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 at 2850 Westminster Avenue, Seal Beach, CA (Site).

Agency Information

Agency Name: Orange County Health Care Agency (County)	Address: 1241 Dyer Road, Suite 120 Santa Ana CA 92705-5611

Case Information

Case No: 86UT063	Global ID: T0605900073
Site Name: Chevron #9-1637	Site Address: 2950 Westminster Avenue, Seal Beach, CA 90740
Responsible Party: Chevron Environmental Management, Attn: Stacie Hartung-Frerichs	Address: PO Box 6012, San Ramon, CA 94583-2324
USTCF Claim No.: 4654	Number of Years Case Open: 26
USTCF Expenditures to Date: $ 182,828	

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605900073

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active?	Date
1	?	Waste Oil	Removed	March 1997
2	10,000	Gasoline	Active	
3	10,000	Gasoline	Active	
4	10.000	Gasoline	Active	

Summary

An unauthorized release was reported in 1986. Since 1999, ten monitoring wells have been installed. In 2010, 19 cubic yards of contaminated soil were excavated along with over purging of groundwater for a short period. According to groundwater quality data, water quality objectives Regional Water Quality Control Board, Santa Ana Region (Santa Ana Water Board) guidance have been achieved or contaminants are below detection limits for all contaminants except MTBE and TPHg. WQOs for MTBE and TPHg should be reached within a reasonable timeframe. To date, $182,828 in corrective action costs have been reimbursed by the Fund. The nearest active public water supply well is 829 feet upgradient from the Site. Any impacted groundwater is not currently being used as a source of drinking water or other beneficial use. 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 and Response
The County objects to UST case closure for this case because:

- MTBE and TBA have migrated off site at concentrations of concern.
- The concentrations of TBA in two monitoring wells (MW-1 and MW-8) fluctuate with the seasonal variation in groundwater elevation.

The Fund Manager does not believe that residual petroleum hydrocarbons at this Site represent a significant risk to human health and safety or the environment. As a result of soil excavation, groundwater pumping and natural attenuation, there is little residual petroleum hydrocarbon in soil and groundwater at the Site. Fluctuations of concentrations of TPHg, MTBE and TBA suggest minor residual petroleum hydrocarbons remain in soil or are related to storm water infiltration. Any residual petroleum hydrocarbons present in the groundwater at or adjacent to the Site are at very low concentrations and will continue to attenuate.

Release Information

- Source of Release: UST
- Date of Release: Reported 04/09/1986
- Affected Media: Soil and groundwater

Site Information

- GW Basin: Coastal Plain of Orange County
- Beneficial Uses: Municipal and Domestic supply
- Land Use Designation: Commercial
- Distance to Nearest Supply Well: According to the California Department of Public Health (CDPH) data accessed by GeoTracker, there is one active public supply well (PSW) regulated by CDPH located within a ½-mile radius of the site. That well is approximately 829 feet east (upgradient) of the Site and operated by the City of Seal Beach Public Works. Construction details and water quality data were unavailable for this well.
- Minimum Groundwater Depth: 0.12 feet below ground surface (bgs) at Site well MW-02
- Maximum Groundwater Depth: 19.35 feet bgs at monitoring well MW-06
- Groundwater Flow Direction: Predominately to the southwest (away from the PSW) with an average gradient of 0.002 feet/foot.
- Soil Types: The Site is underlain by interbedded clays, silts, and sands to the maximum depth explored.
- Maximum Depth Sampled: 40 feet bgs

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth To Water (feet bgs) (9/23/2011)
MW-01	December 1990	10-40	7.75
MW-02	April 1991	10-40	8.23
MW-03	June 1991	NA	NM
MW-04	August 1993	19-29	NM
MW-05	August 1993	18-28	NM
MW-06	May 1997	5-20	8.43
MW-07	August 2004	10-25	7.76
MW-08	August 2004	10-25	8.94
MW-09	January 2010	5-35	8.50
MW-10	January 2010	5-35	8.72

NA: Not Available
NM: Not Measured

Petroleum Hydrocarbon Constituent Concentration

Contaminant	Soil (mg/kg)		Water (µg/L)		WQOs (µg/L) (MCL/Low Risk)
	Maximum	Latest (Aug 2004)	Maximum	Latest (9/23/2011)	
TPHg	610	<500	210,000	310	5
Benzene	3.6	<5.0	1,800	<1.0	1/250
Toluene	62	<5.0	390	<1.0	150/300
Ethylbenzene	57	<5.0	350	<1.0	300/600
Xylenes	500	<5.0	1,400	<1.0	1,750/1,750
MTBE	5.7	<10.0	108,000	290	13 primary/ 5 secondary
TBA	0.93	930	70,000	85	1,200[b]

a: Region 8 does not have a WQO for TPH gasoline therefore the Fund has used the most conservative value used in the State.
b: California Department of Public Health Response Level
WQOs: Water Quality Objectives
MCL: Maximum Contaminant Level for public drinking water supply
Low Risk: Santa Ana Regional Water Board Supplemental Guidance Clarification of Low-Risk Designation of Fuel Contaminated Sites, September, 1996 Guidance
mg/kg: milligrams per kilogram, parts per million
µg/L: micrograms per liter, parts per billion
NA: Not Analyzed, Not Applicable or Data Not Available

Site Description

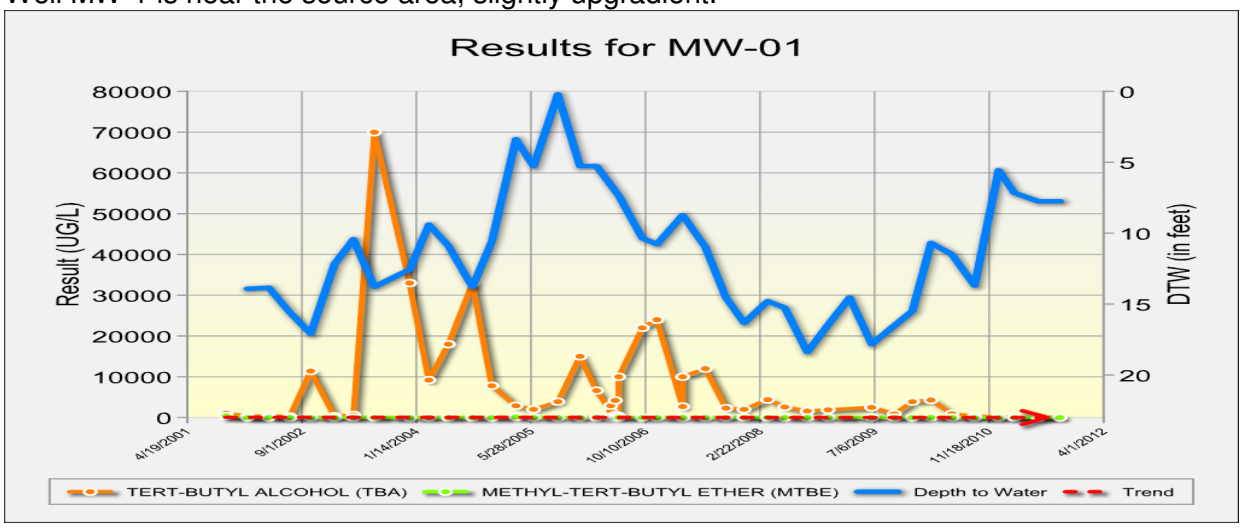
The Site is located on the southwest corner of the intersection of Westminster Avenue and Seal Beach Boulevard and seaward of the salt water injection barrier project. The Site is an active service station. Land use in the area includes an active service station to the north across Westminster Avenue; a former Boeing facility on Seal Beach Boulevard southwest of the Site; and the Seal Beach Naval Weapons Station south and southeast of the Site across Seal Beach Boulevard.

Site Assessments
The Site has been an active fuel station since prior to 1990. In November 1990, the operator removed and replaced the fuel dispensers and associated piping as part of a station upgrade. Samples collected at that time identified petroleum hydrocarbons in the soil, and the owner submitted an unauthorized release report. To date, 10 monitoring wells have been installed. Remedial efforts at the site include over excavation and over purging of the monitoring wells. A Site map attached showing the location of the current USTs, wells, and groundwater contours.

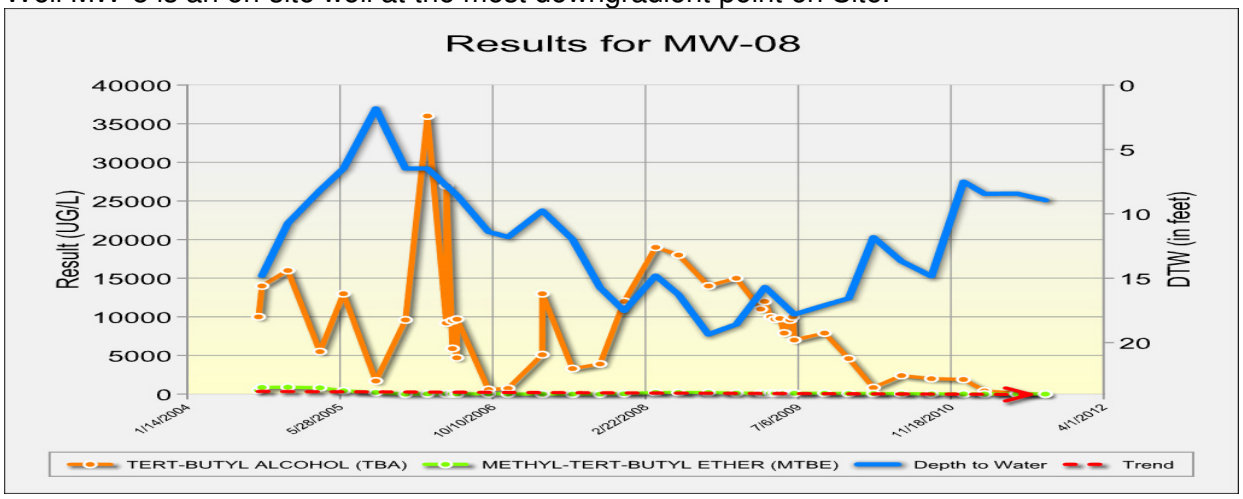
Remediation Summary
- Free Product: None
- Soil Excavation: Approximately 19 cubic yards of soil were removed, transported offsite and disposed in March 1997 after the waste oil tank was removed. Additional affected soil was excavated and removed during USTs upgrade activities in 2007.
- In-Situ Soil Remediation: Pilot testing was completed; however, no documentation of soil remedial actions was found in the files reviewed.
- Groundwater Remediation: Excavation dewatering occurred during UST upgrade activities in 2007. Over purging was performed between 2006 and 2010.

General Site Conditions
- Geology and Hydrogeology: The Site is underlain by interbedded clays, silty clays, and poorly graded sands to the maximum depth explored. The depth to groundwater varies seasonally between 3.5 to 19.37, feet bgs, and the groundwater gradient is southwest at approximately 0.002 feet per foot. These large differences in groundwater elevation over time are attributable to seasonal variations, pumping activity, and tidal fluctuations. The closest surface water is the San Gabriel River approximately one mile west and the Pacific Ocean, located approximately two miles southwest of the Site.
- Estimate of Hydrocarbon Mass in Soil: No estimate of mass was found in the files reviewed.
- Groundwater Trends: There are more than 21 years of groundwater monitoring data for this Site. The following graphs present analytical data for the three most impacted groundwater monitoring wells (MW-1, MW-8 and MW-10). The graphs demonstrate the concentrations of MTBE and TBA have migrated southwesterly off-site slightly but are stable and declining.
- Water Quality Objectives: WQOs have been met with the exception of MTBE and TPHg. MTBE was detected above the secondary MCL of 5 µg/L for taste and odor. First order degradation calculations using a USEPA protocol, found that the WQO for MTBE will be met in less than two decades. Region 8 does not have a WQO for TPHg. However, using the most restrictive WQO for TPHg in California of 5ug/L, the WQO is calculated to be met within two decades.
- This is a reasonable period of time for the WQO to be met.

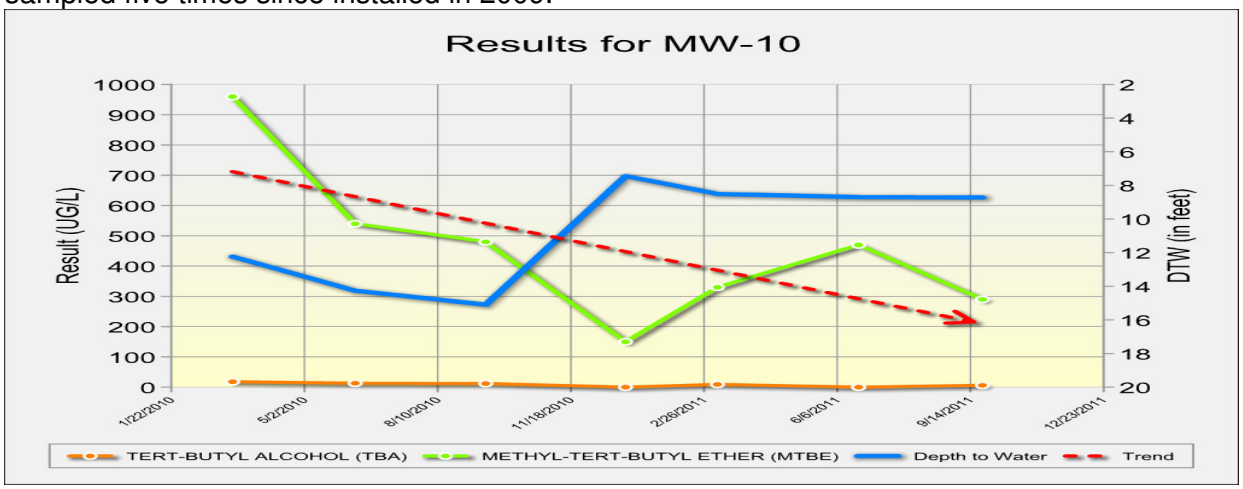
Well MW-1 is near the source area, slightly upgradient.



Well MW-8 is an on-site well at the most downgradient point on Site.



Well MW-10 is a downgradient off-site well approximately 75 feet from property line that has been sampled five times since installed in 2009.



Sensitive Receptor Survey
A review of CDPH data accessed in GeoTracker identified one active public water supply well regulated by CDPH within a 2,000-foot radius of the Site. This well is 829 feet east (upgradient) of the Site. No surface water receptors are within one mile of the Site. Drinking water at and near the Site is currently supplied by the City of Seal Beach.

Risk Evaluation
As a result of removal of approximately 19 cubic yards of affected soil and limited groundwater over purging, a minimal threat to groundwater resources, human health, or the environment. Data from 21 years of monitoring shows there is little residual petroleum hydrocarbon in soil at the Site. Constituents of concern are either not detected or below applicable WQOs with the exception of MTBE and TPHg. There is little threat to human health or the environment because: (1) Residual concentrations are low; (2) the Site and public areas are paved with thick concrete; and (3) the Site is currently an active service station. There is little threat to human health or the environment. There is one active water supply well 829 feet upgradient from the Site. There are no water quality data from CDPH in GeoTracker from the active PSW. Shallow groundwater is not currently used as a source for drinking water, and it is highly unlikely that it will be used in the foreseeable future.

Closure

Will 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 possible relocation of existing utilities, temporary closure of existing businesses, road closures and significant traffic congestion. 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, minimal benefit of attaining further reductions in concentrations of TPHg and MTBE at this Site, and beneficial uses not being 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 shallow and 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. The water quality at the site will meet basin plan WQO's within a reasonable time frame, in this case, less than two decades. 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 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 distance to 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, an alternate level of water quality less stringent than background is unlikely to have any impact on surface water quality, in light of the distance of residual petroleum constituents to surface waters, 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; and the patterns of precipitation in the region.

Has the requisite level of water quality been met? No.
Though the requisite level of water quality has not been met, the approximate time period in which the requisite level of water quality will be met is less than two decades. 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 foreseeable 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.

Conclusion
Based on available information, the residual petroleum hydrocarbons at the Site do not pose a significant risk to human health, 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.

ORIGINAL SIGNED BY — February 28, 2012

Lisa Babcock, PG No. 3939, CEG 1235 — Date

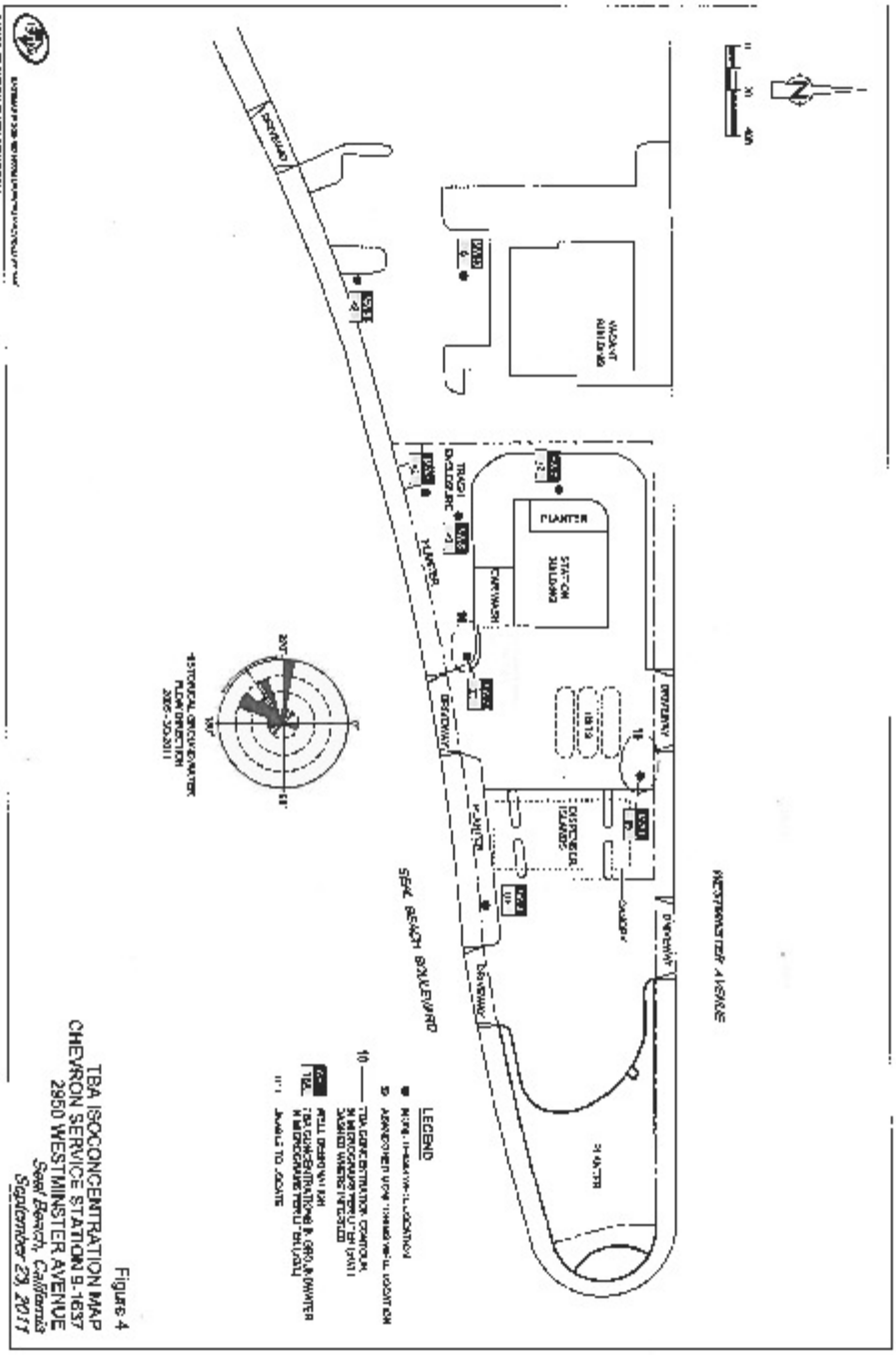


Figure 4
TBA ISOCONCENTRATION MAP
CHEVRON SERVICE STATION 9-1637
2950 WESTMINSTER AVENUE
Seal Beach, California
September 23, 2011