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: Kevin Lambert	Case No.: 89UT059

Case Information

USTCF Claim No.: 4566	Global ID: T0605902381
Site Name: Shell Oil Products U.S	Site Address: 28662 Camino Capistrano, Laguna Niguel, CA 92675
Responsible Party: Equilon Enterprises, LLC, Assignee Attn: Andrea Wing	Address: 20945 Wilmington Ave S, Carson, CA 90810
USTCF Expenditures to Date: $806,912	Number of Years Case Open: 24

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605902381

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 a commercial petroleum fueling facility. An unauthorized release was reported in April 1989 from the UST's product lines. In October 2001, four petroleum USTs were removed and 1,789 tons of hydrocarbon impacted soil were excavated to a total depth of 16 feet, transported and disposed offsite, and replaced with clean fill. Approximately 113,205 gallons of hydrocarbon impacted groundwater were removed during UST replacement activities. Dual phase extraction was conducted between January and April 2002, which removed 9,815 gallons hydrocarbon impacted groundwater including 274 pounds of TPHg. In October 2008, a soil vapor survey was conducted and the results showed no risk of vapor intrusion to station employees. According to groundwater data, water quality objectives have been achieved or nearly achieved for all constituents except tert-butyl alcohol (TBA) and methyl tert-butyl ether (MTBE).

The petroleum release is limited to the soil and shallow 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 Moulton Niguel 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 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 5. The Site fails Class 1 because the TBA plume is slightly longer than 100 feet in length. The contaminant plume that exceeds water quality objectives is less than 250 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. The nearest surface water body is Oso Creek located approximately 250 feet crossgradient of the defined plume boundary. Oso Creek is a cement lined seasonal drainage that flows generally from the north towards the south located cross gradient and parallel to groundwater flow direction. In addition, the sulfate concentrations in shallow groundwater exceed 2,000,000 micrograms per liter (µg/L) which renders it unusable for drinking water.
- 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

- The County indicated that verification monitoring was incomplete; concentrations of petroleum hydrocarbons were present above background; an incomplete conceptual site models exists; and water supply wells need protection (April 2010 impediments to closure review).
  RESPONSE: The Site has been monitored for 24 years; and the plume is stable and decreasing in concentrations: Neither the Policy nor the San Diego Regional Water Quality Control Board (Regional Water Board) Basin Plan requires concentrations to reach background levels prior to closure. The amount of data collected to date is sufficient to develop an adequate conceptual site model. No water supply wells were identified within 250 feet of the Site.

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

11/14/13
Date

Prepared by: Dayne Kendrick

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]

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

[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

Has secondary source been removed to the extent practicable?	☒ Yes ☐ No
Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?	☒ Yes ☐ No
Nuisance as defined by Water Code section 13050 does not exist at the Site?	☒ Yes ☐ No
Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?	☐ Yes ☒ No
Media-Specific Criteria Candidate sites must satisfy all three of these media-specific criteria: **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:	
Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?	☒ Yes ☐ No ☐ NA
Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites?	☒ Yes ☐ No ☐ NA
If YES, check applicable class: ☐ **1** ☐ **2** ☐ **3** ☐ **4** ☒ **5**	
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?	☐ Yes ☐ No ☒ NA
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.	
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.	☒ Yes ☐ No
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?	☐Yes ☐ No ☒ NA

If YES, check applicable scenarios: ☐ **1** ☐ **2** ☐ **3** ☐ **4** **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?**	☒ Yes ☐ No ☐ NA
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?	☐ Yes ☐ No ☒ NA
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). **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)?**	☒ Yes ☐ No ☐ NA
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?	☐ Yes ☐ No ☒ NA
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?	☐ Yes ☐ No ☒ NA

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

Site Location/History

- The Site is a commercial petroleum fueling facility and is bounded by commercial properties across I-5 to the east, a commercial petroleum fueling facility across Avery Parkway to the south, an I-5 off-ramp to the north, and railroad tracks to the west.
- Site maps showing the location of the former USTs, monitoring wells, and groundwater level contours, and a TBA plume map are provided at the end of this closure review summary (Conestoga-Rovers & Associates [CRA], 2012).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date reported: April 1989.
- Status of Release: USTs removed.

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active	Date
1,2	8,000	Gasoline/Diesel	Removed	September 2001
3,4	5,000	Gasoline/Diesel	Removed	September 2001
5-7	10,000	Gasoline	Active	
8	12,000	Diesel	Active	

Receptors

- GW Basin: Unnamed.
- Watershed: San Juan – Mission Viejo.
- Beneficial Uses: Municipal and Domestic Supply (GeoTracker).
- Land Use Designation: Commercial.
- Public Water System: Moulton Niguel 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 the defined plume boundary. No other water supply wells were identified within 250 feet of the defined plume boundary in the files reviewed.
- Distance to Nearest Surface Water: The nearest surface water body is Oso Creek a cement lined seasonal creek that flows generally from the north to south (crossgradient to downgradient) located approximately 250 feet southwest of the defined plume boundary.

Geology/Hydrogeology

- Stratigraphy: The Site is underlain by interbedded sand, silty clay, and sandy silt.
- Maximum Sample Depth: 32 feet below ground surface (bgs).
- Minimum Groundwater Depth: 1.70 feet bgs at monitoring well MW-11.
- Maximum Groundwater Depth: 11.50 feet bgs at monitoring well MW-5 and MW-6.
- Current Average Depth to Groundwater: Approximately 9 feet bgs.
- Saturated Zones(s) Studied: Approximately 5 - 30 feet bgs.
- Appropriate Screen Interval: Generally yes.
- Groundwater Flow Direction: Southwest with an average gradient of 0.016 feet/foot (October 2012).

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (03/21/13)
MW-3	March 1989	5-30	8.93
MW-4	March 1989	5-30	10.00
MW-5	March 1989	5-30	10.30
MW-6	March 1989	5-30	10.12
MW-7	March 1999	5-20	10.10
MW-8	March 1999	5-20	10.18
MW-9	March 1999	5-20	9.31
MW-10	May 2000	5-20	7.15
MW-11	May 2000	5-20	7.48
MW-15	April 2006	5-20	10.60
MW-16	April 2006	5-20	8.20
MW-17	April 2006	5-20	8.69
MW-18	March 2008	5-20	7.90
GW-1	October 2001	?-15	10.20

Remediation Summary

- Free Product: Historically, free phase product recovery was conducted between 1990 and 1996, more than 1,875 gallons were recovered (CRA, 2012). No free product has been measured since 2000.
- Soil Excavation: In October 2001, 1,789 tons of hydrocarbon impacted soil were excavated to a total depth of 16 feet, transported and disposed offsite, and replace with clean fill. Approximately 113,205 gallons of hydrocarbon impacted groundwater were removed during UST replacement activities
- In-Situ Soil/Groundwater Remediation: Dual phase extraction was conducted between January and April 2002, which removed 9,815 gallons hydrocarbon impacted groundwater including 274 pounds of TPHg.

Most Recent Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs [mg/kg, (date), boring]	Maximum 5-10 feet bgs [mg/kg, (date), boring]
Benzene	0.047, (09/25/06), D3	<0.005, (02/28/08),MW-18
Ethylbenzene	1.9, (09/25/06), D3	<0.005, (02/28/08), MW-18
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

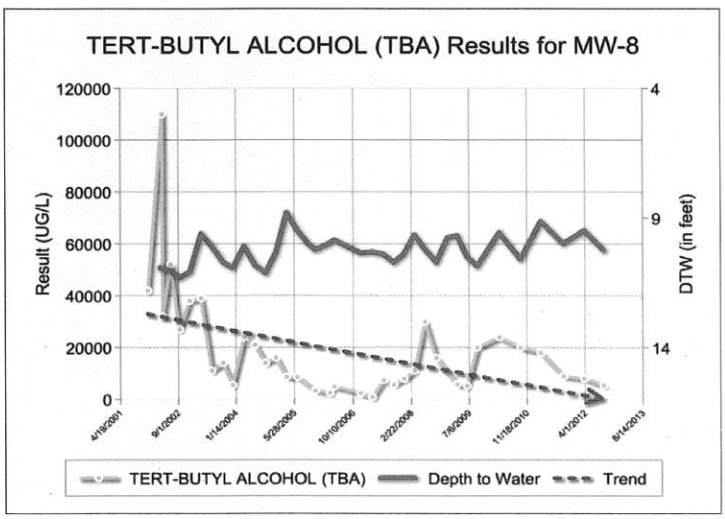
Sample	Sample Date	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
MW-3	03/21/13	<50	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-4	03/21/13	<50	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-5	03/21/13	<50	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-6	03/21/13	<50	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-7	03/21/13	<50	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-8	03/21/13	2,000	**66**	<10	<10	<20	**69**	**8,800**
MW-9	03/21/13	<50	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-10	03/21/13	<50	<0.5	<0.5	<0.5	<1	0.88	<10
MW-11	03/21/13	<50	<0.5	<0.5	<0.5	<1	1.3	<10
MW-15	03/21/13	<50	<0.5	<0.5	<0.5	<1	1.4	32
MW-16	03/21/13	<50	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-17	03/21/13	<50	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-18	03/21/13	560	<5	<5	<5	<10	**9.8**	**6,800**
GW-1	03/21/13	<50	<0.5	<0.5	<0.5	<1	0.51	<10
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 does not have a numeric water quality objective for TPHg
[a]: Secondary maximum contaminant level (MCL)
[b]: California Department of Public Health, Response Level

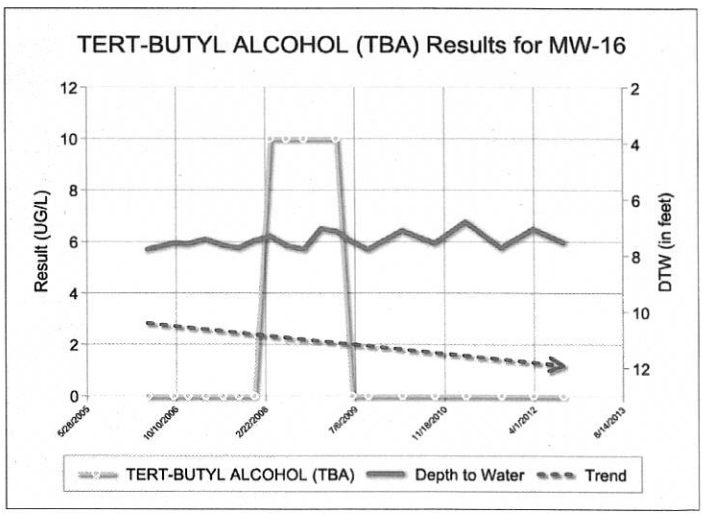
Groundwater Trends

- There are 24 years of regular groundwater monitoring data for this case. TBA trends are shown below: Source Area (MW-8) and Downgradient (MW-16).

Near 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, see table above.
- Oxygen Concentrations in Soil Vapor: None reported.
- Plume Length: <250 feet.
- Plume Stable or Decreasing: Yes.
- Contaminated Zone(s) Used for Drinking Water: No.
- Groundwater Specific Criteria: The case meets Policy Criterion 1 by Class 5. The Site fails Class 1 because the TBA plume is slightly longer than 100 feet in length. The contaminant plume that exceeds water quality objectives is less than 250 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. The nearest surface water body is Oso Creek located approximately 250 feet crossgradient of the defined plume boundary. Oso Creek is a cement lined seasonal drainage that flows generally from the north towards the south located cross gradient and parallel to groundwater flow direction. In addition, the sulfate concentrations in shallow groundwater exceed 2,000,000 µg/L which renders it unusable.
- Indoor Vapor 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. In October 2008 soil vapor survey was conducted and the results showed no risk of vapor intrusion to station employees and the LOP agreed (CRA, 2012).
- Direct Contact Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 3a. Maximum concentrations in soil are less than those in Policy Table 1 for Commercial/Industrial land 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.

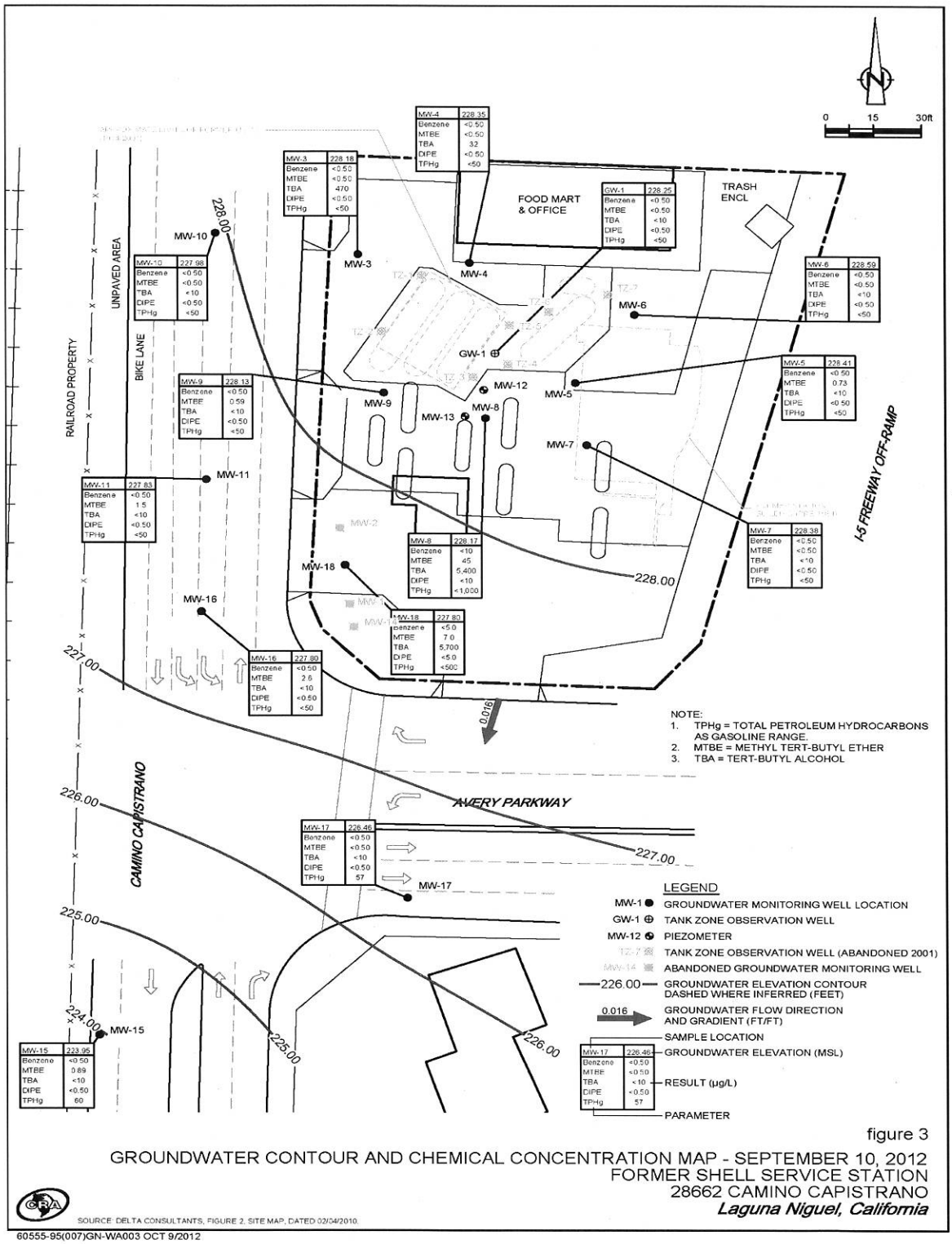


figure 3

GROUNDWATER CONTOUR AND CHEMICAL CONCENTRATION MAP - SEPTEMBER 10, 2012
FORMER SHELL SERVICE STATION
28662 CAMINO CAPISTRANO
Laguna Niguel, California

SOURCE: DELTA CONSULTANTS, FIGURE 2, SITE MAP, DATED 02/04/2010.

60555-95(007)GN-WA003 OCT 9/2012

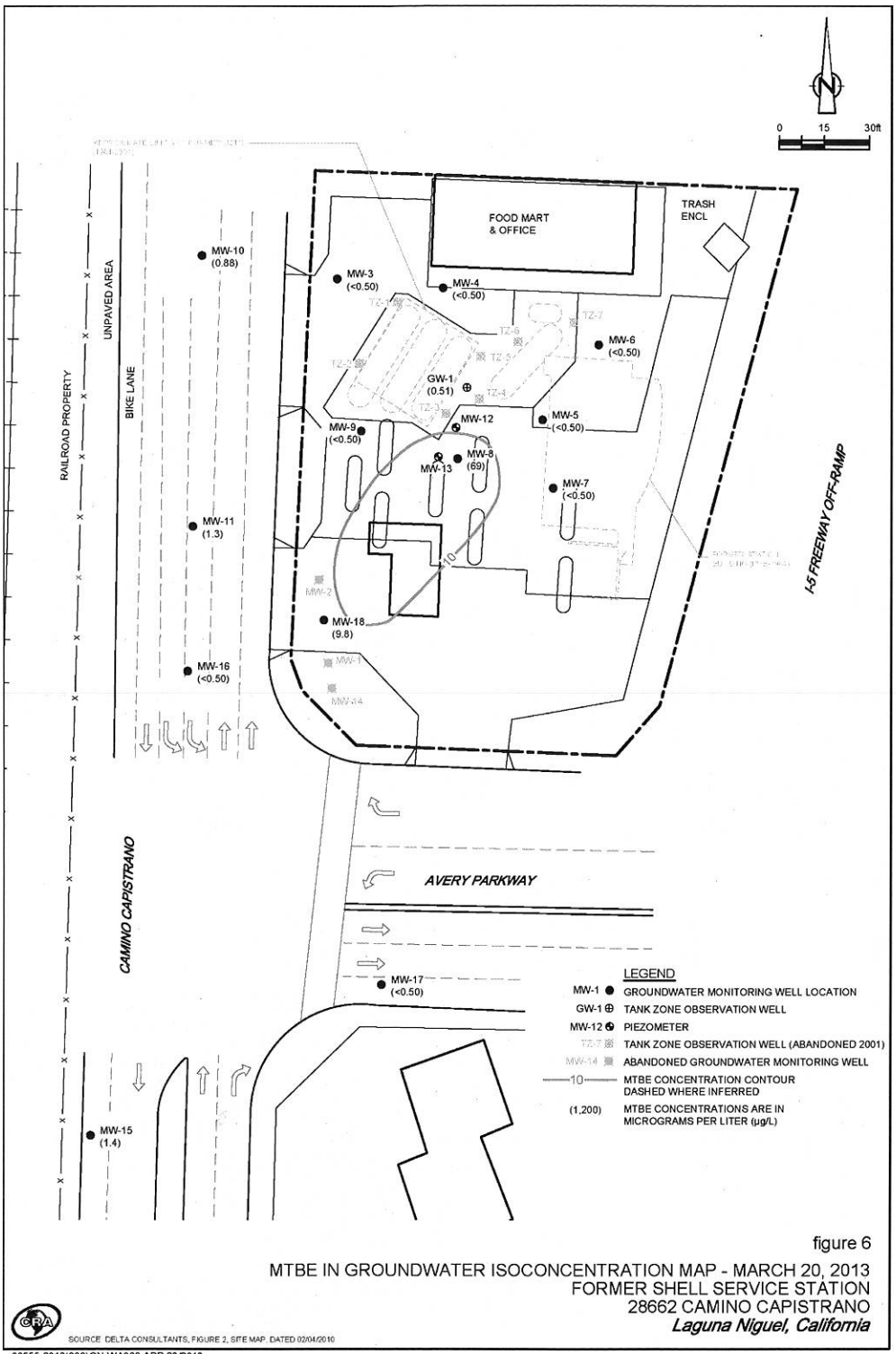


figure 6

MTBE IN GROUNDWATER ISOCONCENTRATION MAP - MARCH 20, 2013
FORMER SHELL SERVICE STATION
28662 CAMINO CAPISTRANO
Laguna Niguel, California

SOURCE: DELTA CONSULTANTS, FIGURE 2, SITE MAP, DATED 02/04/2010

60555-2013(009)GN-WA006 APR 23/2013

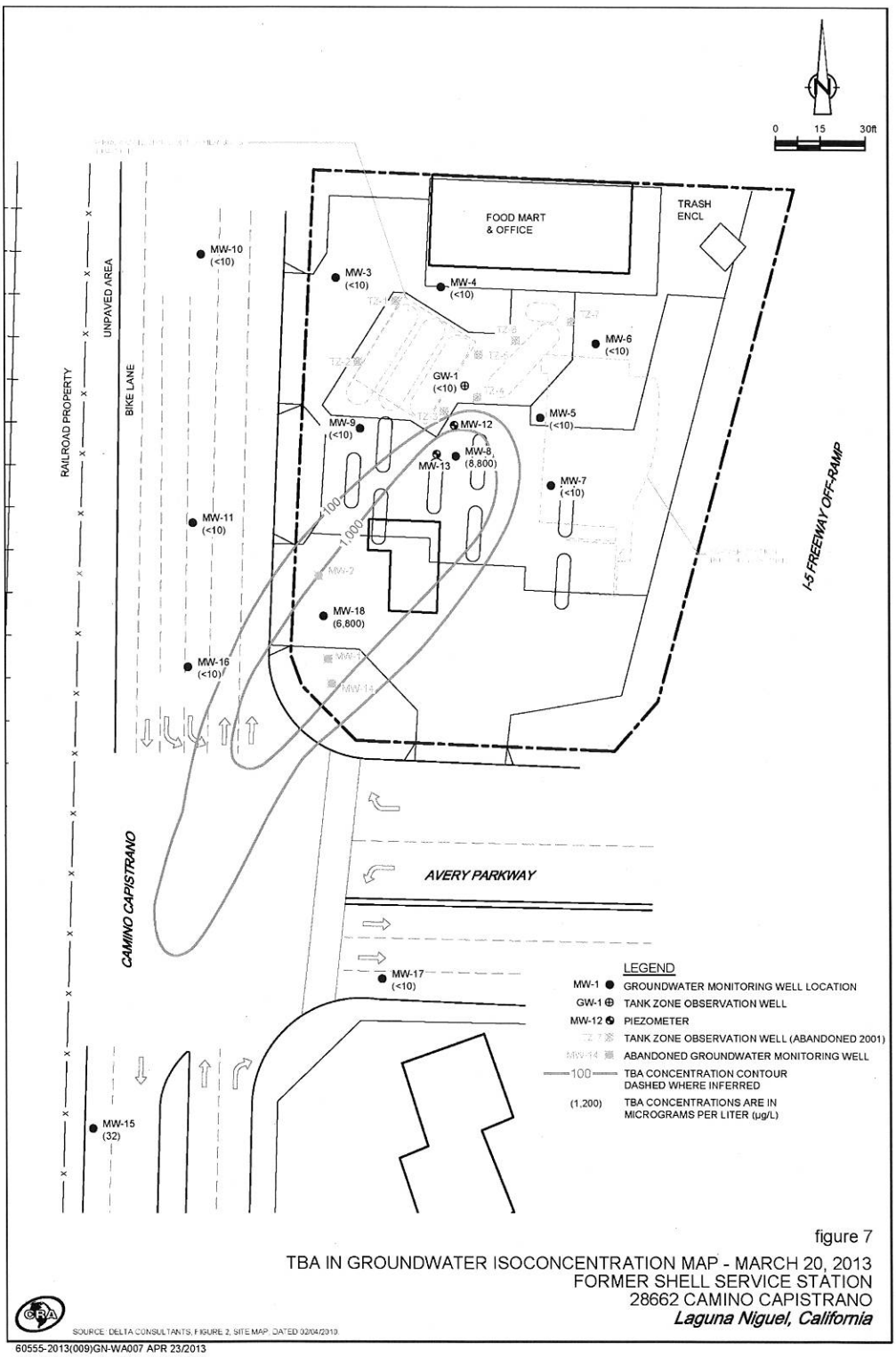


figure 7

TBA IN GROUNDWATER ISOCONCENTRATION MAP - MARCH 20, 2013
FORMER SHELL SERVICE STATION
28662 CAMINO CAPISTRANO
Laguna Niguel, California

SOURCE: DELTA CONSULTANTS, FIGURE 2, SITE MAP, DATED 02/04/2013.

60555-2013(009)GN-WA007 APR 23/2013