

## State Water Resources Control Board

### UST CASE CLOSURE REVIEW SUMMARY REPORT

#### Agency Information

Agency Name: Sacramento County Environmental Management Department (County)	Address: 10590 Armstrong Avenue, Suite A, Mather, CA 95655
Agency Caseworker: Sue Erikson	Case No.: B537

#### Case Information

USTCF Claim No.: 16378	Global ID: T0606700534
Site Name: Former Nolan Self-Serve	Site Address: 4801 Rio Linda Blvd., Sacramento, CA 95838
Responsible Party: Mike Nolan	Address: 4807 Rio Linda Blvd., Sacramento, CA 95838
USTCF Expenditures to Date: \$488,942	Number of Years Case Open: 20

URL: [http://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=T0606700534](http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606700534)

#### 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:

An unauthorized release was reported in June 1992. Seven gasoline USTs were removed between 1999 and 2000. Contaminated soil was excavated from beneath the USTs in 2000 to a total depth of 12 feet. Since 2002, seven monitoring wells have been installed and monitored regularly. No significant active remediation was conducted at this Site beyond a 19-hour soil vapor extraction test. According to groundwater data, water quality objectives have been achieved for all constituents except for 1,2 dichloroethane (1,2 DCA) in one monitoring well, MW-3.

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 surface water bodies within 250 feet of the defined plume boundary. City of Sacramento Municipal Well No. 153A (153 was destroyed) is more than 250 feet southwest (crossgradient) of the defined plume boundary. A seasonal drainage known as Magpie Creek is 100 feet from the defined plume boundary. No other water supply wells have 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 Sacramento. 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

FELICIA MARCUS, CHAIR | THOMAS HOWARD, EXECUTIVE OFFICER

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hydrocarbon constituents are limited and stable, and concentrations are declining. Minimum 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 Specific Criteria:** The Case meets the 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 case fails to meet Policy Criterion 1 by Class 1 only because a seasonal creek (Magpie Creek) is located 100 feet south (downgradient) of the defined plume boundary. However, residual petroleum hydrocarbons in groundwater at this Site cannot enter Magpie Creek because the groundwater is much deeper (over 55 feet) below the bottom of the creek. The contaminant plume that exceeds water quality objectives is less than 100 feet in length. There is no free product. The nearest water supply well is greater than 250 feet from the defined plume boundary. City of Sacramento Municipal Well No. 153A is more than 250 feet southwest (crossgradient) of the defined plume boundary.
- **Vapor Intrusion to Indoor Air:** The case meets Policy Criterion 2a by Scenario 3a. The maximum benzene concentration in groundwater is less than 100 µg/L. The minimum depth to groundwater is greater than 5 feet, overlain by soil containing less than 100 mg/kg of TPH.
- **Direct Contact and Outdoor Air Exposure:** The case meets Policy Criterion 3a. Maximum concentrations in soil are less than those in Policy Table 1 for Commercial/Industrial land 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**

According to the GeoTracker the County has requested a No Further Action Request on May 22, 2013.

#### **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.

Former Nolan Self Service  
4801 Rio Linda Blvd., Sacramento  
Claim No.: 16378

June 2013

**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 state policy. Sacramento County has the regulatory responsibility to supervise the abandonment of monitoring wells.

*Lisa Babcock*

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

*6/27/13*

\_\_\_\_\_  
Date

Prepared by: Kirk Larson, P.G. 6535

**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.<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 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><b>Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this case?</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</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>

<sup>1</sup> 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](http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf)

<p><b>of the release been developed?</b></p> <p><b>Has secondary source been removed to the extent practicable?</b></p> <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 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 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><b>Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?</b></p> <p><b>Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites?</b></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><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 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</b></p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>

<p><b>of the applicable characteristics and criteria of scenario 4?</b>          If YES, check applicable scenarios: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" 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><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><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 below ground surface (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 CASE INFORMATION (Conceptual Site Model)**

**Site Location/History**

- The Site is an irrigation supply business and is bounded by businesses to the west and north, residences across Rio Linda Boulevard to the east and a business across Main Avenue to the south. The surrounding land use is mixed residential and commercial.
- Seven monitoring wells have been installed and monitored irregularly since 2002.
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- A Site map showing the location of former USTs, monitoring wells, and groundwater level contours is provided at the end of the closure summary (CRA, 2012).
- Source: UST system.
- Date reported: June 1992.
- Status of Release: USTs removed.
- Free Product: None reported.

**Tank Information**

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active	Date
1	12,000	Gasoline	Removed	September 1999
2	10,000	Gasoline	Removed	September 1999
3,4	1,000	Gasoline	Removed	September 1999
5	2,000	Gasoline	Removed	June 2000
6	500	Gasoline	Removed	June 2000
7	300	Gasoline	Removed	June 2000

**Receptors**

- GW Basin: Sacramento Valley – North American.
- Beneficial Uses: Central Valley Regional Water Quality Control Board (Regional Water Board) Basin Plan: Groundwater Recharge.
- Land Use Designation: Aerial photograph available on GeoTracker suggests land use is mixed commercial and residential in the vicinity of the Site.
- Public Water System: City of Sacramento.
- Distance to Nearest Supply Well: According to data available in GeoTracker, there is one public supply well regulated by California Department of Public Health approximately 250 feet from the defined plume boundary. The well (No. 153A) is located more than 250 feet southwest (crossgradient) of the Site and is screened from 260 to 626 feet with a sanitary seal to 100 feet bgs. No other water supply wells were identified within 250 feet of the defined plume boundary in files reviewed.
- Distance to Nearest Surface Water: The nearest surface water is Magpie Creek, located approximately 100 feet south of the defined plume boundary.

**Geology/Hydrogeology**

- Stratigraphy: The Site is underlain by interbedded and intermixed sand, silt and clay.
- Maximum Sample Depth: 80 feet bgs.
- Minimum Groundwater Depth: 55.63 feet bgs at monitoring well MW-5.
- Maximum Groundwater Depth: 65.51 feet bgs at monitoring well MW-6.

- Current Average Depth to Groundwater: Approximately 57 feet bgs.
- Saturated Zones(s) Studied: Approximately 60 to 83 feet bgs.
- Groundwater Flow Direction: Southeast at approximately 0.003 feet/foot (February 2012).

**Monitoring Well Information**

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (08/14/2012)
MW-1	June 2002	63-83	56.55
MW-2	March 2003	60-80	55.67
MW-3	March 2003	60-80	56.82
MW-4	March 2003	60-80	56.27
MW-5	January 2005	60-80	56.63
MW-6	January 2005	63-83	60.91
MW-7	February 2009	60-75	56.70

**Remediation Summary**

- Free Product: No free product was documented in GeoTracker.
- Soil Excavation: Contaminated soil was excavated from beneath the USTs in 2000 to a total depth of 12 feet.
- In-Situ Soil Remediation: Soil vapor extraction was conducted for 19 hours in March 2008, which removed 342 pounds of TPHg.
- Groundwater Remediation: No groundwater remediation has been conducted.

**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	0.04 (01/13/00)	3.8 (12/06/97)
Ethylbenzene	0.79 (01/13/00)	44 (09/23/99)
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)	1,2-DCA (µg/L) <sup>b</sup>	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
MW-1	02/14/11	<50	0.20	<0.5	<0.5	<0.5	<0.5	<0.5	<5
MW-2	02/14/11	<50	<0.16	<0.5	<0.5	<0.5	<0.5	<0.5	<5
MW-3	02/14/11	<50	<b>3.3</b>	<0.5	<0.5	<0.5	<0.5	<0.5	<5
MW-4	02/14/11	<50	0.24	<0.5	<0.5	<0.5	<0.5	<0.5	14
MW-5	02/14/11	<50	<0.16	<0.5	<0.5	<0.5	<0.5	<0.5	<5
MW-6	02/14/11	<50	<0.16	<0.5	<0.5	<0.5	<0.5	<0.5	<5
MW-7	02/14/11	<50	<0.16	<0.5	<0.5	<0.5	<0.5	<0.5	<5
<b>WQOs</b>	-	<b>56</b>	<b>0.5</b>	<b>0.15</b>	<b>42</b>	<b>29</b>	<b>17</b>	<b>5</b>	<b>1,200<sup>a</sup></b>

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

1,2 DCA: 1,2 Dichloroethane

MTBE: Methyl tert-butyl ether

TBA: Tert-butyl alcohol

WQOs: Water Quality Objectives, Regional Water Board Basin Plan

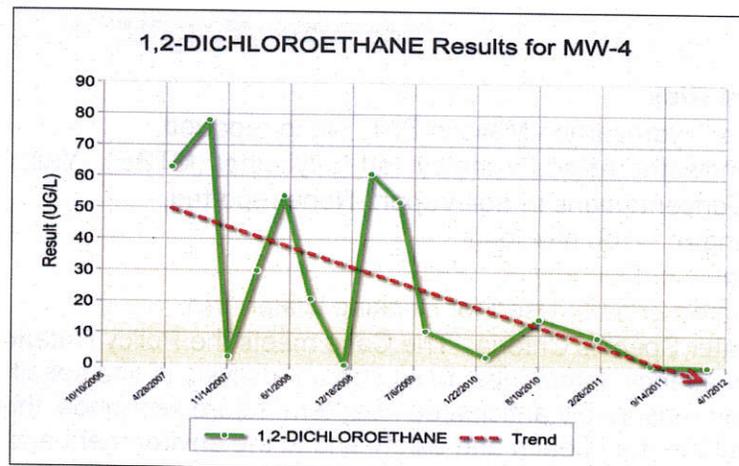
<sup>a</sup>: California Department of Public Health, Response Level

<sup>b</sup>: DCA was the only analyte sampled on 08/14/2012

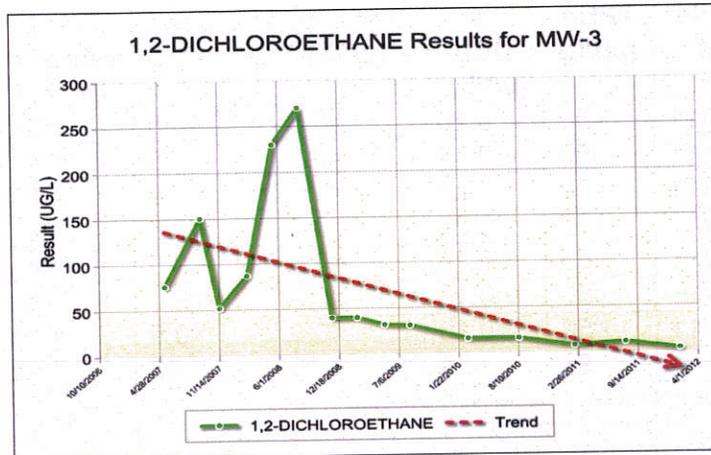
**Groundwater Trends:**

- There are more than 9 years of groundwater monitoring data for this Site. Only one monitoring well, MW-3, has any residual petroleum hydrocarbon constituents of concern above WQOs. 1,2 DCA trends are shown below: Source Area (MW-4), Near Downgradient (MW-3), and Far Downgradient (MW-6).

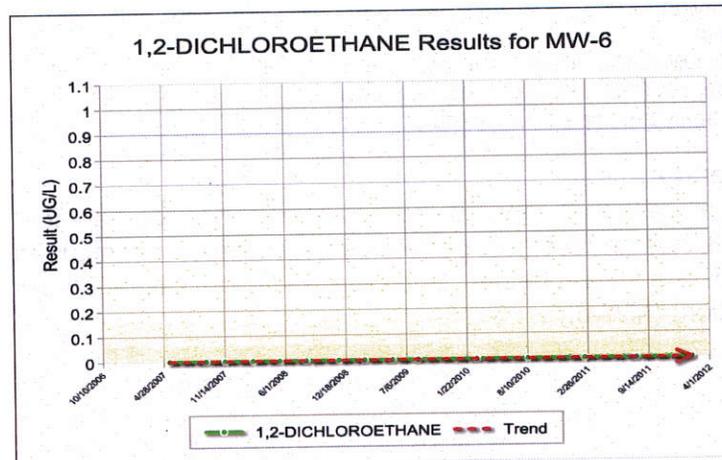
**Source Area Well**



### Near Downgradient Well



### Far Downgradient Well



### 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 Specific Criteria: The Case meets the 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 case fails to meet Policy Criterion 1 by Class 1 only because a seasonal creek (Magpie Creek) is located 100 feet south (downgradient) of the defined plume boundary. However, residual petroleum hydrocarbons in groundwater at this Site cannot enter Magpie Creek because the groundwater is much deeper (over 55 feet) below the bottom of the creek. The contaminant plume that exceeds water quality objectives is less than 100 feet in length. There

is no free product. The nearest water supply well is greater than 250 feet from the defined plume boundary. City of Sacramento Municipal Well No. 153A is more than 250 feet southwest (crossgradient) of the defined plume boundary.

- Vapor Intrusion to Indoor Air: The case meets Policy Criterion 2a by Scenario 3a. The maximum benzene concentration in groundwater is less than 100 µg/L. The minimum depth to groundwater is greater than 5 feet, overlain by soil containing less than 100 mg/kg of TPH.
- Direct Contact and Outdoor Air Exposure: The case meets Policy Criterion 3a. Maximum concentrations in soil are less than those in Policy Table 1 for Commercial/Industrial land 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.

