

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: Shyamala Kalyana Sundaram	Case No.: 85UT100

Case Information

USTCF Claim No.: 3948	Global ID: T0605900369
Site Name: ARCO # 1865	Site Address: 14244 Newport Avenue, Tustin, CA 92780
Responsible Party: BP Products, North America Attn: David White	Address: 6 Centerpointe Drive La Palma, CA 90623
USTCF Expenditures to Date: \$1,402,130	Number of Years Case Open: 27

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605900369

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:

The Site is an active commercial petroleum fueling facility. An unauthorized release was reported in October 1985. Approximately 740 cubic yards of impacted soil were removed and disposed offsite in 1989 during removal of six petroleum USTs. Soil vapor extraction was conducted intermittently between July 1992 and November 2006, which reportedly removed 48,640 pounds of total petroleum hydrocarbons as gasoline (TPHg). Groundwater extraction was conducted between October 1986 and December 1987, which reportedly removed 691,733 gallons of impacted groundwater. Since 1985, 18 monitoring wells have been installed and monitored regularly. According to groundwater data, water quality objectives have been achieved or nearly achieved for all constituents.

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

context of the site setting. Remaining petroleum hydrocarbon constituents are limited and stable, and concentrations are decreasing. 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 the Policy Exclusion for Active Station. Soil vapor evaluation is not required because the Site is an active commercial petroleum fueling facility.
- Direct Contact and Outdoor Air Exposure: The case meets Policy Criterion 3a. Maximum concentrations in soil are less than those in Policy Table 1 for Commercial/Industrial use and the concentration limits for a Utility Worker are not exceeded. There are no soil sample results in the case record for naphthalene. However, the relative concentration of naphthalene in soil can be conservatively estimated using the published relative concentrations of naphthalene and benzene in gasoline. Taken from Potter and Simmons (1998), gasoline mixtures contain approximately 2 percent benzene and 0.25 percent naphthalene. Therefore, benzene can be directly substituted for naphthalene concentrations with a safety factor of eight. Benzene concentrations from the Site are below the naphthalene thresholds in Policy Table 1. Therefore, the estimated naphthalene concentrations meet the thresholds in Table 1 and the Policy criteria for direct contact by a factor of eight. It is highly unlikely that naphthalene concentrations in the soil, if any, exceed the threshold.

Objections to Closure and Responses

- According to a January 10, 2013 telephone communication, the County agrees that the Site is ready for closure but closure is being delayed because the County has learned recently that the Irvine Water District is planning to reactivate California Department of Public Health Wells 21 and 22 (both wells are currently shown on the GeoTracker Map as abandoned and located crossgradient to the plume at about 800 feet and 1400 feet respectively) and is waiting for these two wells to go into production and then conducting one or more rounds of groundwater monitoring to ensure that water extraction from these wells does not cause the plume to migrate into the wells.

RESPONSE: This case meets Policy Criterion 1 by Class 1. The nearest water supply well or surface water body is greater than 250 feet from the defined plume boundary. In addition, all water quality objectives have been achieved or nearly achieved except possibly benzene. The water quality objective for benzene is 1 µg/L, while the laboratory detection limit is 2 µg/L. Therefore, there is no groundwater plume to migrate to wells if they are activated.

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.

ARCO # 1865
14244 Newport Avenue, Tustin
Claim No: 3948

October 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

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

11/14/13

Date

Prepared by: Mohammed Khan

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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input 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? If YES, check applicable scenarios: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 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>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

- The Site is located on the southeastern corner of the intersection of Newport Avenue and Mitchell Avenue and is an active commercial petroleum fueling facility.
- The majority of the subject property is paved asphalt and concrete with common landscaping on the northeast and northwest portions the Site.
- The Site is bounded by Newport Avenue to the northwest, businesses and residences across Mitchell Avenue to the northeast, and commercial and residential properties to the southeast and southwest. A Thrifty Oil Company gas station which has had a documented fuel release (County Case No. 87UT015, Claim No. 1807) is located to the northwest of the Site across Newport Avenue. The Site is located in a mixed business and residential area.
- Site maps showing the location of the current and former USTs, monitoring wells, groundwater level contours and contaminant concentrations are provided at the end of this closure review summary (Stratus Environmental, Inc., 2012).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: USTs and system pipelines.
- Date reported: October 1985.
- Status of Release: USTs replaced.

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active	Date
1	10,000	Unknown	Removed	1989
2,3	4,000	Unknown	Removed	1989
4,5	6,000	Gasoline	Removed	1989
6	280	Waste Oil	Removed	1989
7-9	10,000	Gasoline	Active	-

Receptors

- GW Basin: Coastal Plain of Orange County.
- Beneficial Uses: Santa Ana Regional Water Quality Control Board (Regional Water Board) Basin Plan lists agricultural, municipal, domestic, industrial service and process supply.
- Land Use Designation: Commercial.
- Public Water System: City of Tustin Water Operations Division.
- Water District: Metropolitan Water District of Southern California.
- Distance to Nearest Supply Well: According to data available in GeoTracker there are no active public supply wells regulated by California Department of Public Health within 250 feet of the defined plume boundary. No other supply wells were identified within 250 feet of the defined plume boundary in the files reviewed.
- Distance to Nearest Surface Water: There is no identified surface water within 250 feet of the defined plume boundary.

Geology/Hydrogeology

- Stratigraphy: The Site is underlain by interbedded and intermixed sand, silt, and clay.
- Maximum Sample Depth: 91 feet below ground surface (bgs).
- Minimum Groundwater Depth: 40.36 feet bgs at monitoring well B-19.

- Maximum Groundwater Depth: 53.40 feet bgs at monitoring well B-5.
- Current Average Depth to Groundwater: Approximately 47 feet bgs.
- Saturated Zones(s) Studied: Approximately 40 - 95 feet bgs.
- Appropriate Screen Interval: Yes.
- Groundwater Flow Direction: Predominantly southerly with an average gradient between 0.0005 to 0.002 feet/foot.

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (10/24/12)
B-1	10/23/85	26 – 51	47.30
B-2	10/24/85	27 – 52	47.49
B-3	10/28/85	40 – 55	47.17
B-4	10/29/85	40 – 55	47.19
B-5	10/29/85	30 – 55	47.04
B-6	11/11/85	40 – 55	47.11
B-7	11/11/85	40 – 55	47.50
B-15	09/12/91	9 – 58	46.23
B-16	09/12/91	10 – 65	45.69
B-17	09/13/91	10 – 60	45.04
B-18	01/20/92	20 – 55	46.64
B-19	03/17/93	42 – 67	44.59
B-21	04/08/93	76 – 91	45.98
B-22	11/30/99	35 – 55	No Access
B-23	12/01/99	35 – 55	No Access
B-24	11/29/99	90 – 95	47.21
B-25	10/12/00	55 – 60	47.03
B-26	10/02/00	55 – 60	47.59

Remediation Summary

- Free Product: Free product recovery was conducted between January 1986 and December 1987, which removed 930 gallons. No free product has been noted since 1999.
- Soil Excavation: Approximately 740 cubic yards of impacted soil were removed and disposed offsite in 1989 during UST removal.
- In-Situ Soil Remediation: Soil vapor extraction was conducted intermittently between July 1992 and November 2006, which reportedly removed 48,640 pounds of TPHg.
- Groundwater Remediation: Groundwater extraction was conducted between October 1986 and December 1987, which reportedly removed 691,733 gallons of impacted groundwater.

Most Recent Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs [mg/kg (date)]	Maximum 5-10 feet bgs [mg/kg (date)]
Benzene	<0.005 (12/04/00)	<0.0020 (09/20/07)
Ethylbenzene	<0.005 (12/04/00)	<0.0020 (09/20/07)
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

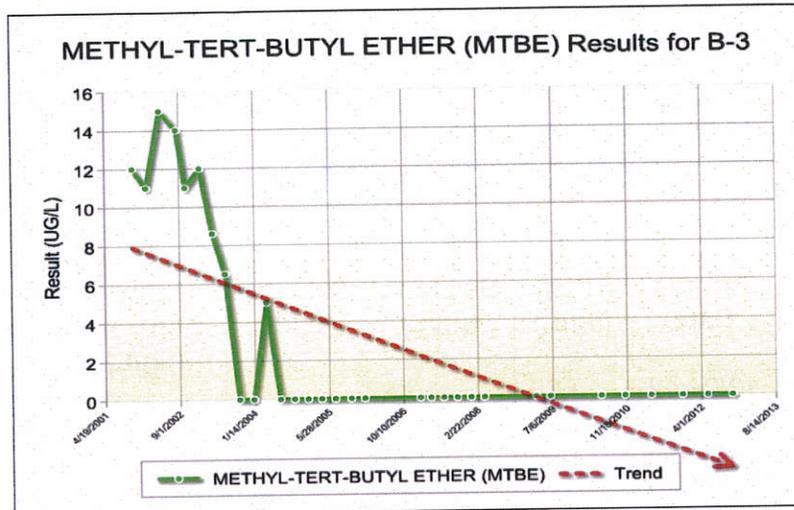
Sample	Sample Date	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- Benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
B-1	10/24/12	<50	<2	<2	<2	<4	<5	<50
B-2	10/24/12	<50	<2	<2	<2	<4	<5	<50
B-3	10/24/12	<50	<2	<2	<2	<4	<5	<50
B-4	10/24/12	<50	<2	<2	<2	<4	<5	<50
B-6	10/24/12	<50	<2	<2	<2	<4	<5	<50
B-15	10/24/12	<50	<2	<2	<2	<4	<5	<50
B-16	10/24/12	<50	<2	<2	<2	<4	<5	<50
B-18	10/24/12	<50	<2	<2	<2	<4	<5	<50
B-21	10/24/12	<50	<2	<2	<2	<4	<5	<50
B-24	10/24/12	<50	<2	<2	<2	<4	<5	<50
B-25	10/24/12	<50	<2	<2	<2	<4	<5	<50
B-26	10/24/12	<50	<2	<2	<2	<4	<5	<50
WQOs	-	--	1	150	300	1,750	5^a	1,200^b

NA: Not Analyzed, Not Applicable or Data Not Available
 µg/L: Micrograms per liter, parts per billion
 <: Not detected at or above stated reporting limit
 TPHg: Total petroleum hydrocarbons as gasoline
 MTBE: Methyl tert-butyl ether
 TBA: Tert-butyl alcohol
 WQOs: Water Quality Objectives, Regional Water Board Basin Plan
 --: Regional Water Board Basin Plan has no numeric water quality objective for TPHg
^a: Secondary maximum contaminant level (MCL)
^b: California Department of Public Health, Response Level

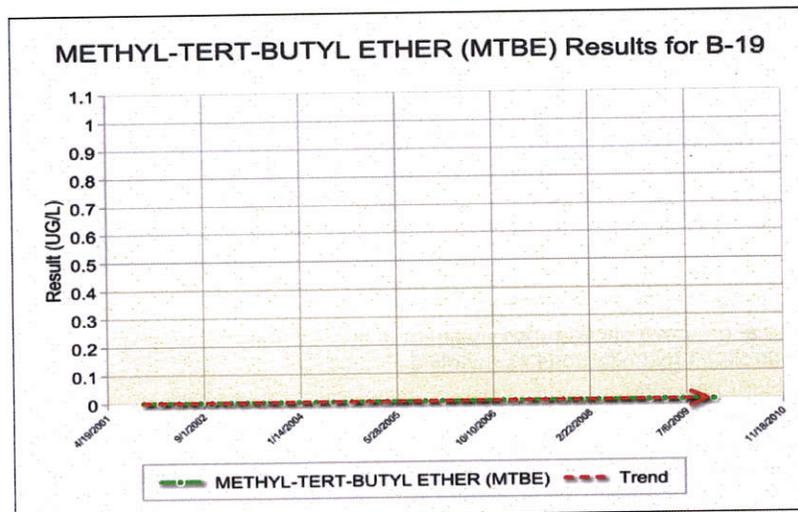
Groundwater Trends

- There are 17 years of groundwater monitoring data for this case. MTBE trends are shown below: Source Area (B-3) and Downgradient (B-19).

Source Area Well



Downgradient Well



Evaluation of Current Risk

- Estimate of Hydrocarbon Mass in Soil: None reported.
- Soil/Groundwater tested for methyl tert-butyl ether (MTBE): Yes.
- Oxygen Concentrations in Soil Vapor: None reported.
- Plume Length: <100 feet.
- Plume Stable or Decreasing: Yes.
- Contaminated Zone(s) Used for Drinking Water: No.
- Groundwater Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 1 by Class 1. The plume that exceeds water quality objectives is less than 100 feet in length. There is no free product. The nearest water supply well or surface water body is greater than 250 feet from the defined plume boundary.

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

