State Water Resources Control Board

Linda S. Adams
Secretary for
Environmental Protection

Division of Financial Assistance
1001 I Street • Sacramento, California 95814
P.O. Box 944212 • Sacramento, California • 94244-2120
(916) 341-5660 FAX (916) 341-5806 ♦ www.waterboards.ca.gov/cwphome/ustcf

Arnold Schwarzenegger
Governor

EXHIBIT 3
UST Case Closure Summary

This Underground Storage Tank (UST) Case Closure Summary has been prepared in support of a recommendation by the Petroleum Underground Storage Tank Cleanup Fund (Fund) to the State Water Resources Control Board (State Water Board) for closure of the UST case Shell Station, 6431 Riverside Boulevard, Sacramento, California (Site).

Agency Information

Agency Name: Sacramento County Environmental Management Department (SCEMD)	Address: 10590 Armstrong Avenue, Suite A Mather, CA 95655

Case Information

SCEMD Case No: B533	Global ID: T0606700107
Site Name: Shell #204-6678-9102	Site Address: 6431 Riverside Blvd Sacramento, CA 95825
Responsible Party: Equilon Enterprises LLC, Assignee C/O: Shell Oil Products US – HSE/S&E	Address: 20945 South Wilmington Avenue, Carson, CA 90810
USTCF Claim No.: 5011	Number of Years Case Open: 23
USTCF Expenditures to Date: $143,943	

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active ?	Date
1	550	Waste Oil	Removed	November 2005
2	10,000	Regular Gasoline	Removed	November 2005
3	10,000	Supreme Gasoline	Removed	November 2005
4	10,000	Unleaded Gasoline	Removed	November 2005
5	10,000	Gasoline	Active	
6	10,000	Gasoline	Active	
7	10,000	Gasoline	Active	

Release Information

- Source of Release: UST System
- Date of Release: Per GeoTracker, the release was discovered on December 30, 1986 and reported on August 11, 1987
- Affected Media: Soil and Groundwater

Site Information

- GW Basin: Sacramento Valley
- Beneficial Uses: Municipal and Domestic Water Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), and Industrial Process Supply (PRO)
- Land Use Designation: Commercial and Residential
- Distance to Nearest Supply Well: According to data available in GeoTracker, there are no Department of Public Health (DPH) water supply wells within ½ mile of the Site. Two wells were identified after a well survey was conducted. The Lakefill Well is located approximately 175 feet northeast of the Site and a domestic will is located 900 feet east of the Site.
- Minimum Groundwater Depth: 3.98 feet below ground surface (bgs) at monitoring well MW-6.
- Maximum Groundwater Depth: 11.30 feet bgs at monitoring well MW-1.
- Groundwater Flow Direction: Sporadic ranging the entire compass at the Site and regionally easterly with an average gradient of 0.004 feet/foot (ft/ft).
- Soil Types: The Site is underlain by interbedded and intermixed sand, silt and clays.
- Maximum Depth Sampled: 40 feet bgs

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Most Recent Depth To Groundwater (feet bgs) (January 2010)
MW-1	2/16/88	6.5-16.5	9.25
MW-2	2/16/88	8-18	8.61
MW-3	2/16/88	8-18	8.77
MW-4	2/16/88	6.5-16.5	9.88
MW-5	2/16/88	10-25	9.62
MW-6	12/3/03	3.5-15	6.30
MW-7	12/3/03	3.5-16	7.26
MW-8D	2/23/09	40 - 50	4.62
MW-8S	2/23/09	3.5-16	4.30

Contaminant Concentration

Contaminant	Soil (mg/kg)		Water (µg/L)		WQOs (µg/L)
	Maximum	Latest	Maximum	Latest (January 2010)	
TPHg	4,240*	NA	6,500	<50	5
Benzene	8.46*	NA	33	NA	0.15
Toluene	256*	NA	110	NA	42
Ethylbenzene	105*	NA	900	NA	29
Xylenes	566*	NA	860	NA	17
MTBE	190*	NA	4,300	23	5
TBA	0.23	NA	3,770	<10	12
1,2-DCA	<0.005	NA	0.35	<0.5	0.4

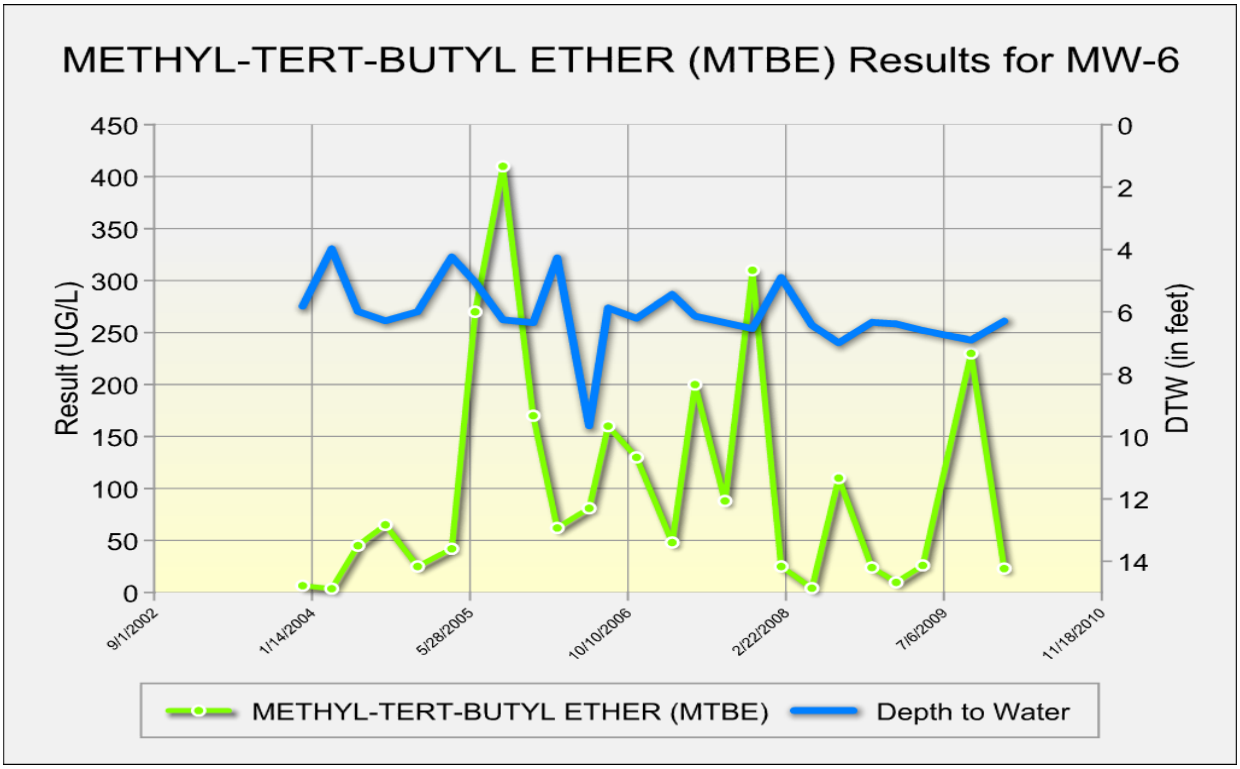
NA: Not Analyzed, Not Applicable or Data Not Available
mg/kg: milligrams per kilogram, parts per million
ug/L: micrograms per liter, parts per billion
WQOs: Water Quality Objectives
*: Soil Maximum values all came from one sample in one boring PL-7@4.5 feet bgs in October 1998.

Site Description
The subject Site is an operating Shell-branded service station located on the eastern corner of Riverside Boulevard and Florin Road in Sacramento, CA. The Station layout includes an underground fuel storage complex, four product dispenser islands, a service garage and a station building.

Site History/Assessments
Assessments at the Site began in 1988 and have continued to be performed through 2009. In 2005, during UST removal/replacement and over excavation activities, approximately 2,300 cubic yards of soil and 76,000 gallons of groundwater were removed, transported and disposed.

Remediation Summary
- Free Product: No free product was documented throughout the life of this case.
- Soil Excavation: An estimated 2,300 cubic yards of impacted soil were excavated, transported and disposed offsite in 2005.
- In-Situ Soil Remediation: None identified
- Groundwater Remediation: Approximately 76,000 gallon of groundwater was pumped from the excavation during UST removal activities. No other active remediation efforts were documented.

General Site Conditions
- Geology and Hydrogeology: The Site is underlain by interbedded and intermixed sand, silt, and clay. The depth to groundwater varies seasonally between four and eleven feet bgs and the groundwater gradient is easterly at approximately 0.004 ft/ft. The closest surface water is located approximately 450 feet east and cross gradient of the Site.
- Estimate of Petroleum Hydrocarbon Mass Remaining: Conestoga Rovers & Associates (CRA), the consultant for the claimant, calculated that approximately 0.015 gallons of MTBE remain in the groundwater beneath the Site.
- Groundwater Trends: There are more than 22 years of groundwater monitoring data for this Site. The following graph shows analytical data for MW-6 which is the only remaining well to reflect any continuing impact from the release.



- Water Quality Objectives: Water Quality Objectives have already been met except for MTBE and the possible exception of TPHg. The WQO for MTBE was calculated by CRA to be met within three years using the Mann-Kendall analysis. TPHg was not detected above the reporting limit of 50 ug/L. The WQO of 5 ug/l for TPHg will be met within a reasonable period of time, if they are not currently met.

Sensitive Receptor Survey

A well survey was conducted in 1996 by Enviros. A records search at the Department of Water Resources and an on-the-ground survey in the area identified two water supply wells; the first is the "Lakefill Well" located approximately 175 feet northeast and the second a domestic well located 900 feet east of the Site. The Lakefill Well was installed in 1977 and is sealed to 53 feet bgs and the domestic well was installed in 1950 and is 72 feet deep. Impact to the identified wells is unlikely due to the screened depths, distances of these wells from the subject Site, and their cross-gradient location from the Site. Drinking water at and near the Site is currently supplied by the City of Sacramento Public Works Department.

Surface water Bodies: The closest down–gradient surface water body is Lake Greenhaven, a private lake located approximately ½ mile southeast of the Sacramento River, and approximately 450 feet southeast of the Site.

Risk Evaluation

As a result of removal of approximately 2,300 cubic yards of soil and 76,000 gallons impacted groundwater, there is little residual petroleum hydrocarbon in soil at the Site that would pose a threat to groundwater resources, human health, or the environment. Constituents of concern are below applicable WQO or detection limits except for MTBE concentrations in MW-6. Soil vapor sampling was completed and no MTBE was identified in these samples.

Since residual concentrations are low, the Site and public areas are paved with asphalt, and the Site is currently an operating gasoline station and the area generally commercially developed, there is little potential for hydrocarbon vapors to migrate or pose a threat to human health or the environment.

Closure

Does corrective action performed ensure the protection of human health, safety and the environment? Yes.

Is corrective action and UST case closure consistent with State Water Board Resolution 92-49? Yes.

Is achieving background water quality feasible? 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 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 possible 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 MTBE 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.
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? 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? 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.

In approving an alternative level of water quality less stringent than background, the State Water Board considers 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.

Finally, a level of water quality less stringent than background is unlikely to have any impact on surface water quality, in light of the volume and physical and chemical characteristics of petroleum constituents; the hydrogeological characteristics of the Site and surrounding land; the quantity and quality of groundwater and direction of groundwater flow, the patterns of precipitation in the region, and the proximity of residual petroleum to surface waters.

Has the requisite level of water quality been met? No.
Although water quality objectives for MTBE have not been met, the approximate time period in which the requisite level of water quality will be met is three years. This is a reasonable period in which to meet the requisite level of water quality because the 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 future. Residential and commercial water users are currently connected to the municipal drinking water supply. Other designated beneficial uses of the 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.

Objections to Closure and Response

The SCEMD indicates that additional verification monitoring is not complete and must demonstrate a declining trend. In May 2010 they stated that the case should be closed in three to six months. The claimant prepared and submitted a request for closure report in September 2010.

The Fund has conducted public notification and the SCEMD has the regulatory responsibility to supervise the abandonment of monitoring wells.

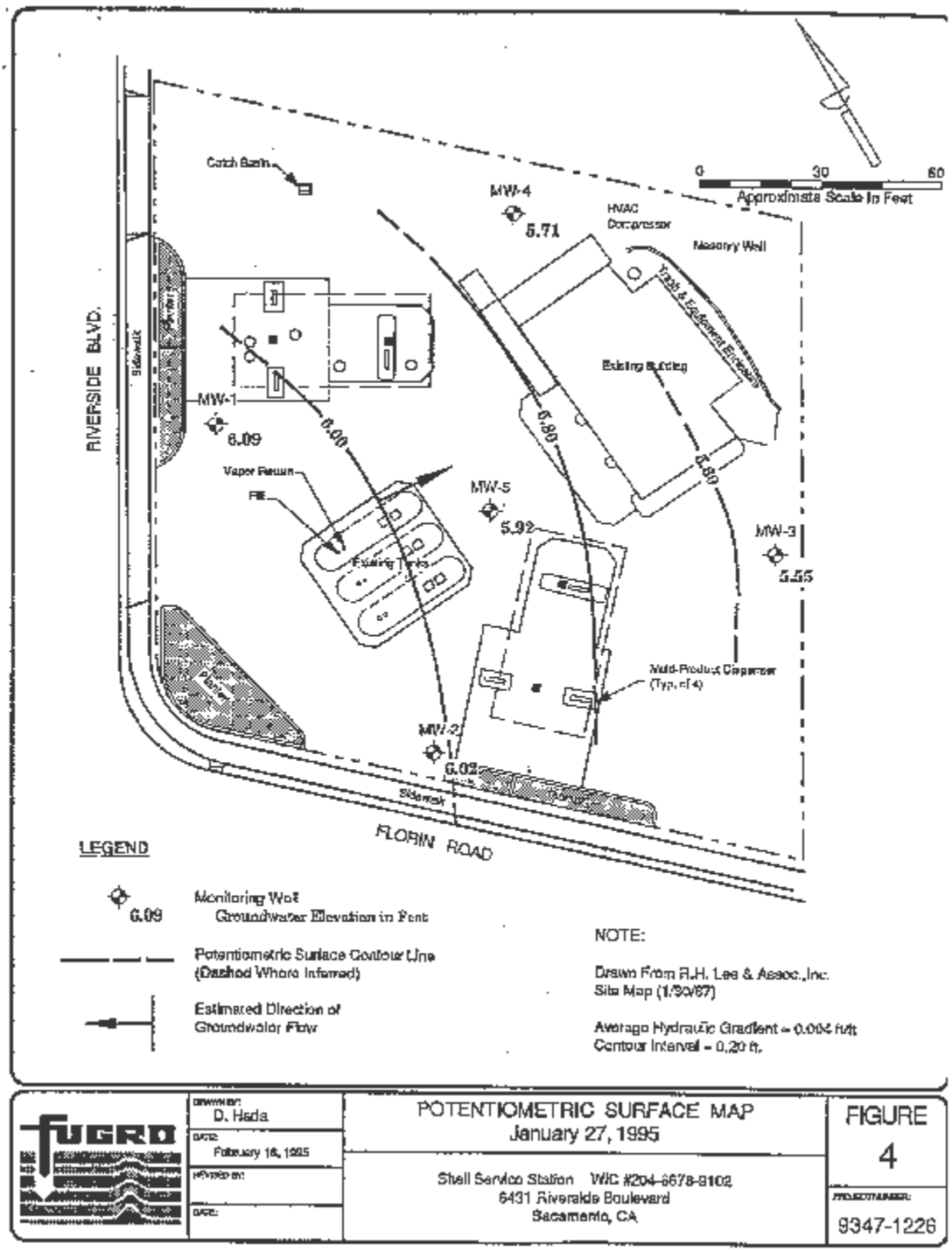
Summary and Conclusion
A leak was identified in 1987 during UST system repair activities. Since 1988, nine monitoring wells have been installed, 2,300 cubic yards of contaminated soil were excavated, 76,000 gallons of groundwater removed and a human health risk assessment was conducted. According to reported groundwater analytical data, water quality objectives have been achieved in all but one well and it has been calculated to reach WQOs within three years.
To date, $143,943 in corrective action costs have been reimbursed by the Fund. The nearest DPH listed water supply wells are more than 2,000 feet from the Site. Impact to these wells is unlikely due to the screened depths, distances of these wells from the subject Site. Impacted groundwater is not currently being used as a source of drinking water or other beneficial uses and water is provided to water users near the Site by the City of Sacramento Public Works

Department. 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. In addition, in the unlikely event that a water supply well is drilled in the future, that standard construction practices and requirements would prevent impacts from the contaminated area. Based on available information, the residual petroleum hydrocarbons at the Site do not pose significant risks to human health, safety, and the environment, and the Fund Manager recommends that the case be closed.

John Russell

John Russell PG No. 8396

December 15, 2010
Date


Catch Basin
MW-4
5.71
HVAC Compressor
Masonry Wall
Trash Enclosure
Existing Building
RIVERSIDE BLVD.
Sidewalk
MW-1
6.09
6.00
6.80
6.80
Vapor Return
Fill
MW-5
5.92
MW-3
5.55
Existing Pits
Mid-Product Dispenser (Typ. of 4)
MW-2
6.02
Sidewalk
FLORIN ROAD
0 30 60
Approximate Scale In Feet
LEGEND
6.09
Monitoring Well
Groundwater Elevation in Feet
Potentiometric Surface Contour Line
(Dashed Where Inferred)
Estimated Direction of
Groundwater Flow
NOTE:
Drawn From R.H. Lee & Assoc.,Inc.
Site Map (1/30/87)
Average Hydraulic Gradient = 0.004 ft/ft
Contour Interval = 0.20 ft.
FUGRO
Drawn by: D. Hada
Date: February 16, 1995
Revised by:
Date:
POTENTIOMETRIC SURFACE MAP
January 27, 1995
Shell Service Station WIC #204-6678-9102
6431 Riverside Boulevard
Sacramento, CA
FIGURE
4
Project Number:
9347-1226