STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

ORDER WQ 2013-0031-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

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BY THE EXECUTIVE DIRECTOR[1]:

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:

Gerald Friedkin
Chevron EMC
Express Auto Clinic
Claim No. 10630
Chevron #21-1283/Express Auto
3810 Broadway, Oakland
Alameda County Environmental Health Department

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.

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[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.

Closure of a UST case is appropriate where the corrective action ensures the protection of human health, safety, and the environment and where the corrective action is consistent with: 1) Chapter 6.7 of Division 20 of the Health and Safety Code and implementing regulations; 2) Any applicable waste discharge requirements or other orders issued pursuant to Division 7 of the Water Code; 3) All applicable state policies for water quality control; and 4) All applicable water quality control plans.

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, the State Water Board finds that corrective action taken to address the unauthorized release of petroleum at the UST release site identified as:

Express Auto Clinic
Claim No. 10630

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, subdivisions (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

6/9/13
Date

UST CASE CLOSURE REVIEW SUMMARY REPORT
REVISED JUNE 2013 AS THE RESULT OF PUBLIC COMMENTS

Agency Information

Agency Name: Alameda County Environmental Health Department (County)	Address: 1131 Harbor Bay Parkway Alameda, CA 94502
Agency Caseworker: Mark Detterman	Case No.: RO0000056

Case Information

USTCF Claim No.: 10630	Global ID: T0600101108
Site Name: Chevron #21-1283/Express Auto	Site Address: 3810 Broadway Oakland, CA 94611
Responsible Party #1: Gerald Friedkin	Address: 300 Grand Avenue Oakland, CA 94610
Responsible Party #2: Chevron EMC Attn: Ms. Kelly Esters	Address: 6101 Bollinger Canyon Rd., Room 5323, San Ramon, CA 94583
Responsible Party #3: Express Auto Clinic Attn: Mr. Joe Zadik	Address: 8255 San Leandro Street Oakland, CA 94621
USTCF Expenditures to Date: $76,151	Number of Years Case Open: 21

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0600101108

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:

The Site is an active commercial petroleum fueling and automobile repair facility. A 550-gallon waste oil UST was removed and an unauthorized leak was reported in May 1991. An unknown volume of impacted soil was excavated during the removal of the UST. Additional excavation of approximately 1,400 cubic yards of impacted soil was performed in February to March 2000. The excavation in the source area extended to a depth of 22 feet below ground surface (bgs) and was backfilled with clean fill (approximately 800 pounds of oxygen release compound mixed with soil was placed in the bottom of the excavation). According to groundwater data, water quality objectives have been achieved or nearly achieved for all constituents except for benzene and methyl tert-butyl ether (MTBE).

The petroleum release is limited to the shallow soil and groundwater. According to data available in GeoTracker, there are no supply wells regulated by the California Department of Public Health within 1,000 feet of the defined plume boundary. No other water supply wells have been identified

within 1,000 feet of the defined plume boundary in files reviewed. An east west concrete culvert (creek) is present on approximately 300 feet downgradient of the Site. This concrete culvert is below grade for at least 1,000 feet east and west of the Site. Water is provided to water users near the Site by East Bay Municipal Utilities District.

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 Policy

- General Criteria: The case meets all eight Policy general criteria.
- Groundwater Specific Criteria: The case meets Policy Criterion 1 by Class 5. An earlier unidentified creek is located 300 feet from the Site in a concrete culvert. That concrete culvert extends at least 1,000 feet northeast and southwest of the hospital and parking structure on the northwest side of the Kaiser Permanente property and was not seen during our evaluation. If not for the creek, the case would meet Policy 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 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.
- Vapor Intrusion to Indoor Air: Policy Exclusion for Active Station. Soil vapor evaluation is not required because the Site is an active commercial petroleum fueling facility.
- 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 use, 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

The County, as documented in the Closure Review located on the 09-42 Case Review page in GeoTracker (dated 4/15/2010) objects to UST case closure for this case because:

- Site characterization is not complete and contamination is not defined.
  RESPONSE: Concentrations in soil and groundwater are defined to low to non-detect levels.
- Source control is feasible and needed to reduce offsite migration and reduce source mass.
  RESPONSE: No free product has been documented in site wells since 2000. The

secondary source has been removed to the extent practicable. The petroleum hydrocarbon plume is stable or decreasing.

- Soil vapor risks are not identified.
  RESPONSE: The Site is an active commercial petroleum fueling facility. Remaining maximum concentrations in soil are less than those in Policy Table 1 for both Commercial/Industrial and Residential land uses. Remaining petroleum hydrocarbon constituents do not pose a significant risk to human health.
- Designated beneficial uses of groundwater at the Site (municipal and domestic supply) need to be protected.
  RESPONSE: Water is provided to water users near the Site by East Bay Municipal Utilities District. 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.
- Comment received during Public comment period: The County identified a creek 300 feet downgradient of the Site that was not visible using aerial photography.
  RESPONSE: The creek is in an underground concrete culvert that extends at least 1,000 feet northeast and southwest of the hospital and parking structure. It is located on the northwest side of the KP property and was not seen during our evaluation. The RSR has been revised as the result of this new information. After further evaluation, instead of using Class 2 the Site meets the Policy criteria for Class 5.

  The bottom of the culvert (creek) is located at 12 feet bgs (Oakland Public Works, 2013) and groundwater is at 19 feet bgs prior to the dewatering associated with the parking structure that maintains groundwater at a depth in excess of 30 feet bgs.. The minimum historical groundwater depth was 14 feet bgs. Groundwater dewatering beneath the parking structure has to be maintained or the lower levels of the structure will flood. Therefore the contaminated groundwater and the surface water body and the will never come into hydraulic contact.

Determination
Based on the review performed in accordance with Health & Safety Code Section 25299.39.2 subdivision (a), the Fund Manager has determined that closure of the case is appropriate.

Recommendation for Closure
Based on available information, residual petroleum hydrocarbons at the Site do not pose a significant risk 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. Alameda County has the regulatory responsibility to supervise the abandonment of monitoring wells.

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

5/31/13
Date

Prepared by: Roger Hoffmore, P.G. 7660

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.[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 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.	☒ Yes ☐ No
Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this case?	☐ Yes ☒ No
If so, was the corrective action performed consistent with any order?	☐ Yes ☐ No ☒ NA
<u>General Criteria</u> General criteria that must be satisfied by all candidate sites:	
Is the unauthorized release located within the service area of a public water system?	☒ Yes ☐ No
Does the unauthorized release consist only of petroleum?	☒ Yes ☐ No
Has the unauthorized ("primary") release from the UST system been stopped?	☒ Yes ☐ No
Has free product been removed to the maximum extent practicable?	☒ Yes ☐ No ☐ NA
Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed?	☒ 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 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
Media-Specific Criteria 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 is located at the northeast corner of the intersection of Broadway and 38th Street in Oakland and is an active commercial petroleum fueling and automobile repair facility.
- Current site features include a station building, automobile repair building, fuel dispenser islands, and a UST complex.
- The Site is bounded on the northwest by Broadway, to the southwest by 38th Street, to the southeast by residential apartments, and to the northeast by commercial and residential buildings. On the far side of Broadway and 38th Streets is the Kaiser Hospital complex.
- Site maps showing the location of the USTs, monitoring wells, groundwater level contours, and contaminant concentrations are provided at the end of this closure review summary (ARCADIS, 2013).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date reported: May 1991.
- Status of Release: USTs removed.
- Free Product: Free product was last reported in monitoring well MW-2, MW-3 and MW-8 in 2000.

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active	Date
1	6,000	Unknown	Removed	February 1980
2	6,000	Unknown	Removed	February 1980
3	6,000	Unknown	Removed	February 1980
4	6,000	Unknown	Removed	February 1980
5	550	Waste Oil	Removed	May 1991

Receptors

- GW Basin: Santa Clara Valley – East Bay Plain.
- Beneficial Uses: The San Francisco Regional Water Quality Control Board (Regional Water Board) Basin Plan lists Municipal and Domestic Supply.
- Land Use Designation: Commercial.
- Public Water System: East Bay Municipal Water District.
- Distance to Nearest Supply Well: According to data available in GeoTracker, there are no public supply wells regulated by California Department of Public Health within 1,000 feet of the defined plume. No other water supply wells were identified within 1,000 feet of the defined plume boundary in the files reviewed.
- Distance to Nearest Surface Water: During the Public Notice period a concrete lined sub-grade culvert (creek) that runs generally northeast to southwest was identified approximately 300 feet northwest of the Site. The bottom of the culvert is approximately 12 feet bgs and groundwater ranges 14 to 19 feet bgs. A major continuously operated dewatering system is present in the hospital parking structure that lowers the local groundwater elevations to below 30 feet bgs. This structure is located between the Site and the culvert. Hydraulic communication between groundwater and the bottom of the culvert is believed to be unlikely.

Geology/Hydrogeology

- Stratigraphy: The Site is underlain primarily by unconsolidated fill material overlying sandy silts and clays, interbedded with well sorted sands and silty sands (ARCADIS, 2012).
- Maximum Sample Depth: 35 feet below ground surface (bgs).
- Minimum Groundwater Depth: 14.00 feet bgs at monitoring well MW-9.
- Maximum Groundwater Depth: 34.24 feet bgs at monitoring well MW-11.
- Current Average Depth to Groundwater: Approximately 19 feet bgs.
- Saturated Zones(s) Studied: Approximately 14 - 40 feet bgs.
- Appropriate Screen Interval: Yes.
- Groundwater Flow Direction: Groundwater flow direction varies considerably, ranging among north, west and south. Groundwater mounding and groundwater depressions related to offsite dewatering (on the Kaiser property during construction) have also been observed (ARCADIS, 2012). Predominant groundwater flow direction is currently to the west (ARCADIS, 2013).

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (12/28/2012)
MW-1	October 1991	24-34	NM
MW-4	October 1995	26-36	19.30
MW-5B	May 2002	10-30	20.52
MW-6	September 1996	10-35	21.39
MW-7	September 1996	10-35	19.18
MW-9	September 1996	10-35	17.37
MW-10	September 1996	10-35	19.19
MW-11	August 2000	15-40	25.55
MW-12	May 2002	10-30	19.60

NM: Not measured

Remediation Summary

- Free Product: Free product was last reported in monitoring well MW-2, MW-3, and MW-8 in 2000.
- Soil Excavation: An unknown volume of impacted soil was excavated during the removal of the waste oil UST in 1991. Additional excavation of approximately 1,400 cubic yards of petroleum hydrocarbon impacted soil was performed at the Site in February to March 2000 and extended in the source area to a depth of 22 feet bgs and was backfilled with clean fill. Approximately 800 pounds of oxygen release compound mixed with soil was placed in the bottom of the excavation.
- In-Situ Soil/Groundwater Remediation: None reported.

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	<0.002 (06/29/12)	<2 (07/02/12)
Ethylbenzene	<0.002 (06/29/12)	0.57 (07/02/12)
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

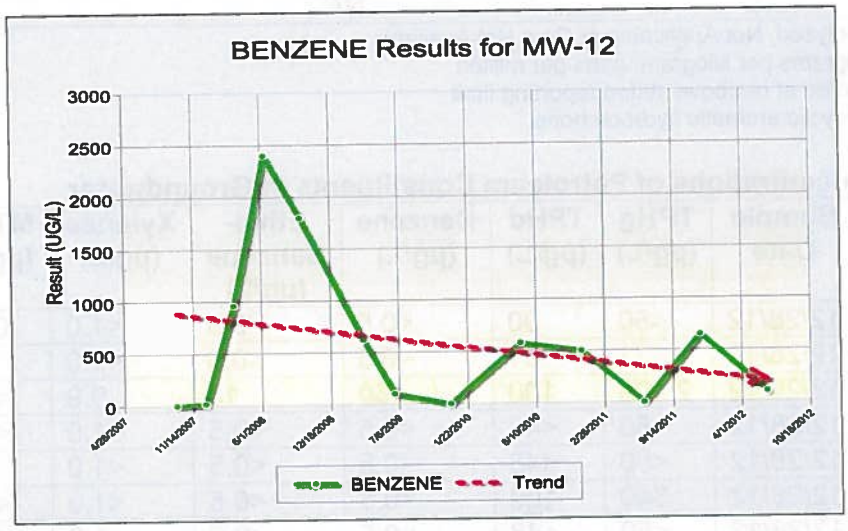
Sample	Sample Date	TPHg (µg/L)	TPHd (µg/L)	Benzene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
MW-4	12/28/12	<50	90	<0.5	<0.5	<1.0	0.55	<10
MW-5B	12/28/12	72	61	<0.5	<0.5	<1.0	**14**	<10
MW-6	12/28/12	2,100	100	**460**	13	9.9	<2.5	58
MW-7	12/28/12	<50	<48	<0.5	<0.5	<1.0	<0.5	<10
MW-9	12/28/12	<50	<48	<0.5	<0.5	<1.0	**43**	16
MW-10	12/28/12	340	100	<0.5	<0.5	<1.0	<0.5	<10
MW-11	12/28/12	<50	<48	<0.5	<0.5	<1.0	<0.5	<10
MW-12	12/28/12	3,900	120	**850**	34	29	<5.0	<100
WQOs	-	--	--	**1**	**700**	**1,750**	**5[a]**	**1,200[b]**

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 w/ silica gel clean-up
MTBE: Methyl tert-butyl ether
TBA: Tert-butyl alcohol
WQOs: Water Quality Objectives, Regional Water Board except where indicated
--: Regional Water Board Basin Plan has no numeric WQO for TPHg and TPHd
[a]: Secondary maximum contaminant level (MCL)
[b]: California Department of Public Health, Response Level

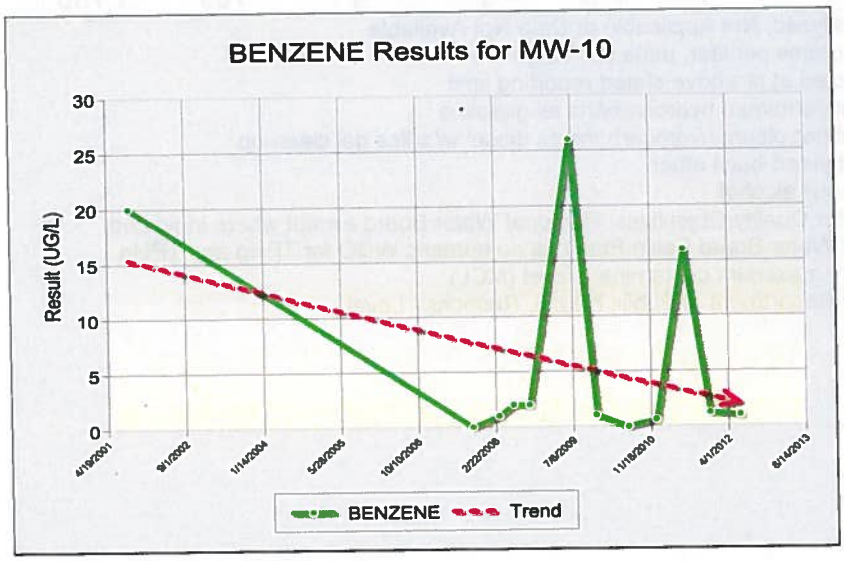
Groundwater Trends

- There are 21 years of groundwater monitoring data for this case. Benzene trends remain high and decreasing in the source area (MW-5B and MW-12). MTBE exceeds water quality objectives and are decreasing north of the plume (MW-5B and MW-7). Site shows effects of groundwater mounding northeast of Site. Benzene trends are shown below:

Source Area Well



Downgradient Well



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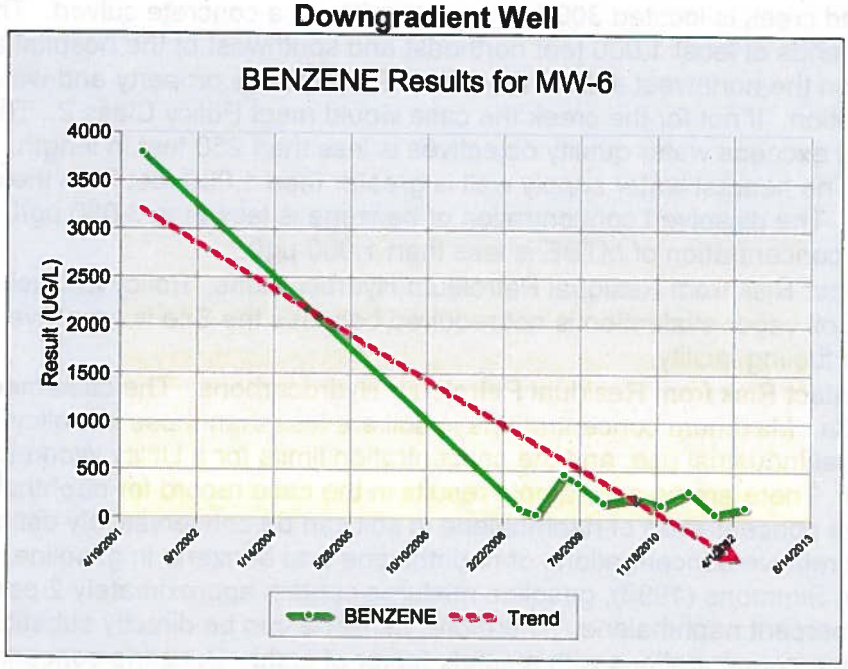
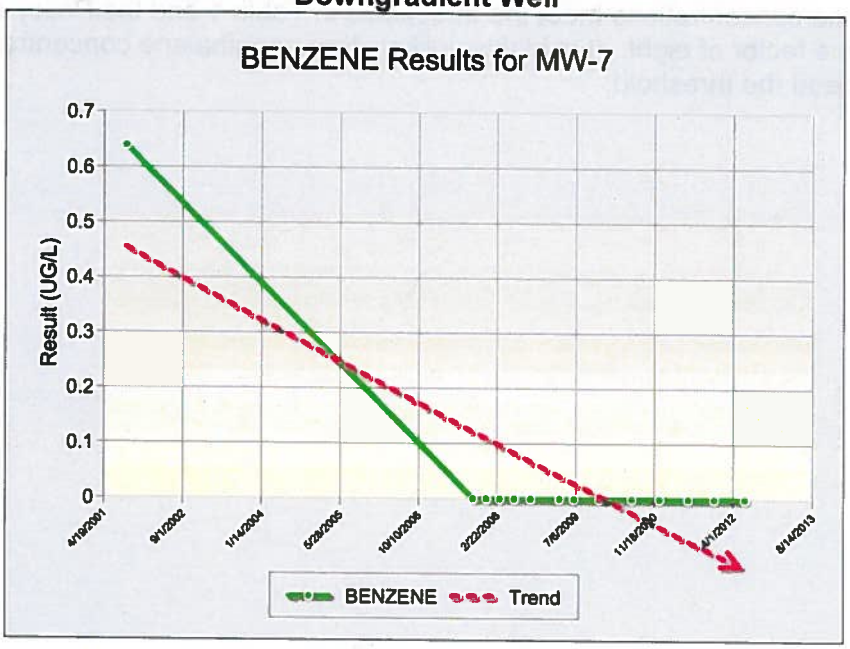


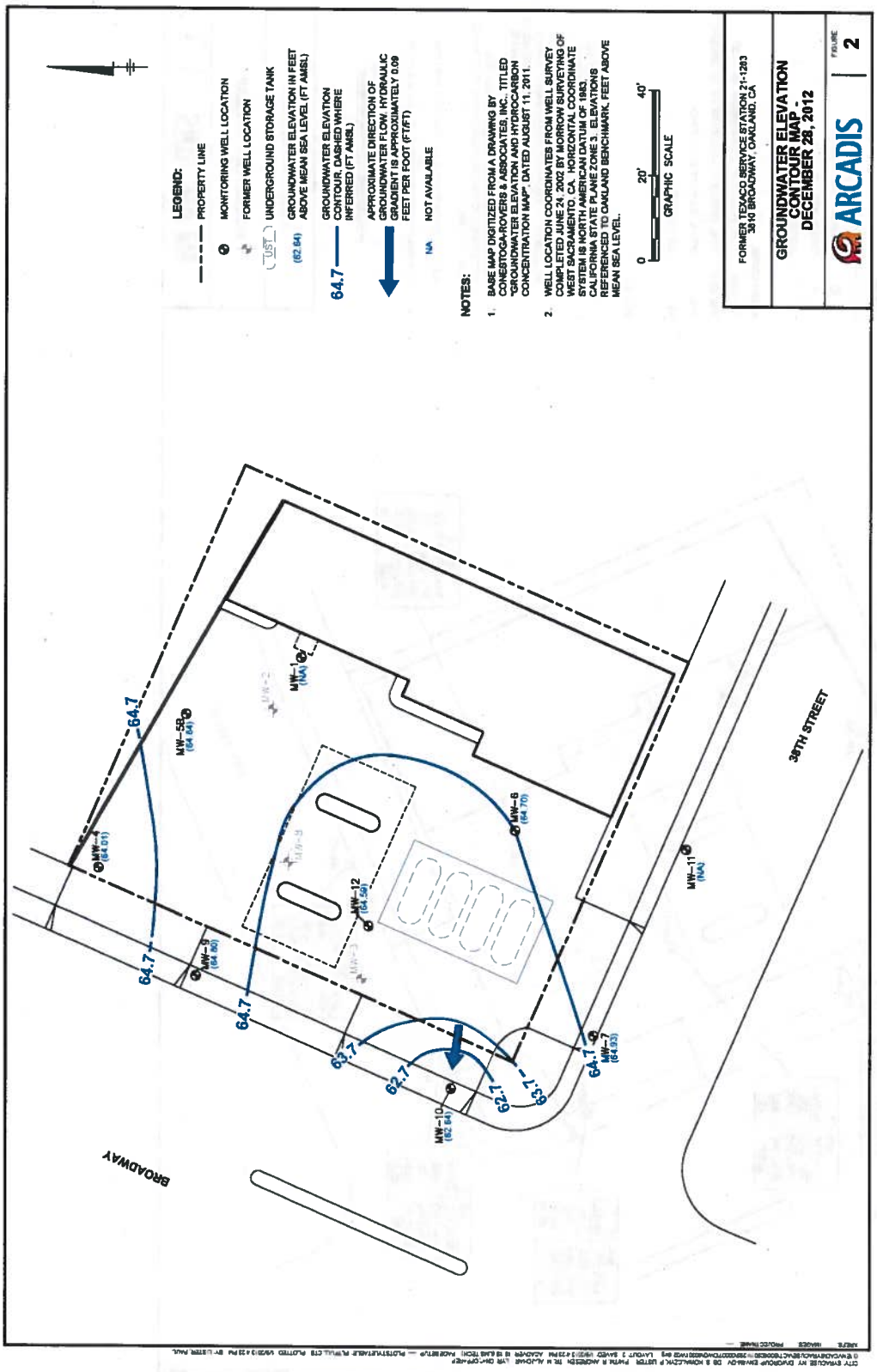
Downgradient Well

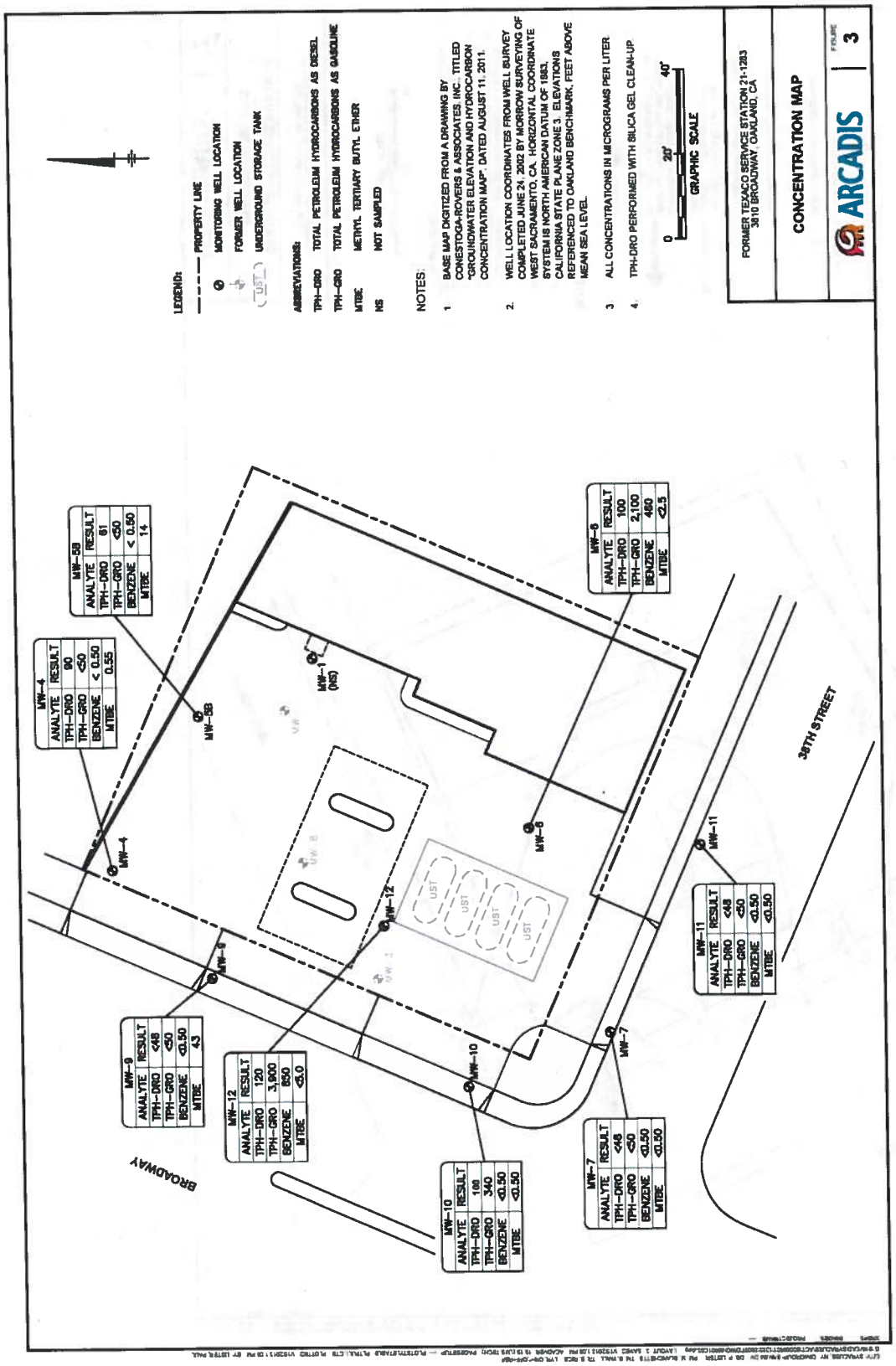


Evaluation of Current Risk

- Estimate of Hydrocarbon Mass in Soil: None reported.
- Soil/ Groundwater tested for MTBE: Yes, see table above.
- Oxygen Concentrations in Soil Vapor: None reported.
- Plume Length: <250 feet long.
- Plume Stable or Degrading: Yes.

- Contaminated Zone(s) Used for Drinking Water: No.
- Groundwater Specific Criteria: The case meets Policy Criterion 1 by Class 5. An earlier unidentified creek is located 300 feet from the Site in a concrete culvert. That concrete culvert extends at least 1,000 feet northeast and southwest of the hospital and parking structure on the northwest side of the Kaiser Permanente property and was not seen during our evaluation. If not for the creek the case would meet Policy 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 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: Policy Exclusion for Active Station. Soil vapor evaluation is not required because the Site is an active commercial petroleum fueling facility.
- 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 use, 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.


LEGEND:
PROPERTY LINE
MONITORING WELL LOCATION
FORMER WELL LOCATION
UST
UNDERGROUND STORAGE TANK
(62.54)
GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (FT AMSL)
64.7
GROUNDWATER ELEVATION CONTOUR, DASHED WHERE INFERRED (FT AMSL)
APPROXIMATE DIRECTION OF GROUNDWATER FLOW. HYDRAULIC GRADIENT IS APPROXIMATELY 0.09 FEET PER FOOT (FT/FT)
NA
NOT AVAILABLE
NOTES:
1. BASE MAP DIGITIZED FROM A DRAWING BY CONESTOGA-ROVERS & ASSOCIATES, INC., TITLED "GROUNDWATER ELEVATION AND HYDROCARBON CONCENTRATION MAP", DATED AUGUST 11, 2011.
2. WELL LOCATION COORDINATES FROM WELL SURVEY COMPLETED JUNE 24, 2002 BY MORROW SURVEYING OF WEST SACRAMENTO, CA. HORIZONTAL COORDINATE SYSTEM NORTH AMERICAN DATUM 1983, CALIFORNIA STATE PLANE ZONE 3. ELEVATIONS REFERENCED TO OAKLAND BENCHMARK, FEET ABOVE MEAN SEA LEVEL.
0
20'
40'
GRAPHIC SCALE
FORMER TEXACO SERVICE STATION 21-1283
3810 BROADWAY, OAKLAND, CA
GROUNDWATER ELEVATION CONTOUR MAP - DECEMBER 28, 2012
ARCADIS
FIGURE
2
BROADWAY
38TH STREET
MW-1 (NA)
MW-5B (64.64)
MW-4 (64.01)
MW-3 (64.60)
MW-12 (64.59)
MW-6 (64.70)
MW-11 (NA)
MW-7 (64.83)
MW-10 (62.54)
64.7
63.7
62.7


LEGEND:
PROPERTY LINE
MONITORING WELL LOCATION
FORMER WELL LOCATION
UST UNDERGROUND STORAGE TANK
ABBREVIATIONS:
TPH-DRO TOTAL PETROLEUM HYDROCARBONS AS DIESEL
TPH-GRO TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
MTBE METHYL TERTIARY BUTYL ETHER
NS NOT SAMPLED
NOTES:
1. BASE MAP DIGITIZED FROM A DRAWING BY CONESTOGA-ROVERS & ASSOCIATES, INC., TITLED "GROUNDWATER ELEVATION AND HYDROCARBON CONCENTRATION MAP", DATED AUGUST 11, 2011.
2. WELL LOCATION COORDINATES FROM WELL SURVEY COMPLETED JUNE 24, 2002 BY MORROW SURVEYING OF WEST SACRAMENTO, CA. HORIZONTAL COORDINATE SYSTEM IS NORTH AMERICAN DATUM OF 1983, CALIFORNIA STATE PLANE ZONE 3. ELEVATIONS REFERENCED TO OAKLAND BENCHMARK, FEET ABOVE MEAN SEA LEVEL.
3. ALL CONCENTRATIONS IN MICROGRAMS PER LITER.
4. TPH-DRO PERFORMED WITH SILICA GEL CLEAN-UP.
0 20' 40'
GRAPHIC SCALE
FORMER TEXACO SERVICE STATION 21-1283
3810 BROADWAY, OAKLAND, CA
CONCENTRATION MAP
ARCADIS
FIGURE 3
MW-4
ANALYTE RESULT
TPH-DRO 90
TPH-GRO <50
BENZENE < 0.50
MTBE 0.55
MW-5B
ANALYTE RESULT
TPH-DRO 61
TPH-GRO <50
BENZENE < 0.50
MTBE 14
MW-1 (NS)
MW-6
ANALYTE RESULT
TPH-DRO 100
TPH-GRO 2,100
BENZENE 460
MTBE <2.5
MW-9
ANALYTE RESULT
TPH-DRO <48
TPH-GRO <50
BENZENE <0.50
MTBE 43
MW-12
ANALYTE RESULT
TPH-DRO 120
TPH-GRO 3,900
BENZENE 850
MTBE <5.0
MW-10
ANALYTE RESULT
TPH-DRO 100
TPH-GRO 340
BENZENE <0.50
MTBE <0.50
MW-7
ANALYTE RESULT
TPH-DRO <48
TPH-GRO <50
BENZENE <0.50
MTBE <0.50
MW-11
ANALYTE RESULT
TPH-DRO <48
TPH-GRO <50
BENZENE <0.50
MTBE <0.50
UST
BROADWAY
38TH STREET