

## State Water Resources Control Board

### UST CASE CLOSURE REVIEW SUMMARY REPORT

#### Agency Information

Agency Name: Orange County Health Care Agency (County)	Address: 1241 East Dyer Road, Suite 120 Santa Ana, CA 92705
Agency Caseworker: Julie Wozencraft	Case No.: 86UT018

#### Case Information

USTCF Claim No.: 6093	Global ID: T0605900462
Site Name: US Petroleum #141	Site Address: 14600 Edwards Street Westminster, CA 92683
Responsible Party: 1. Moller Investments Group Inc. Attn: Charles Miller	Address: 1. 6591 Collins Drive, Suite E-11 Moorpark, CA 93021
2. Retail Property Trust	2. 1025 Westminster Mall Westminster CA 92683
USTCF Expenditures to Date: \$931,290	Number of Years Case Open: 26

URL: [http://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=T0605900462](http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605900462)

#### 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:

An unauthorized leak was reported in February 1986. In February 2012, three 10,000-gallon USTs were removed and the Site was redeveloped into a parking lot. Soil vapor extraction was operated between March 1985 and July 1998, which reportedly removed approximately 15,230 pounds of total petroleum hydrocarbons (TPHg). Groundwater extraction was conducted intermittently between August 1986 and September 1991, which removed 85,000 gallons of contaminated groundwater. Dual phase extraction was conducted intermittently between June 2001 and March 2009, which removed 2,708 pounds of TPHg and 159,000 gallons of contaminated groundwater. Nineteen monitoring wells have been installed since 1985 and monitored regularly. According to groundwater data, water quality objectives have been achieved or nearly achieved for all constituents except benzene and methyl tert-butyl ether (MTBE).

The petroleum release is limited to the shallow soil and groundwater. According to data available in GeoTracker, there are no California Department of Public Health regulated supply wells 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 Westminster Water Division.

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, stable and concentrations 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 contaminant 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 Policy Criterion 2a by Scenario 3a. The maximum benzene concentration in groundwater is less than 100 µg/L. The minimum depth to groundwater is greater than 5 feet, overlain by soil containing less than 100 mg/kg of TPH.
- 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 at 5-10 feet below ground surface (bgs). 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 at 5-10 feet bgs, if any, exceed the threshold.

#### **Objections to Closure and Responses**

The County has not yet responded to the Responsible Party's 2012 closure request.

**RESPONSE:** Readily available information about current conditions at the Site shows that the case satisfies all of the criteria in the Policy.

#### **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.

USA Petroleum # 141  
14600 Edwards, Westminster  
Claim No: 6093

April 2013

**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. Orange County has the regulatory responsibility to supervise the abandonment of monitoring wells.

*Lisa Babcock*

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

*5/2/13*

\_\_\_\_\_  
Date

**Prepared by: Ramesh Sundareswaran**

**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.<sup>1</sup>**

<p><b>Is corrective action consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations?</b>                  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.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p><b>Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this case?</b></p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p><b>If so, was the corrective action performed consistent with any order?</b></p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p><b><u>General Criteria</u></b>                  General criteria that must be satisfied by all candidate sites:</p> <p><b>Is the unauthorized release located within the service area of a public water system?</b></p> <p><b>Does the unauthorized release consist only of petroleum?</b></p> <p><b>Has the unauthorized (“primary”) release from the UST system been stopped?</b></p> <p><b>Has free product been removed to the maximum extent practicable?</b></p> <p><b>Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed?</b></p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>

<sup>1</sup> 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](http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf)

<p><b>Has secondary source been removed to the extent practicable?</b></p> <p><b>Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?</b></p> <p><b>Nuisance as defined by Water Code section 13050 does not exist at the site?</b></p> <p><b>Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?</b></p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p><b><u>Media-Specific Criteria</u></b>        Candidate sites must satisfy all three of these media-specific criteria:</p> <p><b>1. Groundwater:</b>        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:</p> <p><b>Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?</b></p> <p><b>Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites?</b></p> <p>If YES, check applicable class: <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5</p> <p><b>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?</b></p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p><b>2. Petroleum Vapor Intrusion to Indoor Air:</b>        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.</p> <p><b>Is the site an active commercial petroleum fueling facility?</b>        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.</p> <p><b>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?</b>        If YES, check applicable scenarios: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>

<p><b>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?</b></p> <p><b>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?</b></p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p><b>3. Direct Contact and Outdoor Air Exposure:</b> 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).</p> <p><b>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)?</b></p> <p><b>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?</b></p> <p><b>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?</b></p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>

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

### Site Location/History

- This case is located on the northeast corner of Edwards Street and Royal Oak Drive and is currently used as a parking lot.
- The Site is bounded by residences across Edwards Street to the west, a commercial building across West Drive to the south, and a mall and associated parking lot to the north and east.
- Site maps showing the location of the former USTs, monitoring wells and benzene concentrations are provided at the end of this closure review summary (Environ Strategy Consultants, Inc [ES], 2012).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date reported: February 1986.
- Status of Release: USTs removed.
- Free Product: None reported.

### Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/Removed/Active	Date
1-3	10,000	Gasoline	Removed	February 2012
4	10,000	Diesel	Removed	February 2012

### Receptors

- GW Basin: Coastal Plain of Orange County.
- Beneficial Uses: Municipal and Domestic Supply.
- Land Use Designation: Commercial.
- Public Water System: City of Westminster Water Division.
- Distance to Nearest Supply Well: According to data available in GeoTracker, there are no known public supply wells regulated by 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 silty clays, clayey silt, sandy silts and silty sands.
- Maximum Sample Depth: 25 feet below ground surface (bgs).
- Minimum Groundwater Depth: 5.51 feet bgs at monitoring well PVX-4.
- Maximum Groundwater Depth: 20.48 feet bgs at monitoring well MW-11P.
- Current Average Depth to Groundwater: Approximately 10 feet bgs.
- Saturated Zones(s) Studied: Approximately 3 - 23 feet bgs.
- Appropriate Screen Interval: One well is currently submerged.
- Groundwater Flow Direction: Generally west with an average gradient of 0.008 feet/foot.

**Monitoring Well Information**

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (10/23/2012)
MW-1	December 1985	13-18	10.21
MW-4	February 1986	10-20	NM
MW-5	February 1986	10-20	NM
MW-6	February 1986	10-20	10.42
MW-7	February 1986	10-20	10.56
MW-8	February 1986	10-20	10.74
MW-9	March 1997	3-23	NM
MW-10P	March 1993	3-23	NM
MW-11P	March 1993	3-23	11.21
MW-12P	March 1993	5-20	10.02
MW-13P	March 1993	5-20	9.67
MW-14P	March 1993	5-20	NM
MW-15P	December 1997	5-20	10.96
MW-16	September 2008	5-20	10.74
PVX-1	March 1995	4-14	10.22
PVX-2	March 1995	4-14	NM
PVX-3	March 1995	4-14	NM
PVX-4	March 1995	4-14	10.25
PVX-5	March 1995	4-14	9.77

NM: Not measured

**Remediation Summary**

- Free Product: None reported in GeoTracker.
- Soil Excavation: Approximately 90 tons of contaminated soil were excavated and disposed offsite following the removal of USTs in 2012.
- In-Situ Soil/Groundwater Remediation: Soil vapor extraction was conducted between March 1985 and July 1998, which reportedly removed approximately 15,230 pounds of TPHg. Groundwater extraction was conducted intermittently between August 1986 and September 1991, which removed 85,000 gallons of contaminated groundwater. Dual phase extraction was conducted intermittently between June 2001 and March 2009, which removed 2,708 pound of TPHg and 159,000 gallons of contaminated groundwater.

**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	<0.0488 (2/22/12)	0.565 (2/1/08)
Ethylbenzene	0.054 (2/22/12)	9.81 (2/1/08)
Naphthalene	<0.005 (2/22/12)	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



**Most Recent Concentrations of Petroleum Constituents in Groundwater**

Sample	Sample Date	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
MW-1	10/23/12	<50	<1	<5	<5	<5	2.1	<10
MW-4	01/15/07	<100	<1	<1	<1	<1	<1	<5
MW-5	01/15/07	260	<1	<1	3.28	4.15	<b>15.7</b>	47.5
MW-6	10/23/12	70.5	<1	<5	<5	<5	<b>29</b>	<10
MW-7	09/22/10	<50	<1	<5	<5	<5	1.4	<10
MW-8	10/23/12	700	<1	<5	7.3	<5	<1	<10
MW-9	01/15/07	<100	<1	<1	<1	<1	<1	<5
MW-10P	01/15/07	<100	<1	<1	<1	<1	<1	<5
MW-11P	10/23/12	<50	<1	<5	<5	<5	1.2	95
MW-12P	10/23/12	<50	<1	<5	<5	<5	<1	<10
MW-13P	01/15/07	<100	<1	<1	<1	<1	<1	<5
MW-14P	01/15/07	<100	<1	<1	<1	<1	<1	<5
MW-15P	10/23/12	<50	<1	<5	<5	<5	<1	<10
MW-16	10/23/12	123	<b>3</b>	<5	<5	45	<b>12</b>	<10
PVX-1	01/15/07	<50	<1	<1	<1	<1	<1	<5
PVX-2	09/22/10	91	<1	<5	<5	<5	<b>7.5</b>	<10
PVX-3	09/14/11	<50	<1	<5	<5	<5	<1	<10
PVX-4	09/14/11	<50	<1	<5	<5	<5	<1	<10
PVX-5	10/23/12	<100	<1	<5	<5	<5	2.5	54
WQOs	-	--	<b>1</b>	<b>150</b>	<b>300</b>	<b>1,750</b>	<b>5<sup>a</sup></b>	<b>1,200<sup>b</sup></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

MTBE: Methyl tert-butyl ether

TBA: Tert-butyl alcohol

WQOs: Water Quality Objectives, Santa Ana Regional Water Quality Control Board (Regional Water Board) Basin Plan

--: Regional Water Board Basin Plan has no numeric water quality objective for TPHg

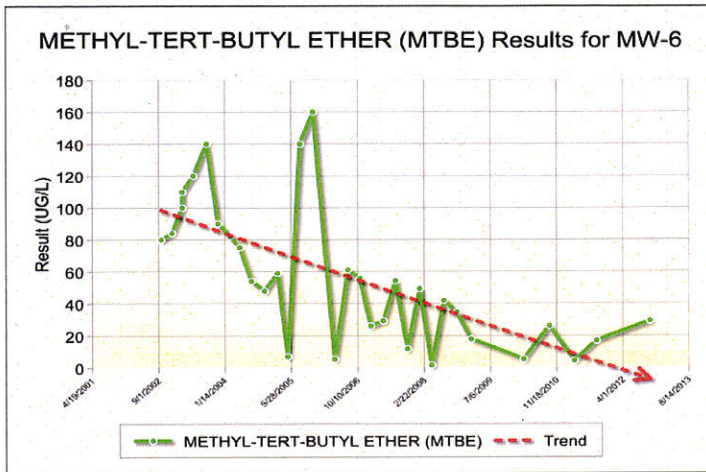
<sup>a</sup>: Secondary maximum contaminant level (MCL)

<sup>b</sup>: California Department of Public Health, Response Level

**Groundwater Trends**

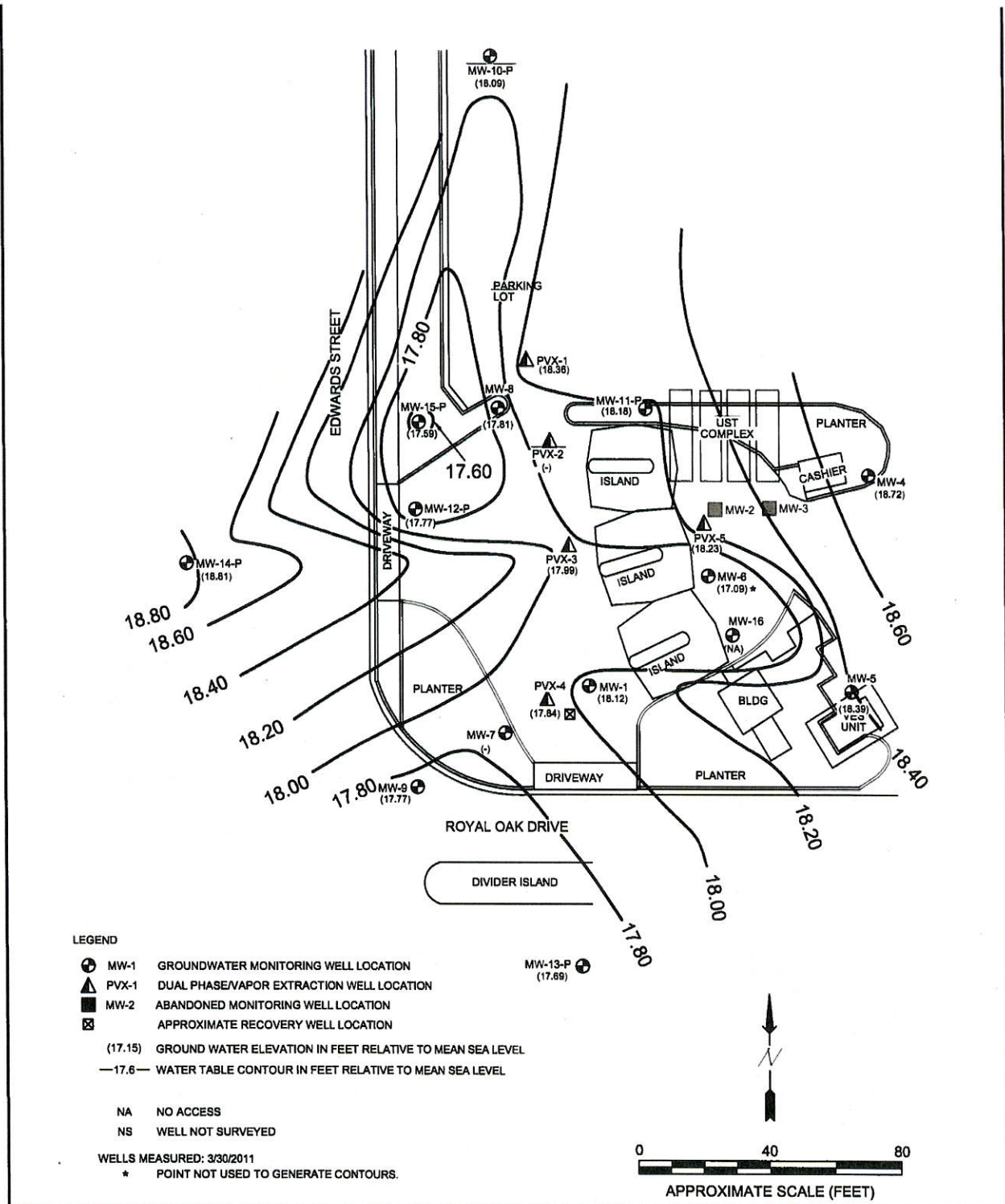
- There are more than 26 years of groundwater monitoring data for this case. Four onsite monitoring wells (MW-5, MW-6, MW-16 and PVX-2) slightly exceed water quality objectives for MTBE, and one monitoring well (MW-16) slightly exceeds the water quality objective for benzene. MTBE trends are shown below: Source Area (MW-6). Downgradient wells MW-12P and MW-15P have reached water quality objectives and have contained no MTBE since 2003.


### Source Area Well

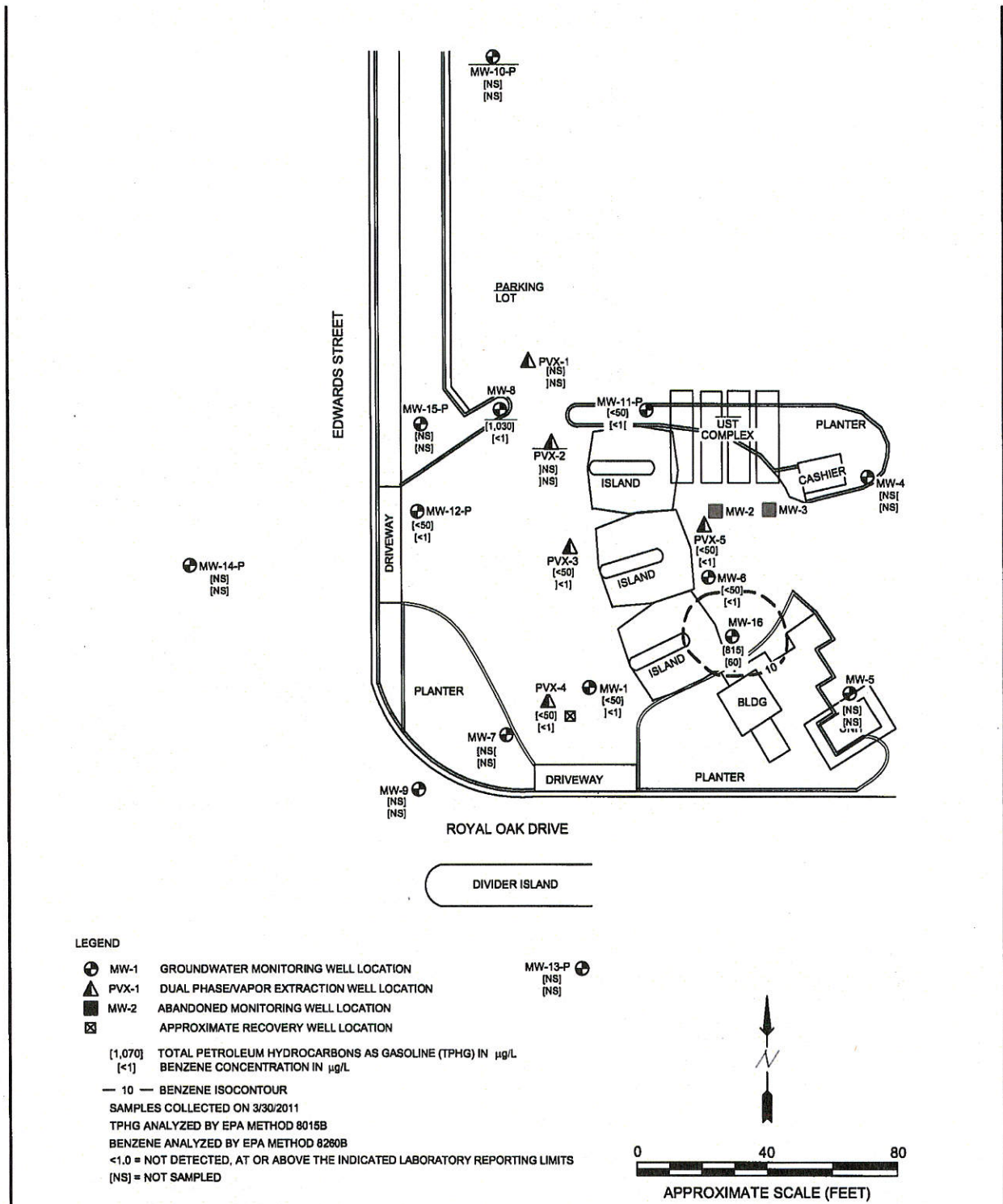


### Evaluation of Current Risk

- Estimate of Hydrocarbon Mass in Soil: None reported.
- Soil/Groundwater tested for 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 objective 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 Policy Criterion 2a. by Scenario 3a. The maximum benzene concentration in groundwater is less than 100 µg/L. The minimum depth to groundwater is greater than 5 feet, overlain by soil containing less than 100 mg/kg of TPH.
- 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 at 5-10 feet bgs. 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 at 5-10 feet bgs, if any, exceed the threshold.



 5412 BOLSA AVENUE, SUITE G HUNTINGTON BEACH, CALIFORNIA PHONE: (714) 230-2495	FOR: FORMER USA SERVICE STATION STATION NO. 141 14600 EDWARDS STREET WESTMINSTER, CALIFORNIA	GROUNDWATER ELEVATION CONTOUR MAP 1st HALF 2011	FIGURE: <span style="font-size: 2em;">3</span>
	JOB NUMBER: 1007-1460	DRAWN BY: R. ERDMAN	CHECKED BY: S. KALINA
			DATE: 4/1/11



FOR:  
**FORMER USA SERVICE STATION  
 STATION NO. 141  
 14600 EDWARDS STREET  
 WESTMINSTER, CALIFORNIA**

JOB NUMBER:  
 1007-1480

DRAWN BY:  
 R. ERDMAN

**BENZENE ISOCONCENTRATION  
 CONTOUR MAP  
 1st HALF 2011**

CHECKED BY:  
 S. KALINA

APPROVED BY:  
 S. KALINA

FIGURE:  
**4**

DATE:  
 04/20/10