

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

ORDER WQ 2013-0004-UST

In the Matter of Underground Storage Tank Case Closure

**Pursuant to Health and Safety Code Section 25299.39.2 and the Low Threat
Underground Storage Tank Case Closure Policy**

BY THE EXECUTIVE DIRECTOR¹:

Pursuant to Health and Safety Code section 25299.39.2, the Manager of the Underground Storage Tank Cleanup Fund (Fund) recommends closure of the underground storage tank (UST) case at the site listed below.² The name of the Fund claimant, the Fund claim number, the site name and the applicable site address are as follows:

BP Products North America, Inc.

Claim No. 5502

BP 11133

2220 98th Avenue, Oakland

I. STATUTORY AND PROCEDURAL BACKGROUND

Section 25299.39.2 directs the Fund manager to review the case history of claims that have been active for five years or more (five-year review), unless there is an objection from the UST owner or operator. This section further authorizes the Fund Manager to make recommendations to the State Water Resources Control Board (State Water Board) for closure of a five-year-review case if the UST owner or operator approves. In response to a recommendation by the Fund Manager, the State Water Board, or in 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;

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 Health and Safety Code.

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.

The Fund Manager has completed a five-year 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 Review Summary Report has been prepared for the case identified above and the bases 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 Review Summary Report.

A. 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 closure letter as specified in Health and Safety Code section 25296.10. The 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 closure letter or a Letter of Commitment, whichever occurs later, shall not be reimbursed unless specified conditions are satisfied. A Letter of Commitment has already been issued on the claim subject to this order and the respective Fund claimant, so the 365-day timeframe for the submittal of claims for corrective action costs will start upon the issuance of the closure letter.

II. FINDINGS

Based upon the UST Case Closure Review Summary Report prepared for the case attached hereto as Exhibit A, the State Water Board finds that corrective action taken to address the unauthorized release of petroleum at the UST release site identified as:

Claim No. 5502

BP 11133

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 Board in determining that the case should be closed.

The UST case identified above may be the subject of orders issued by the Regional Water Quality Control Water 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 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 closure letter, the Fund claimant 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 Fund claimant 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 Financial Assistance shall issue a closure letter consistent with Health and Safety Code, section 25296.10, subdivision (g) and upload the closure letter and UST Case Closure Review Summary Report to GeoTracker.
- E. As specified in Health and Safety Code section 25299.39.2 subdivision (a) (2), corrective action costs incurred after a recommendation of closure shall be limited to \$10,000 per year unless the Board or its delegated representative agrees that corrective action in excess of that amount is necessary to meet closure requirements, or additional corrective actions are necessary pursuant to section 25296.10 subdivision (a) and (b). 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 closure letter in order for the costs to be considered.

F. Any Regional Water Board or Local Oversight Program 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 Local Oversight Program Agency directive is inconsistent with this Order.

Thomas Howard

Executive Director

3/14/13

Date



State Water Resources Control Board

UST CASE CLOSURE REVIEW SUMMARY REPORT

Agency Information

Table with 2 columns: Agency Name and Address. Agency Name: Alameda County Environmental Health Department (Local Oversight Program (County)). Address: 1131 Harbor Bay Parkway, Alameda, CA 94502. Agency Caseworker: Dilan Roe. Case No. RO0000403.

Case Information

Table with 2 columns: Case Information and Address. Rows include: USTCF Claim No.: 5502, Global ID: T0600100210; Site Name: BP #11133, Site Address: 2220 98th Street, Oakland, CA 94603; Responsible Party 1: ConocoPhillips, Attn: Terry Grayson, Address: 76 Broadway Street, Sacramento, CA 95818; Responsible Party 2: Suncor Holdings Corp., Attn: Keith Marks, Address: 11601 Wilshire Blvd, #700, Los Angeles, CA 90025; Responsible Party 3: BP/ARCO, Janet Wager, Attn: Hollis Phillips, Address: 100 Montgomery, Suite 300, San Francisco, CA 94104; USTCF Expenditures to Date: \$574,684, Number of Years Case Open: 25.

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0600100210

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 Low-Threat Policy. A summary evaluation of compliance with the Low-Threat Policy is shown in Attachment 1: Closure of Underground Storage Tank Sites' Checklist for 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. Highlights of the Conceptual Site Model of the case follow:

A leak was reported in June 1987 during the removal of USTs. Since 1998, thirteen monitoring wells have been installed, contaminated soil excavated, and soil and groundwater remediated accounting for the removal of 13,839 pounds of petroleum hydrocarbons from soil vapor and groundwater. According to groundwater data, no free product has been reported since 2001, and water quality objectives (WQOs) have been achieved for all constituents except for TPH gasoline (TPHg), MTBE and benzene in one well. The Site is currently a vacant lot.

According to data available in GeoTracker, there are no public supply wells regulated by California Department of Public Health (CDPH) within 250 feet of the Site. No other supply wells were identified in any of the files reviewed. Water is provided to water users near the Site by the East Bay Municipal Utility District (EBMUD). 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, stable and concentrations declining. 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 Low-Threat Policy

- General Criteria – The case meets all eight Policy general criteria.
- Groundwater – The case meets Groundwater-Specific Criterion: Class 1. The contaminant plume that exceeds water quality objectives is less than 100 feet in length. There is no longer confirmed free product, having been last reported in 2001, and the nearest water supply well or surface water body is greater than 250 feet from the defined plume boundary.
- Vapor Intrusion to Indoor Air – The case meets Policy Criterion 2b. A professional assessment of site-specific risk from exposure shows that maximum concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health. The Site currently consists of a flat vacant lot covered with gravel, soil, concrete, low-growing vegetation and no structures. Concentrations of gasoline constituents above the WQOs are located in the former source area, with no plans to change the current land use. No current risk to indoor air exists at the Site.
- Direct Contact and Outdoor Air Exposure – The case meets Policy Criterion 3a. Maximum concentrations in soil are less than those in Table 1 for Commercial/Industrial 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 3% benzene and 0.25% naphthalene. Therefore, benzene can be directly substituted for naphthalene concentrations with a safety factor of ten. Benzene concentrations from the Site are below the naphthalene thresholds in Table 1 of the Policy. Therefore, the estimated naphthalene concentrations meet the thresholds in Table 1 and the Policy criteria for direct contact by a factor of ten. It is highly unlikely that naphthalene concentrations in the soil, if any, exceed the threshold.

Objections to Closure

The County provided their objections to closure on November 15, 2012:

- Invalid Sampling results due to well construction
RESPONSE: The rise in groundwater elevations has been a common occurrence over recent years, submerging some well screens throughout parts of California. The County has accepted these data for 25 years and only questioned them recently. It is unlikely

that resolving the discrepancies would change the conceptual site model and result in a different determination about whether the Site meets Policy Criteria.

- Data inconsistencies in the case file:
RESPONSE: Multiple consultants have worked on this project over 25 years which has resulted in reporting discrepancies. The County has accepted these data for 25 years and only questioned them recently. It is unlikely that resolving the discrepancies would change the conceptual site model and result in a different determination about whether the Site meets the Policy criteria.
- Incomplete public notification process.
RESPONSE: All necessary parties were notified as required by the Policy.
- Data gaps exist.
RESPONSE: Data gaps that may exist are insignificant. It is unlikely that filling data gaps would change the conceptual site model and result in a different determination about whether the Site meets the Policy criteria.
- Application of the Policy Checklist.
RESPONSE: The State Water Board Low-Threat Policy Checklist was used appropriately as a tool to assist in determining if a site meets the criteria in the Policy. The application of the Policy and the Checklist at this Site was reviewed by multiple registered professional staff.

Fund Manager Recommendation for Closure

Based on available information, residual petroleum hydrocarbons at the Site do not pose significant risks 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. The Alameda County has the regulatory responsibility to supervise the abandonment of monitoring wells.

Lisa Babcock

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

12/16/12

Date

Prepared by: Pat G. Cullen, P.G.

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

The site 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 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? There was an order issued for this site. The corrective action performed in the past is consistent with that order. Since this case meets applicable case-closure requirements, further corrective action under the order that is not necessary, unless the activity is necessary for case closure.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p>General Criteria 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><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>

¹ Refer to the Low-Threat Underground Storage Tank Case Closure Policy for closure criteria for low-threat petroleum UST sites.
http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf

<p>Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed?</p> <p>Has secondary source been removed to the extent practicable?</p> <p>Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?</p> <p>Nuisance as defined by Water Code section 13050 does not exist at the site?</p> <p>Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</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</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p><u>Media-Specific Criteria</u> Candidate sites must satisfy all three of these media-specific criteria:</p> <p>1. Groundwater: To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites:</p> <p>Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?</p> <p>Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites?</p> <p>If YES, check applicable class: <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5</p> <p>For sites with releases that have not affected groundwater, do mobile constituents (leachate, vapors, or light non-aqueous phase liquids) contain sufficient mobile constituents to cause groundwater to exceed the groundwater criteria?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p>2. Petroleum Vapor Intrusion to Indoor Air: The site is considered low-threat for vapor intrusion to indoor air if site-specific conditions satisfy all of the characteristics of one of the three classes of sites (a through c) or if the exception for active commercial fueling facilities applies.</p> <p>Is the site an active commercial petroleum fueling facility? Exception: Satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities, except in cases where release characteristics can be reasonably believed to pose an unacceptable health risk.</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</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>c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input 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>3. Direct Contact and Outdoor Air Exposure: The site is considered low-threat for direct contact and outdoor air exposure if site-specific conditions satisfy one of the three classes of sites (a through c).</p> <p>a. Are maximum concentrations of petroleum constituents in soil less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs)?</p> <p>b. Are maximum concentrations of petroleum constituents in soil less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health?</p> <p>c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>

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

Site Location/ History

- The Site currently consists of a flat vacant lot covered with gravel, soil, concrete, and low-lying vegetation, and is located at the southeastern corner of 98th Avenue and Bancroft Avenue in Oakland, California. BP acquired the Site from Mobil Oil Corporation in 1989; and, in January 1994, BP transferred the Site to TOSCO Marketing Company (TOSCO; now known as ConocoPhillips) and did not operate the facility. TOSCO ceased gasoline retail operations at the Site in 1999.
- The land use in the immediate vicinity of the Site is mixed commercial and residential.
- In June 1987, soil contamination was identified.
- Thirteen monitoring wells have been installed and monitored regularly.
- Site map showing the location of the former USTs, monitoring wells, and groundwater level contours is provided at the end of this summary.
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date Reported: June 15, 1987.
- Status of Release: USTs removed.
- Free-Phase Hydrocarbons: Yes, up to 1.11 feet in MW-1 and 1.38 feet in RW-1. A total of 162 gallons recovered by 2001. No free product has been reported since 2001.

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active	Date
1	10,000	Gasoline	Removed	June 1987
2	8,000	Gasoline	Removed	June 1987
3	5,000	Gasoline	Removed	June 1987
4	10,000	Gasoline	Removed	October 1998
5	10,000	Gasoline	Removed	October 1998
6	12,000	Gasoline	Removed	October 1998

Receptors

- GW Basin: Santa Clara Valley – East Bay Plain.
- Beneficial Uses: Municipal and Domestic Supply.
- Land Use Designation: Unspecified, however review of aerial photography indicates land use in the area is of mixed use with a park to the west, a school to the south and southwest, and multifamily residential to the north and east.
- Public Water System: East Bay Municipal Utility District.
- Distance to Nearest Supply Well: According to data available in GeoTracker, there are no public supply wells regulated by CDPH within 250 feet of the Site. No other supply wells were identified in any of the files reviewed.
- Distance to Nearest Surface Water Body: No surface water bodies were identified within 250 feet of the Site.

Geology/ Hydrogeology

- Stratigraphy: The Site is underlain by clay, silty clay and clayey silt.
- Maximum Sample Depth: 32 feet bgs.

- Minimum Groundwater Depth: 5.31 feet below ground surface (bgs) at monitoring well VEW-9.
- Maximum Groundwater Depth: 21.07 feet bgs at monitoring well AW-9.
- Current Average Depth to Groundwater: 14 feet bgs.
- Saturated Zones(s) Studied: 5 - 35 bgs.
- Appropriate Screen Interval: Yes, most monitoring wells have been submerged for the past couple years.
- Groundwater Flow Direction: West with an average gradient of 0.01 feet/foot (ft/ft).

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (7/14/2011)
AW-1	June 1990	15-35	14.05
AW-2	April 1991	20-40	14.92
AW-3	April 1991	15-35	13.54
AW-4	June 1990	15-35	15.50
AW-5	April 1991	20-45	16.7
AW-6	April 1991	20-35	14.23
AW-7	April 1991	20-35	No Access
AW-8	April 1991	20-40	14.92
AW-9	January 1997	12-28	15.85
MW-1	May 1988	10-29	10.96
MW-2	May 1988	12-32	8.90
MW-3	May 1988	14-34	11.96
RW-1	April 1991	15-40	13.87

Remediation Summary (Secondary Source Removal)

- Free Product: Yes, up to 1.11 feet in MW-1 and 1.38 feet in RW-1. A total of 162 gallons recovered by 2001. No free product has been reported since 2001.
- Soil Excavation: Two excavations have occurred at the Site:
 1987 - An unknown amount of soil was excavated, transported and disposed offsite.
 1998 - Approximately 655 tons of soil were excavated, transported and disposed offsite.
- In-Situ Soil and Groundwater Remediation: A soil vapor extraction system (SVE) in conjunction with a groundwater extraction and treatment system (GWETS) was installed and started operation in 1994. In December 1998, when the system was turned off, a total of 13,839 pounds of petroleum hydrocarbons was reported to have been removed.

Most Recent Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs. [mg/kg and (date)]	Maximum 5-10 feet bgs [mg/kg and (date)]
Benzene	<0.005 @5' in SB1 7/22/2005	<0.0048 @5' in SB1 7/22/2005
Ethylbenzene	<0.0046 @5' in SB1 7/22/2005	<0.0048 @9' in SB1 7/22/2005
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)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
AW-1	7/14/2011	1,600	35	<0.5	92	6.8	26	20
AW-2	7/14/2011	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<4.0
AW-3	7/14/2011	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<4.0
AW-4	7/14/2011	<50	5.4	<0.5	1.7	2.2	4.2	<4.0
AW-5	7/14/2011	<50	<0.5	<0.5	<0.5	<0.5	0.87	4.1
AW-6	7/14/2011	<50	<0.5	<0.5	<0.5	<0.5	47	<4.0
AW-7	7/14/2011	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<4.0
AW-8	7/14/2011	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<4.0
AW-9	7/14/2011	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<4.0
MW-1	7/14/2011	330	<0.5	<0.5	<0.5	<0.5	<0.5	<4.0
MW-2	7/14/2011	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<4.0
MW-3	7/14/2011	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<4.0
RW-1	7/14/2011	310	0.07	<0.5	<0.5	3.1	1.1	8.9
WQOs	-		1	150	300	1,750	5	1,200^a

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

TPHd: Total petroleum hydrocarbons as diesel

MTBE: Methyl tert-butyl ether

TBA: Tert-butyl alcohol

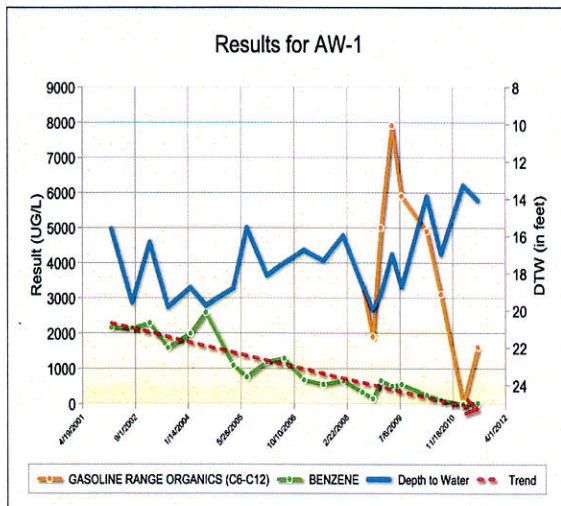
WQOs: Water Quality Objectives, Region 2 Basin Plan

^a: CDPH, Response Level

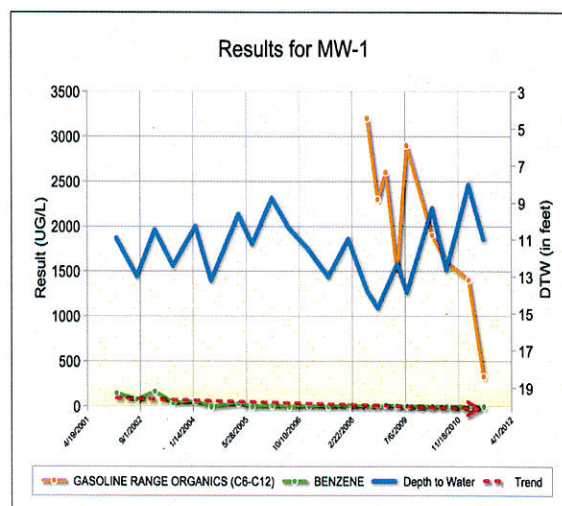
Groundwater Trends:

- There are 21 years of groundwater monitoring data for this Site which demonstrate the concentrations are decreasing and the plume is stable.

Source area well



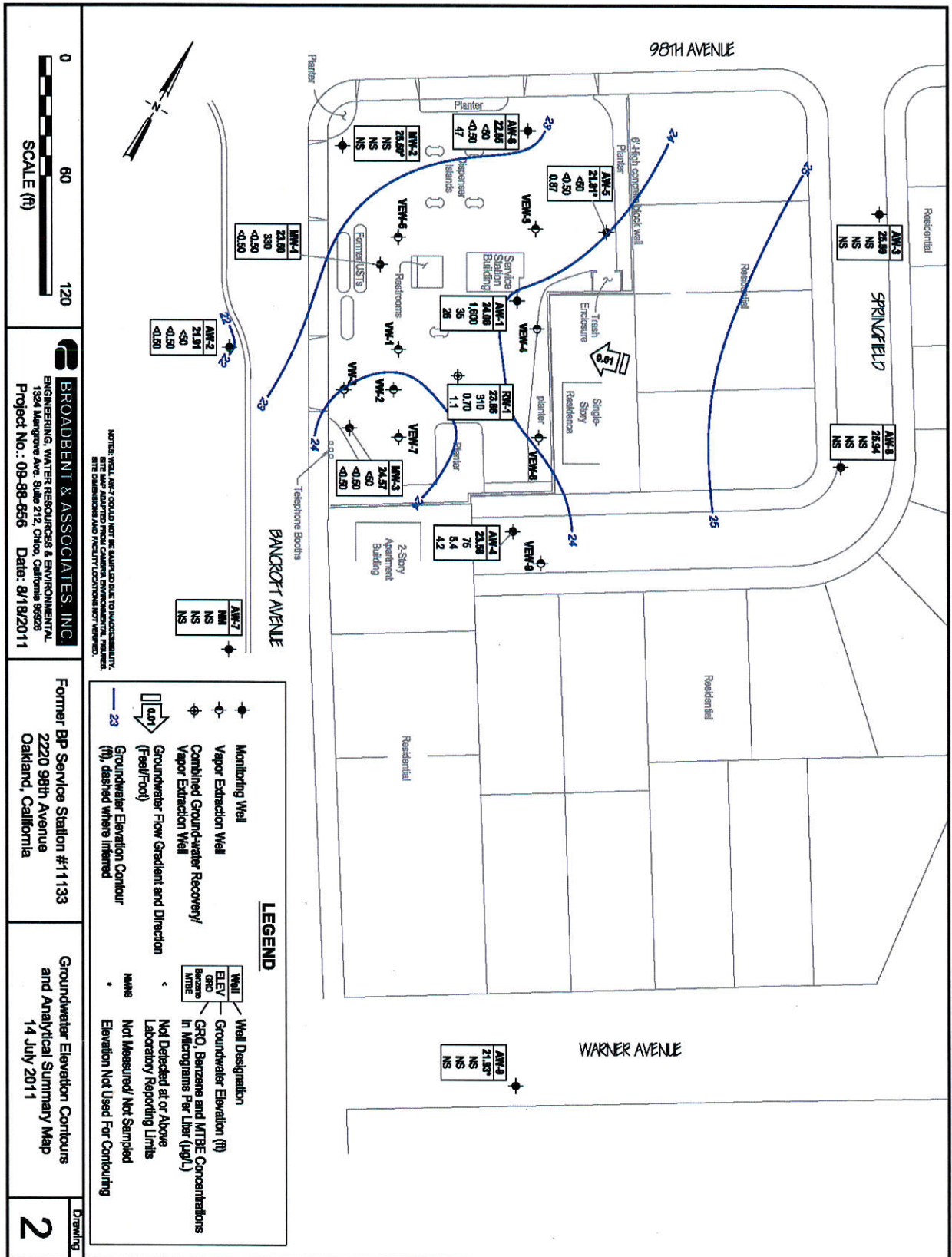
Downgradient well near property line



Evaluation of Risk

- Estimate of Hydrocarbon Mass in Soil: None reported.
- Soil/Groundwater tested for MTBE: Yes, see table below.

- Oxygen Concentrations in Soil Vapor: None reported.
- Plume Length: <100 feet long.
- Plume Stable or Degrading: Yes.
- Contaminated Zone(s) Used for Drinking Water: No.
- Groundwater Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 1. The contaminant plume that exceeds water quality objectives is less than 100 feet in length. There is no longer confirmed free product, having been last reported in 2001, and the nearest water supply well or surface water body is greater than 250 feet from the defined plume boundary.
- Indoor Vapor Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 2b. A professional assessment of site-specific risk from exposure shows that maximum concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health. The Site currently consists of a flat vacant lot covered with gravel, soil, concrete, low-growing vegetation and no structures. Concentrations of gasoline constituents above the WQOs are located in the former source area, with no plans to change the current land use. No current risk to indoor air exists at the Site.
- Direct Contact Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 3a. Maximum concentrations in soil are less than those in Table 1 for Commercial/Industrial 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 3% benzene and 0.25% naphthalene. Therefore, benzene can be directly substituted for naphthalene concentrations with a safety factor of ten. Benzene concentrations from the Site are below the naphthalene thresholds in Table 1 of the Policy. Therefore, the estimated naphthalene concentrations meet the thresholds in Table 1 and the Policy criteria for the soil, if any, exceed the threshold.



BROADBENT & ASSOCIATES, INC.
 ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
 1324 Mangrove Ave. Suite 2172, Chgo, California 95626
 Project No.: 09-86-656 Date: 8/18/2011

NOTES: WELL AW-9 WAS FOUND TO BE A DRAINAGE PIPE TO NEIGHBORING PL. WELL AW-7 LOCATED FROM CEMENT DRIVEWAY. THESE WELLS ARE NOT TO BE USED FOR SITE CHARACTERIZATION AND FACILITY LOCATION NOT VERIFIED.

Former BP Service Station #11133
 2220 98th Avenue
 Oakland, California

Groundwater Elevation Contours
 and Analytical Summary Map
 14 July 2011

Drawing
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