

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

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.

Site Address: 22280 E.La Palma Avenue, Yorba Linda
Site Name: Riverbend Hand Car Wash
Claim No: 18125

February 2013

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

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?</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 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?</p> <p>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. 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>

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).

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

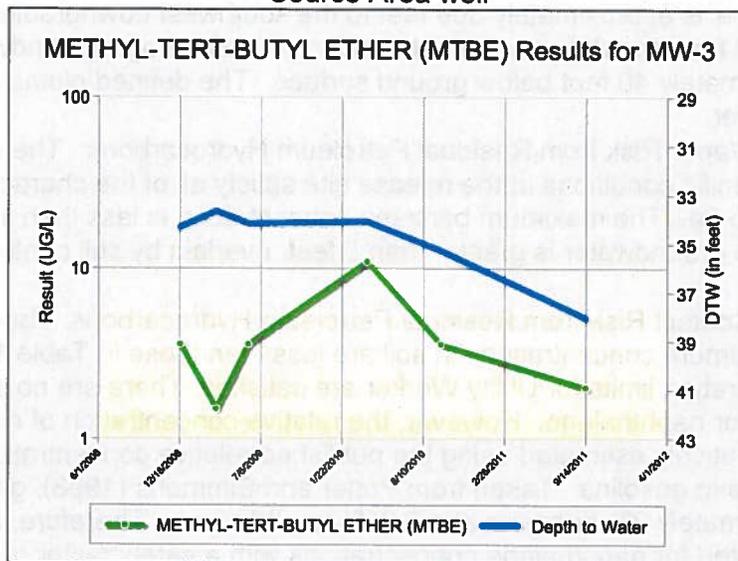
^c: Secondary maximum contaminant level (MCL)

^d: California Department of Public Health, Response Level

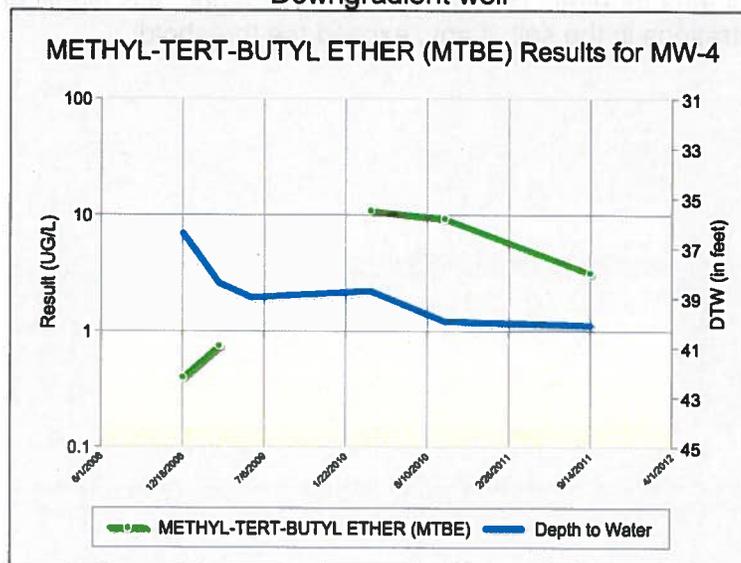
Groundwater Trends

- 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.

Source Area well

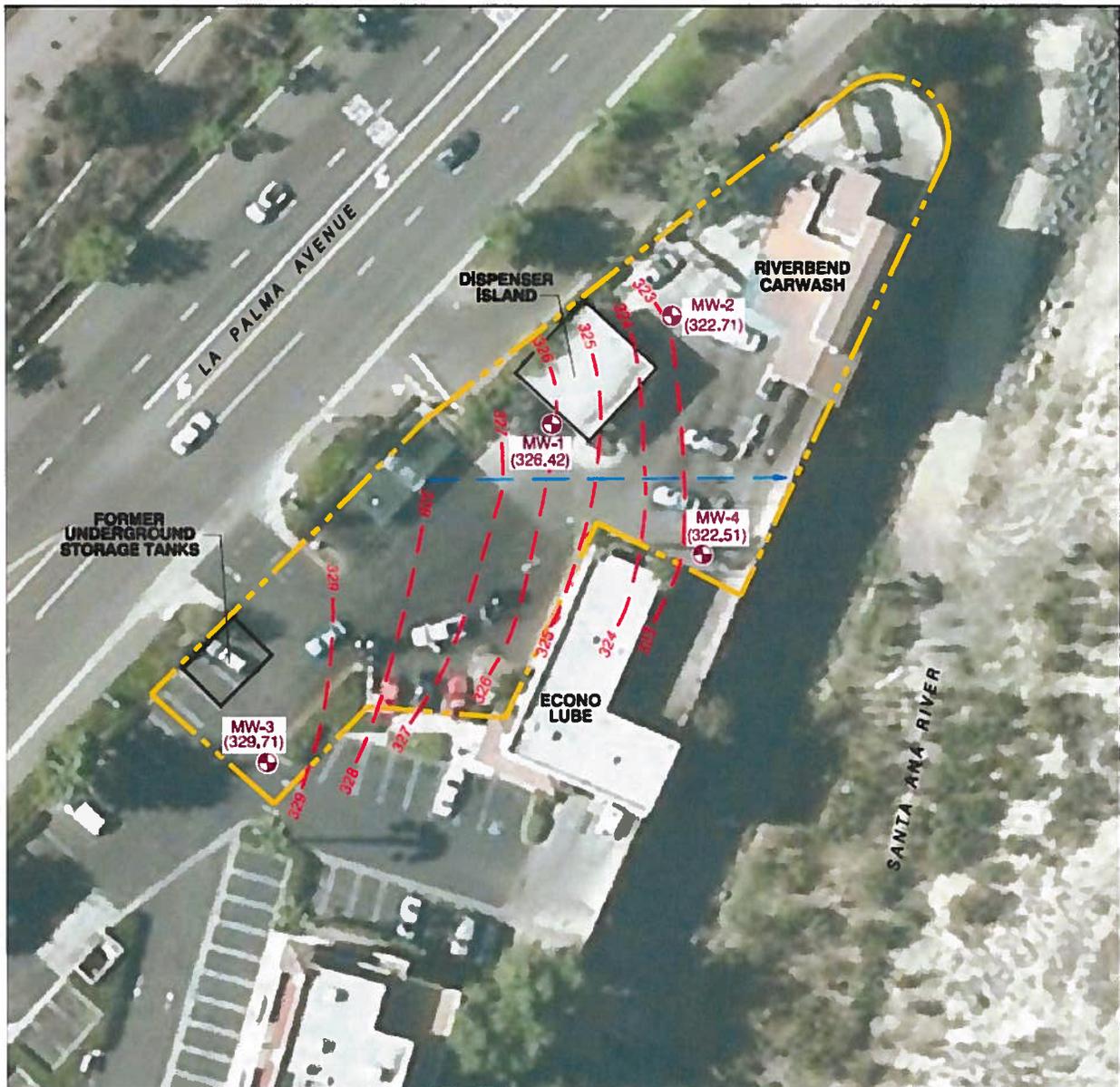


Downgradient well

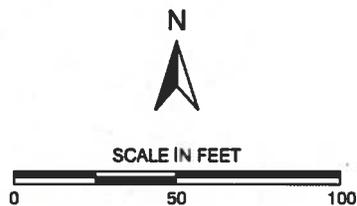


Evaluation of Current Risk

- 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.



REFERENCE: GOOGLE EARTH, 2008.



NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

LEGEND	
	SITE BOUNDARY
	LOCATION OF GROUNDWATER MONITORING WELL
	GROUNDWATER ELEVATION (FEET MEAN SEA LEVEL)
	DIRECTION OF GROUNDWATER FLOW
	GROUNDWATER ELEVATION CONTOUR (FEET MEAN SEA LEVEL)

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

