

State Water Resources Control Board

UST CASE CLOSURE REVIEW SUMMARY REPORT

Agency Information

Agency Name: Orange County Environmental Health Department (County)	Address: 1241 E. Dyer Road, Suite 120 Santa Ana, CA 92705
Agency Caseworker: Julie Wozencraft	Case No.: 99UT053

Case Information

USTCF Claim No.: 17420	GeoTracker Global ID: T0605902336
Site Name: MacHill Petroleum, Inc.	Site Address: 17551 MacArthur Blvd. Irvine, CA 92614
Responsible Party (RP): Said & Raja Elhurr	Address: Private Residence
USTCF Expenditures to Date: \$62,460	Number of Years Case Open: 13

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605902336

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 with two overlying UST releases. An unauthorized release was reported in October 1999 and this case was opened due to petroleum oxygenate impacts to groundwater at the Site. The responsible party of this case has only been required to monitor and mitigate a single well, MW-50. Based on the latest monitoring data collected on November 16, 2012, groundwater near the MW-50 location has achieved water quality objectives for all petroleum constituents. Exxon Mobil is currently responsible for the second release which encompasses the remainder of both on- and off-site petroleum hydrocarbon contamination in soil and groundwater. The Exxon Mobil corrective actions are administered under a separate County case number 85UT080. In addition, if this case is closed, Exxon Mobil would like to continue to use MW-50 in their sampling program.

The petroleum release under this case was limited to the soil and shallow groundwater. There are no public supply wells regulated by the California Department of Public Health within 250 feet of the well location. No other water supply wells have been identified within 250 feet of the well location in files reviewed. The Lane Flood Control Channel (a concrete lined channel) is located approximately 125 feet north-northeast (crossgradient) of the site. Water is provided to water users near the Site by Irvine Ranch Water District. 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 administered under this case are limited and stable, and concentrations are decreasing. Corrective actions under this case have been implemented and additional corrective actions are not necessary. Any remaining petroleum hydrocarbon constituents administered under this case 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 5. The case would meet Criterion 1 by Class 1, except that the Lane Flood Control Channel (a concrete lined channel) is located approximately 125 feet north-northeast (crossgradient) of the site. Water quality objectives have been achieved with respect to the plume administered under this case. The nearest water supply well is greater than 250 feet from the Site. The regulatory agency determines, based on an analysis of site specific conditions, which under current and reasonably anticipated near-term future scenarios, the contaminant plume administered under this case poses a low threat to human health and safety and to the environment.
- 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 and the release characteristics do not pose an unacceptable health risk. The separate benzene plumes on and off the Site are remediated under County case number 85UT080.
- Direct Contact and Outdoor Air Exposure: This case meets Policy Criterion 3b. Although no document titled "Risk Assessment" was found in the files reviewed, a professional assessment of site-specific risk from potential exposure to residual soil contamination found that maximum concentrations of petroleum constituents remaining in soil will have no significant risk of adversely affecting human health. The Site is paved and accidental exposure to site soils is prevented. As an active petroleum fueling facility, any construction worker working at the Site will be prepared for exposure in their normal daily work.

Objections to Closure and Responses

The County does not object to UST case closure:

RESPONSE: The Fund will proceed with case closure under the Policy.

Determination

Based on the review performed in accordance with Health & Safety Code Section 25296.10 subdivision (a), the Fund Manager has determined that closure of the case is appropriate.

MacHill Petroleum, Inc.
17551 MacArthur Blvd., Irvine
Claim No: 17420

March 2014

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. 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 well MW-50, or transfer the well permit to Exxon Mobil.

Lisa Babcock

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

3/27/14

Date

Prepared by: James Young, RCE 60266

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

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

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

<p>Has secondary source been removed to the extent practicable?</p> <p>Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?</p> <p>Nuisance as defined by Water Code section 13050 does not exist at the Site?</p> <p>Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?</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><u>Media-Specific Criteria</u> Candidate sites must satisfy all three of these media-specific criteria:</p> <p>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:</p> <p>Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?</p> <p>Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites?</p> <p>If YES, check applicable class: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5</p> <p>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?</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>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.</p> <p>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.</p> <p>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?</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>If YES, check applicable scenarios: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4</p> <p>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?</p> <p>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?</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>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).</p> <p>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)?</p> <p>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?</p> <p>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?</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 <input 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

- The case is located at the western corner of the intersection of MacArthur Boulevard and Red Hill Avenue, in Irvine, California. The site was previously redeveloped by MacHill Petroleum, Inc., and is operating as an independent Mobil service station.
- The site is bordered on the west and south by office complexes and commercial buildings. Across Red Hill Avenue on the southern corner is an active Chevron service station. The area to the north and east of the site consists of commercial properties. The Lane Flood Control Channel is located approximately 125 feet north-northeast of the site (Cardno ERI, 2010).
- The responsible party of this case has only been required to monitor and mitigate a single well MW-50. Based on the latest monitoring data collected on November 16, 2012, groundwater near the MW-50 location achieved water quality objectives since 2005, for all petroleum constituents. Exxon Mobil is currently responsible for the second release which encompasses the remainder of both on and off-site petroleum hydrocarbon contamination in soil and groundwater. The Exxon Mobil corrective actions are administered under a separate County case number 85UT080
- A site map showing the location of the former USTs, monitoring wells and MTBE level contours is provided at the end of this closure review summary (Cardno ERI, 2012).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date reported: October 1999.
- Status of Release: UST system upgraded.
- Free Product: None reported.

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active	Date
1	10,000	Gasoline	Active	--
2	15,000	Gasoline	Active	--
3	5,000	Diesel	Active	--

Receptors

- GW Basin: Coastal Plain of Orange County.
- Beneficial Uses: Municipal and Domestic Supply.
- Land Use Designation: Commercial.
- Public Water System: Irvine Ranch Water District.
- 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 monitoring well MW-50. No other water supply wells were identified within 250 feet of monitoring well MW-50 in the files reviewed.
- Distance to Nearest Surface Water: The Lane Flood Control Channel (concrete-lined) is located approximately 125 feet north-northeast (Crossgradient) of the site (Cardno ERI, 2010).

Geology/Hydrogeology

- Stratigraphy: The Site is underlain by silty clay to a depth of approximately 15 feet below ground surface (bgs). The silty clay is underlain by silt to a depth of 20 feet bgs, and silty and poorly graded sands to approximately 35 feet bgs.

- Maximum Sample Depth: 35 feet bgs.
- Minimum Groundwater Depth: 7.30 feet bgs at monitoring well MW-50.
- Maximum Groundwater Depth: 9.59 feet bgs at monitoring well MW-50.
- Current Average Depth to Groundwater: Approximately 9 feet bgs.
- Saturated Zones(s) Studied: Approximately 7 - 35 feet bgs.
- Appropriate Screen Interval: Yes.
- Groundwater Flow Direction: Southeast as reported by the adjacent Chevron Station (AECOM, 1st Qtr 2013).

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (11/16/2012)*
MW-50	May 1995	5 - 14	9.59

*: Report provided by Cardno ERI but not yet uploaded to GeoTracker.

Remediation Summary

- Free Product: None reported in GeoTracker.
- Soil Excavation: None reported in GeoTracker.
- In-Situ Soil Remediation: On and off soil vapor extraction and air sparging remediation has been conducted at the site by Exxon Mobil.
- Groundwater Remediation: On and off soil vapor extraction and air sparging remediation has been conducted at the site by Exxon Mobil.

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	NA	NA
Ethylbenzene	NA	NA
Naphthalene	NA	NA
PAHs	NA	NA

NA: Not Analyzed, Not Applicable or Data Not Available
 mg/kg: Milligrams per kilogram, parts per million
 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-50	11/16/12*	<100	<0.5	<0.5	<0.5	<0.5	<1	<10
WQOs		--	1	150	300	1,750	5 ^a	1,200 ^b

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, Santa Ana Regional Water Quality Control Board (Regional Water Board) Basin Plan.

--: Regional Water Board Basin Plan does not have a numeric water quality objective for TPHg.

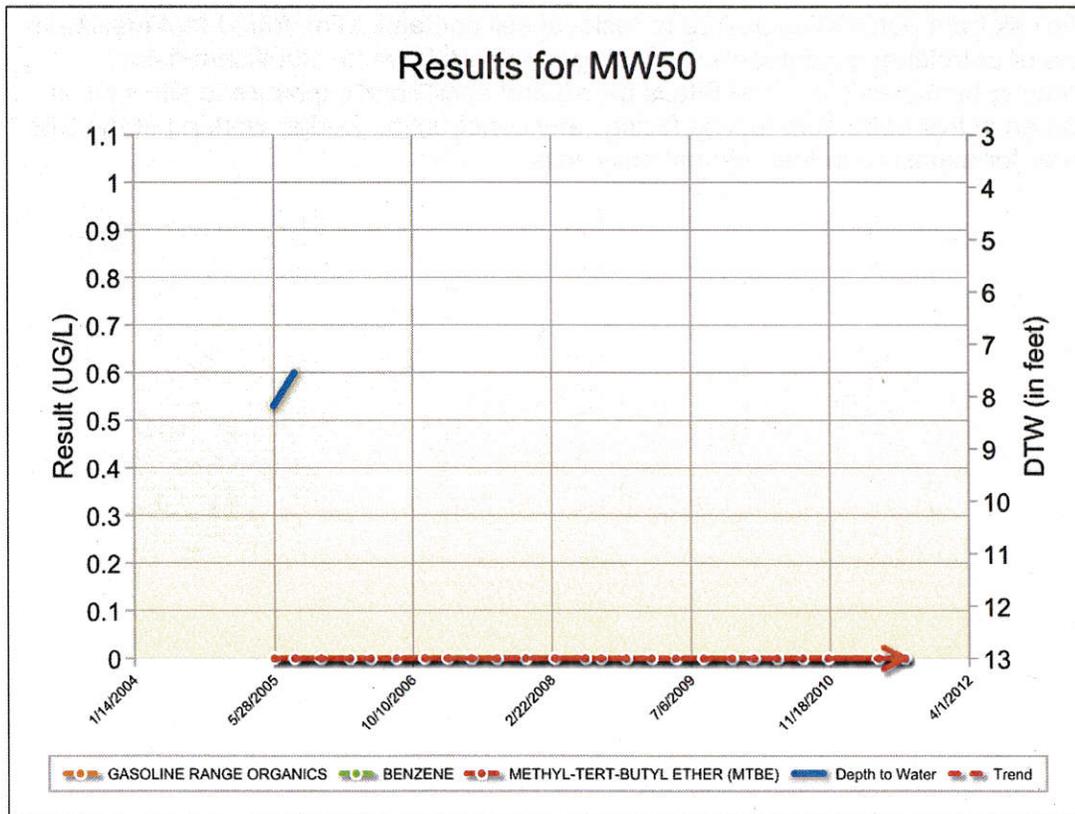
*: Report provided by Cardno ERI but not yet uploaded to GeoTracker.

^a: Secondary maximum contaminant level (MCL)

^b: California Department of Public Health, Response Level

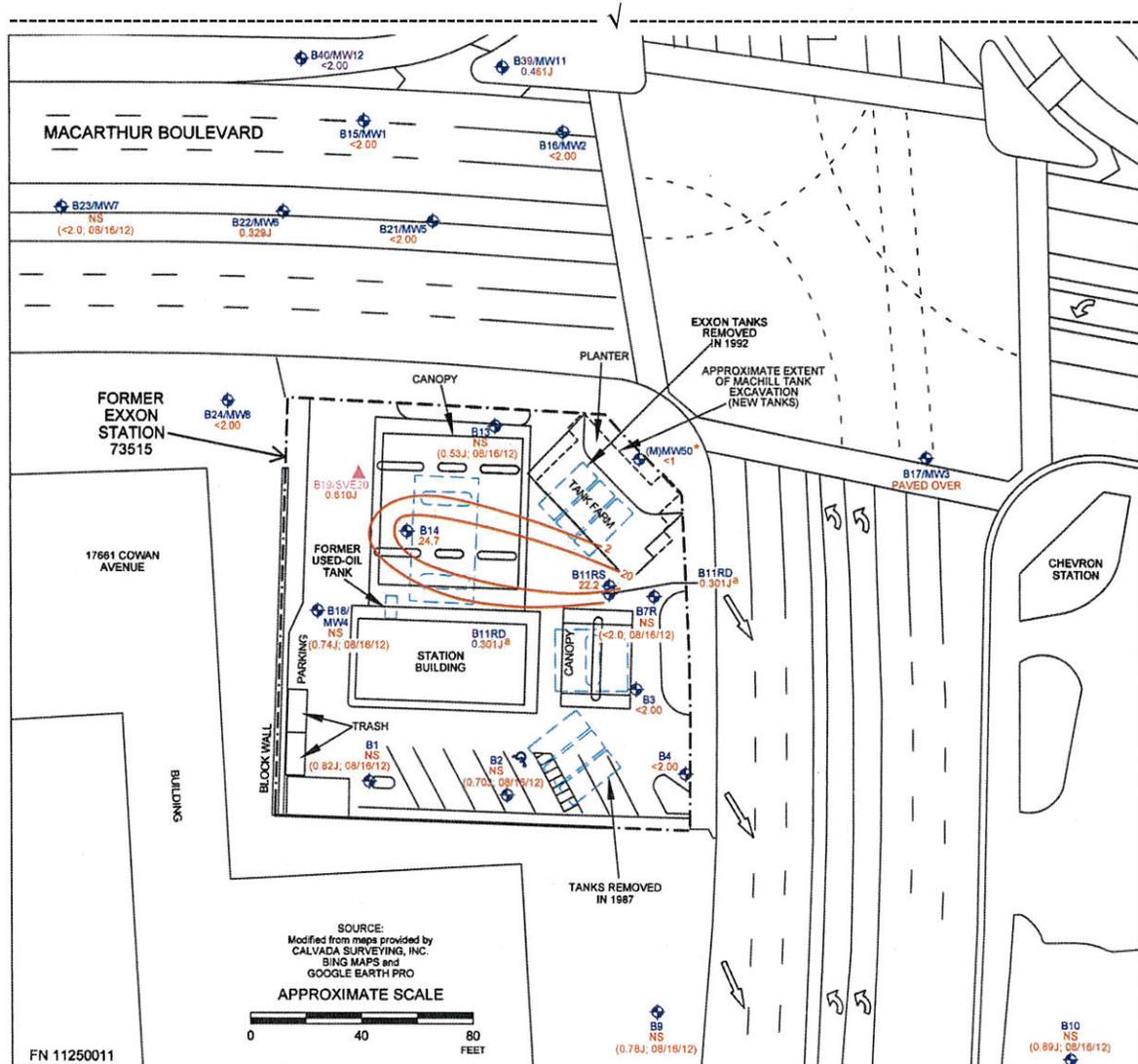
Groundwater Trends

- There are nearly 8 years of regular groundwater monitoring data for this case and for the single well MW-50. Concentrations of TPHg, benzene and MTBE have been below laboratory detection limits since 2005.



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 in length.
- Plume Stable or Degrading: Yes.
- Contaminated Zone(s) Used for Drinking Water: No.
- Groundwater Specific Criteria: The case meets Policy Criterion 1 by Class 5. The case would meet Criterion 1 by Class 1, except that the Lane Flood Control Channel (a concrete lined channel) is located approximately 125 feet north-northeast (crossgradient) of the site. Water quality objectives have been achieved with respect to the plume administered under this case. The nearest water supply well is greater than 250 feet from the Site. The regulatory agency determines, based on an analysis of site specific conditions, which under current and reasonably anticipated near-term future scenarios, the contaminant plume administered under this case poses a low threat to human health and safety and to the environment.
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<p>FN 11250011</p> <p>EXPLANATION</p> <ul style="list-style-type: none"> ◆ B40/MW12 Groundwater monitoring well ◆ (M)MW50 MacHill Petroleum groundwater monitoring well ▲ B19/SVE20 Vadose zone well MTBE concentration in micrograms per liter < Less than the stated laboratory reporting limit * Data point not used for contouring; well sampled on 11/16/12 a Depth discrete well not used for contouring 		<p>J Estimated value between method detection limit and practical quantitation limit</p> <p>NS Not sampled - well reduction program</p> <p>(<2.0, 08/16/12) Data from most recent sampling event</p> <p>— Line of equal MTBE concentration</p> <p>○ Dispenser island</p> <p>○ Former dispenser island</p>
<p>MTBE GROUNDWATER CONCENTRATION MAP - 11/15/12</p> <p>FORMER EXXON STATION 73515 17551 MacArthur Boulevard Irvine, California</p>		<p>PROJECT NO. 1125</p> <p>PLATE 5</p> <p>DATE: 12/02/12</p>

Site map modified from the original to fit the page. Please note that this case only is concerned with one well MW-50. Exxon Mobil is responsible for the plume presented on the map above.

