

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

ORDER WQ 2013-0113-UST

**In the Matter of Underground Storage Tank Case Closure
Pursuant to Health and Safety Code Section 25296.40 and the
Low-Threat Underground Storage Tank Case Closure Policy**

BY THE EXECUTIVE DIRECTOR:¹

By this order, the Executive Director directs closure of the underground storage tank (UST) case at the site listed below, pursuant to subdivision (a) of section 25296.40 of the Health and Safety Code.² The name of the petitioner, the site name, the site address, the Underground Storage Tank Cleanup Fund (Fund) claim number if applicable, the lead agency, and case number are as follows:

Barry Berkett, Best California Gas, LTD.

Thrifty Oil #380

15501 Edwards Street, Huntington Beach, California

Fund Claim No. 14179

County of Orange Health Care Agency, Case No. 97UT036

I. STATUTORY AND PROCEDURAL BACKGROUND

Upon receipt of a petition from a UST owner, operator, or other responsible party, section 25296.40 authorizes the State Water Resources Control Board (State Water Board) to close or require closure of a UST case where an unauthorized release has occurred, if the State Water Board determines that corrective action at the site is in compliance with all of the requirements of subdivisions (a) and (b) of section 25296.10. The State Water Board, or in

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 California Health and Safety Code.

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 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.

State Water Board staff has completed a 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 Summary has been prepared for the case identified above and the basis 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 Summary.

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 uniform closure letter as specified in Health and Safety Code section 25296.10. The uniform 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 uniform closure letter or a letter of commitment, whichever occurs later, shall not be reimbursed unless specified conditions are satisfied.

II. FINDINGS

Based upon the UST Case Closure Summary 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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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 State Water Board in determining that the case should be closed.

Pursuant to section 21080.5 of the Public Resources Code, environmental impacts associated with the adoption of this Order were analyzed in the substitute environmental document (SED) the State Water Board approved on May 1, 2012. The SED concludes that all environmental effects of adopting and implementing the Low Threat Closure Policy are less than significant, and environmental impacts as a result of adopting this Order in compliance with the Policy are no different from the impacts that are reasonably foreseen as a result of the Policy itself. A Notice of Decision was filed August 17, 2012. No new environmental impacts or any additional reasonably foreseeable impacts beyond those that were addressed in the SED will result from adopting this Order.

The UST case identified above may be the subject of orders issued by the Regional Water Quality Control 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 (LOP) 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 uniform closure letter, the Petitioner 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 Petitioner 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 Water Quality shall issue a uniform closure letter consistent with Health and Safety Code section 25296.10, subdivision (g) and upload the uniform closure letter and UST Case Closure Summary to GeoTracker.

- E. 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 uniform closure letter in order for the costs to be considered.

- F. Any Regional Water Board or LOP 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 LOP agency directive is inconsistent with this Order.

Thomas Howard
Executive Director

11/14/13
Date



State Water Resources Control Board

UST CASE CLOSURE SUMMARY

Agency Information

Table with 2 columns: Agency Name, Address, Agency Caseworker, Case No.

Case Information

Table with 2 columns: USTCF Claim No., Site Name, Petitioner, USTCF Expenditures to Date, Global ID, Site Address, Address, Number of Years Case Open.

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605900848

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 Low-Threat 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 are as follows:

The release at the Site was discovered when the former underground storage tanks (UST) and fuel system were removed from the Site in October 1997. During the 1997 UST removal, approximately 1,200 cubic yards of impacted soil were excavated and disposed. Also during the excavation, approximately 6,500 gallons of shallow groundwater and free product was purged from the excavation pit. Free product existed in two monitoring wells only in 1999. A potential receptor survey did not identify any supply well within 2,000 feet of the Site. Numerous remedial activities have been performed at the Site between 1997 and 2012 including soil excavation, high-vacuum dual-phase extraction (HVDPE), ozone sparging, mobile HVDPE, vacuum truck extraction, and application of slow-release oxygen compounds. Approximately 628,000 gallons of groundwater have been extracted and approximately 24,000 pounds of hydrocarbons have been removed through the remediation activities. The responsible party terminated remediation in May 2012. The contamination plume is stable since termination of the remediation system in 2012.

FELICIA MARCUS, CHAIR | THOMAS HOWARD, EXECUTIVE DIRECTOR

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The petroleum release is limited to the shallow soil and groundwater within the Site boundary. The affected groundwater beneath the Site is not currently being used as a source of drinking water or for any other designated beneficial use, and it is highly unlikely that the affected groundwater will be used as a source of drinking water or for any other beneficial use in the foreseeable future. Public supply wells are usually constructed with competent sanitary seals and intake screens that are in deeper more protected aquifers. Remaining petroleum constituents are limited, stable and declining. Remedial actions have been implemented and further remediation is not necessary. Additional assessment/monitoring will not likely change the conceptual model. Any remaining petroleum constituents do not pose significant risk to human health, safety or the environment.

Rationale for Closure under the Policy

- General Criteria – Site **MEETS ALL EIGHT GENERAL CRITERIA** under the Policy.
- Groundwater Media-Specific Criteria – Site meets the criterion in **CLASS 4**. The contaminant plume is less than 1,000 feet in length, there is no free product, the nearest receptor is greater than 1,000 feet from the plume boundary, and the dissolved concentration of benzene and methyl tert-butyl ether (MTBE) are both below 1,000 micrograms per liter ($\mu\text{g/L}$).
- Petroleum Vapor Intrusion to Indoor Air – Site meets **EXCEPTION**. The Site is an active commercial petroleum fueling facility and release characteristics do not pose an unacceptable health risk.
- Direct Contact and Outdoor Air Exposure – Site meets **CRITERIA (3) a**. Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 of the Policy.

Objections to Closure

County staff objected to UST case closure because:

1. Delineation of the tertiary butyl alcohol (TBA) plume has not been completed to the west of the Site (downgradient of well MW-14), thus the length of the plume cannot be sufficiently determined.
RESPONSE: The TBA plume boundary (defined by California Department of Public Health [CDPH] Notification Level of $12 \mu\text{g/L}$) can be conservatively estimated to be less than 500 feet from the source. For the purpose of this Closure Summary, the State Water Board has evaluated the plume length to be less than 1,000 feet and meet Class 4 of the Policy. This provides a 200 percent safety factor for the Site.
2. The County does not agree that the TBA concentrations in downgradient well MW-14 reflect a stable trend or a shrinking plume as defined by the Policy. It should be noted that well MW-14 is immediately adjacent to a residential development, and while soil vapor sampling data has shown that vapor intrusion risks are unlikely, downgradient groundwater plume stability must be established.
RESPONSE: The County provided objections to closure in September 2012 after only one post-remediation sampling event had been conducted. Currently, four groundwater sampling events have been conducted for the Site since termination of the remediation system in May 2012. Post-remediation TBA concentrations in MW-14 show a stable to decreasing trend and concentrations have reduced from 350 to $93 \mu\text{g/L}$.

3. The County requests remediation actions continue at the Site until the TBA concentrations stabilize in downgradient well MW-14 and the leading edge of the plume can be defined at concentration approaching the health-based California Department of Public Health Notification Level of 12 µg/L.

RESPONSE: The Policy allows low risk cases to be closed with remaining contaminants allowing natural attenuation to finish the remediation process. Additionally, further remediation is costly and not necessary for a site that does not pose a risk to public health or the environment. The constituents that posed the greatest risk to public health or the environment have successfully been remediated. In addition, it is not necessary for a downgradient well be present at or outside of the plume boundary, so long as there is sufficient data in a downgradient well in proximity to the plume boundary that demonstrates stability. A plume boundary can be conservatively estimated with existing well data and the Policy provides flexibility with the different classes that can increase the safety factor.

4. The current form of Site remediation (oxygen releasing socks and over purging) has been in progress since May 2011 and post remedial groundwater monitoring has not been conducted. Post remedial monitoring must be conducted to appropriately determine plume stability.

RESPONSE: See response to number 2 above.

Recommendation for Closure

The corrective action performed at this Site ensures the protection of human health, safety, the environment and is consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations, applicable state policies for water quality control and the applicable water quality control plan, and case closure is recommended.

Prepared By: 
Steve McMasters, PG No. 8054
Engineering Geologist

7/22/2013
Date

Reviewed By: 
Benjamin Henningburg, PG No. 8130
Senior Engineering Geologist

7/22/13
Date

ATTACHMENT 1: COMPLIANCE WITH STATE WATER BOARD POLICIES AND STATE LAW

The Site complies with 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 Site 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 case 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 Site?</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.

<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>Does nuisance as defined by Water Code, section 13050 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 type="checkbox"/> Yes <input checked="" 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? If YES, check applicable class: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" 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>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><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</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>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 INFORMATION (Conceptual Site Model)

Site Location/ History

- The Site is located at the southwest intersection of McFadden Avenue and Edwards Street in Huntington Beach, California. The Site is used as a commercial fueling facility.
- The Site is bounded by commercial to the west and residential to the north, east, and south.
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Primary Source of Release: UST system
- Discovery Date: 1997
- Release Type: Petroleum²
- Free Product: Free product was removed from the UST excavation pit in 1997. Free product was also present once in both MW-2 and MW-6 in 1999. Free product has not been observed after 1999 at the Site.

Table A. USTs:

Tank No.	Size	Contents	Status	Date
1	15,000 gallon	Gasoline	Removed	1997
2	12,000 gallon	Gasoline	Removed	1997
3	8,000 gallon	Gasoline	Removed	1997
4	8,000 gallon	Gasoline	Removed	1997
5	20,000 gallon	Gasoline	New	1997
6	20,000 gallon (Partitioned)	Gasoline/diesel	New	1997

Receptors

- Groundwater Basin: Coastal Plain of Orange County (8-1)
- Groundwater Beneficial Uses: Municipal and domestic supply (MUN); agricultural supply (AGR); industrial service supply (IND); and industrial process supply (PRO).
- Designated Land Use: General commercial (GC)
- Public Water System: City of Huntington Beach
- Distance to Nearest Surface Waters: Nga Xuong Duong Park Lake is located greater than 2,000 feet to the east; Westminster Channel is located greater than 2,500 feet to the west of the Site.
- Distance to Nearest Supply Wells: Irrigation and domestic wells are located greater than 2,200 feet southeast of the Site; City of Huntington Beach Well 01 is located greater than 2,800 feet northwest of the Site.

Geology/ Hydrogeology

- Average Groundwater Depth: ~4 feet below ground surface (bgs)
- Minimum Groundwater Depth: ~2 feet bgs
- Groundwater Flow Direction: West to northwest (Site); southwest (region)
- Geology: Site overlies alluvial deposits predominately of clay with minor amounts of sand units at a depth of 30 feet bgs.

² "Petroleum" means crude oil, or any fraction thereof, which is liquid at standard conditions of temperature and pressure, which means at 60 degrees Fahrenheit and 14.7 pounds per square inch absolute. (Health & Saf. Code, § 25299.2.)

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- Hydrogeology: Groundwater beneath the Site is unconfined.

Corrective Actions

- Four USTs and dispenser system were removed and replaced in 1997.
- During the 1997 UST system removal, approximately 1,200 cubic yards of impacted soil were removed and disposed. Additionally, approximately 6,500 gallons of impacted groundwater in UST excavation was removed.
- Numerous remedial activities have been performed at the Site between 1997 and 2012 including soil excavation, high-vacuum dual-phase extraction (HVDPE), ozone sparging, mobile HVDPE, vacuum truck extraction, and application of slow-release oxygen compounds.
- Approximately 628,000 gallons of groundwater have been extracted and approximately 24,000 pounds of hydrocarbons have been removed through the remediation activities.
- The responsible party terminated remediation in May 2012.

Table B. Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs (mg/kg)	Maximum 5-10 feet bgs (mg/kg)
Benzene	<0.039	0.961
Ethylbenzene	5.48	17
Naphthalene	0.660	0.012
PAHs*	Not Analyzed	Not Analyzed

*Poly-aromatic hydrocarbons as benzo(a)pyrene toxicity equivalent
Results are from post/during-remediation soil samples collected after 2003

Table C. Concentrations of Petroleum Constituents in Groundwater (March 2013)

Well ID	DTW (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
TDD-1	4.44	145	<0.18	<0.24	<0.21	<0.45	<0.19	28
TDD-2	3.90	<6.6	<0.18	<0.24	<0.21	<0.45	4.8	<5.2
MW-1	4.40	141	<0.18	<0.24	<0.21	<0.45	<0.19	16
MW-2	4.57	1,820	8.3	1.0	94	23	<0.19	<5.2
MW-3	3.94	<6.6	<0.18	<0.24	<0.21	<0.45	<0.19	<5.2
MW-4	4.37	<6.6	<0.18	<0.24	<0.21	<0.45	1.9	<5.2
MW-5	4.45	<6.6	<0.18	<0.24	<0.21	<0.45	<0.19	20
MW-6	5.08	58.7	<0.9	<1.2	<1.05	<2.25	<0.95	1,900
MW-7	4.05	<6.6	<0.18	<0.24	<0.21	<0.45	<0.19	<5.2
MW-8	4.55	<6.6	<0.18	<0.24	<0.21	<0.45	<0.19	<5.2
MW-9	5.31	<6.6	<0.18	<0.24	<0.21	<0.45	<0.19	910
MW-10	5.40	<6.6	<1.8	<2.4	<2.1	<4.5	<1.9	7,500
WQOs ¹		--	--	--	--	--	--	--
MCL			1	150	300	1,750	13 ²	12 ²

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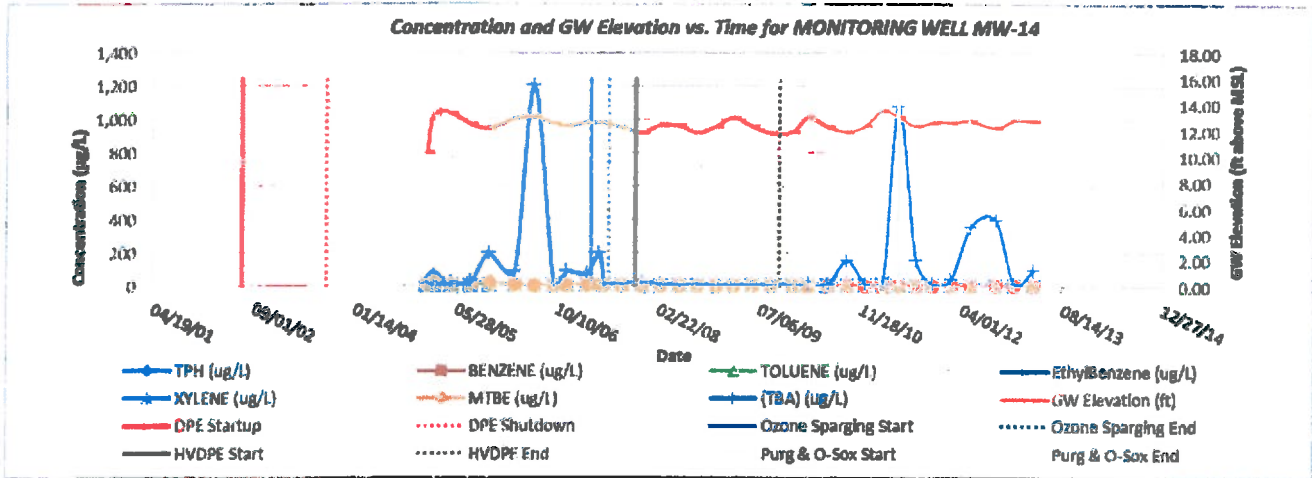
Table C. Concentrations of Petroleum Constituents in Groundwater (March 2013) (Cont.)

Well ID	DTW (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
MW-11	5.56	<6.6	<0.18	<0.24	<0.21	<0.45	<0.19	15
MW-12	5.62	<6.6	<0.18	<0.24	<0.21	<0.45	2.3	4,900
MW-13	4.50	<6.6	<0.18	<0.24	<0.21	<0.45	<0.19	360
MW-14	5.75	<6.6	<0.18	<0.24	<0.21	<0.45	<0.19	93
MW-15	5.26	<6.6	<0.18	<0.24	<0.21	<0.45	<0.19	<5.2
WQOs ¹		--	--	--	--	--	--	--
MCL			1	150	300	1,750	13²	12²

Notes:
bold indicates that sample result exceeds MCL
 WQO – Water Quality Objective
 MCL – California Code of Regulations, Title 22 Maximum Contaminant Levels – Organic Chemicals
 DTW – depth to water
 TPHg – Total petroleum hydrocarbons as gasoline
 MTBE- Methyl tert-butyl ether
 TBA – tertiary butyl alcohol
 µg/L – micrograms per liter
 “<” – indicates result is below the laboratory reporting limit
 “-” – constituent not analyzed
 1 – Santa Ana Regional Water Quality Control Board Water Quality Control Plan does not list WQOs for petroleum hydrocarbon constituents listed.
 2 – California Department of Public Health Notification Level

Groundwater Trends

Concentrations of TBA at downgradient well MW-14 have demonstrated stable or decreasing trends over time since remediation was ceased in May 2012.



Evaluation of Risk Criteria

- **Maximum Petroleum Constituent Plume Length above WQOs:** The groundwater plume is less than 500 feet in length.
- **Petroleum Constituent Plume Determined Stable or Decreasing:** Yes.
- **Soil/Groundwater Sampled for MTBE:** Yes, see Table C above.
- **Residual Petroleum Constituents Pose Significant Risk to the Environment:** No .
- **Residual Petroleum Constituents Pose Significant Vapor Intrusion Risk to Human Health:** No – Petroleum constituents most likely to pose a threat for vapor intrusion were removed during soil excavation and over-excavation. Site conditions demonstrate that the residual petroleum constituents in soil and groundwater are protective of human health.
- **Residual Petroleum Constituents Pose a Nuisance³ at the Site:** No.
- **Residual Petroleum Constituents in Soil Pose Significant Risk of Adversely Affecting Human Health:** No.
- **Residual Petroleum Constituents Pose Significant Direct Contact and Outdoor Air Exposure to Human Health:** No – Soil concentrations for post-/current-remediation soil samples collected after 2000 meet Table 1 of the Policy.

³ Nuisance as defined in California Water Code, section 13050, subdivision (m).

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