State Water Resources Control Board

UST CASE CLOSURE REVIEW SUMMARY REPORT

Agency Information

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

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 over25 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]

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.	☒ Yes ☐ No
Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this site?	☐ Yes ☒ No
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.	☐ Yes ☐ No ☒ NA
General Criteria General criteria that must be satisfied by all candidate sites: **Is the unauthorized release located within the service area of a public water system?** **Does the unauthorized release consist only of petroleum?** **Has the unauthorized ("primary") release from the UST system been stopped?** **Has free product been removed to the maximum extent practicable?**	☒ Yes ☐ No ☒ Yes ☐ No ☒ Yes ☐ No

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

Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed?	☒ Yes ☐ No ☐ NA
Has secondary source been removed to the extent practicable?	☒ Yes ☐ No
Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?	☒ Yes ☐ No
Nuisance as defined by Water Code section 13050 does not exist at the site?	☒ Yes ☐ No
Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?	☐ Yes ☒ No
<u>Media-Specific Criteria</u> Candidate sites must satisfy all three of these media-specific criteria: **1. Groundwater:** To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites: **Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?**	☒ Yes ☐ No ☐ NA
Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites?	☒ Yes ☐ No ☐ NA
If YES, check applicable class: ☒ **1** ☐ **2** ☐ **3** ☐ **4** ☐ **5** **For sites with releases that have not affected groundwater, do mobile constituents (leachate, vapors, or light non-aqueous phase liquids) contain sufficient mobile constituents to cause groundwater to exceed the groundwater criteria?**	☐ Yes ☐ No ☒ NA
2. Petroleum Vapor Intrusion to Indoor Air: The site is considered low-threat for vapor intrusion to indoor air if site-specific conditions satisfy all of the characteristics of one of the three classes of sites (a through c) or if the exception for active commercial fueling facilities applies. **Is the site an active commercial petroleum fueling facility?** Exception: Satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities, except in cases where release characteristics can be reasonably believed to pose an unacceptable health risk.	☐ Yes ☒ No

a. Do site-specific conditions at the release site satisfy all of the applicable characteristics and criteria of scenarios 1 through 3 or all of the applicable characteristics and criteria of scenario 4? If YES, check applicable scenarios: ☐ **1** ☐ **2** ☐ **3** ☐ **4**	☐Yes ☐ No ☒ NA
b. Has a site-specific risk assessment for the vapor intrusion pathway been conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency?	☒ Yes ☐ No ☐ NA
c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health?	☐ Yes ☐ No ☒ NA
3. Direct Contact and Outdoor Air Exposure: The site is considered low-threat for direct contact and outdoor air exposure if site-specific conditions satisfy one of the three classes of sites (a through c).	
a. Are maximum concentrations of petroleum constituents in soil less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs)?	☒ Yes ☐ No ☐ NA
b. Are maximum concentrations of petroleum constituents in soil less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health?	☐Yes ☐ No ☒ NA
c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health?	☐ Yes ☐ No ☒ NA

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

Site Location/ History

- The Site 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	June1990	15-35	14.05
AW-2	April 1991	20-40	14.92
AW-3	April 1991	15-35	13.54
AW-4	June1990	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

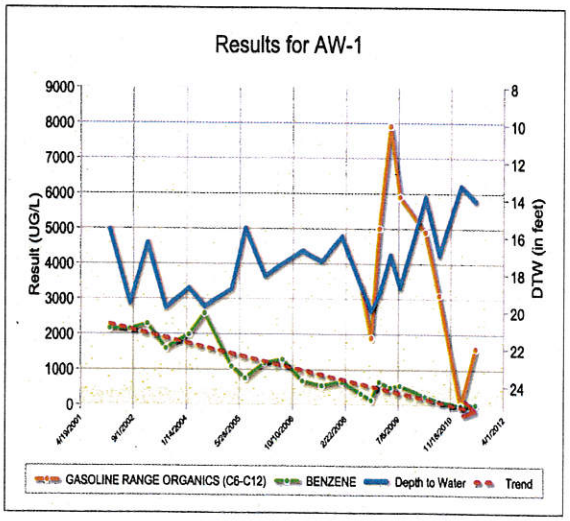
Sample	Sample Date	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
AW-1	7/14/2011	**1,600**	**35**	<0.5	92	6.8	**26**	20
AW-2	7/14/2011	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<4.0
AW-3	7/14/2011	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<4.0
AW-4	7/14/2011	<50	**5.4**	<0.5	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

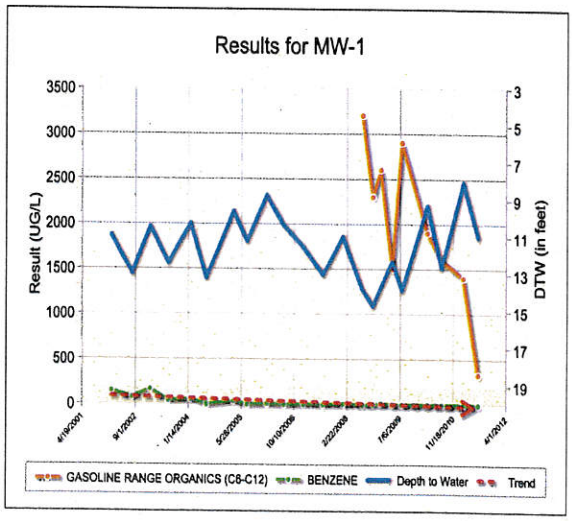
Groundwater Trends:

- 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



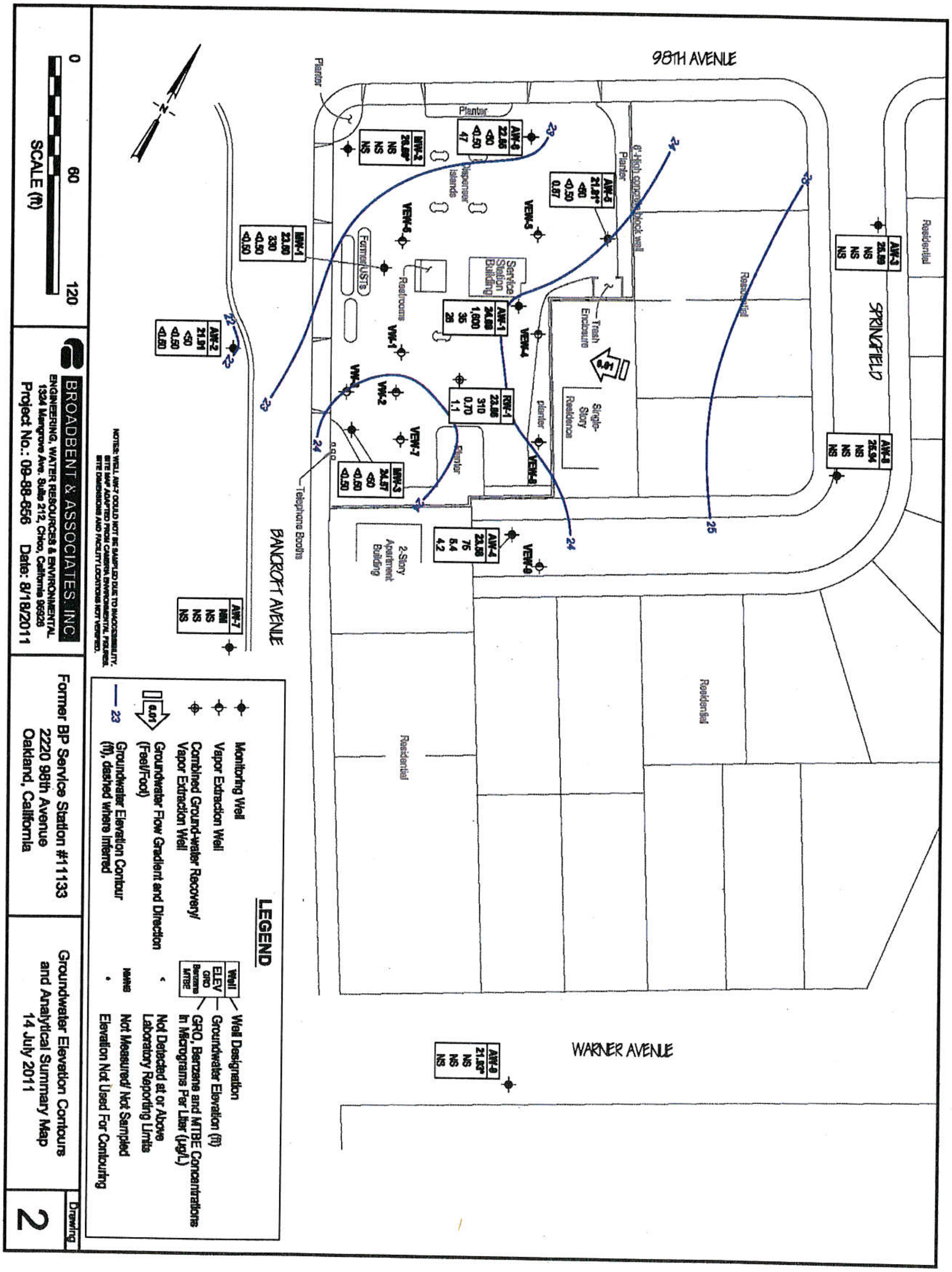
Downgradient well near property line



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.


98TH AVENUE
SPRINGFIELD
BANCROFT AVENUE
WARNER AVENUE
Residential
Planter
Dispenser Islands
Service Station Building
Restrooms
Former USTs
Trash Enclosure
Single-Story Residence
2-Story Apartment Building
Telephone Booths
SCALE (ft)
0
60
120
LEGEND
Monitoring Well
Vapor Extraction Well
Combined Ground-water Recovery/ Vapor Extraction Well
Groundwater Flow Gradient and Direction (Feet/Foot)
Groundwater Elevation Contour (ft), dashed where inferred
Well Designation
Groundwater Elevation (ft)
GRO, Benzene and MTBE Concentrations In Micrograms Per Liter (µg/L)
Not Detected at or Above Laboratory Reporting Limits
Not Measured/ Not Sampled
Elevation Not Used For Contouring
BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California 95926
Project No.: 09-88-656 Date: 8/18/2011
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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