

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

ORDER WQ 2013-0011-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 DIRECTOR¹:

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:

Jon Mahdian

Claim No. 18125

Riverbend Hand Car Wash

22287 E. La Palma Avenue, Yorba Linda

Orange County Environmental Health Department

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:

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Riverbend Hand Car Wash

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 subdivision (a) and (b). Pursuant to section 25299.57, subdivision (l) (1), and except in specified circumstances,

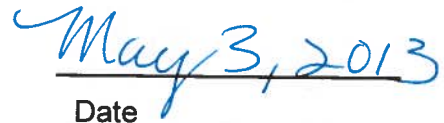
Jon Mahdian

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.


Tom Howard

Executive Director


Date



EDMUND G. BROWN JR.
GOVERNOR



MATTHEW RODRIGUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

UST CASE CLOSURE REVIEW SUMMARY REPORT

Agency Information

Agency Name: Orange County Environmental Health Department (County)	Address: 1241 East Dyer Road, Suite 120 Santa Ana, CA 92705
Agency Caseworker: Julie Wozencraft	Case No.: 04UT010

Case Information

USTCF Claim No.: 18125	Global ID: T0605992989
Site Name: Riverbend Hand Car Wash	Site Address: 22280 E. La Palma Avenue, Yorba Linda, CA
Responsible Party (RP): Jon Mahdian	Address: 22280 E. La Palma Avenue, Yorba Linda, CA 92887
USTCF Expenditures to Date: \$167,642	Number of Years Case Open: 8

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605992989

Summary

The Low-Threat Underground Storage Tank 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 Site Information**. Highlights of the Conceptual Site Model of the case follow.

An unauthorized release of petroleum hydrocarbons was reported in March 2004 following the removal of three gasoline USTs. Site assessments conducted since 2004, have determined that petroleum contamination is localized and confined to the Site. No active remediation has been conducted. Groundwater underlying the Site has been monitored since 2006. Accumulated site data suggest that Water Quality Objectives (WQOs) have been achieved for all constituents, with the possible exception of total petroleum hydrocarbons as gasoline (TPHg), which is below the laboratory detection limit of 200 µg/L. The only detectable contaminant in groundwater at this time is Methyl Tertiary Butyl Ether (MTBE) and the dissolved levels of MTBE are below WQOs. There has been little migration by the MTBE plume over the past several years and the plume continues to shrink.

The petroleum release is limited to the shallow soil and groundwater. There are no known public supply wells regulated by the California Department of Public Health (CDPH) or surface water bodies within 250 feet of the currently existing MTBE plume boundary. The Santa Ana River is approximately 350 feet to the southwest (downgradient) of the Site. No other water supply wells have been identified in the files reviewed. Water is provided to water users near the Site by the Yorba Linda 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

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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 significant risk to human health, safety or the environment.

Rationale for Closure under the Policy

- **General Criteria** – The case meets all eight general criteria.
- **Groundwater Specific Criteria** – The case meets Policy Criterion 1, Class 1. The detectable groundwater plume is less than 100 feet in length, WQOs have been achieved or nearly achieved. There is no free product and the nearest water supply well or surface water body is greater than 250 feet from the defined plume boundary. Although the Santa Ana River is approximately 350 feet to the southwest downgradient of the Site, it is greater than 250 feet from the defined plume boundary. The average groundwater level at the Site is approximately 40 feet below ground surface. The defined plume is unlikely to impact the Santa Ana River.
- **Vapor Intrusion to Indoor Air** – The case meets Policy Criterion 2a. Site-specific conditions at the release site satisfy all of the characteristics and criteria of scenario 3a. The maximum benzene concentration is less than 100 µg/L and 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 Table 1 for Commercial use and the concentration limits for Utility Worker are satisfied. 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% benzene and 0.25% 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 Table 1 of the Policy. 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 Response

- The County has not responded to the Responsible Party's October 10, 2010 request for closure.

RESPONSE:

- Readily available information about the Site shows that the case satisfies all the Policy criteria.

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

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

2/12/13
Date

Prepared by: Ramesh Sundareswaran

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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><u>General Criteria</u> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Does the unauthorized release consist only of petroleum? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Has the unauthorized ("primary") release from the UST system been stopped? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Has free product been removed to the maximum extent practicable? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p>Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed? <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

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<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 checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input 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? 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>

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<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 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>

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

Site Location/History

- This case is located on the southeast side of East La Palma Avenue. It is currently occupied by a carwash and formerly by a gasoline station.
- The Site is bounded by La Palma Avenue to the north and northwest, beyond which are railroad tracks and a residential area. Vacant land and the Santa Ana River are to the east and south-east of the Site. Commercial buildings are located to the south and southwest of the Site.
- 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 (Ninyo & Moore, 2011).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date reported: March 2004.
- 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	March 2004

Receptors

- GW Basin: Santa Ana River Hydrologic Unit, Lower Santa Ana River Hydrologic Area, Santa Ana Narrows Hydrologic Subarea (Ninyo & Moore 2009).
- Beneficial Uses: Municipal and Domestic Supply.
- Land Use Designation: Commercial.
- Public Water System: Yorba Linda Water District.
- Distance to Nearest Supply Well: According to data available in GeoTracker, there are no known public supply wells regulated by CDPH within 250 feet of the Site. No domestic supply wells have been identified in the files reviewed.
- Distance to Nearest Surface Water: Santa Ana River is approximately 350 feet to the southeast of the Site (Ninyo & Moore, 2010).

Geology/Hydrogeology

- Stratigraphy: The Site is underlain by sandy silt, silty sand, sand and gravelly sand.
- Maximum Sample Depth: 55 feet below ground surface (bgs).
- Minimum Groundwater Depth: 33.65 feet bgs at monitoring well MW-1.
- Maximum Groundwater Depth: 41.28 feet bgs at monitoring well MW-2.
- Current Average Depth to Groundwater: 39.35 feet bgs.
- Saturated Zones(s) Studied: Approximately 30-55 bgs.
- Appropriate Screen Interval: Yes.
- Groundwater Flow Direction: East with an average gradient of 0.05 feet/foot (ft/ft).

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Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) 9/13/2011
MW-1	March 2006	60-75	38.11
MW-2	December 2008	30-55	41.28
MW-3	December 2008	30-55	38.02
MW-4	December 2008	30-55	40.09

Remedial Action

- Free Product: None reported.
- Soil Excavation: None reported.
- In-Situ Soil Remediation: None reported.
- Groundwater Remediation: None reported.

Most Recent Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 ft. bgs. [mg/kg and (date)]	Maximum 5-10 ft. bgs [mg/kg and (date)]
Benzene	0.24 (4/5/04)	<0.002 (8/26/04)
Ethylbenzene	7.3 (4/5/04)	<0.002 (8/26/04)
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

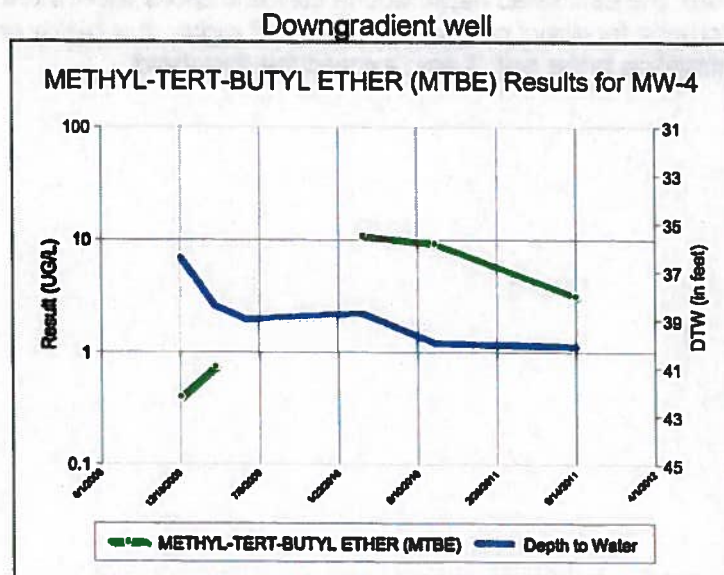
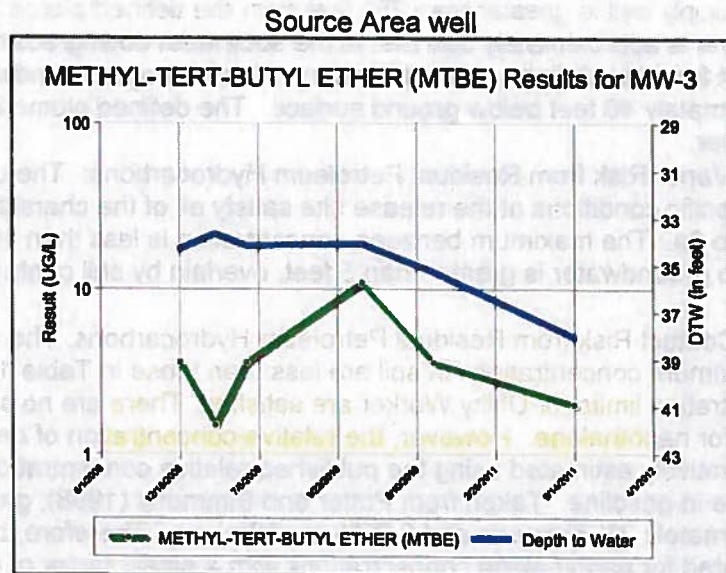
Most Recent Concentrations of Petroleum Constituents in Groundwater

Sample	Sample Date	TPHg (µg/L)	TPHd (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
MW-1	9/13/2011	<200	NA	<0.5	<0.5	<0.5	<1	0.42	<10
MW-2	9/13/2011	<200	NA	<0.5	<0.5	<0.5	<1	1	<10
MW-3	9/13/2011	<200	NA	<0.5	<0.5	<0.5	<1	2	<10
MW-4	9/13/2011	<200	NA	<0.5	<0.5	<0.5	<1	3.2	<10
WQOs	-	50 ^a	100 ^b	1	150	300	1,750	5 ^c	1,200 ^d

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, Region 8 Basin Plan
^a: Typical laboratory reporting limit
^b: Taste and odor threshold
^c: Secondary maximum contaminant level (MCL)
^d: California Department of Public Health, Response Level

Groundwater Trends

- There are 6 years of groundwater monitoring data for this case. Accumulated data show that MTBE is presently the only detectable contaminant of concern and the MTBE plume has not migrated and that it is decreasing in size. MTBE levels in the downgradient well, MW-4, have routinely been observed to be low and generally declining with time. Dissolved MTBE levels in MW-4 have decreased from a maximum of 11 ppb to a current level of 3.2 ppb. Similarly, MTBE levels in the source area well, MW-3, have also been observed to be low and have generally declined over time. Dissolved MTBE levels have declined from a high of 11 ppb to 2 ppb. The logarithmic plots below depict MTBE concentrations in both wells.

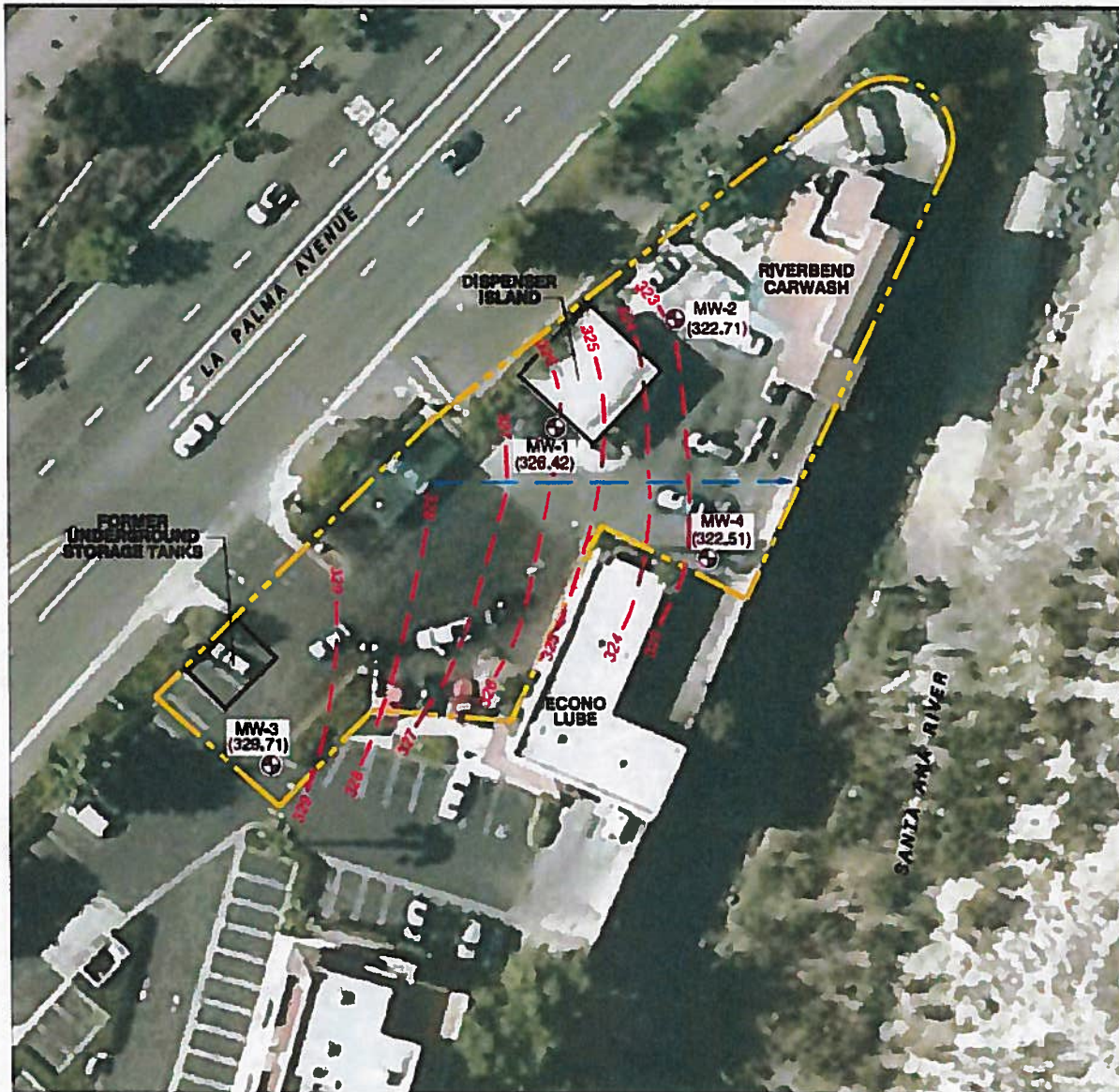


Evaluation of Current Risk

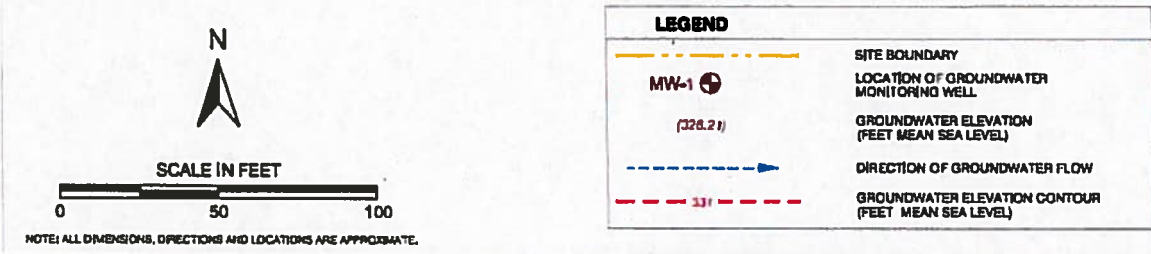
- Estimate of Hydrocarbon Mass in Soil: Approximately 1.09 pounds of MTBE are estimated to remain onsite (Ninyo & Moore, 2010).
- Soil/Groundwater tested for methyl tert-butyl ether (MTBE): Yes, see table above.
- Oxygen Concentrations in Soil Vapor: None reported.
- Plume Length: <100 feet.
- Plume Stable or Degrading: Yes.
- Contaminated Zone(s) Used for Drinking Water: No.
- Groundwater Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 1, Class 1. The detectable groundwater plume is less than 100 feet in length, WQOs have been achieved or nearly achieved. There is no free product and the nearest surface water body or water supply well is greater than 250 feet from the defined plume boundary. Although the Santa Ana River is approximately 350 feet to the southwest downgradient of the Site, it is greater than 250 feet from the defined plume boundary. The average groundwater level at the Site is approximately 40 feet below ground surface. The defined plume is unlikely to impact the Santa Ana River.
- Indoor Vapor Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 2a. Site-specific conditions at the release site satisfy all of the characteristics and criteria of scenario 3a. The maximum benzene concentration is less than 100 µg/L and 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 Table 1 for Commercial use and the concentration limits for Utility Worker are satisfied. 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% benzene and 0.25% 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 Table 1 of the Policy. 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.

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February 2013



REFERENCE: GOOGLE EARTH, 2008.



Ninyo & Moore		GROUNDWATER ELEVATION SEPTEMBER 13, 2011	FIGURE 2
PROJECT NO. 207512001	DATE 10/11		



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