

## State Water Resources Control Board

### UST CASE CLOSURE SUMMARY

#### Agency Information

Agency Name: Colorado River Basin Regional Water Quality Control Board (Regional Water Board)	Address: 73-720 Fred Waring Drive, Suite 100, Palm Desert, CA 92260
Agency Caseworker: Robert E. Jones	Case No.: 7T2263001

#### Case Information

USTCF Claim No.: 12744	Global ID: T0606501052
Site Name: Palm Springs Oil Company No. 4	Site Address: 166 North Sunrise Way Palm Springs, CA 92263 (Site)
Petitioner: Steven Anenberg	Address: 3410 East Foothill Boulevard, Pasadena, CA 91107-3113
USTCF Expenditures to Date: \$566,055	Number of Years Case Open: 16

URL: [http://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=T0606501052](http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606501052)

#### Summary

The Low-Threat Underground Storage Tank 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 Site 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 Site Information**. Highlights of the Conceptual Site Model of the Site follow:

There is currently an operating service station on site. Long-term vapor extraction testing/remediation commenced in July 2006 and was completed in November 2006. The system removed an estimated 6,632 pounds of petroleum constituents from the subsurface. Results from the long-term vapor extraction testing/remediation indicated that the majority of residual petroleum constituents had been removed and that the installation/operation of a fixed soil vapor extraction system did not appear warranted.

Water table has declined more than 40 feet since 2000. Historically, the depth to groundwater is greater than 240 feet below ground surface (bgs). All wells are currently dry. Two replacement wells were constructed to replace wells that had gone dry. Evaluating the impact to the groundwater for all wells has yielded the same result showing nearly no impact to the groundwater. Elevated levels of petroleum constituents are limited to fine-grained soil with low permeability at 30 to 80 feet bgs.

Analytical data from groundwater samples have demonstrated that total petroleum hydrocarbons as gasoline (TPHg), methyl tert-butyl ether (MTBE), and benzene have been either non-detect or have established a decreasing concentration trend in all monitoring wells prior to going dry.

### **Rationale for Closure under the Policy**

- General Criteria – Site meets all eight general criteria under the Policy.
- Groundwater – Site meets the Policy Groundwater-Specific Class “1”.
- Petroleum Vapor Intrusion to Indoor Air – Site meets the exception for vapor intrusion to indoor air. The Site is operated an active commercial fueling facility and has no release characteristics that can be reasonably believed to pose an unacceptable health risk.
- Direct Contact and Outdoor Air Exposure – Site meets the Policy Class “a”. Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 of the Policy. The estimated naphthalene concentrations in soil meet the thresholds in Table 1 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**

Regional Water Board staff objected to underground storage tank (UST) case closure because:

1. Residual soil contamination may have the potential to threaten groundwater quality and public health.

Response: Soil analytical data indicated that elevated levels of petroleum constituents are limited to fine-grained soil with low permeability at 30 to 80 feet bgs and that concentrations decrease to residual or non-detect at depth greater than 80 feet bgs. The remaining mass of residual petroleum constituents is limited to soil below the former USTs. In addition, the water table is now greater than 240 feet bgs. TPHg, benzene, and MTBE in groundwater have been either non-detect or have established a decreasing concentration trend at or near water quality objectives (WQOs) in all wells prior to going dry. These facts indicate that the plume of petroleum constituents emanating from the UST excavations is degrading. Two replacement wells were constructed to replace wells that had gone dry to evaluate the impact to the groundwater and have yielded results showing nearly no impact to the groundwater.

Based on these conditions, the residual petroleum constituents that remain only pose a low threat to human health, safety, or the environment and will not adversely affect the beneficial use of the groundwater in the area.

2. Current groundwater conditions are unknown.

Response: Analytical data from soil and groundwater samples indicated that petroleum constituents in soil and groundwater have been degraded through natural attenuation processes. TPHg, benzene, and MTBE in groundwater have been either non-detect or have established a decreasing concentration trend at or near WQOs in all monitoring wells prior to going dry. All

monitoring wells are currently dry and therefore, continuation of groundwater sampling is not necessary. Replacement wells were constructed twice to keep up with dropping water table and each time before going dry, these replacement wells showed little to no groundwater impact.

3. Additional remediation is needed.

Response: Additional remediation is not necessary because the remedial actions undertaken by the petitioner, including excavation and soil vapor extraction, have removed approximately 6,632 pounds of petroleum constituents. The remaining mass of residual petroleum constituents will be difficult and costly to remove. It is limited to soil above the water table and in the immediate vicinity of the former USTs.

Based on groundwater analytical data from the record, TPHg, benzene, and MTBE in groundwater have been either non-detect or have established a decreasing concentration trend in all monitoring wells prior to going dry. Therefore, remedial actions have mitigated any threat to public health, safety, or environment that may have existed.

**Recommendation for Closure**

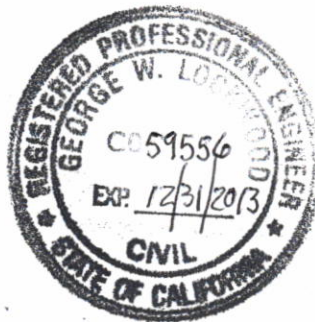
The corrective action performed at this Site ensures the protection of human health, safety, the environment and is consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations, applicable state policies for water quality control and the applicable water quality control plan, and case closure is recommended.

Prepared By: Trinh Pham  
Trinh Pham  
Water Resource Control Engineer

4/11/2013  
Date

Reviewed By: George Lockwood  
George Lockwood, PE#59556  
Senior Water Resource Control Engineer

4/11/2013  
Date



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

The Site 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 Site complies with the requirements of the Low-Threat Underground Storage Tank (UST) Case Closure Policy as described below.<sup>1</sup>**

<p><b>Is corrective action consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations?</b>          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 case 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><b>Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this Site?</b></p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p><b>If so, was the corrective action performed consistent with any order?</b></p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p><b><u>General Criteria</u></b>          General criteria that must be satisfied by all candidate sites:</p> <p><b>Is the unauthorized release located within the service area of a public water system?</b></p> <p><b>Does the unauthorized release consist only of petroleum?</b></p> <p><b>Has the unauthorized (“primary”) release from the UST system been stopped?</b></p> <p><b>Has free product been removed to the maximum extent practicable?</b></p> <p><b>Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed?</b></p> <p><b>Has secondary source been removed to the extent practicable?</b></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 type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>

<sup>1</sup> Refer to the Low-Threat Underground Storage Tank Case Closure Policy for closure criteria for low-threat petroleum UST sites.

<p><b>Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?</b></p> <p><b>Nuisance as defined by Water Code section 13050 does not exist at the site?</b></p> <p><b>Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?</b></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><b><u>Media-Specific Criteria</u></b>          Candidate sites must satisfy all three of these media-specific criteria:</p> <p><b>1. Groundwater:</b>          To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds WQOs 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><b>Is the contaminant plume that exceeds WQOs stable or decreasing in areal extent?</b></p> <p><b>Does the contaminant plume that exceeds WQOs meet all of the additional characteristics of one of the five classes of sites?</b></p> <p>If YES, check applicable class: <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5</p> <p><b>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?</b></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><b>2. Petroleum Vapor Intrusion to Indoor Air:</b>          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><b>Is the site an active commercial petroleum fueling facility?</b>          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><b>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?</b>          If YES, check applicable scenarios: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4</p> <p><b>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?</b></p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</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>

<p><b>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?</b></p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p><b>3. Direct Contact and Outdoor Air Exposure:</b>          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><b>a. Are maximum concentrations of petroleum constituents in soil less than or equal to those listed in Table 1 for the specified depth bgs?</b></p> <p><b>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?</b></p> <p><b>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?</b></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 INFORMATION (Conceptual Site Model)

### Site Location/History

- The Site is located in a business park area on the east side of Sunrise Way, approximately 200 feet north of the intersection of North Sunrise Way and Tahquitz Canyon Way. The Site is an operating petroleum fueling facility.
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Primary Source of Release: UST System.
- Discovery Date: October 1996.
- Release Type: Petroleum<sup>2</sup>.
- Ten groundwater monitoring wells and 14 soil borings have been constructed at the Site.
- Free Product: None reported.

Table A: USTs

Tank No.	Size	Contents	Status	Date
1	10,000	Gasoline	Removed	October 1996
2	10,000	Gasoline	Removed	October 1996
3	10,000	Gasoline	Removed	October 1996
4	10,000	Diesel	Removed	October 1996
5	10,000	Diesel	Removed	October 1996

### Receptors

- Groundwater Basin: Coachella Valley Groundwater Basin (Indio Sub-Basin).
- Groundwater Beneficial Uses: Municipal and domestic water supply (MUN), industrial service water supply (IND), industrial process water supply (PRO), and agricultural water supply (AGR).
- Designated Land Use: Commercial and industrial.
- Public Water System: Desert Water Agency.
- Distance to Nearest Supply Wells: Greater than 1,000 feet.

### Geology/Hydrogeology

- Average Groundwater Depth: Greater than 240 feet bgs.
- Geology: Fine- to coarse-grained sand with varying amounts of gravel and silty sand with localized interbeds of sandy silt, silt, and clayey silt. The silts are typically laterally discontinuous, but two generally continuous silty zones have been identified beneath the Site between approximately 25 and 50 feet bgs and 165 and 185 feet bgs.
- Hydrology: Historically, the groundwater flow direction is to the southwest. Regionally, the groundwater flow direction is from the northwest to southeast.

<sup>2</sup> "Petroleum" means crude oil, or any fraction thereof, which is liquid at standard conditions of temperature and pressure, which means at 60 degrees Fahrenheit and 14.7 pounds per square inch absolute. (Health & Saf. Code, § 25299.2.)

**Corrective Actions**

- October 1996: Removal of USTs and soil excavation.
- October 2005: One-day vapor extraction testing.
- July 2006- November 2006: Long-term vapor extraction testing and remediation.
  - Approximately 6,632 pounds of petroleum constituents were removed.
- August 2007: Installation of soil borings.

**Table B: Concentrations of Petroleum Constituents in Soil**

Constituent	Maximum 0-5 feet bgs (mg/kg)	Maximum 5-10 feet bgs (mg/kg)
Benzene	ND	ND
Ethylbenzene	ND	0.004
Naphthalene	NA	NA

ND = Non-detect  
 NA = Not available

**Table C: Groundwater Sampling Results before Wells Had Gone Dry**

Well No.	Last Sampling Date	TPHg (µg/L)	Benzene (µg/L)	MTBE (µg/L)
MW-1	3/2003	ND	ND	ND
TSG-MW-1R	11/2008	ND	ND	ND
MW-2	5/2003	ND	ND	ND
MW-3	3/2003	ND	ND	50
MW-4	6/2005	ND	ND	ND
MW-5	3/2005	ND	ND	ND
MW-6	6/2005	ND	ND	ND
TSG-MW-7	2/2009	ND	ND	ND
TSG-MW-8	11/2007	ND	ND	ND
TSG-MW-9	2/2009	ND	ND	ND
<b>WQO</b>		<b>5<sup>1</sup></b>	<b>1<sup>2</sup></b>	<b>5<sup>3</sup></b>

<sup>1</sup> Taste and Odor threshold (McKee and Wolf)  
<sup>2</sup> California Primary Maximum Contaminant Level (MCL)  
<sup>3</sup> California Secondary MCL  
 ND Non-detect

**Evaluation of Risk Criteria**

- Maximum Petroleum Constituent Plume Length above WQOs: MTBE groundwater plume is less than 30 feet.
- Petroleum Constituent Plume Determined Stable or Decreasing: Yes.
- Soil/Groundwater Sampled for MTBE: Yes, see Table C above.
- Residual Petroleum Constituents Pose Significant Risk to the Environment: No.
- Residual Petroleum Constituents Pose Significant Vapor Intrusion Risk to Human Health: No. Site meets exception for active fueling facility. Petroleum constituents most likely to pose a threat for vapor intrusion were removed during soil excavation, over-excavation, and vapor extraction. The



residual petroleum constituents in soil and groundwater are acceptable because site conditions are protective of human health.

- Residual Petroleum Constituents Pose a Nuisance<sup>3</sup> at the Site: No.
- Residual Petroleum Constituents in Soil Pose Significant Risk of Adversely Affecting Human Health: No.
- Residual Petroleum Constituents Pose Significant Direct Contact and Outdoor Air Exposure to Human Health: No. Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 of the Policy. 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 concentrations can be directly substituted for naphthalene concentrations with a safety factor of eight. Benzene concentrations from the Site are below the naphthalene thresholds in Table 1. Therefore, estimated naphthalene concentrations meet the thresholds in Table 1 for direct contact by a factor of eight. It is highly unlikely that naphthalene concentrations in the soil, if any, exceed the threshold.

---

<sup>3</sup> Nuisance as defined in California Water Code, section 13050, subdivision (m).

PLOT PLAN

