

## State Water Resources Control Board

### UST CASE CLOSURE REVIEW SUMMARY REPORT

#### Agency Information

Agency Name: San Mateo County Health System (County)	Address: 2000 Alameda de las Pulgas, Suite 100 San Mateo, CA 94403
Agency Caseworker: Deno Milano	Case No.: 440050

#### Case Information

USTCF Claim No.: 12903	Global ID: T0608100964
Site Name: Red Carpet Car Wash	Site Address: 1436 El Camino Real Menlo Park, CA 94025
Responsible Party: Hoffman Investment Company, Assignee	Address: 1035 Edwards Road Burlingame, CA 94010
USTCF Expenditures to Date: \$518,048	Number of Years Case Open: 16

URL: [http://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=T0608100964](http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0608100964)

#### 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 car wash facility in Menlo Park. An unauthorized release was reported in August 1997 with the subsequent removal of four gasoline USTs. Soil vapor extraction, groundwater pumping and chemical injection tests were performed at the Site. Since 1998, eight groundwater monitoring wells were installed and monitored. According to groundwater data, water quality objectives have been achieved or nearly achieved for all constituents except benzene, ethylbenzene, xylene and methyl tertiary butyl ether (MTBE) in monitoring well MW-1, and MTBE in monitoring wells MW-4 and MW-8.

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 1,000 feet of the defined plume boundary. There is one private water supply well located 550 feet east and crossgradient of the Site. According to the property manager, the well is only used to water landscape and for laundering. No other water supply wells have been identified within 1,000 feet of the defined plume boundary in files reviewed. Water is provided to water users near the Site by the Menlo Park Municipal Water District. The affected groundwater is not currently being used as a source of drinking water, and it is unlikely that the

FELICIA MARCUS, CHAIR | THOMAS HOWARD, EXECUTIVE OFFICER

affected groundwater will be used as a source of drinking water in the near 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. There is one private water supply well located 550 feet east and crossgradient of the Site. According to the property manager, the well is only used to water landscape and for laundering. The regulatory agency determines, based on an analysis of the Site specific conditions, which under current and reasonably anticipated near-term future scenarios, the contaminant plume poses a low threat to human health and safety and to the environment, and water quality objectives will be achieved within a reasonable time frame. If not for this well, the case would have met Policy Criterion 1 by Class 2.
- **Vapor Intrusion to Indoor Air:** This case meets Policy Criterion 2b. A site-specific risk assessment of potential exposure to petroleum constituents as a result of vapor intrusion (Consulting Engineers Corp, November 1, 2012) found that maximum concentrations of petroleum constituents remaining in soil and groundwater will have no significant risk of adversely affecting human health. In addition, the only potentially significant human health risk at the Site from the unauthorized release is exposure to car wash workers. The nature of the outdoor working environment at the car wash renders human health risk from soil vapor intrusion insignificant.
- **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 and Residential uses, 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**

In a letter dated August 28, 2013, the San Mateo County Health System (County) objected to the findings and conclusions in the Fund Preliminary Review Summary Report. Comments in the letter asserted the General Criteria and Media Specific Criteria of the Low-Threat Closure Policy (Policy) have not been met. Below are the comments received followed by the Fund responses:

**Comment #1:** The stability and mobility of the release(s) have not been assessed. Migration of free product is suggested by comparing the soil sample results and depths of Boring B-8 (2007) with the monitoring wells MW-1 (1998) results.

**Response:** A petroleum fuel release was reported in August 1997. The USTs, dispensers and associated piping were removed. The records in GeoTracker do not show any other petroleum fuel releases at this site. A review of fifteen years of groundwater monitoring data suggests that the petroleum fuel release has impacted groundwater, however, concentrations were declining before the Regenox injection of 2006 and 2007, and indications are that they will continue to decline. Past experience has shown that after re-stabilization of hydrological conditions, further concentration declines can be anticipated as the adsorbed mass is further oxidized.

**Comment #2:** Free product and secondary source have not been removed to the extent practicable. Free product is indicated by measurements of total petroleum hydrocarbon as gasoline (TPH-g) in soil boring B-8.

**Response:** The cited soil samples were collected in May 18, 2007, between the second and third rounds of reagent injections. Although the soil concentrations of TPH-g and xylene at depths of 19 feet bgs and deeper appear elevated, these numbers do not provide evidence of the existence of free product or residual light non-aqueous phase liquid in the subsurface when compared with the measured BTEX concentrations.

These samples were intended to verify the action of the Regenox reagents to oxidize and degrade petroleum fuel contaminants. Degradation products from the in-situ chemical oxidation process, possibly including benign fatty acids, were most likely detected and resulted in the high TPH-g values measured in 2007. The generally low BTEX concentrations fail to justify the assertion of free product based on samples from boring B-8. Table 3 shows soil analytical results from samples collected in soil boring B8 on May 18, 2007 (E2C, Inc., June 23, 2008, table revised).

**Table 3, Interim (Post 2nd Injection) Soil Sample Analytical Results**  
 Collected on May 18, 2007  
 Former Red Carpet Carwash, 1436 El Camino Real, Menlo Park, California

(Results in mg/Kg)

Sample ID	TPHg	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MtBE
B8@9.0	<0.5	<0.01	<0.01	<0.01	<0.01	<0.05
B8@14	82 <sup>1</sup>	<0.1	<0.1	0.36	3.7	<0.5
B8@19	6,800 <sup>1</sup>	<10	<10	86	740	<50 <sup>1</sup>
B8@24	64,000	<200	<200	1,700	10,000	<1,000
B8@28	830 <sup>1</sup>	<1 <sup>1</sup>	<1 <sup>1</sup>	11 <sup>1</sup>	92 <sup>1</sup>	<5 <sup>1</sup>
B8@30	6,700 <sup>1</sup>	<10 <sup>1</sup>	53 <sup>1</sup>	180 <sup>1</sup>	1,000 <sup>1</sup>	<50
B8@30A <sup>2</sup>	3,800	<10	22	90	540	<50
B8@33	700 <sup>1</sup>	<1 <sup>1</sup>	10 <sup>1</sup>	22 <sup>1</sup>	120 <sup>1</sup>	<5 <sup>1</sup>
B8@38	360 <sup>1</sup>	1.2	14	11	61	<5

1. Note on Lab Report: "Surrogate recovery out of control limits due to matrix interference"

2. B8@30A result was from separate aliquot analysed after holding time had expired to confirm B8@30 results

Soil Boring B-8 was installed and the associated soil samples were collected as part of an assessment of three phases of Regenox injections. Over 6,400 gallons of reagents for in-situ chemical oxidation were injected at depths of 19 to 43 feet below ground surface (bgs) in fifteen locations.

Comment #3: The media specific criterion for groundwater using criterion 2 is not justified because potential well receptors have not been investigated within 1,000 feet of the plume.

Response: Based on GeoTracker, there are no drinking water supply wells within 1,000 feet of this site or the petroleum fuel plume boundary. The Policy recognizes that plume studies have shown that a total separation distance from the source area to the receptor of about 500 feet should be protective for 90% of plumes from UST sites, and a total separation distance from the source area to the receptor of about 1,000 feet should be protective for virtually all plumes from UST sites.

As mentioned in the comment letter, a receptor well survey report from February 2001 identified a well approximately 550 feet east and crossgradient of the site. According to the property manager this well is used for irrigation and laundering.

For the groundwater media specific criteria, there are five different scenarios with differing characteristics such as plume length, contaminant concentrations, and distance to supply wells or surface water bodies. The requirements that apply to this Site are satisfied and meet the groundwater criterion Class 5.

Comment #4: The County has the concern there is a "potential vapor intrusion risk to the occupants of the residential dwelling immediately adjacent to the former UST cavity (see attached Figure 2) where free product has been identified in unsaturated zone soil at <30 feet bgs and where the benzene concentration in groundwater exceeds 1,000 ug/L (MW-1)."

Response: A site-specific risk assessment of potential exposure to petroleum constituents as a result of vapor intrusion (Consulting Engineers Corp, November 1, 2012) found that maximum concentrations of petroleum constituents remaining in soil and groundwater should have no significant risk of adversely affecting human health.

**Determination**

The Fund Manager has notified the tank owners or operators and reviewed the case history of their tank case. The Fund Manager determines that closure of the tank case is appropriate based upon that review. The Fund Manager has prepared this review summary report summarizing the reasons for this determination, provided the Review Summary Report to the applicable regional board and local agency, as appropriate, with an opportunity for comment on the Review Summary Report.

Pursuant to Health and Safety Code as of the date of the signature of the Fund Manager below, the Regional Board or local agency shall not issue a corrective action directive or enforce an existing corrective action directive for the tank case until the board issues a decision on the closure of the tank case, unless one of the following applies:

- (A) The Regional Water Board or local agency demonstrates to the satisfaction of the manager that there is an imminent threat to human health, safety, or the environment.
- (B) The Regional Water Board or local agency demonstrates to the satisfaction of the manager that other site-specific needs warrant additional directives during the period that the board is considering case closure.
- (C) After considering responses to the review summary report and other relevant information, the manager determines that case closure is not appropriate.
- (D) The Regional Water Board or local agency closes the tank case but the directives are necessary to carry out case-closure activities.

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

12/2/13  
Date

**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.<sup>1</sup>**

<p><b>Is corrective action consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations?</b>                  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><b>Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this case?</b></p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p><b>If so, was the corrective action performed consistent with any order?</b></p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p><b><u>General Criteria</u></b>                  General criteria that must be satisfied by all candidate sites:</p> <p><b>Is the unauthorized release located within the service area of a public water system?</b></p> <p><b>Does the unauthorized release consist only of petroleum?</b></p> <p><b>Has the unauthorized (“primary”) release from the UST system been stopped?</b></p> <p><b>Has free product been removed to the maximum extent practicable?</b></p> <p><b>Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed?</b></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>

<sup>1</sup> 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](http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf)

<p><b>Has secondary source been removed to the extent practicable?</b></p> <p><b>Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?</b></p> <p><b>Nuisance as defined by Water Code section 13050 does not exist at the site?</b></p> <p><b>Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?</b></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><b><u>Media-Specific Criteria</u></b>                  Candidate sites must satisfy all three of these media-specific criteria:</p> <p><b>1. Groundwater:</b>                  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><b>Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?</b></p> <p><b>Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites?</b>                  If YES, check applicable class: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5</p> <p><b>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?</b></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><b>2. Petroleum Vapor Intrusion to Indoor Air:</b>                  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><b>Is the site an active commercial petroleum fueling facility?</b>                  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><b>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?</b>                  If YES, check applicable scenarios: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>

<p><b>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?</b></p> <p><b>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?</b></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><b>3. Direct Contact and Outdoor Air Exposure:</b>          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><b>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)?</b></p> <p><b>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?</b></p> <p><b>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?</b></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 an operating car wash facility bounded by San Antonio Avenue to the north and El Camino Real to the south. Adjacent to the west is a restaurant and a residence, and adjacent to the east are residences.
- The Site is located in an area of mixed commercial and residential land use.
- Site maps showing the location of the former USTs, monitoring wells, groundwater flow direction and MTBE concentrations are provided at the end of this review summary report (Consulting Engineers Corp., 2012).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST System.
- Date reported: August 4, 1997.
- Status of Release: UST system removed.
- Free Product: No measurable free product reported.

### Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active	Date
1	10,000	Gasoline	Removed	December 1997
2	10,000	Gasoline	Removed	December 1997
3	10,000	Gasoline	Removed	December 1997
4	10,000	Gasoline	Removed	December 1997

### Receptors

- GW Basin: Santa Clara Valley - San Mateo Plain.
- Beneficial Uses: The San Francisco Regional Water Quality Control Board (Regional Water Board) lists municipal and industrial uses and potentially agricultural uses.
- Land Use Designation: Commercial.
- Public Water System: City of Menlo Park.
- 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 1,000 feet of the defined plume boundary. One irrigation well was identified 550 feet crossgradient of the defined plume boundary in the files reviewed.
- Distance to Nearest Surface Water: There is no identified surface water within 1,000 feet of the defined plume boundary.

### Geology/Hydrogeology

- Stratigraphy: The Site is underlain by sandy clay and silty sand.
- Maximum Sample Depth: 45 feet below ground surface (bgs).
- Minimum Groundwater Depth: 23.45 feet bgs at monitoring well MW-6.
- Maximum Groundwater Depth: 38.80 feet bgs at monitoring well MW-2.
- Current Average Depth to Groundwater: Approximately 36.8 feet bgs.
- Saturated Zones(s) Studied: Approximately 29-38 feet bgs.
- Appropriate Screen Interval: Some of the well screens are submerged.
- Groundwater Flow Direction: Variable, but generally toward the north to north-northeast at approximately 0.002 to 0.034 feet/foot (Consulting Engineers Corp., 2012).

**Monitoring Well Information**

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (8/22/12)
MW-1	May 1998	23 – 48	36.85
MW-2	May 1998	23 – 48	37.90
MW-3	May 1998	23 – 48	36.98
MW-4	May 1998	23 – 48	36.65
MW-5	February 1999	23 – 48	36.08
MW-6	February 1999	23 – 48	36.65
MW-7	November 2004	40 – 50	36.50
MW-8	November 2004	40 – 50	36.80

**Remediation Summary**

- Free Product: Sorbent socks were placed in MW-1 and occasionally in MW-7 and MW-8 with only sheen or occasional sheen reported.
- Soil Excavation: In 1990 approximately 30 cubic yards of contaminated soil was excavated during UST removal and 116 cubic yards of contaminated soil was removed during the dispenser and pipeline removal.
- In-Situ Soil Remediation: Soil vapor extraction (SVE) test was performed in 2004. In 2005 results from slug tests suggested excessive groundwater pumping of at least 150 gallons per minute would be necessary to produce sufficient drawdown for an SVE system to be effective.
- Groundwater Remediation: Chemical injection tests were performed in 2007.

**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 (09/08/2010)	<0.005 (09/08/2010)
Ethylbenzene	<0.005 (09/08/2010)	<0.005 (09/08/2010)
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

\*: Soil & Groundwater Investigation & Site Conceptual Model Report (E2C, December 8, 2010).

**Most Recent Concentrations of Petroleum Constituents in Groundwater**

Sample	Sample Date	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
MW-1	8/22/12	37,000	1,300	120	2,800	6,100	170	520
MW-2	8/22/12	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<2
MW-3	8/22/12	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<2
MW-4	8/22/12	90	<2.5	<2.5	<2.5	<2.5	110	23
MW-5	8/22/12	83	<0.5	<0.5	<0.5	<0.5	0.61	<2
MW-6	8/22/12	77	<0.5	<0.5	<0.5	<0.5	<0.5	<2
MW-7	8/22/12	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<2
MW-8	8/22/12	95	<5	<5	<5	<5	280	50
<b>WQOs</b>	-	--	1	150	300	1,750	5	1,200 <sup>a</sup>

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

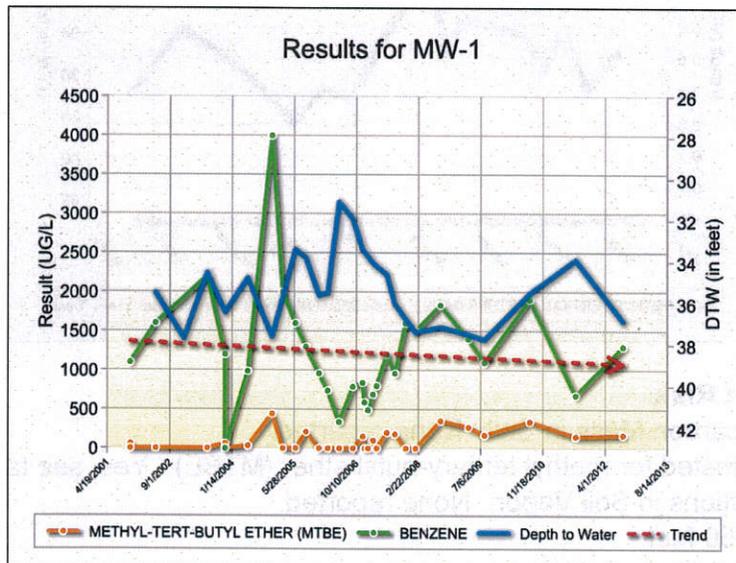
--: Regional Water Board Basin Plan does not have a numeric WQO value for TPHg.

<sup>a</sup>: California Department of Public Health, Response Level.

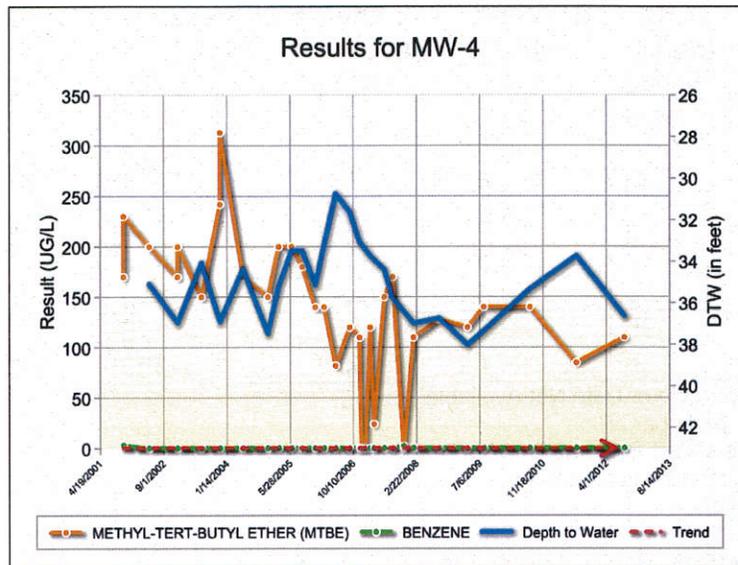
**Groundwater Trends**

- Since 1998 groundwater has been regularly monitored at this Site. Benzene and MTBE trends are shown below in source area well MW-1, downgradient well MW-4 and further downgradient well MW-6:

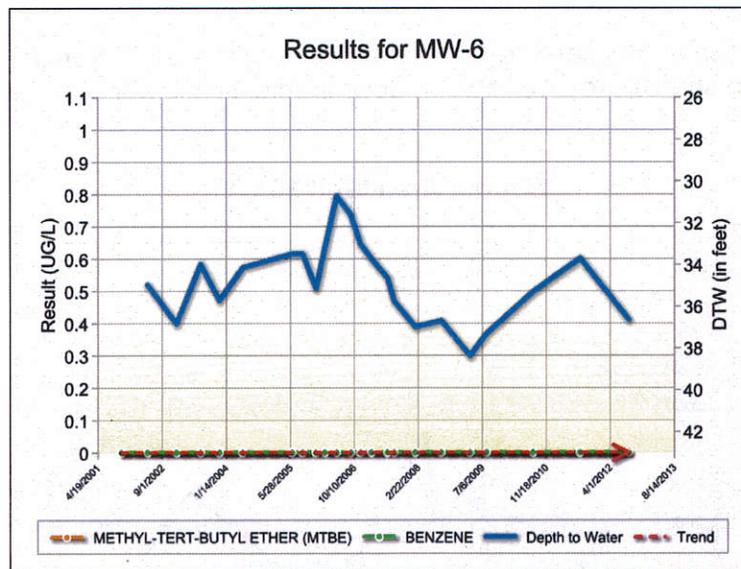
**Source Area Well MW-1**



### Downgradient Well MW-4



### Further Downgradient Well MW-6



#### Evaluation of Current Risk

- Estimate of Hydrocarbon Mass in Soil: None reported.
- Soil/Groundwater tested for methyl tertiary-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 Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 1 by Class 5. There is one domestic water supply well located 550 feet east and crossgradient of the Site. According to the property manager, the well is only used to water landscape and for

laundrying. The regulatory agency determines, based on an analysis of the Site specific conditions, which under current and reasonably anticipated near-term future scenarios, the contaminant plume poses a low threat to human health and safety and to the environment, and water quality objectives will be achieved within a reasonable time frame. If not for this well, the case would have met Policy Criterion 1 by Class 2. 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 1,000 feet from the defined plume boundary. The dissolved concentration of benzene is less than 3,000 µg/L, and the dissolved concentration of MTBE is less than 1,000 µg/L.

- Indoor Vapor Risk from Residual Petroleum Hydrocarbons: This case meets Policy Criterion 2b. A site-specific risk assessment of potential exposure to petroleum constituents as a result of vapor intrusion (Consulting Engineers Corp, November 1, 2012) found that maximum concentrations of petroleum constituents remaining in soil and groundwater will have no significant risk of adversely affecting human health. In addition, the only potentially significant human health risk at the Site from the unauthorized release is exposure to car wash workers. The nature of the outdoor working environment at the car wash renders human health risk from soil vapor intrusion insignificant.
- 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 and Residential uses, 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.

