State Water Resources Control Board

UST CASE CLOSURE SUMMARY

Agency Information

Agency Name: Sacramento County Environmental Management Department (County)	Address: 10590 Armstrong Avenue, Mather, CA 95655
Agency Caseworker: Sue Erikson	Case No. D504/RO000548

Case Information

USTCF Claim No.: 12887	Global ID: T0606700986
Site Name: Former Beacon Service Station	Site Address: 4305 Fruitridge Road, Sacramento, CA 95820
Responsible Party: Nancy Ung	Address: Private residence
USTCF Expenditures to Date: $456,421	Number of Years Case Open: 14

URL: https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606700986

Summary

A leak was reported in December 1997, the result of soil contamination identified during removal of USTs. Since 1999, nine monitoring wells have been installed, contaminated soil has been excavated, and soil vapor extraction conducted for 6,730 hours recovering a calculated 3,734 pounds of petroleum hydrocarbon vapor. The extent of the groundwater plume is defined and is shrinking in size and concentration. According to trends based on monitoring well data, water quality objectives (WQO) are likely to be achieved in approximately 40 to 50 years. To date, $456,421 has been reimbursed by the Fund. The nearest downgradient public water supply well is located approximately 1500 feet southeast of the Site. No other water supply wells were identified in GeoTracker downgradient of the Site. Shallow groundwater is not currently being used as a source of drinking water. Water is provided to water users near the Site by the Fruitridge Vista Water Company. It is highly unlikely that any impacted groundwater will be used as a source of drinking water or other beneficial use in the foreseeable future.

Objections to Closure

The County objects to UST case closure because the Responsible Party has not submitted a Site Conceptual Model or Human Health Risk Assessment. In addition, the County emphasizes that a CDPH regulated Public Supply Well (PSW) is located "1,500 feet down gradient" of the Site.

Response to Objections to Closure
Based on existing data, the Fund Manager does not believe that any potential residual petroleum hydrocarbon remaining at this Site represents a significant risk to human health, public safety, or the environment. Adequate information exists to prepare a site conceptual model that shows that the groundwater plume for this site is shrinking in size and concentration. The closure of this site is consistent with the site closure of the Former Desert Petroleum Station #758 issued by the State Water Resources Control Board on September 21, 2010, recorded as Order WQ 2010-0011-UST.

Source area monitoring well MW-2 has historically had elevated concentrations of residual hydrocarbons in groundwater. However, after 12 years of monitoring and successful source reduction, the groundwater plume is largely limited to the source area and is shrinking in size and concentration. Analytical data indicate that WQOs have been achieved in downgradient monitoring well MW-5 (approximately 250 feet downgradient from the source area). Groundwater within the source area will likely remain above WQOs for years to decades. Shallow groundwater is not used as a source of water supply nor is it likely to be used as a source of water supply in the foreseeable future. Water users in the vicinity of the site rely on the Fruitridge Vista Water Company

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Compliance with State Water Board Policies and State Law
The Site complies with the State Water Resources Control Board policies and state law. See **Attachment 1: Compliance with State Water Board Policies and State Law** and **Attachment 2: Summary of Basic Site Information.**

Fund Manager Recommendation for Closure
Based on available information, any residual petroleum hydrocarbons at the Site do not pose significant risks to human health, public safety, or the environment, and the Fund Manager recommends that the case be closed. The Fund is conducting public notification. The County has the regulatory responsibility to supervise the abandonment of monitoring wells.

Lisa Babcock — 5/18/2012

Lisa Babcock, P.G. 3939, C.E.G. 1235 — **Date**

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

GENERAL CLOSURE CRITERIA (Compliance with Decisional Framework And State Water Board Resolution 92-49.

Will corrective action performed ensure the protection of human health, safety and the environment? ☒ **Yes** ☐ **No**

Are corrective action and UST case closure consistent with State Water Board

Resolution 92-49? ☒ **Yes** ☐ **No**

Specifically:

Is achieving background water quality feasible? ☐ **Yes** ☒ **No**

To remove all traces of residual petroleum constituents at the Site would require significant effort and cost. Removal of all traces of residual petroleum hydrocarbon constituents (if present) that contribute to detectable concentrations in shallow groundwater can be accomplished, but would require excavation of additional soil as well as additional remediation of shallow groundwater. The soil excavation could also entail relocation of existing utilities, demolition of existing buildings, temporary closure of existing businesses and road closures. If complete removal of detectable traces of petroleum constituents becomes the standard for UST corrective actions, the statewide technical and economic implications will be enormous. Because of the high costs involved and minimal benefit of attaining further reductions in concentrations of fuel hydrocarbons at this Site, and the fact that beneficial uses are not threatened, attaining background water quality at this Site is not feasible.

If achieving background water quality is not feasible:
Is the alternative cleanup level consistent with the maximum benefit to the people of the State? ☒ **Yes** ☐ **No**

It is impossible to determine the precise level of water quality that will be attained given the limited residual petroleum hydrocarbons that remain at the Site. In light of all the factors discussed above, and the fact that the residual petroleum constituents will not unreasonably affect present and anticipated beneficial uses of groundwater, a level of water quality will be attained that is consistent with the maximum benefit to the people of the state.

Will the alternative cleanup level unreasonably affect present and anticipated beneficial uses of water? ☐ **Yes** ☒ **No**

Impacted groundwater is not used as a source of drinking water or any other beneficial use currently. It is highly unlikely that the impacted groundwater will be used as a source of drinking water or any other beneficial use in the foreseeable future.

Will the alternative level of water quality exceed water quality prescribed in applicable Basin Plan? ☐ **Yes** ☒ **No**

The final step in determining whether cleanup to a level of water quality less stringent than background is appropriate for this Site requires a determination that the alternative level of water quality will not result in water quality less than that prescribed in the relevant basin plan. Pursuant to State Water Board Resolution 92-49, a Site may be closed if the basin plan requirements will be met within a reasonable time frame.

Have factors contained in Title 23 of the California Code of Regulations, Section 2550.4 been considered? ☒ **Yes** ☐ **No**

In approving an alternative level of water quality less stringent than background, the State Water Board considers the factors contained in California Code of Regulations, title 23, section 2550.4, subdivision (d). As discussed earlier, the adverse effect on shallow groundwater will be minimal and localized, and there will be no adverse effect on the groundwater contained in deeper aquifers, given the physical and chemical characteristics of petroleum constituents, the hydrogeological characteristics of the Site and surrounding land, and the quantity of the groundwater and direction of the groundwater flow. In addition, the potential for adverse effects on beneficial uses of groundwater is low, in light of the proximity of the groundwater supply wells, the current and potential future uses of groundwater in the area, the existing quality of groundwater, the potential for health risks caused by human exposure, the potential damage to wildlife, crops, vegetation, and physical structures, and the persistence and permanence of potential effects.

Will the requisite level of water quality be met within a reasonable period of time? ☒ **Yes** ☐ **No**

Water quality objectives have been met for all constituents except for TPH-g, benzene, xylenes, MTBE and 1,2 DCA. Although the WQO for all contaminants have not been met, the approximate time period in which the requisite level of water quality will be met is estimated to be about 40-50 years. This is a reasonable period in which to meet the requisite level of water quality because impacted groundwater is not currently being used as a source of drinking water and it is highly unlikely that impacted groundwater will be used as a source of drinking water in the foreseeable future. Residential and commercial water users in the area are currently connected to the municipal drinking water supply. Public supply wells, if necessary, will be constructed with competent sanitary seals and intake screens that are in deeper more protected groundwater zones. 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, Site conditions do not represent a substantial threat to human health and safety and the environment and case closure is appropriate.

Chemicals	Water Quality Objective (WQO) (µg/L) [a]	Estimated Time to Meet WQO (Years)
TPHg	5	40-50
Benzene	0.15	10-20
Xylenes	17	5-10
MTBE	5	5-10
1,2 DCA	4	10-20

a The Basin Plan for the Central Valley California Regional Water Quality Control Board (RWQCB), Region 5.

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

Site Location/ History

- The Site is located at 4305 Fruitridge Road in Sacramento, California and is an active retail gasoline station and mini market. The Site is bounded by 44th Street to the west, a residence to the north, a business to the east and Fruitridge Road to the south. The surrounding land use is mixed residential and commercial.
- In December 1997, soil contamination was identified during the removal of USTs.
- To date, nine monitoring wells have been installed and monitored regularly.
- A Site map showing the location of the current USTs, monitoring wells and groundwater level contours is provided at the end of this closure summary.

Pollutant Source

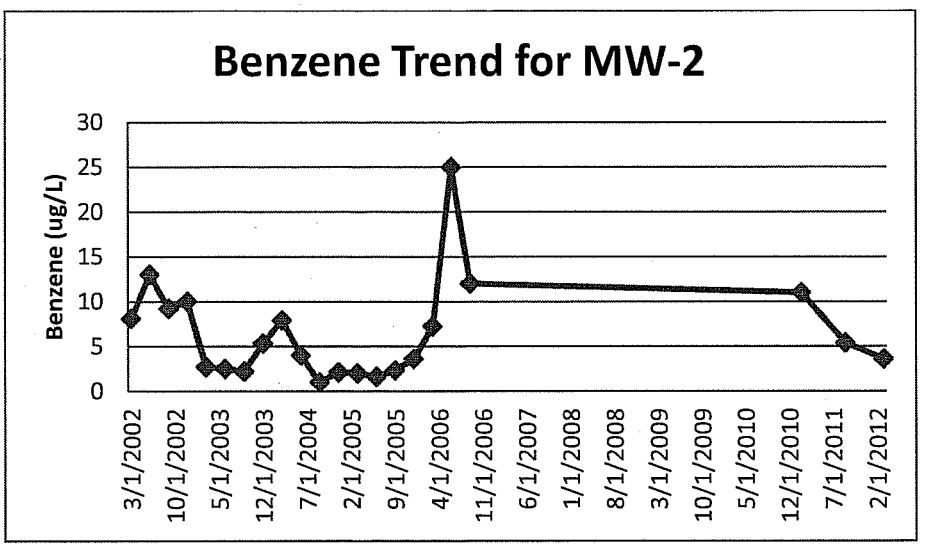
- Nature of Contaminants of Concern: Petroleum hydrocarbons only
- Source, Date reported, and Status of Release: UST system, 01/08/1998, USTs replaced
- Free Phase Hydrocarbons: None reported

Geology/ Hydrogeology

- Stratigraphy: The Site is underlain by interbedded and intermixed sand, silt and clay
- Maximum Sample Depth: 60 feet bgs
- Minimum Groundwater Depth: 38.10 feet below ground surface (bgs) at monitoring well MW-5
- Maximum Groundwater Depth: 46.90 feet bgs at monitoring well MW-2
- Current Average Depth to Groundwater: 40 feet bgs
- Appropriate Screen Interval: Yes
- Saturated Zones(s) Studied: 40-60 bgs
- Groundwater Flow Direction: Southeast at approximately 0.002 feet/foot.

Groundwater Trends:

- There are more than 12 years of groundwater monitoring data for this Site. Benzene trends are shown below for the on-site source area (monitoring well MW-2), on-site near downgradient area (monitoring well MW-9), and offsite downgradient area (monitoring well MW-5). Benzene was selected as the indicator parameter due to low water quality objective (0.15 ug/L).


Benzene Trend for MW-2
Benzene (ug/L)
30
25
20
15
10
5
0
3/1/2002
10/1/2002
5/1/2003
12/1/2003
7/1/2004
2/1/2005
9/1/2005
4/1/2006
11/1/2006
6/1/2007
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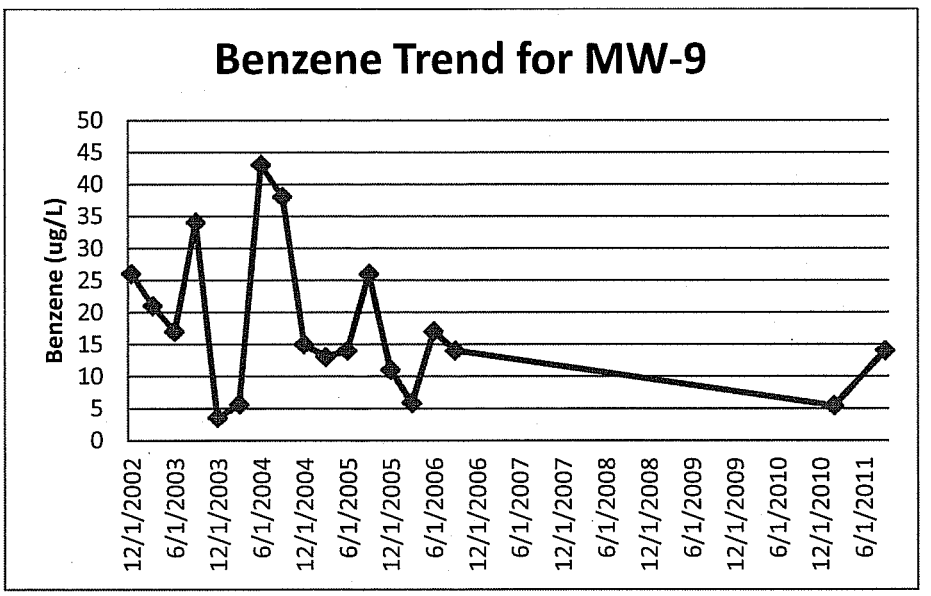
5/1/2010
12/1/2010
7/1/2011
2/1/2012


Benzene Trend for MW-9
Benzene (ug/L)
50
45
40
35
30
25
20
15
10
5
0
12/1/2002
6/1/2003
12/1/2003
6/1/2004
12/1/2004
6/1/2005
12/1/2005
6/1/2006
12/1/2006
6/1/2007
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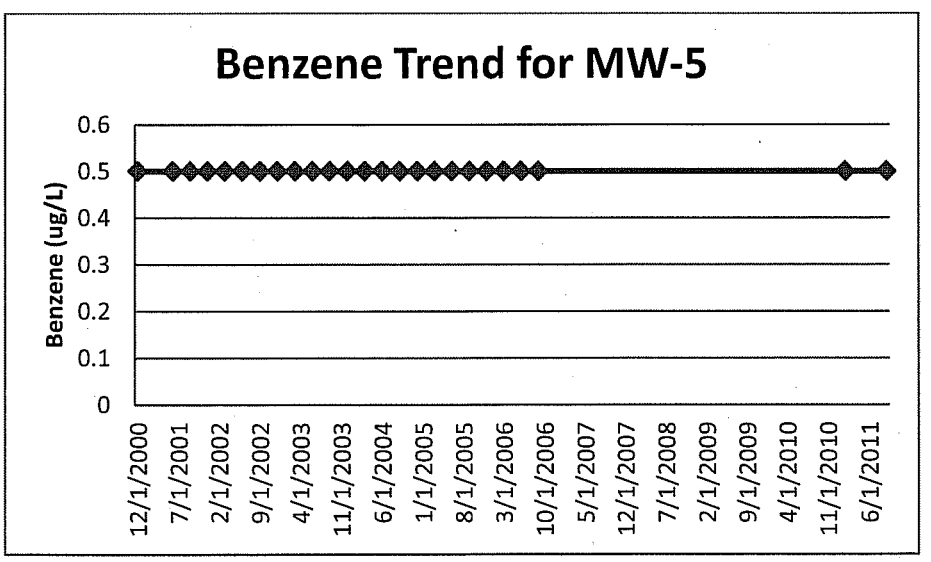
6/1/2008
12/1/2008
6/1/2009
12/1/2009
6/1/2010
12/1/2010
6/1/2011


Benzene Trend for MW-5
Benzene (ug/L)
0.6
0.5
0.4
0.3
0.2
0.1
0
12/1/2000
7/1/2001
2/1/2002
9/1/2002
4/1/2003
11/1/2003
6/1/2004
1/1/2005
8/1/2005
3/1/2006
10/1/2006
5/1/2007
12/1/2007
7/1/2008
2/1/2009
9/1/2009
4/1/2010
11/1/2010
6/1/2011

Receptors

- GW Basin: Sacramento Valley – South American
- Beneficial Uses: Municipal and Domestic Water Supply
- Land Use Designation: None specified. Aerial photo shows site is commercial surrounded by mixed commercial and residential
- Public Water System: Sacramento County Water Agency
- Distance to Nearest Supply Well: According to data available in GeoTracker, there are five water supply wells within ½ mile of the Site. The closest well is located 960 feet up-gradient/cross-gradient of the Site.

Risk Criteria

- Estimate of Hydrocarbon Mass in Soil: None reported
- Soil/ Groundwater tested for MTBE: Yes, see table below
- Plume Extent and Mobility: Plume is shrinking in size and concentration.
- Contaminated Zone(s) Used for Drinking Water: None
- Risk from Residual Petroleum Hydrocarbon: None

Remediation Summary (Secondary Source Removal)

- Free Product: No free product was documented throughout the life of this case.
- Soil Remediation: Contaminated soil has been excavated.
- In-Situ Soil Remediation: Soil vapor extraction, conducted from May 2004 through July 2007, removed approximately 3,734 pounds of TPHg.
- Groundwater Remediation: No groundwater remediation has been conducted.

Supporting Site Data

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/ Active	Date
1-3	?	Gasoline	Removed	Dec 97
4-6	?	Gasoline	Active	-

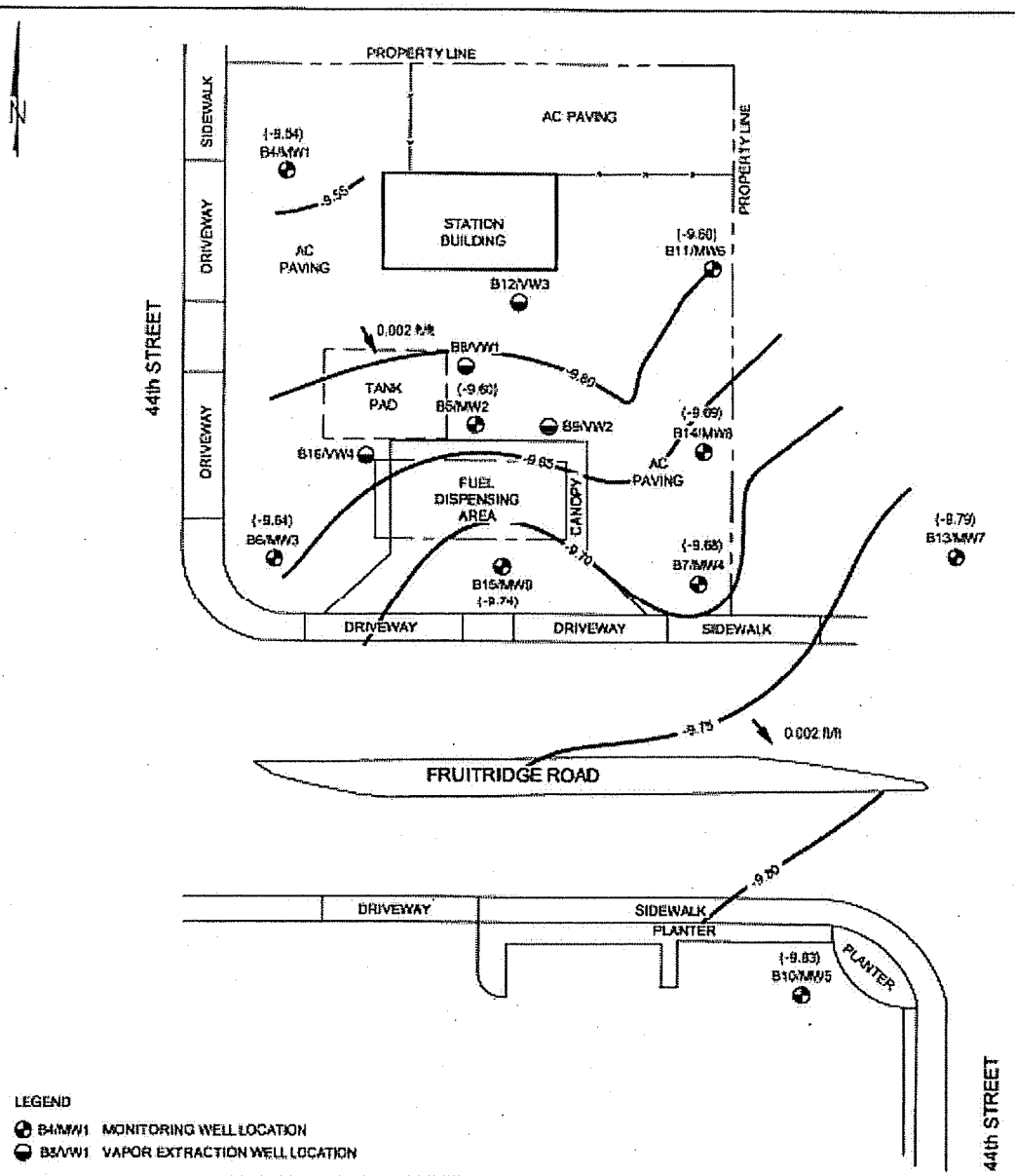
Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth To Water (feet bgs) (Mar 2012)
MW-1	Aug 99	29-59	38.62
MW-2	Aug 99	28-58	39.00
MW-3	Aug 99	30-60	38.49
MW-4	Aug 99	29-59	38.63
MW-5	Dec 00	25-55	38.10
MW-6	Dec 00	32-52	39.60
MW-7	Dec 02	30-60	38.81
MW-8	Dec 02	30-60	39.23
MW-9	Dec 02	30-60	38.70

Petroleum Hydrocarbon Constituent Concentration

Contaminant	Soil (mg/kg)		Water (µg/L)		WQOs (µg/L)	Years to Achieve WQO[c] (Years)
	Maximum	Latest	Maximum [a]	Latest (Mar 2012)		
TPH-g	NA	NA	15,000	4,800	5	40-50
Benzene	NA	NA	43	3.6	0.15	10-20
Toluene	NA	NA	130	5.8	42	0
Ethylbenzene	NA	NA	660	26	29	0
Xylenes	NA	NA	1,800	40	17	5-10
MTBE	NA	NA	140	77	5	5-10
TBA	NA	NA	830	530	1,200[b]	0
1,2-DCA	NA	NA	97	1	0.5	5-10

WQOs: Water Quality Objectives, Region 5 Basin Plan
NA: Not Analyzed, Not Applicable or Data Not Available
mg/kg: milligrams per kilogram, parts per million
µg/L: micrograms per liter, parts per billion
[a] Maximum data from Geotracker, wells
[b] California Department of Public Health Response Level
[c] Estimated trends based on 1st order linear degradation



NOTE: LOCATIONS OF ALL FEATURES ARE APPROXIMATE

STRATUS ENVIRONMENTAL, INC.

FAST MART
4305 FRUITRIDGE ROAD
SACRAMENTO, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP
3rd QUARTER 2011

FIGURE
3

PROJECT NO.
2111-4305-01