STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

ORDER WQ 2013-0092 – UST

In the Matter of Underground Storage Tank Case Closure

Pursuant to Health and Safety Code Section 25299.39.2 and the Low Threat Underground Storage Tank Case Closure Policy

BY THE EXECUTIVE DIRECTOR[1]:

Pursuant to Health and Safety Code section 25299.39.2, the Manager of the Underground Storage Tank Cleanup Fund (Fund) recommends closure of the underground storage tank (UST) case at the site listed below.[2] The name of the Fund claimant, the Fund claim number, the site name and the applicable site address are as follows:

United Oil Company
Claim No. 14134
United Oil Station #41
5170 Long Beach Boulevard, Long Beach
Los Angeles Regional Water Quality Control Board

I. STATUTORY AND PROCEDURAL BACKGROUND

Section 25299.39.2 directs the Fund manager to review the case history of claims that have been active for five years or more (five-year review), unless there is an objection from the UST owner or operator. This section further authorizes the Fund Manager to make recommendations to the State Water Resources Control Board (State Water Board) for closure of a five-year-review case if the UST owner or operator approves. In response to a recommendation by the Fund Manager, the State Water Board, or in certain cases the State Water Board Executive Director, may close a case or require the closure of a UST case. Closure of a UST case is appropriate where the corrective action ensures the protection of

[1] State Water Board Resolution No. 2012-0061 delegates to the Executive Director the authority to close or require the closure of any UST case if the case meets the criteria found in the State Water Board's Low Threat Underground Storage Tank Case Closure Policy adopted by State Water Board Resolution No. 2012-0016.

[2] Unless otherwise noted, all references are to the Health and Safety Code.

human health, safety, and the environment and where the corrective action is consistent with: 1) Chapter 6.7 of Division 20 of the Health and Safety Code and implementing regulations; 2) Any applicable waste discharge requirements or other orders issued pursuant to Division 7 of the Water Code; 3) All applicable state policies for water quality control; and 4) All applicable water quality control plans.

The Fund Manager has completed a five-year review of the UST case identified above, and recommends that this case be closed. The recommendation is based upon the facts and circumstances of this particular UST case. A UST Case Closure Review Summary Report has been prepared for the case identified above and the bases for determining compliance with the Water Quality Control Policy for Low-Threat Underground Storage Tank Case Closures (Low-Threat Closure Policy or Policy) are explained in the Case Closure Review Summary Report.

A. Low-Threat Closure Policy

In State Water Board Resolution No. 2012-0016, the State Water Board adopted the Low Threat Closure Policy. The Policy became effective on August 17, 2012. The Policy establishes consistent statewide case closure criteria for certain low-threat petroleum UST sites. In the absence of unique attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents, cases that meet the general and media-specific criteria in the Low-Threat Closure Policy pose a low threat to human health, safety and the environment and are appropriate for closure under Health and Safety Code section 25296.10. The Policy provides that if a regulatory agency determines that a case meets the general and media-specific criteria of the Policy, then the regulatory agency shall notify responsible parties and other specified interested persons that the case is eligible for case closure. Unless the regulatory agency revises its determination based on comments received on the proposed case closure, the Policy provides that the agency shall issue a closure letter as specified in Health and Safety Code section 25296.10. The closure letter may only be issued after the expiration of the 60-day comment period, proper destruction or maintenance of monitoring wells or borings, and removal of waste associated with investigation and remediation of the site.

Health and Safety Code section 25299.57, subdivision (l)(1) provides that claims for reimbursement of corrective action costs that are received by the Fund more than 365 days after the date of a closure letter or a Letter of Commitment, whichever occurs later, shall not be reimbursed unless specified conditions are satisfied. A Letter of Commitment has already been issued on the claim subject to this order and the respective Fund claimant, so the 365-day

timeframe for the submittal of claims for corrective action costs will start upon the issuance of the closure letter.

II. FINDINGS

Based upon the UST Case Closure Review Summary Report prepared for the case attached hereto, the State Water Board finds that corrective action taken to address the unauthorized release of petroleum at the UST release site identified as:

United Oil Company
Claim No. 14134

ensures protection of human health, safety and the environment and is consistent with Chapter 6.7 of Division 20 of the Health and Safety Code and implementing regulations, the Low-Threat Closure Policy and other water quality control policies and applicable water quality control plans.

Pursuant to the Low-Threat Closure Policy, notification has been provided to all entities that are required to receive notice of the proposed case closure, a 60-day comment period has been provided to notified parties, and any comments received have been considered by the Board in determining that the case should be closed.

The UST case identified above may be the subject of orders issued by the Regional Water Quality Control Water Board (Regional Water Board) pursuant to Division 7 of the Water Code. Any orders that have been issued by the Regional Water Board pursuant to Division 7 of the Water Code, or directives issued by a Local Oversight Program agency for this case should be rescinded to the extent they are inconsistent with this Order.

III. ORDER

IT IS THEREFORE ORDERED that:

A. The UST case identified in Section II of this Order, meeting the general and media-specific criteria established in the Low-Threat Closure Policy, be closed in accordance with the following conditions and after the following actions are complete. Prior to the issuance of a closure letter, the Fund claimant is ordered to:

1. Properly destroy monitoring wells and borings unless the owner of real property on which the well or boring is located certifies that the wells or borings will be maintained in accordance with local or state requirements;

2. Properly remove from the site and manage all waste piles, drums, debris, and other investigation and remediation derived materials in accordance with local or state requirements; and

3. Within six months of the date of this Order, submit documentation to the regulatory agency overseeing the UST case identified in Section II of this Order that the tasks in subparagraphs (1) and (2) have been completed.

B. The tasks in subparagraphs (1) and (2) of paragraph (A) are ordered pursuant to Health and Safety Code section 25296.10 and failure to comply with these requirements may result in the imposition of civil penalties pursuant to Health and Safety Code section 25299, subdivision (d)(1). Penalties may be imposed administratively by the State Water Board or Regional Water Board.

C. Within 30 days of receipt of proper documentation from the Fund claimant that requirements in subparagraphs (1) and (2) of paragraph (A) are complete, the regulatory agency that is responsible for oversight of the UST case identified in Section II of this Order shall notify the State Water Board that the tasks have been satisfactorily completed.

D. Within 30 days of notification from the regulatory agency that the tasks are complete pursuant to paragraph (C), the Deputy Director of the Division of Financial Assistance shall issue a closure letter consistent with Health and Safety Code section 25296.10, subdivision (g) and upload the closure letter and UST Case Closure Review Summary Report to GeoTracker.

E. As specified in Health and Safety Code section 25299.39.2, subdivision (a) (2), corrective action costs incurred after a recommendation of closure shall be limited to $10,000 per year unless the Board or its delegated representative agrees that corrective action in excess of that amount is necessary to meet closure requirements, or additional corrective actions are necessary pursuant to section 25296.10, subdivisions (a) and (b). Pursuant to section 25299.57, subdivision (l) (1), and except in specified circumstances,

all claims for reimbursement of corrective action costs must be received by the Fund within 365 days of issuance of the closure letter in order for the costs to be considered.

F. Any Regional Water Board or Local Oversight Program Agency directive or order that directs corrective action or other action inconsistent with case closure for the UST case identified in Section II is rescinded, but only to the extent the Regional Water Board order or Local Oversight Program Agency directive is inconsistent with this Order.

Thomas Howard
Executive Director

4/20/13
Date

State Water Resources Control Board

UST CASE CLOSURE REVIEW SUMMARY REPORT

Agency Information

Agency Name: Los Angeles Regional Water Quality Control Board (Regional Water Board)	Address: 320 West 4th Street, Suite 200 Los Angeles, CA 90013
Agency Caseworker: Ahmad J. Lamma	Case No.: 908050498

Case Information

USTCF Claim No.: 14134	Global ID: T0603701798
Site Name: United Oil Station #41	Site Address: 5170 Long Beach Boulevard Long Beach, CA 90805
Responsible Party: United Oil Company, Attn: Jeff Appel	Address: 17311 S. Main St. Gardena, CA 90248
USTCF Expenditures to Date: $854,317	Number of Years Case Open: 21

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0603701798

Summary

The Low-Threat Underground Storage Tank (UST) Case Closure Policy (Policy) contains general and media-specific criteria, and cases that meet those criteria are appropriate for closure pursuant to the Policy. This case meets all of the required criteria of the Policy. A summary evaluation of compliance with the Policy is shown in **Attachment 1: Compliance with State Water Board Policies and State Law**. The Conceptual Site Model upon which the evaluation of the case has been made is described in **Attachment 2: Summary of Basic Case Information (Conceptual Site Model).** Highlights of the case follow:

This case is an active commercial petroleum fueling facility. An unauthorized leak was reported in July 1991 following the removal of five 10,000-gallon gasoline USTs. Soil vapor extraction and air sparging, intermittently conducted from October 2006 through April 2012, removed approximately 877 pounds of total petroleum hydrocarbon as gasoline (TPHg). Since 2000, 22 monitoring wells have been installed and monitored regularly. According to groundwater data, water quality objectives have been achieved or nearly achieved for all constituents except for benzene, ethylbenzene, xylenes, and methyl tert-butyl ether (MTBE) in on-Site monitoring wells.

The petroleum release is limited to the shallow soil and groundwater. According to data available in GeoTracker, there are no supply wells regulated by the California Department of Public Health or surface water bodies within 250 feet of the defined plume boundary. No other water supply wells have been identified within 250 feet of the defined plume boundary in files reviewed. Water is provided to water users near the Site by the City of Long Beach and the Metropolitan Water District of Southern California. The affected groundwater is not currently being used as a source of drinking water, and it is highly unlikely that the affected groundwater will be used as a source of drinking water in the foreseeable future.

Other designated beneficial uses of impacted groundwater are not threatened and it is highly unlikely that they will be, considering these factors in the context of the site setting. Remaining petroleum hydrocarbon constituents are limited and stable, and concentrations are declining. Corrective actions have been implemented and additional corrective actions are not necessary. Any remaining petroleum hydrocarbon constituents do not pose a significant risk to human health, safety or the environment.

Rationale for Closure under the Policy

- General Criteria: The case meets all eight Policy general criteria.
- Groundwater Specific Criteria: The case meets Policy Criterion 1 by Class 1. The plume that exceeds water quality objectives is less than 100 feet in length. There is no free product. The nearest water supply well or surface water body is greater than 250 feet from the defined plume boundary.
- Vapor Intrusion to Indoor Air: The case meets the Policy Exclusion for Active Station. Soil vapor evaluation is not required because the Site is an active commercial petroleum fueling facility.
- Direct Contact and Outdoor Air Exposure: The case meets Policy Criterion 3a. Maximum concentrations in soil are less than those in Policy Table 1 for Commercial/Industrial use and the concentration limits for a Utility Worker are not exceeded. There are no soil sample results in the case record for naphthalene. However, the relative concentration of naphthalene in soil can be conservatively estimated using the published relative concentrations of naphthalene and benzene in gasoline. Taken from Potter and Simmons (1998), gasoline mixtures contain approximately 2 percent benzene and 0.25 percent naphthalene. Therefore, benzene can be directly substituted for naphthalene concentrations with a safety factor of eight. Benzene concentrations from the Site are below the naphthalene thresholds in Policy Table 1. Therefore, the estimated naphthalene concentrations meet the thresholds in Table 1 and the Policy criteria for direct contact by a factor of eight. It is highly unlikely that naphthalene concentrations in the soil, if any, exceed the threshold.

Objections to Closure and Responses

The Regional Water Board objected to UST case closure for this case in 2009.

- Groundwater has been impacted above the TPHg cleanup goal.
  RESPONSE: The contaminant plume is defined to water quality objectives for petroleum hydrocarbon constituents of concern, and is stable and decreasing. The case meets all Policy criteria and does not pose a significant risk to human health.

Determination
Based on the review performed in accordance with Health & Safety Code Section 25299.39.2 subdivision (a), the Fund Manager has determined that closure of the case is appropriate.

Recommendation for Closure
Based on available information, residual petroleum hydrocarbons at the Site do not pose a significant risk to human health, safety, or the environment, and the case meets the requirements of the Policy. Accordingly, the Fund Manager recommends that the case be closed. The State Water Board is conducting public notification as required by the Policy. Los Angeles County has the regulatory responsibility to supervise the abandonment of monitoring wells.

Lisa Babcock
Lisa Babcock, P.G. 3939, C.E.G. 1235

6/26/13
Date

Prepared by: Roger Hoffmore, P.G. 7660

ATTACHMENT 1: COMPLIANCE WITH STATE WATER BOARD POLICIES AND STATE LAW

The case complies with the State Water Resources Control Board policies and state law. Section 25296.10 of the Health and Safety Code requires that sites be cleaned up to protect human health, safety, and the environment. Based on available information, any residual petroleum constituents at the Site do not pose significant risk to human health, safety, or the environment.

The case complies with the requirements of the Low-Threat Underground Storage Tank (UST) Case Closure Policy as described below.[1]

Is corrective action consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations? The corrective action provisions contained in Chapter 6.7 of the Health and Safety Code and the implementing regulations govern the entire corrective action process at leaking UST sites. If it is determined, at any stage in the corrective action process, that UST site closure is appropriate, further compliance with corrective action requirements is not necessary. Corrective action at this site has been consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations and, since this case meets applicable case-closure requirements, further corrective action is not necessary, unless the activity is necessary for case closure.	☒ Yes ☐ No
Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this case?	☐ Yes ☒ No
If so, was the corrective action performed consistent with any order?	☐ Yes ☐ No ☒ NA
General Criteria General criteria that must be satisfied by all candidate sites:	
Is the unauthorized release located within the service area of a public water system?	☒ Yes ☐ No
Does the unauthorized release consist only of petroleum?	☒ Yes ☐ No
Has the unauthorized ("primary") release from the UST system been stopped?	☒ Yes ☐ No
Has free product been removed to the maximum extent practicable?	☒ Yes ☐ No ☐ NA
Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed?	☒ Yes ☐ No

[1] Refer to the Low-Threat Underground Storage Tank Case Closure Policy for closure criteria for low-threat petroleum UST sites.
http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf

Has secondary source been removed to the extent practicable?	☒ Yes ☐ No
Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?	☒ Yes ☐ No
Nuisance as defined by Water Code section 13050 does not exist at the Site?	☒ Yes ☐ No
Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?	☐ Yes ☒ No
Media-Specific Criteria Candidate sites must satisfy all three of these media-specific criteria: **1. Groundwater:** To satisfy the media-specific criteria for groundwater, 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:	
Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?	☒ Yes ☐ No ☐ NA
Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites?	☒ Yes ☐ No ☐ NA
If YES, check applicable class: ☒ **1** ☐ **2** ☐ **3** ☐ **4** ☐ **5**	
For sites with releases that have not affected groundwater, do mobile constituents (leachate, vapors, or light non-aqueous phase liquids) contain sufficient mobile constituents to cause groundwater to exceed the groundwater criteria?	☐ Yes ☐ No ☒ NA
2. Petroleum Vapor Intrusion to Indoor Air: The site is considered low-threat for vapor intrusion to indoor air if site-specific conditions satisfy all of the characteristics of one of the three classes of sites (a through c) or if the exception for active commercial fueling facilities applies.	
Is the Site an active commercial petroleum fueling facility? Exception: Satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities, except in cases where release characteristics can be reasonably believed to pose an unacceptable health risk.	☒ Yes ☐ No
a. Do site-specific conditions at the release site satisfy all of the applicable characteristics and criteria of scenarios 1 through 3 or all of the applicable characteristics and criteria of scenario 4? If YES, check applicable scenarios: ☐ **1** ☐ **2** ☐ **3** ☐ **4**	☐Yes ☐ No ☒ NA

b. Has a site-specific risk assessment for the vapor intrusion pathway been conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency?	☐ Yes ☐ No ☒ NA
c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health?	☐ Yes ☐ No ☒ NA
3. Direct Contact and Outdoor Air Exposure: The Site is considered low-threat for direct contact and outdoor air exposure if site-specific conditions satisfy one of the three classes of sites (a through c).	
a. Are maximum concentrations of petroleum constituents in soil less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs)?	☒ Yes ☐ No ☐ NA
b. Are maximum concentrations of petroleum constituents in soil less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health?	☐ Yes ☐ No ☒ NA
c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health?	☐ Yes ☐ No ☒ NA

ATTACHMENT 2: SUMMARY OF BASIC CASE INFORMATION (Conceptual Site Model)

Site Location/History

- The Site is an active commercial petroleum fueling facility, in Long Beach.
- The Site is bounded by retail businesses beyond North Long Beach Blvd. to the west, a car wash and a residence to the north, residences to the east and a restaurant beyond East Morningside Street to the south. The surrounding land use is mixed commercial and residential.
- In July 1991, soil contamination was identified by an environmental investigation. To date, 22 monitoring wells have been installed and monitored regularly.
- A Site map showing the location of the former USTs, monitoring wells and groundwater level contours is provided at the end of this closure review summary (Frey Environmental, Inc., 2012).
- Nature of Contaminants of Concern: Petroleum hydrocarbons and other solvent or non-petroleum hydrocarbons.
- Source: UST system.
- Date reported: July 1991.
- Status of Release: USTs removed.
- Free Product: Historically noted in MW-2 (up to 0.01 feet) and MW-12 (up to 0.35 feet); but not reported since 2003.

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active	Date
1-5	10,000	Gasoline	Removed	November 1998
6-10	12,000	Gasoline	Active	-

Receptors

- GW Basin: Coastal Plain of Los Angeles – Central.
- Beneficial Uses: Municipal, Industrial, Industrial Process, Agricultural and Domestic Supply (Basin Plan).
- Land Use Designation: Aerial photograph available on GeoTracker suggests mixed commercial and residential land use in the vicinity of the Site.
- Public Water System: Long Beach Water Department and Metropolitan Water District of Southern California.
- Distance to Nearest Supply Well: According to data available in GeoTracker, there are no public supply wells regulated by the California Department of Public Health within 250 feet of the defined plume boundary. No other water supply wells were identified within 250 feet of the defined plume boundary in the files reviewed.
- Distance to Nearest Surface Water: There is no identified surface water within 250 feet of the defined plume boundary.

Geology/Hydrogeology

- Stratigraphy: The Site is underlain by interbedded and intermixed sand, silt, clay and gravel.
- Maximum Sample Depth: 40 feet below ground surface (bgs).
- Minimum Groundwater Depth: 24.06 feet bgs at monitoring well MW-16.
- Maximum Groundwater Depth: 29.85 feet bgs at monitoring wells MW-10 and MW-15.

- Current Average Depth to Groundwater: Approximately 27 feet bgs.
- Saturated Zones(s) Studied: Approximately 24 – 45, 52 – 55, and 62 – 65 feet bgs.
- Appropriate Screen Interval: Yes.
- Groundwater Flow Direction: Generally south with an average gradient of 0.0015 feet/foot (September 2012).

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (09/26/2012)
MW-1	January 2000	15-40	27.41
MW-2	March 2000	15-40	NM
MW-3	March 2000	15-40	27.80
MW-4	March 2000	15-40	NM
MW-5	March 2000	15-40	NM
MW-6	October 2000	15-40	26.87
MW-7	October 2000	15-40	27.25
MW-8	October 2000	15-40	NM
MW-9	August 2002	15-45	26.38
MW9-55	March0206	52-55	NM
MW9-65	March 2006	62-65	NM
MW-10	September 2001	15-40	27.61
MW-11	September 2001	15-40	27.20
MW-12	September 2001	15-40	26.75
MW-13	August 2002	15-45	28.21
MW-14	September 2001	15-40	27.06
MW-15	August 2002	15-40	28.10
MW-16	August 2002	15-45	NM
MW-18	July 2004	15-40	NM
MW-19	July 2004	15-40	NM
MW-20	July 2004	15-40	NM

NM: Not Measured

Remediation Summary

- Free Product: Historically noted in MW-2 (up to 0.01 feet) and MW-12 (up to 0.35 feet); but not reported since 2003.
- Soil Excavation: Unknown.
- In-Situ Soil/Groundwater Remediation: Soil vapor extraction and air sparging, intermittently conducted from October 2006 through April 2012, a total of 26,900 hours, removed approximately 877 pounds of TPHg.

Most Recent Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs* [mg/kg and (date)]	Maximum 5-10 feet bgs [mg/kg and (date)]
Benzene	0.098 (11/09/98)	<0.005 (01/12/00)
Ethylbenzene	0.679 (11/09/98)	<0.005 (01/12/00)
Naphthalene	NA	NA
PAHs	NA	NA

NA: Not Analyzed, Not Applicable or Data Not Available
mg/kg: Milligrams per kilogram, parts per million
<: Not detected at or above stated reporting limit
PAHs: Polycyclic aromatic hydrocarbons
*: Contaminated soil associated with sample D2-2.5 was excavated to a depth of 15 feet (Frey Environmental, Inc., 2006).

Most Recent Concentrations of Petroleum Constituents in Groundwater*

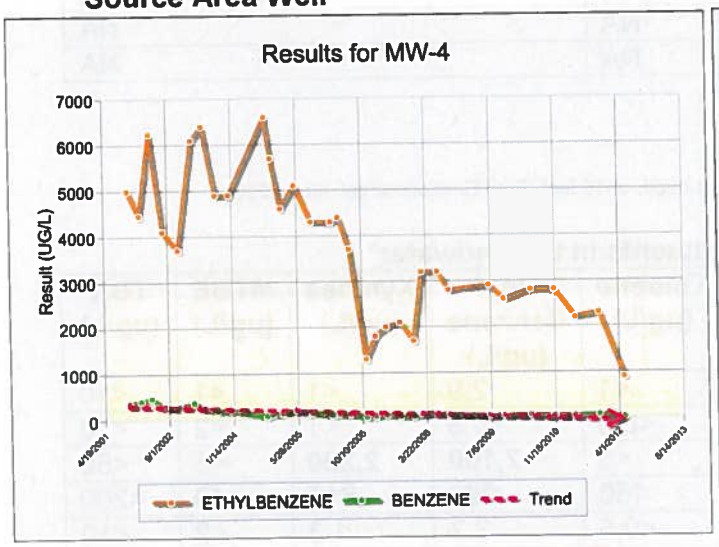
Sample	Sample Date	TPHg (µg/L)	TPHd (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
MW-1	9/26/12	570	<1,000	<0.5	<1	2.9	<1	<1	<10
MW-2	10/14/09	<100	NA	0.53	<0.5	<0.5	<1	<2	<10
MW-3	9/26/12	13,000	7,300	**<2.5**	<5	**2,100**	**2,220**	<5	<50
MW-4	5/09/12	5,000	1,600	**13**	150	**900**	818	**<40**	<200
MW-5	10/25/11	1,700	330	<0.5	<0.5	7.7	1.3	<2	<10
MW-6	5/09/12	2,800	1,000	<0.5	<0.5	23	5.9	<2	<10
MW-7	9/26/12	4,800	2,600	**<2.5**	21	**1,000**	69	<5	<50
MW-8	5/09/12	110	<100	<0.5	<1	<1	<1	<2	<10
MW-9	9/26/12	<100	<1,000	<0.5	<1	<1	<1	<1	<10
MW9-55	6/22/09	<100	NA	<0.5	<1	<1	<1	<2	<10
MW9-65	6/22/09	<100	NA	<0.5	<1	<1	<1	<2	<10
MW-10	9/26/12	<100	<1,000	<0.5	<1	<1	<1	<1	<10
MW-11	9/26/12	<100	<1,000	<0.5	<1	<1	<1	<1	<10
MW-12	9/26/12	320	<1,000	<0.5	<1	<1	<1	<1	<10
MW-13	9/26/12	<100	<1,000	<0.5	<1	<1	<1	<1	<10
MW-14	9/26/12	13,000	6,400	**<5**	14	**3,000**	1,256	**<10**	<100
MW-15	9/26/12	6,100	3,300	**<2.5**	27	**890**	220	<5	<50
MW-16	5/08/12	<100	<100	0.6	<0.5	<0.5	<1	2.1	<10
MW-18	5/08/12	<100	<100	<0.5	<1	<1	<1	<2	<10
MW-19	5/08/12	<100	<100	<0.5	<1	<1	<1	<2	<10
MW-20	5/08/12	<100	<100	<0.5	<1	<1	<1	<2	<10
WQOs		--	--	**1**	**150**	**300**	**1,750**	**5[a]**	**1,200[b]**

NA: Not Analyzed, Not Applicable or Data Not Available
µg/L: Micrograms per liter, parts per billion
<: Not detected at or above stated reporting limit
TPHg: Total petroleum hydrocarbons as gasoline
TPHd: Total petroleum hydrocarbons as diesel
MTBE: Methyl tert-butyl ether
TBA: Tert-butyl alcohol
WQOs: Water Quality Objectives, Regional Water Board, Basin Plan
--: Regional Water Board, Basin Plan does not have a numeric water quality objective for TPHg and TPHd
[a]: Secondary maximum contaminant level (MCL)
[b]: California Department of Public Health, Response Level
* Additional volatile organic compounds (VOCs) detected in groundwater samples collected and analyzed from Site wells on September 26, 2012 include n-butylbenzene, sec-butylbenzene, isopropylbenzene, naphthalene, n-propylbenzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene. Each of these constituents can be found in gasoline.

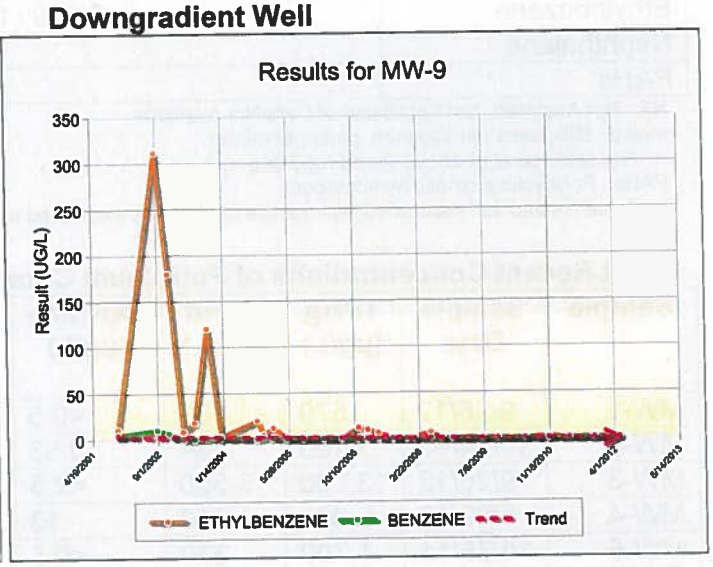
Groundwater Trends

- There are 13 years of regular groundwater monitoring data for this case. Benzene and ethylbenzene trends are shown below:

Source Area Well

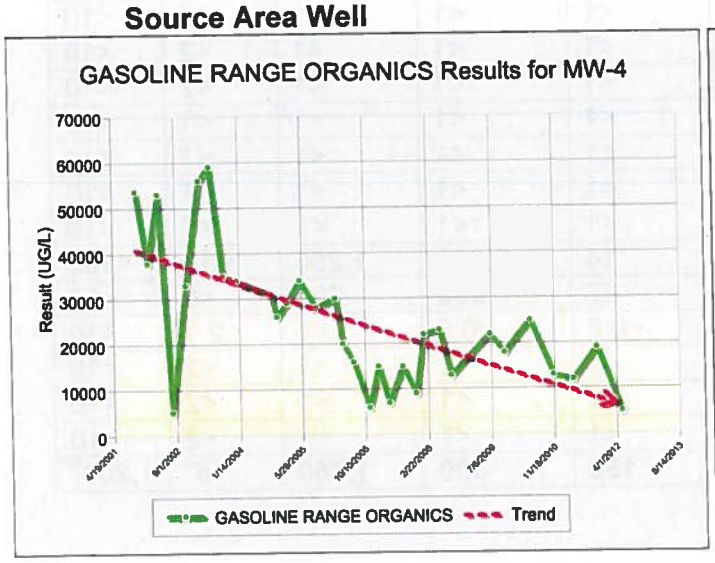


Downgradient Well

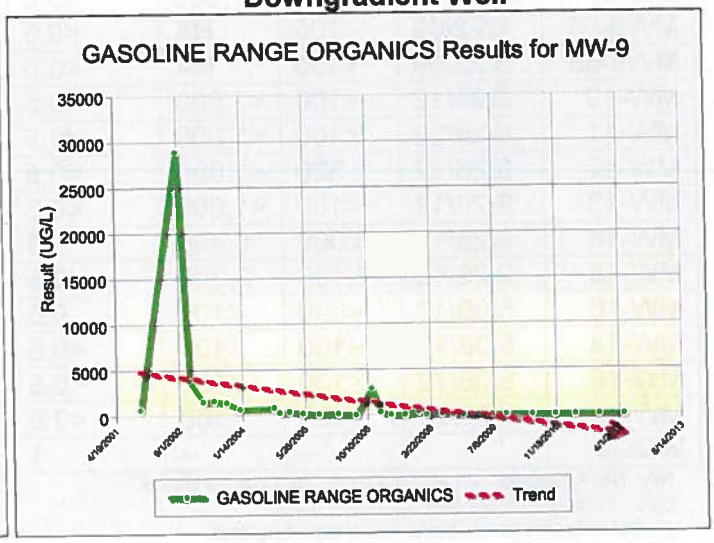


- TPHg is a constituent that Region 4 has expressed concern about. TPHg trends are shown below:

Source Area Well



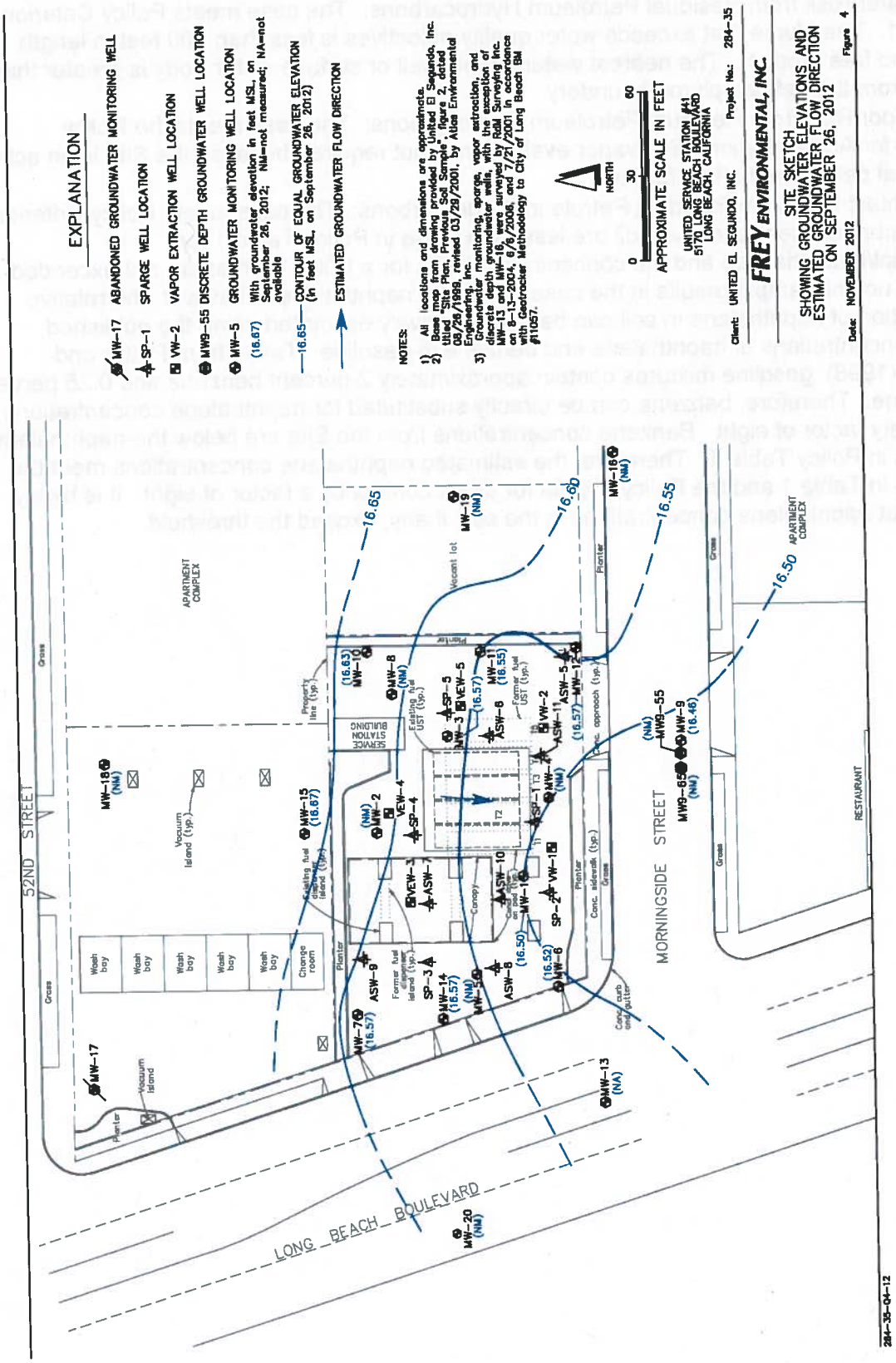
Downgradient Well

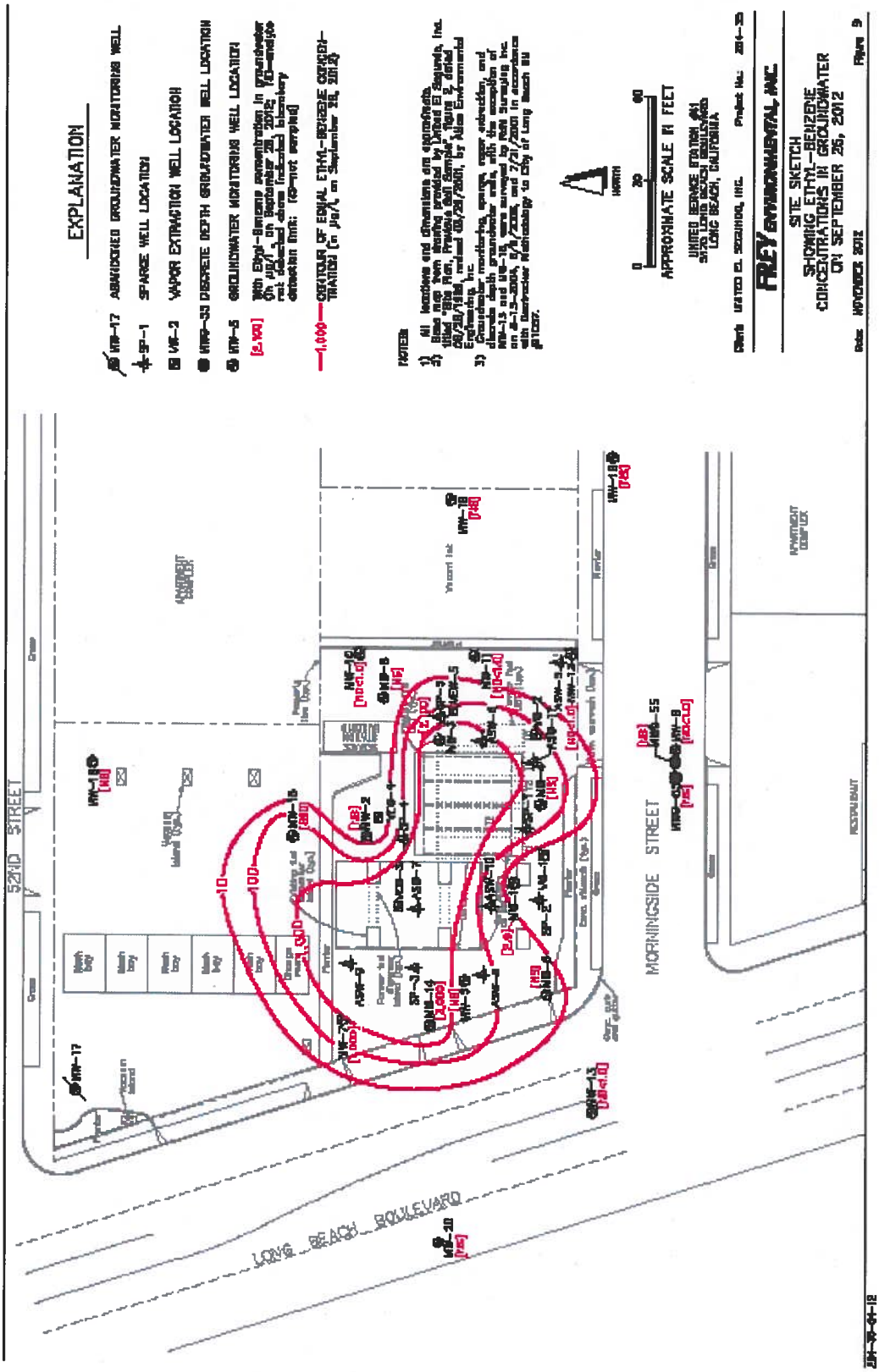


Evaluation of Current Risk

- Estimate of Hydrocarbon Mass in Soil: None reported.
- Soil/Groundwater tested for methyl tert-butyl ether (MTBE): Yes, see table above.
- Oxygen Concentrations in Soil Vapor: None reported.
- Plume Length: <100 feet long.
- Plume Stable or Decreasing: Yes.
- Contaminated Zone(s) Used for Drinking Water: No.

- Groundwater Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 1 by Class 1. The plume that exceeds water quality objectives is less than 100 feet in length. There is no free product. The nearest water supply well or surface water body is greater than 250 feet from the defined plume boundary.
- Indoor Vapor Risk from Residual Petroleum Hydrocarbons: The case meets the Policy Exclusion for Active Station. Soil vapor evaluation is not required because the Site is an active commercial petroleum fueling facility.
- Direct Contact Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 3a. Maximum concentrations in soil are less than those in Policy Table 1 for Commercial/Industrial use and the concentration limits for a Utility Worker are not exceeded. There are no soil sample results in the case record for naphthalene. However, the relative concentration of naphthalene in soil can be conservatively estimated using the published relative concentrations of naphthalene and benzene in gasoline. Taken from Potter and Simmons (1998), gasoline mixtures contain approximately 2 percent benzene and 0.25 percent naphthalene. Therefore, benzene can be directly substituted for naphthalene concentrations with a safety factor of eight. Benzene concentrations from the Site are below the naphthalene thresholds in Policy Table 1. Therefore, the estimated naphthalene concentrations meet the thresholds in Table 1 and the Policy criteria for direct contact by a factor of eight. It is highly unlikely that naphthalene concentrations in the soil, if any, exceed the threshold.


EXPLANATION
MW-17 ABANDONED GROUNDWATER MONITORING WELL
SP-1 SPARGE WELL LOCATION
VW-2 VAPOR EXTRACTION WELL LOCATION
MW9-55 DISCRETE DEPTH GROUNDWATER WELL LOCATION
MW-5 GROUNDWATER MONITORING WELL LOCATION
(16.67) With groundwater elevation in feet MSL, on September 26, 2012; NM=not measured; NA=not available
16.65 CONTOUR OF EQUAL GROUNDWATER ELEVATION (in feet MSL, on September 26, 2012)
ESTIMATED GROUNDWATER FLOW DIRECTION
NOTES:
1) All locations and dimensions are approximate.
2) Base map from drawing provided by United El Segundo, Inc. titled "Site Plan, Previous Soil Sample, Figure 2," dated 08/28/1998, revised 03/29/2001, by Atlas Environmental Engineering, Inc.
3) Groundwater monitoring, sparge, vapor extraction, and discrete depth groundwater wells, with the exception of MW-13 and MW-16, were surveyed by RAM Surveying Inc. on 5/1-2/2001, 6/6/2006, and 7/21/2001 in accordance with Geotracker Methodology to City of Long Beach BM #11057.
NORTH
0 30 60
APPROXIMATE SCALE IN FEET
UNITED SERVICE STATION #41
5170 LONG BEACH BOULEARD
LONG BEACH, CALIFORNIA
Client: UNITED EL SEGUNDO, INC. Project No.: 284-35
FREY ENVIRONMENTAL, INC.
SITE SKETCH
SHOWING GROUNDWATER ELEVATIONS AND ESTIMATED GROUNDWATER FLOW DIRECTION ON SEPTEMBER 26, 2012
Date: NOVEMBER 2012 Figure 4
52ND STREET
MORNINGSIDE STREET
LONG BEACH BOULEVARD
APARTMENT COMPLEX
SERVICE STATION BUILDING
RESTAURANT
Vacant lot
Property line (typ.)
Existing fuel USTs (typ.)
Former fuel USTs (typ.)
Vacuum Island (typ.)
Wash bay
Change room
Canopy
Planter
Gross
Conc. sidewalk (typ.)
Conc. curb and gutter
Former fuel dispenser island (typ.)
16.65
16.60
16.55
16.50
MW-17
MW-18 (NM)
MW-15 (16.67)
MW-10 (16.63)
MW-8 (NM)
MW-19 (NM)
MW-16 (NM)
MW-11 (16.55)
MW-6 (16.57)
MW-12 (16.57)
MW-2 (NM)
MW-4 (NM)
MW-5 (NM)
MW-55 (NM)
MW-9 (16.46)
MW-65 (NM)
MW-7 (16.57)
MW-14 (16.57)
MW-13 (NA)
MW-20 (NM)
284-35-04-12


EXPLANATION
ABANDONED GROUNDWATER MONITORING WELL
SPARGE WELL LOCATION
VAPOR EXTRACTION WELL LOCATION
DISCRETE DEPTH GROUNDWATER WELL LOCATION
GROUNDWATER MONITORING WELL LOCATION
OXYGEN OF EQUAL ETHYL-BENZENE CONCENTRATION (in µg/L on September 26, 2012)
NOTES
APPROXIMATE SCALE IN FEET
SITE SKETCH
SHOWING ETHYL-BENZENE
CONCENTRATIONS IN GROUNDWATER
ON SEPTEMBER 26, 2012
FREY ENVIRONMENTAL, INC.
52ND STREET
MORNINGSIDE STREET
LONG BEACH BOULEVARD