

## State Water Resources Control Board

### UST CASE CLOSURE SUMMARY

#### Agency Information

Agency Name: Central Valley Regional Water Quality Control Board (Regional Water Board)	Address: 11020 Sun Center Drive #200 Rancho Cordova, CA 95670
Agency Caseworker: Mr. David Stavarek	Case No.: 570320

#### Case Information

USTCF Claim No.: None	Global ID: T0611364437
Site Name: ARCO Station No. 5786 Case #2	Site Address: 847 West Harbor Boulevard West Sacramento, CA 95691 (Site)
Responsible Party: BP America, Inc. Attention: Ms. Janet Wager	Address: 201 Helios Way, Suite 6.370A Houston, TX 77079
USTCF Expenditures to Date: None	Number of Years Case Open: 10

URL: [http://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=T0611364437](http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0611364437)

#### Summary

The Low-Threat Underground Storage Tank Case Closure Policy (Policy) contains general and media-specific criteria, and cases that meet those criteria are appropriate for closure pursuant to the Policy. This Case meets all of the required criteria of the Policy. A summary evaluation of compliance with the Low-Threat Policy is shown in **Attachment 1: Compliance with State Water Board Policies and State Law**. The Conceptual Site Model (CSM) upon which the evaluation of the Case has been made is described in **Attachment 2: Summary of Basic Site Information**. Highlights of the CSM of the Case are as follows:

The release at the Site was discovered in 2003, during the replacement of product lines and dispensers associated with four 10,000-gallon gasoline Underground Storage Tanks (USTs). At that time, approximately 92 cubic yards of impacted soil and approximately 12,000-gallons of impacted groundwater were removed and disposed off-Site. Quarterly groundwater monitoring performed from 2004 through the present indicates impacted groundwater extends off-Site to the west-southwest. As of April 2013, the most recent groundwater sampling event, methyl tert-Butyl ether (MTBE) was the only constituent reported above Water Quality Objectives (WQOs). Groundwater data from the Site wells combined with groundwater data from the downgradient active UST case at the Penske Truck Leasing property/Global ID T0611300197 (Penske), demonstrates that the groundwater plume from the Site is less than 350 feet in length.

The petroleum release is limited to the shallow soil and shallow groundwater. The affected groundwater 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. Municipal 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 would be unnecessary and costly. Additional assessment/monitoring will not likely change the CSM.

### 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 5**. Based on an analysis of Site-specific conditions that 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 WQOs will be achieved within a reasonable time frame.
- Petroleum Vapor Intrusion to Indoor Air – Site meets the **EXCEPTION**. The Site operates as an active commercial fueling facility and has no release characteristics that can be reasonably believed to 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 those listed in Table 1 of the Policy. The estimated naphthalene concentrations in soil are less than the thresholds in Table 1 of the Policy by a factor of eight. It is highly unlikely that naphthalene concentrations in the soil, if any, exceed the threshold.

### Objections to Closure

Regional Water Board staff objects to UST case closure because:

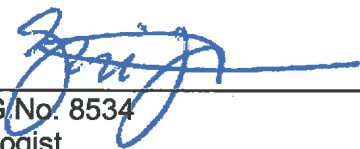
1. The Site does not meet **GENERAL CRITERIA f**. of the Policy. Secondary source has not been removed to the extent practicable. The need for active remediation has not been determined. **RESPONSE:** At the request of the Regional Water Board, the responsible party conducted a 4-hour pilot test in April 2013. The purpose was to evaluate if groundwater extraction from the monitoring well with the highest concentrations of MTBE (MW-2) was a viable technology for performing additional secondary source removal at the Site. Results indicated that groundwater extraction from MW-2 sustained a pumping rate of 8 gallons per minute with influent MTBE concentrations ranging between 530 and 640 micrograms per liter ( $\mu\text{g/L}$ ). While these results suggest that groundwater extraction could be performed to further reduce the contaminant mass that exists in the area surrounding MW-2, existing data indicates that the Site meets the Policy without performing additional remediation. According to the "No Further Action Required Request Report" for the Site dated November 29, 2012, the estimated MTBE remaining in soil is 0.02 pounds and the estimated MTBE remaining in groundwater is 0.37 pounds. Residual petroleum constituents in soil and groundwater are less than criteria in the Policy and are protective of human health with respect to the current and anticipated future use scenarios. Additional remediation would be unnecessary and costly and would be unlikely to change the CSM.
2. The Site does not meet the groundwater media-specific criteria of the Policy. The groundwater plume is not stable or decreasing in areal extent.

**RESPONSE:** Collectively, groundwater data from the Site wells and from off-Site wells at Penske demonstrate that the plume is stable to decreasing in areal extent. MTBE concentrations in groundwater between Site monitoring wells MW-2 and MW-5 demonstrate significant decreases over a distance of approximately 250 feet. Additionally, MTBE has never been reported in groundwater from Penske monitoring well MW-4 located approximately 450 feet west-southwest of the Site. Because the MTBE plume terminates somewhere between Site well MW-5 and Penske monitoring well MW-4, the MTBE plume is conservatively estimated to be less than 350 feet in length.

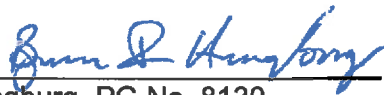
- 3. MTBE in groundwater is greater than 1,000 µg/L and therefore does not meet the Policy.  
**RESPONSE:** During the two most recent sampling events in March and June 2013, MTBE concentrations reported in all groundwater monitoring wells did not exceed 1,000 µg/L. Prior to these two events, the only well with concentrations reported greater than the 1,000 µg/L threshold was MW-2. Since 2011, MTBE concentrations trends in groundwater from MW-2 and all other monitoring wells have been stable or decreasing over time.
- 4. The nearest supply well is between 250 and 1,000 feet from the plume boundary and therefore does not meet the Policy.  
**RESPONSE:** The State Water Board was unable to locate any supply wells within 1,000 feet of the plume boundary. In 2004 and 2012, searches for active supply wells within a 2,000-foot radius of the Site were performed by the responsible party and no active supply wells within 1,000 feet were identified. The nearest active supply well was identified as being approximately 1,250 feet east (upgradient) of the Site.
- 5. The nearest surface water body is between 250 and 1,000 feet from the plume boundary and therefore does not meet the Policy.  
**RESPONSE:** The State Water Board was unable to locate a surface water body between 250 and 1,000 feet from the plume boundary. The nearest identified surface water body is Washington Lake located approximately 4,000 feet to the southwest.

**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.

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8/26/2013  
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Date

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8/26/2013  
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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.<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 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><b>Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this Site?</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><b>Has secondary source been removed to the extent practicable?</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.

<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>Does nuisance as defined by Water Code, section 13050 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 type="checkbox"/> Yes <input checked="" 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><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><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</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 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 INFORMATION (Conceptual Site Model)

### Site Location/ History

- The Site is located at the intersection of North Harbor Boulevard and Evergreen Avenue in West Sacramento, California.
- The Site had a separate leaking UST case that was closed in 1993. The Site is operated as an active fueling facility and a convenience store. Except for planter areas along Harbor Boulevard and Evergreen Avenue, the Site is completely paved with asphalt and concrete.
- The Site is adjoined to the north and east by a parking lot for a grocery store and a restaurant; to the west by Harbor Boulevard with commercial retail across the street; and to the south by Evergreen Avenue. An active fueling facility (Unocal 76) is located approximately 70 feet to the south.
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Primary Source of Release: UST system
- Discovery Date: 2003
- Release Type: Petroleum<sup>2</sup>
- Free Product: None.

**Table A. USTs:**

Tank No.	Size	Contents	Status	Date
1	10,000 gallon	Gasoline	Installed	1991
2	10,000 gallon	Gasoline	Installed	1991
3	10,000 gallon	Gasoline	Installed	1991
4	10,000 gallon	Gasoline	Installed	1991

### Receptors

- Groundwater Basin: Sacramento Valley – Yolo (5-21.67).
- Groundwater Beneficial Uses: Municipal and domestic supply (MUN); agricultural supply (AGR); industrial service supply (IND); and industrial process supply (PRO).
- Designated Land Use: Commercial
- Public Water System: City of West Sacramento.
- Distance to Nearest Surface Waters: Lake Washington is located approximately 4,000 feet southwest (downgradient) of the Site.
- Distance to Nearest Supply Wells: The nearest active supply well exists approximately 1,250 feet east (upgradient) of the Site.

### Geology/ Hydrogeology

- Average Groundwater Depth: Approximately 10 feet bgs
- Minimum Groundwater Depth: 6.33 feet bgs
- Groundwater Flow Direction: West-southwest
- Geology: Site geology consists of asphalt and fill underlain by sands, silts, and clays to a maximum explored depth of approximately 80.5 feet bgs.

<sup>2</sup> "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.)

- Hydrogeology: Groundwater beneath the Site is unconfined. The average depth-to-water is approximately 11 feet bgs. The potentiometric surface is virtually flat with historic hydraulic gradient of less than 0.001 feet per foot dipping to the west-southwest.

**Corrective Actions**

- In 2003 during the replacement of product lines and dispensers, approximately 92 cubic yards of impacted soil and approximately 12,000 gallons of impacted water were disposed off-Site.

**Table B. Concentrations of Petroleum Constituents in Soil**

Constituent	Maximum 0-5 feet bgs (mg/kg)	Maximum 5-10 feet bgs (mg/kg)
Benzene	<0.005	<0.005
Ethylbenzene	0.0045	<0.005
Naphthalene	Not Analyzed	Not Analyzed
PAHs*	Not Analyzed	Not Analyzed

\*Poly-aromatic hydrocarbons as benzo(a)pyrene toxicity equivalent

**Table C. Concentrations of Petroleum Constituents in Groundwater**

Well ID	Date	DTW (feet bgs)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
MW-1	3/19/13	10.02	<50	<0.50	<0.50	<0.50	<1.0	0.88
MW-2	6/28/13	9.91	<500	<0.50	<0.50	<0.50	<1.0	<b>740</b>
MW-3	3/19/13	10.29	<50	<0.50	<0.50	<0.50	<0.50	0.84
MW-4D	3/19/13	10.35	<50	<0.50	<0.50	<0.50	<1.0	<b>7.7</b>
MW-5	6/28/13	13.49	<50	<0.50	<0.50	<0.50	<1.0	<b>120</b>
MW-6	3/19/13	9.93	<50	<0.50	<0.50	<0.50	<1.0	1.1
<b>WQOs</b>			-	<b>1</b>	<b>150</b>	<b>300</b>	<b>1,750</b>	<b>5</b>

**Notes:**

**bold** indicates that sample result exceeds WQOs

DTW – depth to water

TPHg – Total petroleum hydrocarbons as gasoline

MTBE- Methyl tert-butyl ether

bgs – below ground surface

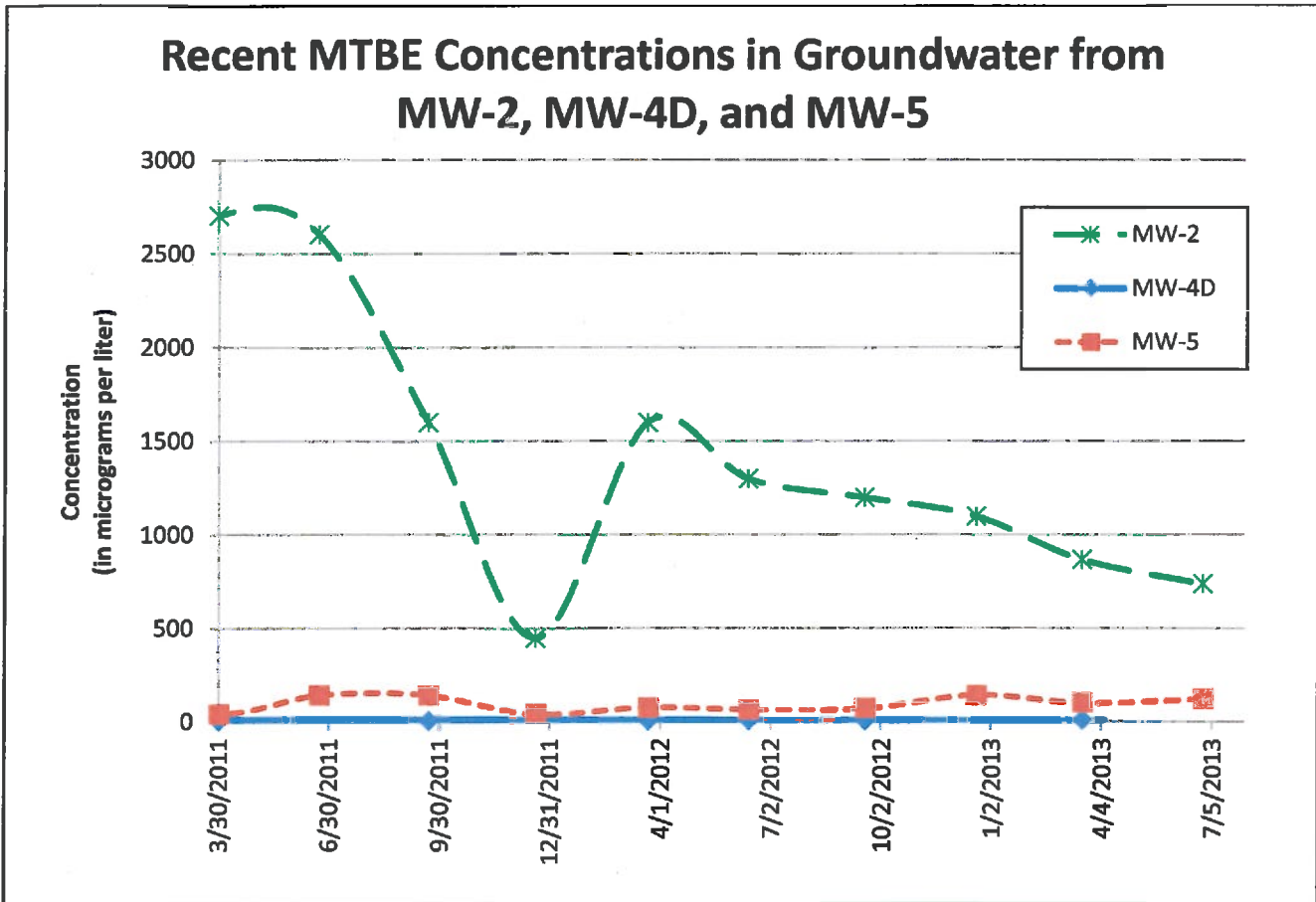
µg/L – micrograms per liter

"<" – indicates result is below the laboratory reporting limit



**Groundwater Trends**

MTBE reported in groundwater from the Site during the most recent eight sampling events demonstrate stable to decreasing trends over time.

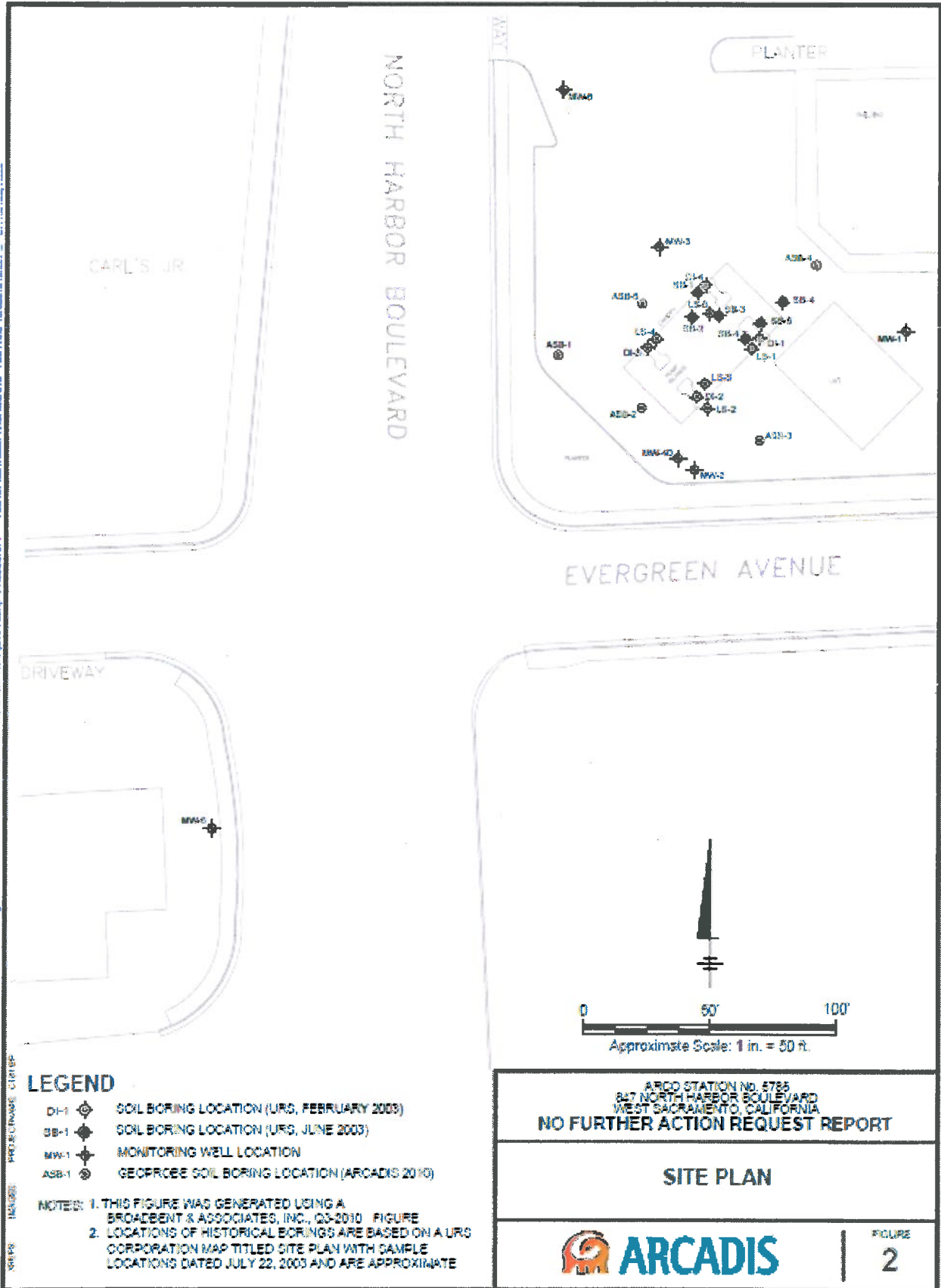


**Evaluation of Risk Criteria**

- Maximum Petroleum Constituent Plume Length above WQOs: The groundwater plume is approximately 300 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 remediation. Site conditions demonstrate that the residual petroleum constituents in soil and groundwater are protective of human health.
- Residual Petroleum Constituents Pose a Nuisance<sup>3</sup> 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 – There are no soil samples results in the case record for naphthalene.

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

However, the relative concentration of naphthalene in soil can be conservatively estimated using the published relative concentrations of naphthalene and benzene in gasoline. Taken from Potter and Simmons (1998), gasoline mixtures contain approximately 2% benzene and 0.25% naphthalene. Therefore, benzene concentrations can be directly substituted for naphthalene concentrations with a safety factor of eight. Benzene concentrations from the Site are below the naphthalene thresholds in Table 1 of the Policy. Therefore, 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.



SHEET 14/15000 PROJECT/CHASE CENTER

**LEGEND**

- DS-1 SOIL BORING LOCATION (URS, FEBRUARY 2003)
- SS-1 SOIL BORING LOCATION (URS, JUNE 2003)
- MW-1 MONITORING WELL LOCATION
- ASB-1 GEORPCEE SOIL BORING LOCATION (ARCADIS 2010)

NOTES: 1. THIS FIGURE WAS GENERATED USING A  
 BROADBENT & ASSOCIATES, INC., Q3-2010 FIGURE  
 2. LOCATIONS OF HISTORICAL BORINGS ARE BASED ON A URS  
 CORPORATION MAP TITLED SITE PLAN WITH SAMPLE  
 LOCATIONS DATED JULY 22, 2003 AND ARE APPROXIMATE

ARCO STATION NO. 5786  
 847 NORTH HARBOR BOULEVARD  
 WEST SACRAMENTO, CALIFORNIA  
**NO FURTHER ACTION REQUEST REPORT**

**SITE PLAN**


FIGURE  
**2**

