

State Water Resources Control Board

UST CASE CLOSURE REVIEW SUMMARY REPORT

Agency Information

Agency Name: Nevada County Department of Environmental Health (County)	Address: 950 Madu Lane Nevada City, CA 95959
Agency Caseworker: David Huff	Case No.: 3

Case Information

USTCF Claim No.: 10407	GeoTracker Global ID: T06055700064
Site Name: Toms Sierra Bulk Plant	Site Address: 335 Railroad Avenue Grass Valley, CA 95945
Responsible Party: Toms Sierra Company Inc	Address: PO Box 759, Colfax, CA 95713
USTCF Expenditures to Date: \$433,049	Number of Years Case Open: 19

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T06055700064

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:

This case is a bulk fuel distribution plant, with retailing of gasoline and other petroleum products. An unauthorized leak was reported in September 1993 following a 1991 site investigation that concluded that a petroleum hydrocarbon release had occurred. Batch dual phase extraction was conducted in May 2008, January 2009, May 2009 and June 2009 which reportedly removed approximately 2,460 pounds of total petroleum hydrocarbons as gasoline (TPHg) and 225 gallons of contaminated groundwater. Eleven groundwater monitoring wells have been installed and monitored irregularly for more than 18 years. Ten USTs, three Above Ground Storage Tanks (ASTs) and approximately 640 tons of hydrocarbon affected soil were removed in December 2012. The USTs and ASTs were removed to facilitate a comprehensive upgrade of the Site. According to groundwater data, water quality objectives have been achieved or nearly achieved for all constituents except for total petroleum hydrocarbons measured as gasoline and methyl tertiary butyl ether. The dissolved phase plumes generated by both contaminants are not only localized but rapidly shrinking.

The petroleum release is limited to the soil and shallow groundwater. According to data available in GeoTracker, there are no supply wells regulated by the California Department of Public Health or other types of supply wells within 250 feet of the defined plume boundary. A surface water body, Wolf Creek, has been identified within 250 feet of the defined plume boundary in files reviewed. Water is provided to water users near the Site by the City of Grass Valley Public Works Department. 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 Risk from Residual Petroleum Hydrocarbons:** The case meets Policy Criterion 1 by Class 5. The regulatory agency determines, based on an analysis of site specific conditions, which under current and reasonably anticipated near-term future scenarios, the contaminant plume poses a low threat to human health and safety and to the environment and water quality objectives will be achieved within a reasonable time frame. The nearest surface water, Wolf Creek, abuts the Site to the north. In spite of the proximal location of the creek, the Site does not pose a serious threat to the creek for the following reasons. Firstly, the residual hydrocarbon plume at the Site is localized and continues to rapidly shrink. Secondly, routine water sampling of the creek since 2004 has consistently indicated non-detectable levels of hydrocarbons over a nine year period. By remaining non-detectable, the levels of the hydrocarbon contaminants in the creek easily meet various State Water Board water quality goals that include but are not limited to drinking water standards and protection of freshwater aquatic life (State Water Board, 2011). Thirdly, contaminant levels in the Site's underlying groundwater have remained non-detectable or relatively low over time. The low concentrations can be expected to further degrade and attenuate with time.
- **Indoor Vapor Risk from Residual Petroleum Hydrocarbons:** This case meets Policy Criterion 2b. Although no document titled "Risk Assessment" was found in the files reviewed, a professional assessment of site-specific risk from potential exposure to petroleum constituents as a result of vapor intrusion found there to be no significant risk of petroleum vapors adversely affecting human health. First, benzene the primary driver for vapor inhalation is non-detect in the Site's underlying groundwater. Second, the hydrocarbons remaining in the Site's soils following UST and AST removal and soil excavation are weathered and appear generally depleted of volatile organics such as benzene. The levels of those volatiles in the soil are either non-detectable or are relatively low and the locations where volatiles have been detected in low concentrations are well outside the footprint of any onsite building so as not to warrant any potential indoor vapor concerns. Third, there has been no measurable free product at the Site since 2004, further reducing any potential indoor vapor threats.

- **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.

Objections to Closure and Responses

The County has not formally objected to closure.

RESPONSE: The case at this time meets all Policy criteria and does not pose a significant risk to human health.

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. Nevada County has the regulatory responsibility to supervise the abandonment of monitoring wells.

Lisa Babcock

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

11/14/13

Date

Prepared by: Ramesh Sundareswaran

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

<p>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.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this case?</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>If so, was the corrective action performed consistent with any order?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p><u>General Criteria</u> General criteria that must be satisfied by all candidate sites:</p> <p>Is the unauthorized release located within the service area of a public water system?</p> <p>Does the unauthorized release consist only of petroleum?</p> <p>Has the unauthorized (“primary”) release from the UST system been stopped?</p> <p>Has free product been removed to the maximum extent practicable?</p> <p>Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>

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

<p>Has secondary source been removed to the extent practicable?</p> <p>Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?</p> <p>Nuisance as defined by Water Code section 13050 does not exist at the Site?</p> <p>Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p><u>Media-Specific Criteria</u> Candidate sites must satisfy all three of these media-specific criteria:</p> <p>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:</p> <p>Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?</p> <p>Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites?</p> <p>If YES, check applicable class: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5</p> <p>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?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p>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.</p> <p>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.</p> <p>a. Do site-specific conditions at the release site satisfy all of the applicable characteristics and criteria of scenarios 1 through 3 or all</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>

<p>of the applicable characteristics and criteria of scenario 4? If YES, check applicable scenarios: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4</p> <p>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?</p> <p>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?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p>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).</p> <p>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)?</p> <p>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?</p> <p>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?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>

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

Site Location/History

- The Site is located at 335 Railroad Avenue in Grass Valley, California and is a card lock and bulk fuel storage plant which is currently being readied for a comprehensive site upgrade. It is bounded by various businesses to the east and west, Wolf Creek to the north and Railroad Avenue to the south. The surrounding land use is commercial.
- In January 1991, soil contamination was identified during an environmental investigation.
- To date, 11 monitoring wells have been installed and monitored regularly.
- A Site map showing the location of the former USTs, monitoring wells and groundwater level contours is provided at the end of this summary report.
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date reported: September 1993.
- Status of Release: USTs removed (Stratus Environmental Inc., 2012).

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active	Date
1-3	10,000	Gasoline	Removed	December 2012
4-6	10,000	Diesel	Removed	December 2012
7	10,000	Gasoline	Removed	December 2012
8	5,000	Gasoline	Removed	December 2012
9-10	12,000	Gasoline	Removed	December 2012

Receptors

- GW Basin: Undefined.
- Watershed: Bear River – Upper Bear – Wolf Creek.
- Beneficial Uses: The Central Valley Regional Water Quality Control Board (Regional Water Board) Basin Plan lists domestic and municipal supply, agricultural supply, industrial process supply and industrial service supply.
- Land Use Designation: Aerial photograph available on GeoTracker indicates commercial land use in the vicinity of the Site.
- Public Water System: City of Grass Valley, Public Works Department.
- Distance to Nearest Supply Well: According to data available in GeoTracker, there are no public supply wells regulated by the California Department of Public Health within 250 feet of the defined plume boundary. No other water supply wells were identified within 250 feet of the defined plume boundary in the files reviewed.
- Distance to Nearest Surface Water: Wolf Creek is identified as being within 250 feet of the defined plume boundary. The creek passes through the City of Grass Valley, where it receives wastewater treatment effluent and storm water runoff. A number of mines, with acid mine runoff, also drain into the creek.

Geology/Hydrogeology

- Stratigraphy: The Site is underlain by shallow crystalline rocks.
- Maximum Sample Depth: 16 feet below ground surface (bgs).
- Minimum Groundwater Depth: 2.30 feet bgs at monitoring well MW-5.
- Maximum Groundwater Depth: 15.20 feet bgs at monitoring well MW-5.

- Current Average Depth to Groundwater: Approximately 9 feet bgs.
- Saturated Zones(s) Studied: Approximately 4 - 25 feet bgs.
- Appropriate Screen Interval: Yes.
- Groundwater Flow Direction: West by southwest with an average gradient of 0.05 feet/foot (October 2012).

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (10/25/12)
MW-2	May 1993	4 - 20	10.14
MW-3	May 1993	4 - 21	11.75
MW-4	October 1995	4 - 17	7.31
MW-5	October 1995	4 - 17	NM
MW-6	October 1995	4 - 17	10.41
MW-7	October 1995	4 - 17	7.79
MW-8	October 1995	4 - 17	7.29
MW-9	October 1995	4 - 17	7.89
MW-10	October 1995	4 - 17	6.83
MW-11	October 1996	NA	NM
MW-12	October 2000	13 - 33	13.89

NA: Not available
 NM: Not measured

Remediation Summary

- Free Product: Historically, free product was reported in MW-5 (up to 0.37 feet). None measured since 2004.
- Soil Excavation: Approximately 640 tons of soil were removed and managed offsite (Stratus Environmental Inc., 2012).
- In-Situ Soil/ Groundwater Remediation: Batch dual phase extraction was conducted in May 2008, January 2009, May 2009, and June 2009 resulting in the removal of approximately 2,460 pounds of TPHg and 225 gallons of contaminated groundwater.

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	<0.5(12/19/12)	<5(12/19/12)
Ethylbenzene	<0.5(12/19/12)	1.3(12/20/12)
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

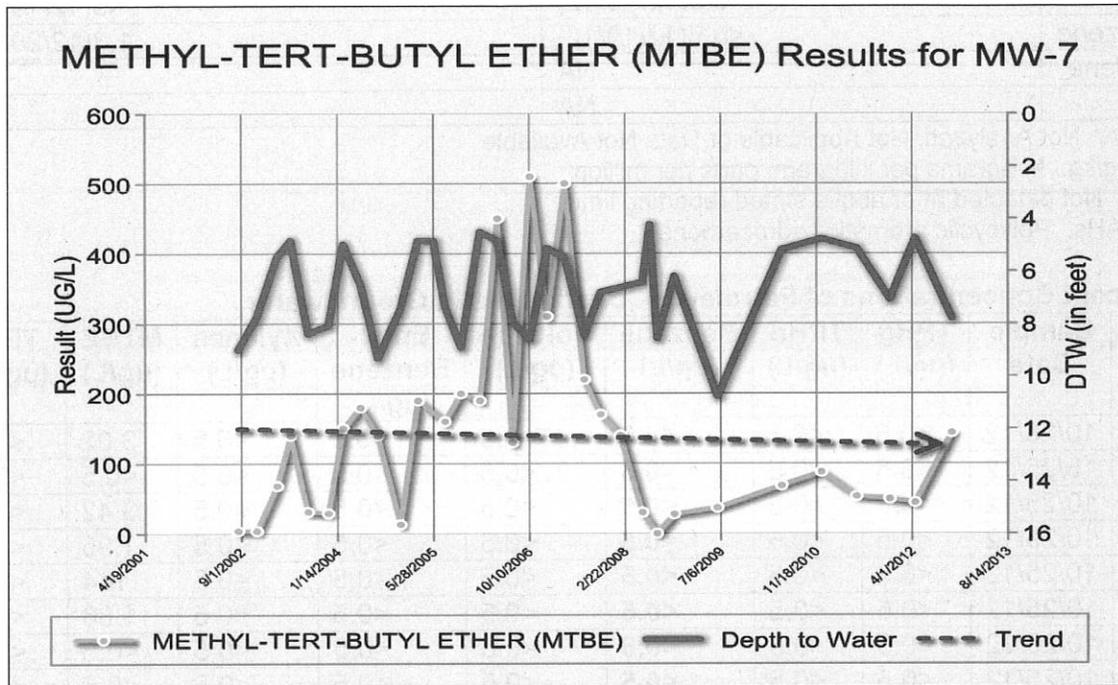
Most Recent Concentrations of Petroleum Constituents in Groundwater

Sample	Sample Date	TPHg (µg/L)	TPHd (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- Benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
MW-2	10/25/12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.02	<2.5
MW-3	10/25/12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.5
MW-4	10/25/12	438	<0.5	<0.5	<0.5	<0.5	<0.5	3.42	<2.5
MW-6	10/25/12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.95	<2.5
MW-7	10/25/12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	144	<2.5
MW-8	10/25/12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.86	<2.5
MW-9	10/25/12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.5
MW-10	10/25/12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.5
MW-11	10/25/12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.5
MW-12	10/25/12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.5
WQOs		5	56	0.15	42	29	17	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
 BTEX: Benzene, toluene, ethylbenzene and xylenes
 MTBE: Methyl tert-butyl ether
 TBA: Tert-butyl alcohol
 WQOs: Water Quality Objectives, Regional Water Board Basin Plan
^a: California Department of Public Health, Response Level

Groundwater Trends

There are 19 years of irregular groundwater monitoring data for this case. MTBE trends are shown below for monitoring well, MW-7.



Evaluation of Current Risk

- Estimate of Hydrocarbon Mass in Soil: None reported.
- Soil/Groundwater tested for methyl tert-butyl ether (MTBE): Yes, see table above.
- Oxygen Concentrations in Soil Vapor: None reported.
- Plume Length: <100 feet long.
- Plume Stable or Decreasing: Yes.
- Contaminated Zone(s) Used for Drinking Water: No.
- Groundwater Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 1 by Class 5. The regulatory agency determines, based on an analysis of site specific conditions, which under current and reasonably anticipated near-term future scenarios, the contaminant plume poses a low threat to human health and safety and to the environment and water quality objectives will be achieved within a reasonable time frame. The nearest surface water, Wolf Creek, abuts the Site to the north. In spite of the proximal location of the creek, the Site does not pose a serious threat to the creek for the following reasons. Firstly, the residual hydrocarbon plume at the Site is localized and continues to rapidly shrink. Secondly, routine water sampling of the creek since 2004 has consistently indicated non-detectable levels of hydrocarbons over a nine year period. By remaining non-detectable, the levels of the hydrocarbon contaminants in the creek easily meet various State Water Board water quality goals that include but are not limited to drinking water standards or protection of freshwater aquatic life (State Water Board, 2011). Thirdly, contaminant levels in the Site's underlying groundwater have remained non-detectable or relatively low over time. The low concentrations can be expected to further degrade and attenuate with time.

- Indoor Vapor Risk from Residual Petroleum Hydrocarbons: This case meets Policy Criterion 2b. Although no document titled "Risk Assessment" was found in the files reviewed, a professional assessment of site-specific risk from potential exposure to petroleum constituents as a result of vapor intrusion found there to be no significant risk of petroleum vapors adversely affecting human health. First, benzene the primary driver for vapor inhalation is non-detect in the Site's underlying groundwater. Second, the hydrocarbons remaining in the Site's soils following UST and AST removal and soil excavation are weathered and appear generally depleted of volatile organics such as benzene. The levels of those volatiles in the soil are either non-detectable or are relatively low and the locations where volatiles have been detected in low concentrations are well outside the footprint of any onsite building so as not to warrant any potential indoor vapor concerns. Third, there has been no measurable free product since 2004, at the Site further reducing any potential indoor vapor threats.
- 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.

