB	EDC	Comments
MW-1	11/2/2011	37.37	17.52	0.00	19.85	21.02	-1.17	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-1	4/6/2012	37.37	14.20	0.00	23.17	20.99	2.18	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-1	6/13/2013	37.37	16.81	0.00	20.56	23.17	-2.61	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-1	10/7/2013	37.37	17.62	0.00	19.75	20.56	-0.81	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-1	4/8/2014	37.37	17.52	0.00	19.85	19.75	0.10	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-2	11/2/2011	37.87	17.15	0.00	20.72	20.19	0.53	96	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-2	4/6/2012	37.87	15.63	0.00	22.24	20.72	1.52	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-2	6/13/2013	37.87	18.03	0.00	19.84	22.24	-2.40	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-2	10/7/2013	37.87	18.74	0.00	19.13	19.84	-0.71	99	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-2	4/8/2014	37.87	17.80	0.00	20.07	19.13	<0.10	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-3	11/2/2011	37.72	17.55	0.00	20.17	20.07	0.10	880	<0.50	<0.50	<0.50	<1.0	35	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-3	4/6/2012	37.72	16.40	0.00	21.32	20.17	1.15	1,000	<0.50	<0.50	<0.50	<1.0	210	85	<0.50	<0.50	<0.50	<250	<0.50	<0.50	A01
MW-3	6/13/2013	37.72	17.45	0.00	20.27	21.32	-1.05	<50	<0.50	<0.50	<0.50	<1.0	6.5	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-3	10/7/2013	37.72	18.62	0.00	19.10	20.27	-1.17	880	<0.50	<0.50	<0.50	<1.0	12	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-3	4/8/2014	37.72	17.10	0.00	20.62	19.10	1.52	320	<0.50	<0.50	<0.50	<1.0	150	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-4	11/2/2011	38.36	18.27	0.00	20.09	20.08	0.01	170	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-4	4/6/2012	38.36	15.68	0.00	22.68	20.09	2.59	200	<0.50	<0.50	<0.50	<1.0	1.7	58	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-4	6/13/2013	38.36	18.65	0.00	19.71	22.68	-2.97	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-4	10/7/2013	38.36	19.33	0.00	19.03	19.71	-0.68	95	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-4	4/8/2014	38.36	18.04	0.00	20.32	19.03	1.29	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	

Note

Analytical results given in micrograms per liter (µg/l), unless otherwise stated

Standard Abbreviations

--	not analyzed, measured, or collected
<	not detected at or above laboratory detection limit
TOC	top of casing (surveyed reference elevation)
feet MSL	feet relative to mean sea level
DTW	depth to water
bTOC	below top of casing
LPH	liquid-phase hydrocarbons
GW	groundwater
GWE	groundwater elevation
µg/l	micrograms per liter (approx. equivalent to parts per billion, ppb)

Analytes

TPH-g	total petroleum hydrocarbons with gasoline (C6-C12)
MTBE	methyl tertiary butyl ether
TBA	tertiary butyl alcohol
DIPE	di-isopropyl ether
TAME	tertiary amyl methyl ether
ETBE	ethyl tertiary butyl ether
EDB	1,2-dibromoethane (same as ethylene dibromide)
EDC	1,2-dichloroethane (same ethylene dichloride)
8015B	EPA Method 8015B for TPH-g (C6-C12)
EPA	Environmental Protection Agency
8260B	EPA Method 8260B for BTEX/MTBE, Oxygenates, EDB, EDC, and ethanol

Notes

A01	PQL's and MDL's are raised due to sample dilution.
PQL	practical quantitation limit
MDL	method detection limit

Table 3 - Summary of Statistical Analysis of Groundwater Analytical Data
Union Oil Company of California
Service Station Number 7124
10151 International Boulevard, Oakland, California

				Data Range						Linear Regression Analysis					
Well	**Constituent**	**Well**	**Screening Level[1] (µg/L)**	**Minimum Concentration (µg/L)**	**Maximum Concentration (µg/L)**	**Concentration Measured Most Recently (µg/L)**	**% of Data Above Laboratory Reporting Limit**	**Start Date**	**End Date**	**Coefficient of Determination, R-squared**	**p-value of Correlation (Significance of Slope)**	**Attenuation Half-life (days)**	**Trend Direction**	**Significance of Trend[2]**	**Projected Year to Screening Level**
MW-2	TPH-G	**MW-2**	100	*50*	6,900	50	87	7/28/2002	4/8/2014	0.55	<0.01	826	Decreasing	Significant	BCUG 11/2011
MW-3	TPH-G	**MW-3**	100	*50*	130,000	320	97	7/28/2002	4/8/2014	0.64	<0.01	732	Decreasing	Significant	2016
MW-4	TPH-G	**MW-4**	100	*50*	130,000	50	91	7/28/2002	4/8/2014	0.65	<0.01	571	Decreasing	Significant	BCUG 6/2013
MW-3	MTBE	**MW-3**	13	7	10,000	150	100	4/8/2002	4/8/2014	0.55	<0.01	643	Decreasing	Significant	2016

Notes

1) California Maximum Contaminant Level (MCL) for MTBE; San Francisco Bay Regional Water Quality Control Board Environmental Screening Level (ESL) for TPH-G
2) Statistically significant trend defined as having p-value ≤ 0.05

Standard Abbreviations

ug/L	Micrograms per liter
BCUG	Below Clean-up Goal since the date indicated (shown as month/year)
MTBE	Methyl tert-butyl ether
TPH-g	Total petroleum hydrocarbons - gasoline µg/L = micrograms per liter
Italics	ND taken at reporting limit/reported value

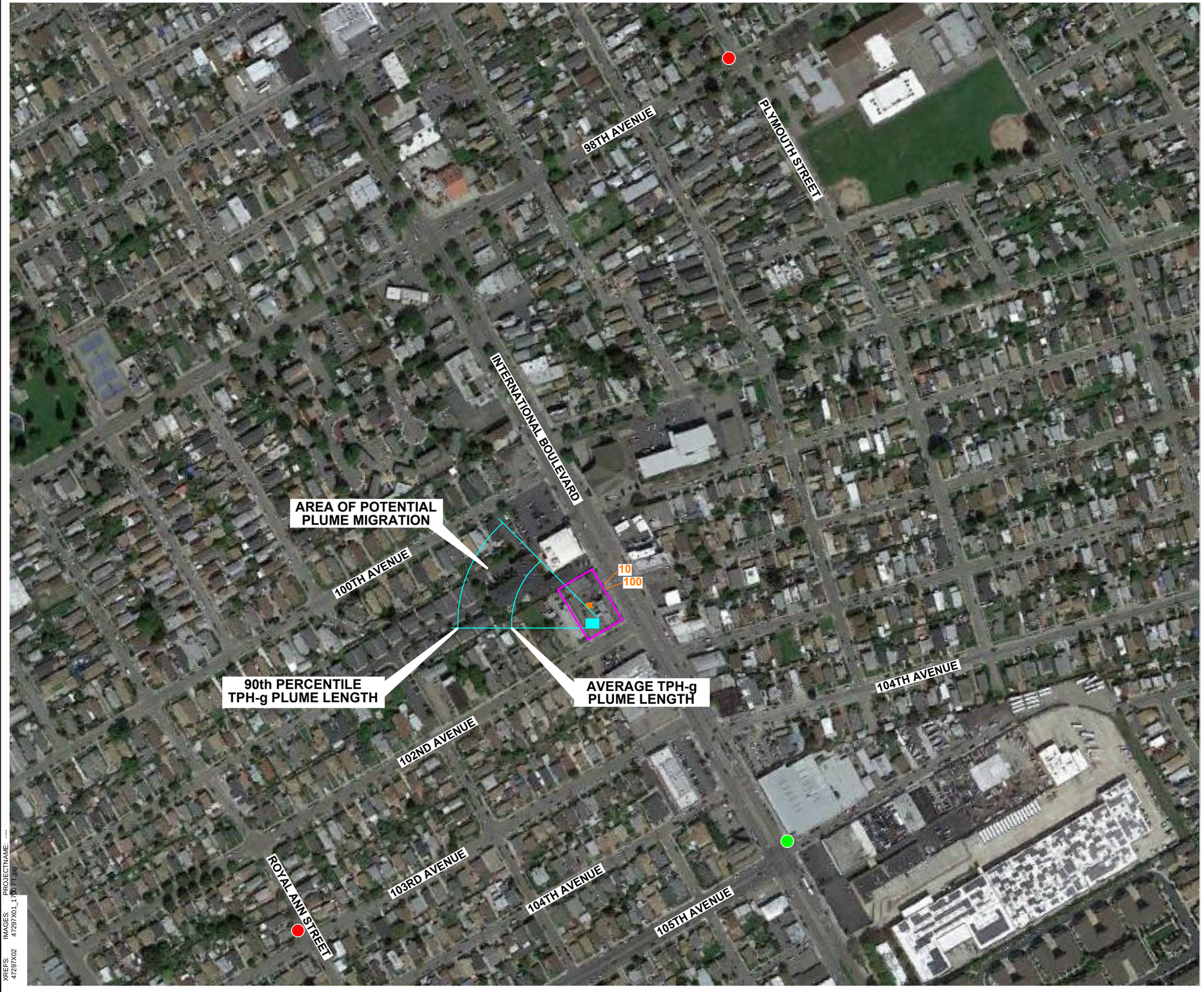
Table 4 - Bioscreen Fate and Transport Model
Union Oil Company of California
Service Station Number 7124
10151 International Boulevard, Oakland, California

Bioscreen Model Input Parameters		
Variable Description	**Estimated Value**	**Comments / References**
Hydraulic Conductivity (K)	1 x 10^{-5} centimeters per second (cm/sec)	*Freeze, R. Allan and John A. Cherry. Groundwater. Upper Saddle River, NJ: Prentice Hall, 1979. Print.*
Hydraulic Gradient (dH/dx)	0.012 feet per foot (ft/ft)	Based on groundwater monitoring results (1992 - 2012)
Porosity (η)	0.1	*Payne, F., J. Quinnan, T. Potter. Remediation Hydraulics. Boca Raton, FL: CRC press, 2008. Print.*
Dispersivity	2.5 (length) and 0.25 (width)	Conservative estimate for TPH-g model
	6.7 (length) and 0.67 (width)	Conservative estimate for MTBE model
Retardation Factor (R)	2.9	Calculated
Biodegradation	2 years	Based on linear regression of total petroleum hydrocarbons - gasoline, TPH-G, (1.56 to 2.26 year range)
Simulation Time	500 years	Steady-state model
Source Concentration	39,000 micrograms per liter (µg/L)	Average first year of TPH-G concentrations at MW-3 and MW-4 (maximum historic site concentrations)
	2,753 micrograms per liter (µg/L)	Average first year of MTBE concentrations at MW-3 and MW-4 (maximum historic site concentrations)
Bulk Soil Density	1.7 kilograms per liter (kg/L)	*American Society for Testing and Materials (ASTM). 1996. Standard Guide to Risk-Based Corrective Action Applied at Petroleum Release Sites, ASTM E1739-95, Philadelphia, PA.*
Organic Partition Coefficient (K_{oc})	11.2 liters per kilogram (L/kg)	*U.S. Environmental Protection Agency's Office of Ground Water and Drinking Water. 2008. Regulatory Determinations Support Document for Selected Contaminants from the Second Drinking Water Contaminant Candidate List (CCL 2), Chapter 13. EPA Report 815-R-08-012. June.*
Organic Content (F_{oc})	0.01	*American Society for Testing and Materials (ASTM). 1996. Standard Guide to Risk-Based Corrective Action Applied at Petroleum Release Sites, ASTM E1739-95, Philadelphia, PA.*

Bioscreen Model Results	
Result	Approximate TPH-g plume length is **5 feet**, originating at MW-3, with less than 75 feet in lateral dispersion.
	Approximate MTBE plume length is **42 feet**, originating at MW-3, with less than 75 feet in lateral dispersion.

ARCADIS

Figures



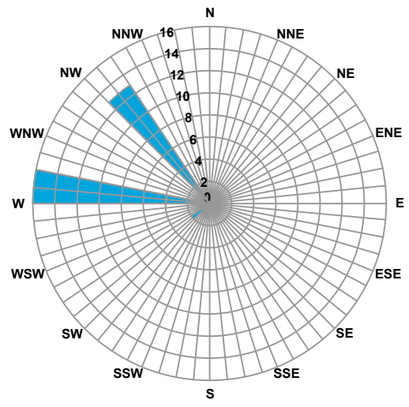
LEGEND

- SITE BOUNDARY
- IRRIGATION WELL
- CATHODIC PROTECTION WELL
- TPH-g CONCENTRATION CONTOUR (µg/L)

TPH-g TOTAL PETROLEUM HYDROCARBONS AS GASOLINE (C6-C12)

µg/L MICROGRAMS PER LITER

- SOURCE AREA



NOTES:

1. BASE MAP PROVIDED BY TRC, DATED JANUARY 2010, AT A SCALE OF 1"=20'. ADDITIONAL SITE INFORMATION PROVIDED BY STANTEC, DATED SEPTEMBER 23, 2008, AT A SCALE OF 1"=40'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. IMAGE PROVIDED BY GOOGLE™ EARTH, IMAGE DATE 4/5/2014.
4. REFERENCE FOR PLUME LENGTH: STATE WATER RESOURCES CONTROL BOARD. 2012. *TECHNICAL JUSTIFICATION FOR GROUNDWATER MEDIA-SPECIFIC CRITERIA* . APRIL 24.

0 300' 600'

GRAPHIC SCALE

UNION OIL
STATION NO. 7124
10151 INTERNATIONAL BOULEVARD
OAKLAND, CALIFORNIA

RESEARCH-BASED TPH-g PLUME MIGRATION ANALYSIS

ARCADIS

FIGURE
1

CITY: SAN RAFAEL, CA (PETALUMA) DIV/GROUP: ENV DB: J. HARRIS
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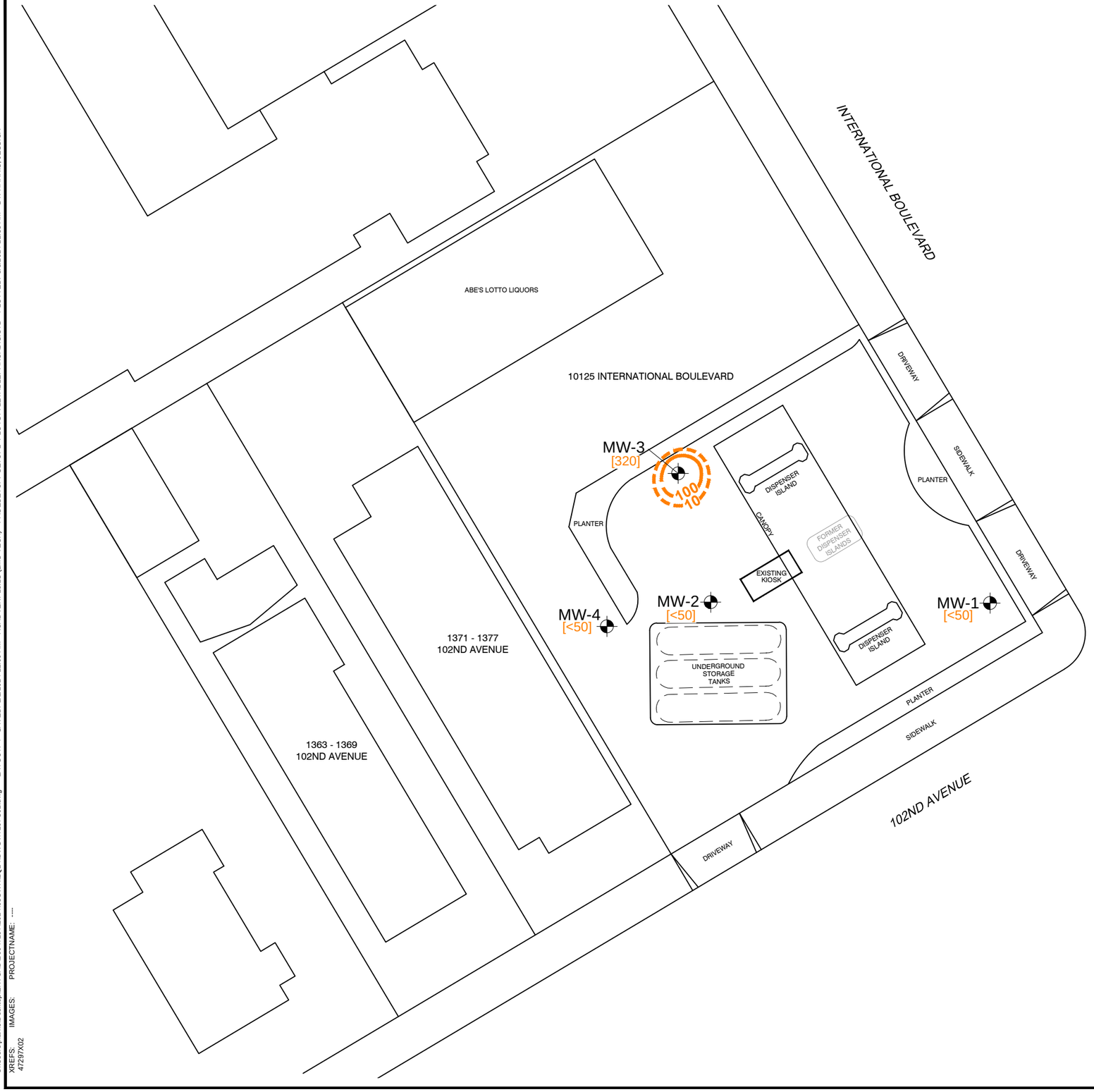


LEGEND

MW-1 GROUNDWATER MONITORING WELL

[TPH-g] TOTAL PETROLEUM HYDROCARBONS AS GASOLINE (C6-C12) CONCENTRATION IN MICROGRAMS PER LITER (µg/L)

100 TPH-g ISOCONCENTRATION CONTOUR (µg/L; DASHED WHERE INFERRED)

< DENOTES LESS THAN LABORATORY REPORTING LIMIT

NOTES:

1. BASE MAP PROVIDED BY TRC, DATED JANUARY 2010, AT A SCALE OF 1"=20'. ADDITIONAL SITE INFORMATION PROVIDED BY STANTEC, DATED SEPTEMBER 23, 2008, AT A SCALE OF 1"=40'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. ALL MONITORING WELLS WERE SAMPLED AND GAUGED ON APRIL 8, 2014.

0 30' 60'

GRAPHIC SCALE

UNION OIL
STATION NO. 7124
10151 INTERNATIONAL BOULEVARD
OAKLAND, CALIFORNIA

TPH-g CONCENTRATION MAP

ARCADIS

FIGURE 2

LEGEND

MW-1 GROUNDWATER MONITORING WELL

[MTBE] METHYL TERTIARY BUTYL ETHER CONCENTRATION IN MICROGRAMS PER LITER (µg/L)

5.0 MTBE ISOCONCENTRATION CONTOUR (µg/L; DASHED WHERE INFERRED)

< DENOTES LESS THAN LABORATORY REPORTING LIMIT

NOTES:

1. BASE MAP PROVIDED BY TRC, DATED JANUARY 2010, AT A SCALE OF 1"=20'. ADDITIONAL SITE INFORMATION PROVIDED BY STANTEC, DATED SEPTEMBER 23, 2008, AT A SCALE OF 1"=40'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. ALL MONITORING WELLS WERE SAMPLED AND GAUGED ON APRIL 8, 2014.

0 30' 60'

GRAPHIC SCALE

UNION OIL
STATION NO. 7124
10151 INTERNATIONAL BOULEVARD
OAKLAND, CALIFORNIA

MTBE CONCENTRATION MAP

ARCADIS

FIGURE 3

CITY: SAN RAFAEL, CA (PETALUMA) DIV/GROUP: ENV DB: J. HARRIS
C:\Users\jharris\Desktop\ENV\CADIB0047297\2014\03GWR2Q14\DWG\47297C03.dwg LAYOUT: 6 SAVED: 1/15/2014 7:59 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: SETUP1 PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 5/8/2014 11:55 AM BY: HARRIS, JESSICA
XREFS: IMAGES: PROJECTNAME: ---
47297X02

LEGEND

- MW-1 GROUNDWATER MONITORING WELL
- SB-1 SOIL BORING LOCATION
- CPT-1 CPT LOCATION

NOTES:

1. BASE MAP PROVIDED BY TRC, DATED JANUARY 2010, AT A SCALE OF 1"=20'. ADDITIONAL SITE INFORMATION PROVIDED BY STANTEC, DATED SEPTEMBER 23, 2008, AT A SCALE OF 1"=40'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.

0 30' 60'

GRAPHIC SCALE

UNION OIL
STATION NO. 7124
10151 INTERNATIONAL BOULEVARD
OAKLAND, CALIFORNIA

SOIL SAMPLE LOCATION MAP

ARCADIS

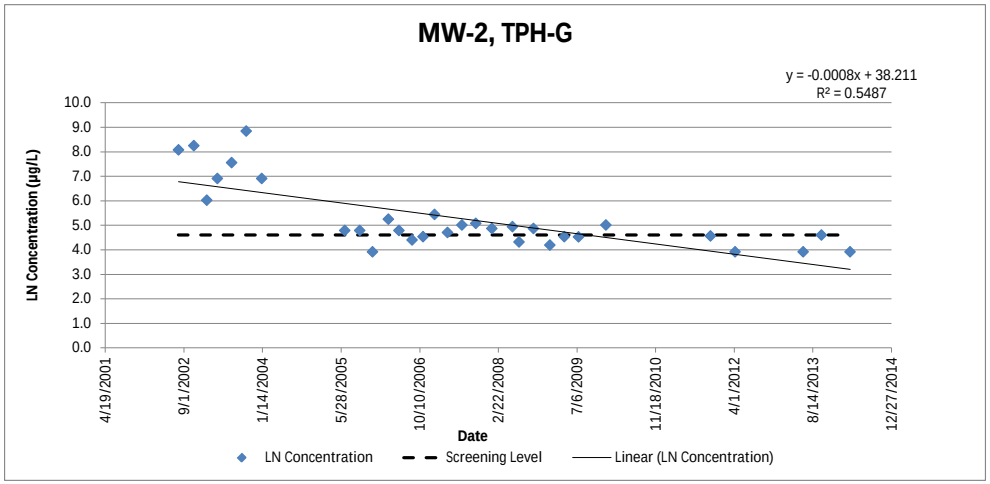
FIGURE 4

Attachment A

Linear Regression Analysis

Sample Information
Sample Location **MW-2**
Constituent TPH-G

Data		
Sample Date	Concentration	LN Concentration
	(ug/L)	
7/28/2002	3200	8.07
11/3/2002	3800	8.24
1/24/2003	410	6.02
4/2/2003	1000	6.91
7/1/2003	1900	7.55
10/2/2003	6900	8.84
1/9/2004	1000	6.91
6/20/2005	120	4.79
9/23/2005	120	4.79
12/13/2005	50	3.91
3/24/2006	190	5.25
5/30/2006	120	4.79
8/22/2006	81	4.39
10/31/2006	93	4.53
1/12/2007	230	5.44
4/4/2007	110	4.70
7/5/2007	150	5.01
10/1/2007	160	5.08
1/11/2008	130	4.87
5/22/2008	140	4.94
7/2/2008	75	4.32
10/2/2008	130	4.87
1/14/2009	66	4.19
4/16/2009	93	4.53
7/16/2009	92	4.52
1/6/2010	150	5.01
11/2/2011	96	4.56
4/6/2012	50	3.91
6/13/2013	50	3.91
10/7/2013	99	4.60
4/8/2014	50	3.91



Notes:
ND taken at reporting limit/reported value

Data quality	
Total # of data points used in regression	31
# of nondetects	4
% of data as detects	87

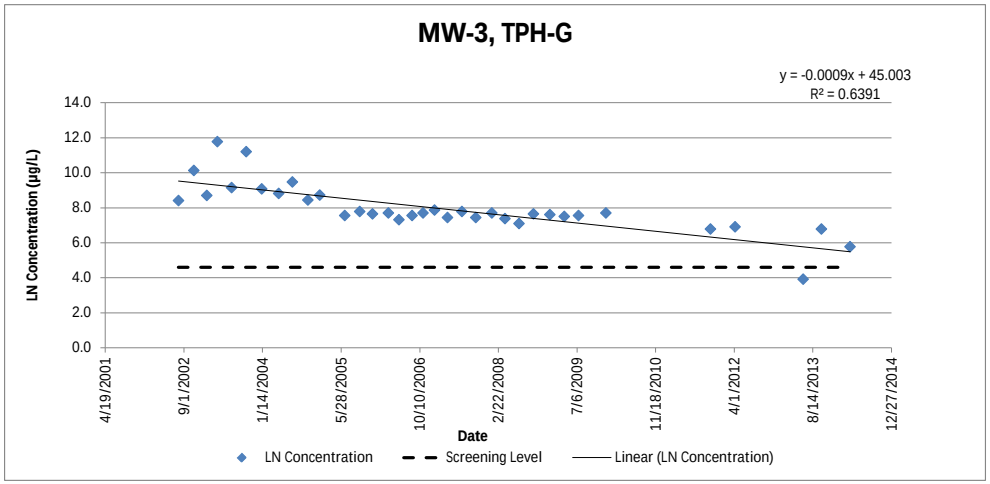
Results		
Coefficient of Determination (R^2) =	0.5487	
p-Value =	1.89E-06	
Attenuation Rate in Groundwater (K) =	0.0008	$days^{-1}$
Attenuation Rate in Groundwater at 90% confidence (K) =	0.0005	$days^{-1}$
Chemical Half Life in Groundwater ($t_{1/2}$) =	8.26E+02	days

Date Screening Level Reached	
Screening Level	100
LN Screening Level	4.6
Intercept	38.211
Slope	-0.0008
Date to Screening Level	9/6/2009

Abbreviations and Notes
ug/l = micrograms per liter
LN = Natural Logarithm

Sample Information
Sample Location **MW-3**
Constituent TPH-G

Data		
Sample Date	Concentration	LN Concentration
	(ug/L)	
7/28/2002	4500	8.41
11/3/2002	25000	10.13
1/24/2003	6000	8.70
4/2/2003	130000	11.78
7/1/2003	9400	9.15
10/2/2003	73000	11.20
1/9/2004	8700	9.07
4/26/2004	6700	8.81
7/22/2004	13000	9.47
10/29/2004	4600	8.43
1/12/2005	6100	8.72
6/20/2005	1900	7.55
9/23/2005	2400	7.78
12/13/2005	2100	7.65
3/24/2006	2200	7.70
5/30/2006	1500	7.31
8/22/2006	1900	7.55
10/31/2006	2200	7.70
1/12/2007	2600	7.86
4/4/2007	1700	7.44
7/5/2007	2400	7.78
10/1/2007	1700	7.44
1/11/2008	2200	7.70
4/4/2008	1600	7.38
7/2/2008	1200	7.09
10/2/2008	2100	7.65
1/14/2009	2000	7.60
4/16/2009	1800	7.50
7/16/2009	1900	7.55
1/6/2010	2200	7.70
11/2/2011	880	6.78
4/6/2012	1,000	6.91
6/13/2013	50	3.91
10/7/2013	880	6.78
4/8/2014	320	5.77



Notes:
ND taken at reporting limit/reported value

Data quality	
Total # of data points used in regression	35
# of nondetects	1
% of data as detects	97

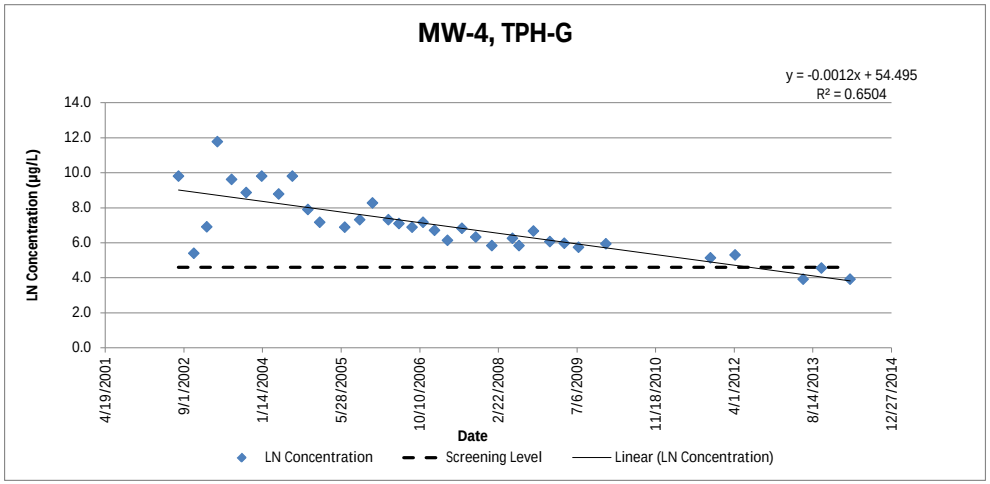
Results		
Coefficient of Determination (R^2) =	0.6391	
p-Value =	8.44E-09	
Attenuation Rate in Groundwater (K) =	0.0009	$days^{-1}$
Attenuation Rate in Groundwater at 90% confidence (K) =	0.0007	$days^{-1}$
Chemical Half Life in Groundwater ($t_{1/2}$) =	7.32E+02	days

Date Screening Level Reached	
Screening Level	100
LN Screening Level	4.6
Intercept	45.003
Slope	-0.0009
Date to Screening Level	10/31/2016

Abbreviations and Notes
ug/l = micrograms per liter
LN = Natural Logarithm

Sample Information
Sample Location **MW-4**
Constituent TPH-G

Data		
Sample Date	Concentration	LN Concentration
	(ug/L)	
7/28/2002	18000	9.80
11/3/2002	220	5.39
1/24/2003	1000	6.91
4/2/2003	130000	11.78
7/1/2003	15000	9.62
10/2/2003	7100	8.87
1/9/2004	18000	9.80
4/26/2004	6500	8.78
7/22/2004	18000	9.80
10/29/2004	2700	7.90
1/12/2005	1300	7.17
6/20/2005	980	6.89
9/23/2005	1500	7.31
12/13/2005	3900	8.27
3/24/2006	1500	7.31
5/30/2006	1200	7.09
8/22/2006	980	6.89
10/31/2006	1300	7.17
1/12/2007	820	6.71
4/4/2007	460	6.13
7/5/2007	920	6.82
10/1/2007	560	6.33
1/11/2008	340	5.83
5/22/2008	520	6.25
7/2/2008	340	5.83
10/2/2008	790	6.67
1/14/2009	430	6.06
4/16/2009	390	5.97
7/16/2009	310	5.74
1/6/2010	380	5.94
11/2/2011	170	5.14
4/6/2012	200	5.30
6/13/2013	50	3.91
10/7/2013	95	4.55
4/8/2014	50	3.91



Notes:
ND taken at reporting limit/reported value

Data quality	
Total # of data points used in regression	35
# of nondetects	3
% of data as detects	91

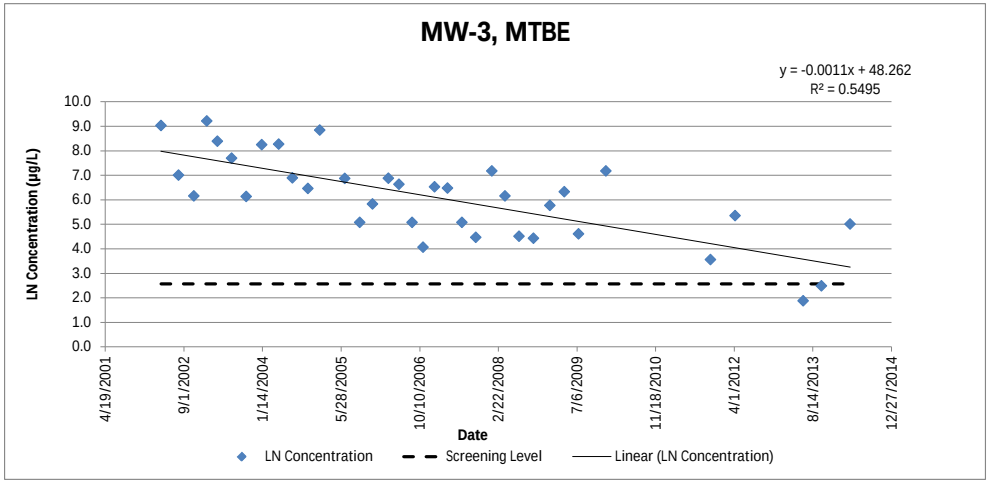
Results		
Coefficient of Determination (R^2) =	0.6504	
p-Value =	4.96E-09	
Attenuation Rate in Groundwater (K) =	0.0012	$days^{-1}$
Attenuation Rate in Groundwater at 90% confidence (K) =	0.0009	$days^{-1}$
Chemical Half Life in Groundwater ($t_{1/2}$) =	5.71E+02	days

Date Screening Level Reached	
Screening Level	100
LN Screening Level	4.6
Intercept	54.495
Slope	-0.0012
Date to Screening Level	7/7/2012

Abbreviations and Notes
ug/l = micrograms per liter
LN = Natural Logarithm

Sample Information
Sample Location **MW-3**
Constituent MTBE

Data		
Sample Date	Concentration	LN Concentration
	(ug/L)	
4/8/2002	8300	9.02
7/28/2002	1100	7.00
11/3/2002	470	6.15
1/24/2003	10000	9.21
4/2/2003	4400	8.39
7/1/2003	2200	7.70
10/2/2003	460	6.13
1/9/2004	3800	8.24
4/26/2004	3900	8.27
7/22/2004	980	6.89
10/29/2004	640	6.46
1/12/2005	6900	8.84
6/20/2005	960	6.87
9/23/2005	160	5.08
12/13/2005	340	5.83
3/24/2006	970	6.88
5/30/2006	760	6.63
8/22/2006	160	5.08
10/31/2006	58	4.06
1/12/2007	680	6.52
4/4/2007	650	6.48
7/5/2007	160	5.08
10/1/2007	87	4.47
1/11/2008	1300	7.17
4/4/2008	470	6.15
7/2/2008	91	4.51
10/2/2008	84	4.43
1/14/2009	320	5.77
4/16/2009	560	6.33
7/16/2009	100	4.61
1/6/2010	1300	7.17
11/2/2011	35	3.56
4/6/2012	210	5.35
6/13/2013	6.5	1.87
10/7/2013	12	2.48
4/8/2014	150	5.01



Notes:
ND taken at reporting limit/reported value

Data quality	
Total # of data points used in regression	36
# of nondetects	0
% of data as detects	100

Results		
Coefficient of Determination (R^2) =	0.5495	
p-Value =	2.32E-07	
Attenuation Rate in Groundwater (K) =	0.0011	$days^{-1}$
Attenuation Rate in Groundwater at 90% confidence (K) =	0.0007	$days^{-1}$
Chemical Half Life in Groundwater ($t_{1/2}$) =	6.43E+02	days

Date Screening Level Reached	
Screening Level	13
LN Screening Level	2.6
Intercept	48.262
Slope	-0.0011
Date to Screening Level	1/12/2016

Abbreviations and Notes
ug/l = micrograms per liter
LN = Natural Logarithm

ARCADIS

Appendix B

Historic Fluid Levels and
Selected Analytical Results

Table 2
HISTORIC FLUID LEVELS AND SELECTED ANALYTICAL RESULTS

76 Station 7124

Date Sampled	TOC Elevation (feet)	Depth to Water (feet)	LPH Thickness (feet)	Ground-Water Elevation (feet)	Change in Elevation (feet)	TPH-G 8015 (µg/l)	TPH-G (GC/MS) (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE (8021B) (µg/l)	MTBE (8260B) (µg/l)	Comments
MW-1														
4/8/2002	37.37	14.27	0.00	23.10	--	ND<50	--	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.5	ND<2.0	
7/28/2002	37.37	15.88	0.00	21.49	-1.61	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<2.0	
11/3/2002	37.37	16.75	0.00	20.62	-0.87	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<2.0	
1/24/2003	37.37	13.94	0.00	23.43	2.81	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<2.0	
4/2/2003	37.37	14.99	0.00	22.38	-1.05	--	460	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<2.0	
7/1/2003	37.37	15.48	0.00	21.89	-0.49	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<2.0	
10/2/2003	37.37	16.68	0.00	20.69	-1.20	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<2.0	
1/9/2004	37.37	13.79	0.00	23.58	2.89	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1	--	ND<2	
4/26/2004	37.37	15.21	0.00	22.16	-1.42	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.50	
7/22/2004	37.37	16.43	0.00	20.94	-1.22	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.50	
10/29/2004	37.37	16.14	0.00	21.23	0.29	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.51	
1/12/2005	37.37	12.83	0.00	24.54	3.31	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.52	
6/20/2005	37.37	14.38	0.00	22.99	-1.55	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.53	
9/23/2005	37.37	15.92	0.00	21.45	-1.54	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.54	
12/13/2005	37.37	16.09	0.00	21.28	-0.17	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.55	
3/24/2006	37.37	11.85	0.00	25.52	4.24	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.56	
5/30/2006	37.37	13.30	0.00	24.07	-1.45	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.57	
8/22/2006	37.37	15.11	0.00	22.26	-1.81	--	ND<50	ND<0.50		ND<0.50	ND<0.50	--	ND<0.58	
10/31/2006	37.37	16.11	0.00	21.26	-1.00	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	ND<0.59	
1/12/2007	37.37	15.55	0.00	21.82	0.56	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	ND<0.60	
4/4/2007	37.37	15.31	0.00	22.06	0.24	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	ND<0.61	
7/5/2007	37.37	16.21	0.00	21.16	-0.90	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	ND<0.62	
10/1/2007	37.37	17.13	0.00	20.24	-0.92	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	ND<0.63	
1/11/2008	37.37	14.48	0.00	22.89	2.65	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.64	
4/4/2008	37.37	16.17	0.00	21.20	-1.69	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.65	Gauged on 5-22-08
7/2/2008	37.37	16.70	0.00	20.67	-0.53	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.66	
10/2/2008	37.37	17.50	0.00	19.87	-0.80	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.67	
1/14/2009	37.37	17.30	0.00	20.07	0.20	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.68	
4/16/2009	37.37	15.60	0.00	21.77	1.70	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.69	
7/16/2009	37.37	16.90	0.00	20.47	-1.30	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.70	
1/6/2010	37.37	16.35	0.00	21.02	0.55	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	ND<0.71	
MW-2														
4/8/2002	37.87	15.86	0.00	22.01	--	4400	--	ND<2.5	ND<2.5	6.4	ND<2.5	380	490	
7/28/2002	37.87	17.28	0.00	20.59	-1.42	--	3200	ND<2.5	ND<2.5	ND<2.5	ND<5.0	--	170	
11/3/2002	37.87	18.03	0.00	19.84	-0.75	--	3800	ND<5.0	ND<5.0	ND<5.0	ND<10	--	72	
1/24/2003	37.87	15.59	0.00	22.28	2.44	--	410	ND<2.5	ND<2.5	ND<2.5	ND<5.0	--	490	
4/2/2003	37.87	16.50	0.00	21.37	-0.91	--	1000	ND<5.0	ND<5.0	ND<5.0	ND<10	--	180	
7/1/2003	37.87	16.94	0.00	20.93	-0.44	--	1900	ND<2.5	ND<2.5	ND<2.5	ND<5.0	--	120	
10/2/2003	37.87	17.93	0.00	19.94	-0.99	--	6900	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	32	
1/9/2004	37.87	15.42	0.00	22.45	2.51	--	1000	ND<2.5	ND<2.5	ND<2.5	ND<5.0	--	300	

Table 2
HISTORIC FLUID LEVELS AND SELECTED ANALYTICAL RESULTS

76 Station 7124

Date Sampled	TOC Elevation (feet)	Depth to Water (feet)	LPH Thickness (feet)	Ground-Water Elevation (feet)	Change in Elevation (feet)	TPH-G 8015 (µg/l)	TPH-G (GC/MS) (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE (8021B) (µg/l)	MTBE (8260B) (µg/l)	Comments
4/26/2004	37.87	--	--	--	--	--	--	--	--	--	--	--	--	Covered with asphalt
7/22/2004	37.87	--	--	--	--	--	--	--	--	--	--	--	--	Covered with asphalt
10/29/2004	37.87	--	0.00	--	--	--	--	--	--	--	--	--	--	Well is paved over.
1/12/2005	37.87	--	--	--	--	--	--	--	--	--	--	--	--	Well was paved over.
6/20/2005	37.87	15.94	0.00	21.93	--	--	120	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	46	
9/23/2005	37.87	17.29	0.00	20.58	-1.35	--	120	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	10	
12/13/2005	37.87	17.41	0.00	20.46	-0.12	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	11	
3/24/2006	37.87	13.77	0.00	24.10	3.64	--	190	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	15	
5/30/2006	37.87	15.16	0.00	22.71	-1.39	--	120	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	6.6	
8/22/2006	37.87	16.49	0.00	21.38	-1.33	--	81	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	3.0	
10/31/2006	37.87	17.15	0.00	20.72	-0.66	--	93	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	2.0	
1/12/2007	37.87	17.07	0.00	20.80	0.08	--	230	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	4.3	
4/4/2007	37.87	17.84	0.00	20.03	-0.77	--	110	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	2.5	
7/5/2007	37.87	17.51	0.00	20.36	0.33	--	150	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	2.6	
10/1/2007	37.87	18.25	0.00	19.62	-0.74	--	160	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	2.0	
1/11/2008	37.87	16.80	0.00	21.07	1.45	--	130	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	7.7	
5/22/2008	37.87	17.46	0.00	20.41	-0.66	--	140	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	4.2	Gauged and sampled on 5-22-08
7/2/2008	37.87	17.94	0.00	19.93	-0.48	--	75	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	2.4	
10/2/2008	37.87	18.65	0.00	19.22	-0.71	--	130	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	2.1	
1/14/2009	37.87	18.40	0.00	19.47	0.25	--	66	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	2.5	
4/16/2009	37.87	16.94	0.00	20.93	1.46	--	93	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	3.2	
7/16/2009	37.87	18.15	0.00	19.72	-1.21	--	92	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	1.6	
1/6/2010	37.87	17.68	0.00	20.19	0.47	--	150	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	2.0	
MW-3														
4/8/2002	37.72	15.86	0.00	21.86	--	8700	--	65	ND<25	400	ND<25	6500	8300	
7/28/2002	37.72	17.22	0.00	20.50	-1.36	--	4500	ND<25	ND<25	ND<25	ND<50	--	1100	
11/3/2002	37.72	17.90	0.00	19.82	-0.68	--	25000	ND<5.0	ND<5.0	25	ND<10	--	470	
1/24/2003	37.72	15.57	0.00	22.15	2.33	--	6000	ND<25	ND<25	94	ND<50	--	10000	
4/2/2003	37.72	16.45	0.00	21.27	-0.88	--	130000	ND<100	ND<100	ND<100	ND<200	--	4400	
7/1/2003	37.72	16.88	0.00	20.84	-0.43	--	9400	ND<10	ND<10	ND<10	ND<20	--	2200	
10/2/2003	37.72	17.85	0.00	19.87	-0.97	--	73000	ND<50	ND<50	ND<50	ND<100	--	460	
1/9/2004	37.72	15.31	0.00	22.41	2.54	--	8700	ND<25	ND<25	98	ND<50	--	3800	
4/26/2004	37.72	16.62	0.00	21.10	-1.31	--	6700	ND<25	ND<25	ND<25	ND<50	--	3900	
7/22/2004	37.72	17.62	0.00	20.10	-1.00	--	13000	ND<25	ND<25	ND<25	ND<50	--	980	
10/29/2004	37.72	17.29	0.00	20.43	0.33	--	4600	ND<5.0	ND<5.0	13	ND<10	--	640	
1/12/2005	37.72	14.64	0.00	23.08	2.65	--	6100	0.88	0.99	30	2.2	--	6900	
6/20/2005	37.72	15.91	0.00	21.81	-1.27	--	1900	ND<0.50	0.21J	0.52	0.46J	--	960	
9/23/2005	37.72	17.20	0.00	20.52	-1.29	--	2400	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	160	
12/13/2005	37.72	17.32	0.00	20.40	-0.12	--	2100	ND<2.5	ND<2.5	ND<2.5	ND<5.0	--	340	
3/24/2006	37.72	13.86	0.00	23.86	3.46	--	2200	ND<5.0	ND<5.0	ND<5.0	ND<10	--	970	
5/30/2006	37.72	15.69	0.00	22.03	-1.83	--	1500	ND<12	ND<12	ND<12	ND<25	--	760	

Table 2
HISTORIC FLUID LEVELS AND SELECTED ANALYTICAL RESULTS

76 Station 7124

Date Sampled	TOC Elevation (feet)	Depth to Water (feet)	LPH Thickness (feet)	Ground-Water Elevation (feet)	Change in Elevation (feet)	TPH-G 8015 (µg/l)	TPH-G (GC/MS) (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE (8021B) (µg/l)	MTBE (8260B) (µg/l)	Comments
8/22/2006	37.72	16.51	0.00	21.21	-0.82	--	1900	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	160	
10/31/2006	37.72	17.36	0.00	20.36	-0.85	--	2200	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	58	
1/12/2007	37.72	16.85	0.00	20.87	0.51	--	2600	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	680	
4/4/2007	37.72	16.62	0.00	21.10	0.23	--	1700	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	650	
7/5/2007	37.72	17.42	0.00	20.30	-0.80	--	2400	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	160	
10/1/2007	37.72	18.16	0.00	19.56	-0.74	--	1700	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	87	
1/11/2008	37.72	15.84	0.00	21.88	2.32	--	2200	ND<0.50	ND<0.50	1.6	ND<1.0	--	1300	
4/4/2008	37.72	17.30	0.00	20.42	-1.46	--	1600	ND<1.0	ND<1.0	ND<1.0	ND<2.0	--	470	Gauged on 5-22-08
7/2/2008	37.72	17.84	0.00	19.88	-0.54	--	1200	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	91	
10/2/2008	37.72	18.50	0.00	19.22	-0.66	--	2100	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	84	
1/14/2009	37.72	18.33	0.00	19.39	0.17	--	2000	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	320	
4/16/2009	37.72	16.92	0.00	20.80	1.41	--	1800	ND<2.5	ND<2.5	ND<2.5	ND<5.0	--	560	
7/16/2009	37.72	18.05	0.00	19.67	-1.13	--	1900	ND<5.0	ND<5.0	ND<5.0	ND<10	--	100	
1/6/2010	37.72	17.65	0.00	20.07	0.40	--	2200	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	1300	
MW-4														
4/8/2002	38.36	16.59	0.00	21.77	--	13000	--	ND<5.0	ND<5.0	28	ND<5.0	790	980	
7/28/2002	38.36	17.93	0.00	20.43	-1.34	--	18000	ND<2.5	ND<2.5	ND<2.5	ND<5.0	--	170	
11/3/2002	38.36	18.66	0.00	19.70	-0.73	--	220	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	5.7	
1/24/2003	38.36	16.27	0.00	22.09	2.39	--	ND<1000	ND<10	ND<10	ND<10	ND<20	--	1000	
4/2/2003	38.36	17.19	0.00	21.17	-0.92	--	130000	ND<100	ND<100	ND<100	ND<200	--	ND<400	
7/1/2003	38.36	17.61	0.00	20.75	-0.42	--	15000	ND<2.5	ND<2.5	ND<2.5	ND<5.0	--	170	
10/2/2003	38.36	18.58	0.00	19.78	-0.97	--	7100	ND<10	ND<10	ND<10	ND<20	--	70	
1/9/2004	38.36	16.15	0.00	22.21	2.43	--	18000	ND<10	ND<10	ND<10	ND<20	--	530	
4/26/2004	38.36	17.20	0.00	21.16	-1.05	--	6500	ND<10	ND<10	ND<10	ND<20	--	240	
7/22/2004	38.36	18.34	0.00	20.02	-1.14	--	18000	ND<10	ND<10	ND<10	ND<20	--	48	
10/29/2004	38.36	18.13	0.00	20.23	0.21	--	2700	ND<2.5	ND<2.5	ND<2.5	ND<5.0	--	76	
1/12/2005	38.36	15.22	0.00	23.14	2.91	--	1300	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	620	
6/20/2005	38.36	16.63	0.00	21.73	-1.41	--	980	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	110	
9/23/2005	38.36	17.93	0.00	20.43	-1.30	--	1500	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	34	
12/13/2005	38.36	18.04	0.00	20.32	-0.11	--	3900	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	36	
3/24/2006	38.36	14.48	0.00	23.88	3.56	--	1500	ND<12	ND<12	ND<12	ND<25	--	200	
5/30/2006	38.36	15.79	0.00	22.57	-1.31	--	1200	ND<2.5	ND<2.5	ND<2.5	ND<5.0	--	130	
8/22/2006	38.36	17.26	0.00	21.10	-1.47	--	980	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	33	
10/31/2006	38.36	18.08	0.00	20.28	-0.82	--	1300	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	10	
1/12/2007	38.36	17.57	0.00	20.79	0.51	--	820	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	28	
4/4/2007	38.36	17.40	0.00	20.96	0.17	--	460	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	41	
7/5/2007	38.36	18.02	0.00	20.34	-0.62	--	920	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	7.0	
10/1/2007	38.36	18.89	0.00	19.47	-0.87	--	560	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	3.0	
1/11/2008	38.36	16.56	0.00	21.80	2.33	--	340	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	21	
5/22/2008	38.36	18.10	0.00	20.26	-1.54	--	520	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	5.6	Gauged and sampled on 5-22-08
7/2/2008	38.36	18.55	0.00	19.81	-0.45	--	340	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	3.3	

Table 2
HISTORIC FLUID LEVELS AND SELECTED ANALYTICAL RESULTS

76 Station 7124

Date Sampled	TOC Elevation (feet)	Depth to Water (feet)	LPH Thickness (feet)	Ground-Water Elevation (feet)	Change in Elevation (feet)	TPH-G 8015 (µg/l)	TPH-G (GC/MS) (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE (8021B) (µg/l)	MTBE (8260B) (µg/l)	Comments
10/2/2008	38.36	19.25	0.00	19.11	-0.70	--	790	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	2.4	
1/14/2009	38.36	19.10	0.00	19.26	0.15	--	430	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	2.4	
4/16/2009	38.36	17.61	0.00	20.75	1.49	--	390	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	16	
7/16/2009	38.36	18.70	0.00	19.66	-1.09	--	310	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	3.2	
1/6/2010	38.36	18.28	0.00	20.08	0.42	--	380	ND<0.50	ND<0.50	ND<0.50	ND<1.0	--	2.4	

Table 2a
ADDITIONAL HISTORIC ANALYTICAL RESULTS

76 Station 7124

Date Sampled	TBA (µg/l)	Ethanol (8015B) (mg/l)	Ethanol (8260B) (µg/l)	Ethylene-dibromide (EDB) (µg/l)	1,2-DCA (EDC) (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	Comments
MW-1									
7/28/2002	ND<100	ND<500	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	
11/3/2002	ND<100	ND<500	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	
1/24/2003	ND<100	ND<500	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	
4/2/2003	ND<100	ND<500	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	
7/1/2003	ND<100	ND<500	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	
10/2/2003	ND<100	--	ND<500	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	
1/9/2004	ND<100	--	ND<500	ND<2	ND<2.0	ND<2	ND<2	ND<2	
4/26/2004	ND<5.0	--	ND<50	ND<0.50	ND<0.50	ND<1.0	ND<0.50	ND<0.50	
7/22/2004	ND<5.0	--	ND<50	ND<0.50	ND<0.50	ND<1.0	ND<0.50	ND<0.50	
10/29/2004	ND<5.0	--	ND<50	ND<0.50	ND<0.50	ND<1.0	ND<0.50	ND<0.50	
1/12/2005	ND<5.0	--	ND<50	ND<0.50	ND<0.50	ND<1.0	ND<0.50	ND<0.50	
6/20/2005	ND<10	--	ND<1000	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
9/23/2005	ND<10	--	ND<1000	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
12/13/2005	ND<10	--	ND<250	21.449999	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
3/24/2006	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
5/30/2006	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
8/22/2006	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
10/31/2006	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
1/12/2007	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
4/4/2007	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
7/5/2007	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
10/1/2007	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
1/11/2008	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
4/4/2008	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
7/2/2008	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
10/2/2008	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
1/14/2009	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
4/16/2009	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
7/16/2009	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
1/6/2010	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
MW-2									
4/8/2002	ND<2000	ND<10000	--	ND<40	ND<40	ND<40	ND<40	ND<40	
7/28/2002	ND<500	ND<2500	--	ND<10	ND<10	ND<10	ND<10	ND<10	
11/3/2002	ND<1000	ND<5000	--	ND<20	ND<20	ND<20	ND<20	ND<20	

Table 2a
ADDITIONAL HISTORIC ANALYTICAL RESULTS

76 Station 7124

Date Sampled	TBA (µg/l)	Ethanol (8015B) (mg/l)	Ethanol (8260B) (µg/l)	Ethylene-dibromide (EDB) (µg/l)	1,2-DCA (EDC) (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	Comments
1/24/2003	ND<500	ND<2500	--	ND<10	ND<10	ND<10	ND<10	ND<10	
4/2/2003	ND<1000	ND<5000	--	ND<20	ND<20	ND<20	ND<20	ND<20	
7/1/2003	ND<500	ND<2500	--	ND<10	ND<10	ND<10	ND<10	ND<10	
10/2/2003	ND<100	--	ND<500	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	
1/9/2004	ND<500	--	ND<2500	ND<10	ND<10	ND<10	ND<10	ND<10	
6/20/2005	25	--	ND<1000	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
9/23/2005	ND<10	--	ND<1000	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
12/13/2005	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
3/24/2006	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
5/30/2006	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
8/22/2006	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
10/31/2006	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
1/12/2007	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
4/4/2007	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
7/5/2007	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
10/1/2007	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
1/11/2008	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
5/22/2008	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
7/2/2008	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
10/2/2008	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
1/14/2009	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
4/16/2009	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
7/16/2009	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
1/6/2010	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
MW-3									
10/2/2003	ND<10000	--	ND<50000	ND<200	ND<200	ND<200	ND<200	ND<200	
1/9/2004	ND<5000	--	ND<25000	ND<100	ND<100	ND<100	ND<100	ND<100	
4/26/2004	ND<250	--	ND<2500	ND<25	ND<25	ND<50	ND<25	ND<25	
7/22/2004	ND<250	--	ND<2500	ND<25	ND<25	ND<50	ND<25	ND<25	
10/29/2004	ND<50	--	ND<500	ND<5.0	ND<5.0	ND<10	ND<5.0	ND<5.0	
1/12/2005	1300	--	ND<2500	ND<25	ND<25	ND<50	ND<25	ND<25	
6/20/2005	39	--	ND<1000	ND<0.50	ND<0.50	ND<0.50	ND<0.50	0.31J	
9/23/2005	ND<10	--	ND<1000	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
12/13/2005	ND<50	--	ND<1200	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<2.5	
3/24/2006	ND<100	--	ND<2500	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	

Table 2a
ADDITIONAL HISTORIC ANALYTICAL RESULTS

76 Station 7124

Date Sampled	TBA (µg/l)	Ethanol (8015B) (mg/l)	Ethanol (8260B) (µg/l)	Ethylene-dibromide (EDB) (µg/l)	1,2-DCA (EDC) (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	Comments
5/30/2006	ND<250	--	ND<6200	ND<12	ND<12	ND<12	ND<12	ND<12	
8/22/2006	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
10/31/2006	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
1/12/2007	43	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
4/4/2007	130	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
7/5/2007	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
10/1/2007	ND<20	--	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	
1/11/2008	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
4/4/2008	ND<20	--	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	
7/2/2008	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
10/2/2008	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
1/14/2009	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
4/16/2009	ND<50	--	ND<1200	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<2.5	
7/16/2009	ND<100	--	ND<2500	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	
1/6/2010	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
MW-4									
4/8/2002	ND<5000	ND<25000	--	ND<100	ND<100	ND<100	ND<100	ND<100	
7/28/2002	ND<500	ND<2500	--	ND<10	ND<10	ND<10	ND<10	ND<10	
11/3/2002	ND<100	ND<500	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	
1/24/2003	ND<2000	ND<10000	--	ND<40	ND<40	ND<40	ND<40	ND<40	
4/2/2003	ND<20000	ND<100000	--	ND<400	ND<400	ND<400	ND<400	ND<400	
7/1/2003	ND<500	ND<2500	--	ND<10	ND<10	ND<10	ND<10	ND<10	
10/2/2003	ND<2000	--	ND<10000	ND<40	ND<40	ND<40	ND<40	ND<40	
1/9/2004	ND<2000	--	ND<10000	ND<40	ND<40	ND<40	ND<40	ND<40	
4/26/2004	430	--	ND<1000	ND<10	ND<10	ND<20	ND<10	ND<10	
7/22/2004	ND<100	--	ND<1000	ND<10	ND<10	ND<20	ND<10	ND<10	
10/29/2004	63	--	ND<250	ND<2.5	ND<2.5	ND<5.0	ND<2.5	ND<2.5	
1/12/2005	1300	--	ND<250	ND<10	ND<2.5	ND<5.0	ND<2.5	ND<2.5	
6/20/2005	580	--	ND<1000	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
9/23/2005	92	--	ND<1000	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
12/13/2005	50	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
3/24/2006	1900	--	ND<6200	ND<12	ND<12	ND<12	ND<12	ND<12	
5/30/2006	ND<50	--	ND<1200	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<2.5	
8/22/2006	150	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
10/31/2006	43	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	

Table 2a
ADDITIONAL HISTORIC ANALYTICAL RESULTS

76 Station 7124

Date Sampled	TBA (µg/l)	Ethanol (8015B) (mg/l)	Ethanol (8260B) (µg/l)	Ethylene-dibromide (EDB) (µg/l)	1,2-DCA (EDC) (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	Comments
1/12/2007	72	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
4/4/2007	260	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
7/5/2007	18	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
10/1/2007	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
1/11/2008	140	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
5/22/2008	52	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
7/2/2008	15	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
10/2/2008	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
1/14/2009	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
4/16/2009	170	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
7/16/2009	20	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	
1/6/2010	ND<10	--	ND<250	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	

Attachment C

ACEH CSM Spreadsheet

Table 1
Initial Site Conceptual Model
Chevron 76 Product Site
351638
10151 International Blvd.
Oakland, CA

CSM Element	CSM Sub-Element	Description	Data Gap	How To Address
Geology and Hydrogeology	Regional	The site is located in the East Bay Plain Sub-basin, which is bounded to the east by San Pablo Bay, to the south by the Niles Cone Groundwater Basin, by the Hayward Fault to the east, and the San Francisco Bay to the west. The East Bay Plain Sub-basin is an elongated, northwest trending flat alluvial plain encompassing approximately 122 square miles. The site area is underlain by Quaternery-age alluvial deposits consisting of unconsolidated, poorly graded, permeable fine sands, silts, and clays with a few thin beds of coarse sand (CA GW Bulletin 118, Feb. 2004). The Oakland sub-area of the East Bay Plain Sub-basin, of which the site is a part of, consists of recent to old alluvial fans. Alluvial fill is 300 to 700 feet thick without well defined aquitards.	None	NA
	Site	**Geology:** Borings and monitoring wells advanced/installed at the site indicate primarily coarse-grained materias (silty sand) from approximately groundsurface to 10 feet bgs, fine-grained materials (silts/clays) from approximately 10 feet bgs to 30 feet bgs, and coarse-grained materials (poorly sorted sand) to 40 feet bgs, the total depth explored. **Hydrogeology:** Groundwater has been encountered at depths ranging from approximately 14 feet bgs to 18 feet bgs. Groundwater flow has historically been to the west with a recent shift to a more northerly direction since April 2012 with an average gradient of 0.012 ft/ft.	None	NA
Surface Water Bodies		San Francisco Bay lies approx. two miles to the west of the site. San Leandro Creek comes within a mile of the site to the south, however, the surface feature still lies over 4,600 feet away.	None	NA
Nearby Wells		The State Water Resources Control Board's GeoTracker GAMA database includes water supply well information and approximate location. In the vicinity of the site, the closest water supply well is an irrigation well approximately 900 feet southeast of the site (upgradient). The next closest wells are cathodic protections wells 1,800 feet north-northeast (crossgradient) and 1,350 feet southwest of the site (crossgradient). Drinking water supplies come from reservoirs managed by EBMUD.	None	NA
Constituents of Concern		Based on investigations conducted in March 2000 (eight soil borings), February 2002 (Install. Of MW-1 through MW-4), September 2008 (SB-1 through SB-7), and November 2013 (CPT-1 through CPT-6), TPH-g, benzene, MTBE, and TBA were not detected above soil environmental screenin limits. Current GW conditions are below ESLs (where GW is a current source of drinking water). However, the September 2008 investigation identified TPPH, MTBE, and TBA at levels greater than the ESLs.	None	NA
Potential Sources	On-Site	Product lines and dispensers associated with ongoing site use as a retail petroleum station. Approximately 60 cubic yards of soil was excavated from areas that exhibited high concentrations of petroleum hydrocarbons. Three confirmation samples were collected from the base of the excavation area and analyzed for TPH-g, benzene, and MTBE. TPH-g was detected in two of the samples collected at a maximum concentration of 108 mg/kg. Benzene was detected in one of the samples collected at a concentration of 0.162 mg/kg. MTBE was detected in all of the soil samples collected at a maximum concentration of 43.8 mg/kg. Other stockpiled soil generated during these site activities was analyzed for TPH-g and BTEX. This soil did not reveal significant concentrations of petroleum hydrocarbons. Approximate 133 cubic yards of non-hazardous waste soil was ultimately removed from the site	None	NA
	Off-Site	Based on historical and current GW flow, it is unlikely that the nearby site at 10100 International Blvd., Quan's Automotive/ExxonMobil RAS #70691, has been a potential source of impacts at the site. Historical GW flow to the west or current GW flow to the north would put potential impacts either cross or down gradient of the Site, respectively.	None	NA

Table 1
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CSM Element	CSM Sub-Element	Description	Data Gap	How To Address
Potential Presence of LNAPL		LNAPL has not been observed during site investigations or in existing GW monitoring wells	None	NA
Nature and Extent of Environmental Impacts	Extent in Soil	Shallow soil impacts (10 or less feet) have been observed in soil samples collected during the replacment of the product lines and dispensed in March 2000. TPH-g and benzene were detected in 6 of the 11 samples collected, and MTBE was detected in 7 of the 11 samples collected. The maximum concentrations of TPH-g, benzene, and MTBE were 6,200, 7.4, and 120 mg/kg, respectively which were all collected beneath the product dispensers. Approximately 60 cubic yards of soil was excavated from areas that exhibited high concentrations of petroleum hydrocarbons. Three confirmation samples were collected from the base of the excavation area and analyzed for TPH-g, benzene, and MTBE. TPH-g was detected in two of the samples collected at a maximum concentration of 108 mg/kg. Benzene was detected in one of the samples collected at a concentration of 0.162 mg/kg. MTBE was detected in all of the soil samples collected at a maximum concentration of 43.8 mg/kg. Based on the results presented above and the removal of impacted soils, shallow soil impacts appear to have been adequately remediated. Furthermore, remaining impacts, as identified by the post soil excavation sampling results, are likely to have bioattenuated over the last 12 years. Deep soil impacts (greater than 10 feet) have been observed in soil samples collected during the February 2002 well installation and the September 2008 soil boring investigation. During the 2002 investigation, TPH-g was detected in one shallow soil sample (5.6 mg/kg) which is well below the residential ESL (490 mg/kg). Soil samples collected during the well installation activities were analyzed for TPH-g, BTEX, MTBE, and other fuel oxygenates. TPH-g and MTBE were detected in soil samples collected from monitoring wells MW-2, MW-3, and MW-4 with maximum concentrations of TPH-g and MTBE at 42 and 1.2 mg/kg, respectively which were both collected in MW-3 at a depth of 16 feet bgs. MTBE does exceed the residential ESL (0.023 mg/kg). During the 2008 investigation, MTBE was detected in one deep soil sample (15 ft bgs) at 0.062 mg/kg which exceeds the residential ESL (0.023 mg/kg). TBA was also detected above the residential ESL (0.075 mg/kg) in the sam sample at 0.15 mg/kg. A CPT investigation was conducted in November 2013 to further investigate soil impacts at the site. The investigation included five CPT borings. There were no detections for TPH-g, BTEX, MTBE, naphthalene or PAHs.	None	NA
	Extent in GW-Shallow	Current onsite GW monitoring results for indicate a significant decrease in GW concentrations of TPH-g, benzene and MTBE as compared to results seen during previous monitoring events or investigations. MTBE is currently the only constitiuent of concern detected above laboratory reporting limits and residential ESLs (6.5 mg/L). However, due to issues with access, consistant data is still being collected to establish GW trends. Offsite groundwater, especially to the northwest of the site, is not well understood. Grab groundwater samples collected during the September 2008 site investigation had concentrations of total purgeable petroleum hydrocarbons (TPPH) in the three northernmost locations (SB-2 through SB-4) with dections ranging from 480 mg/L (SB-3-farthest north location offsite) to 45,000 mg/L (SB-4-just north of the site). MTBE was also detected above the residential ESL (5.0 mg/L) at 62 mg/L (SB-4) and 25 mg/L (SB-5-northwest offsite). Grab groundwater samples were collected as part of the November 2013 Investigation. All detections (TPH-g at 230 µg/L and MTBE at 1.6 µg/L) were below their respective ESL.	None	NA
	Extent in GW-Deep	NA	None	NA
	Extent in Soil Vapor	Though a soil vapor investigation was completed in 1997, analytical results are not available. However, as per the Low Threat Underground Storage Tank Case Closure Policy, vapor intrusion to indoor air, site conditions as of 2008 meet Scenarios 1, 2, and 3 and therefore do not require additional assessment.	None	NA

Table 1
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10151 International Blvd.
Oakland, CA

CSM Element	CSM Sub-Element	Description	Data Gap	How To Address
Migration Pathways	Potential Conduits	Based on the available data, it appears impacts have migrated very little, likely due to the shallow nature of the release	None	NA
Potential Receptors/Risk	On-Site	Potable water is currently supplied by EBMUD and will continue to be supplied in the foreseeable future, therefore, direct contact with groundwater is not anticipated. Potential receptors include: 1. Current site worker, vapor intrusion to indoor air. 2. Future construction/maintenece worker, soil and/or soil vapor. GW too deep to be a concern. 3. Future residence (if current use/zoning changes), vapor intrusion to indoor air.	None	NA
	Off-Site	Potable water is currently supplied by EBMUD and will continue to be supplied in the foreseeable future, therefore, direct contact with groundwater is not anticipated. Potential receptors include: 1. Current off-site residence, vapor intrusion to indoor air. 2. Water supply wells potentially located within 0.5 miles of the site.	None	NA

Abbreviations:
bgs = below ground surface
ft/ft = feet per foot
EBMUD = East Bay Municiple Utilities Distric
TPH-g = Total Petroleum Hydrocarbons as g
TPPH = Total Purgeaple Petroleum Hydroca
MTBE = Methyl Tertiary Butyl Ether
TBA = Teriary Butyl Alcohol
ESLs = Environlmental Screening Levels,
shallow and deep soils - GW is a current or
potential source of drinking water
LNAPL = Light Non-Aqueous Phase Liquid
mg/kg = milligrams per kilogram
µg/L = micrograms per liter
NA = Not applicable

Table 2
Data Gaps and Proposed Investigation
Chevron 76 Product Site
351638
10151 International Blvd.
Oakland, CA

Item	Data Gap	Proposed Investigation/Solution	Rationale	Analysis

Abbreviations