

State Water Resources Control Board

UST CASE CLOSURE REVIEW SUMMARY REPORT

Agency Information

Agency Name: Central Valley Regional Water Quality Control Board (Regional Water Board)	Address: 11020 Sun Center Drive #200 Rancho Cordova, CA 95670
Agency Caseworker: Paul Sanders	Case No.: 310129

Case Information

USTCF Claim No.: 6644	GeoTracker Global ID: T0606100106
Site Name: Sugar Bowl Area Parking Garage	Site Address: 58450 Donner Pass Road Norden, CA 95724
Responsible Party (RP): Sugar Bowl Corporation Attn.: Rob Kautz	Address: P.O. Box 5 Norden, CA 95724
USTCF Expenditures to Date: \$1,495,000	Number of Years Case Open: 21

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606100106

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 Site is a two level parking garage that overlies a former petroleum fueling facility. An unauthorized release was reported in September 1991. Approximately 300 cubic yards of impacted soil were excavated and aerated on site. Additional remaining impacted soil (approximately 1,250 cubic yards) was not disturbed due to potential structural impacts to the garage. Two 2,000 gallon UST's were closed in place on June 6, 2000. Soil vapor extraction (SVE) was conducted in the upper garage area between August 2004 through November 2011, removing 0.276 pounds of dissolved-phase fuel hydrocarbons (69,442 gallons of water) and 12,295 pounds of vapor-phase fuel hydrocarbons. In the lower garage area SVE was conducted from December 2008 through March 2013, removing 20,850 pounds of vapor-phase fuel hydrocarbons. Eight groundwater monitoring wells and four extraction wells have been installed and have been monitored regularly for more than 10 years. According to groundwater data, water quality objectives have been achieved or nearly achieved for all constituents except for total petroleum hydrocarbons as gasoline (TPHg).

The petroleum release is limited to the soil and shallow groundwater. According to data available in GeoTracker, there are no supply wells regulated by California Department of Public Health or surface water bodies within 250 feet of the defined plume boundary. There are five domestic wells downgradient of the defined plume boundary that were sampled from September 2002 through May 2008. The Regional Water Board suspended all domestic well water sampling after no hydrocarbon impacts were reported (April 2013, E₂C). All wells are greater than 250 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 Donner Summit Public Utility District. 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 decreasing. 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 TPHg plume is approximately 200 feet in length, with a groundwater flow direction to the southwest. There is no free product present, and the dissolved concentration of benzene and MTBE are both below the water quality objectives across all monitoring wells onsite. There are five downgradient domestic wells, with the nearest located at approximately 300 feet from the defined plume boundary. The TPHg plume appears to be localized onsite, with no downgradient movement. All downgradient domestic wells were monitored quarterly from 2002 through 2008. All wells have been non-detect for all contaminants of concern since 2008. Therefore, 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.
- Indoor Vapor Risk from Residual Petroleum Hydrocarbons: The 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 residual soil contamination found that maximum concentrations of petroleum constituents remaining in soil will have no significant risk of adversely affecting human health. The Site is a parking garage, with the original source area completely paved, with little potential for change in use. The lower garage SVE system has been recently shut down due to low recovery levels in the effluent samples. Recent sample data has shown that only TPHg remains at elevated levels in the vapor effluent (E₂C Remediation, 2013). The parking garage is open on all sides allowing free air movement which further reduces any risk of indoor air intrusion.

- **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 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

In their April 23, 2013, email communication on file, the Regional Water Board has requested an extended period of post remedial sampling due to nearby downgradient domestic wells, surfacing groundwater along and beneath the crib wall and the fractured rock nature of the subsurface.

RESPONSE:

The TPHg plume is defined, localized and stable under a multilevel parking car garage. Historical groundwater monitoring results have shown no downgradient migration of TPHg. All downgradient domestic wells are over 250 feet from the defined plume boundary, and have been non detect for all chemicals of concern since 2008.

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



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



Date

Prepared by: Kenyatta Dumisani

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 checked="" type="checkbox"/> Yes <input 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 type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" 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 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><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>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

- This case is located on the southeast corner of Crescent Avenue and Moody Street in Norden, California. The Site is a multi-level parking garage for the Sugar Bowl Winter Sports Facility.
- The Site is bound by Donner Pass Road to the north, a Union Pacific Railroad property to the south, residential properties to the west and a commercial building to the east.
- Site maps showing the location of the monitoring wells, groundwater level contours and the TPHg plume are provided at the end of this closure review summary (E₂C Remediation, 2013).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date reported: September 1991.
- Status of Release: USTs closed in place.
- Free Product: None reported.

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active	Date
T-1	2,000	Gasoline	Closed in place	June 2000
T-2	2,000	Gasoline	Closed in place	June 2000

Receptors

- Groundwater Basin: unnamed.
- Watershed: Yuba River-South Yuba-Lake Spalding.
- Beneficial Uses: The Regional Water Board Basin Plan lists: Agricultural Supply, Industrial Process and Service Water Supply, Groundwater Recharge, Municipal and Domestic Supply.
- Land Use Designation: Aerial photograph available on GeoTracker indicates commercial and open space land use in the vicinity of the Site.
- Public Water System: Donner Summit Public Utility District.
- 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. There are five domestic wells downgradient of the defined plume boundary. All wells were regularly sampled from September 2002 through May 2008. The Regional Board suspended all domestic well water sampling after no hydrocarbon impacts were reported (April 2013, E₂C). All wells are outside 250 feet of the defined plume boundary.
- Distance to Nearest Surface Water: There is no identified surface water within 250 feet of the defined plume boundary.

Geology/Hydrogeology

- Stratigraphy: The site is underlain by volcanic tuff underlain by bedrock.
- Maximum Sample Depth: 79 feet below ground surface (bgs).
- Minimum Groundwater Depth: Zero feet bgs at monitoring well MW-2, EX-3, MW-4 and MW-6.
- Maximum Groundwater Depth: 67.18 feet bgs at monitoring well MW-1.
- Current Average Depth to Groundwater: Approximately 15 feet bgs.
- Saturated Zones(s) Studied: Approximately 5 - 79 feet bgs.
- Appropriate Screen Interval: Yes.
- Groundwater Flow Direction: Typically south to southwest with a gradient of 0.19 feet/foot (January 2013).

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (1/21/2013)
MW-1	August 2002	11 - 76	16.61
MW-2	August 2002	5 - 24	14.98
MW-5	August 2003	19 - 79	Not measured
MW-6	August 2003	10 - 35	Not measured
MW-7	August 2006	15 - 35	14.67
MW-8	August 2006	5 - 10.5	7.51
EX-1	August 2002	5 - 14.5	7.7
EX-2	August 2003	10.5 - 25.5	15.09
EX-3	May 2003	11.5 - 27	Dry
EX-4	May 2003	13 - 28	23.75

Remediation Summary

- Free Product: None reported in GeoTracker.
- Soil Excavation: Approximately 300 cubic yards of impacted soil were excavated and treated through aeration and biodegradation onsite in 1990.
- In-Situ Soil Remediation/Groundwater Remediation: Soil vapor extraction (SVE) was conducted in the upper garage area between August 2004 through November 2011, removing 0.276 pounds of dissolved-phase fuel hydrocarbons and 12,295 pounds of vapor-phase fuel hydrocarbon. In the lower garage area SVE was conducted from December 2008 through March 2013, removing 20,580 pounds of vapor-phase fuel hydrocarbons.

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	0.008 (09/27/06) ¹	0.973 (07/20/06) ²
Ethylbenzene	0.005 (09/27/06) ¹	38.2 (07/20/06) ²
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

1: Based on Geotracker.

2: Environmental Control Associates, Inc., August 2006.

Most Recent Concentrations of Petroleum Constituents in Groundwater

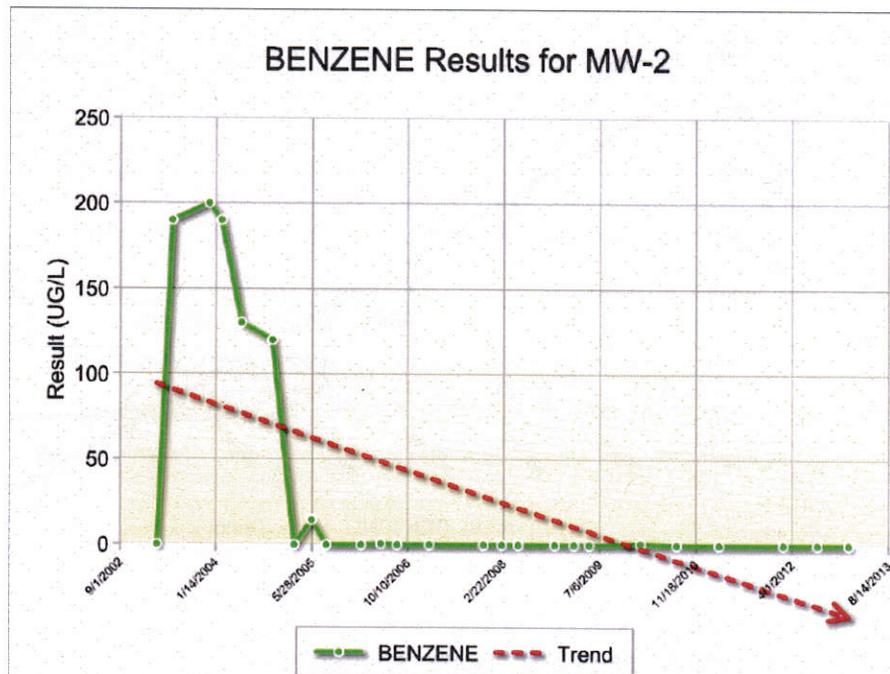
Sample	Sample Date	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
MW-1	01/21/2013	<50	<0.5	<0.5	<0.5	<0.5	<0.5
MW-2	01/21/2013	<50	<0.5	<0.5	<0.5	<0.5	<0.5
MW-5	08/10/2012	<50	<0.5	<0.5	<0.5	<0.5	<0.5
MW-6	08/10/2012	<50	<0.5	<0.5	<0.5	<0.5	<0.5
MW-7	01/21/2013	<50	<0.5	<0.5	<0.5	<0.5	<0.5
MW-8	01/21/2013	370	<0.5	<0.5	<0.5	32.1	<0.5
EX-1	01/21/2013	<50	<0.5	<0.5	<0.5	<0.5	<0.5
EX-2	01/21/2013	496	<0.5	<0.5	<0.5	14.5	<0.5
EX-3	08/23/2011	<50	<0.5	<0.5	<0.5	<0.5	<0.5
EX-4	01/21/2013	1,580	16.1	2.83	48.9	106	<0.5
WQOs		5	0.15	42	29	17	5^a

NM: Not Measured, Well Covered
 µg/L: Micrograms per liter, parts per billion
 <: Not detected at or above stated reporting limit
 TPHg: Total petroleum hydrocarbons as gasoline
 MTBE: Methyl tert-butyl ether
 WQOs: Water Quality Objectives, Regional Water Board Basin Plan
^a: Secondary maximum contaminant level (MCL)

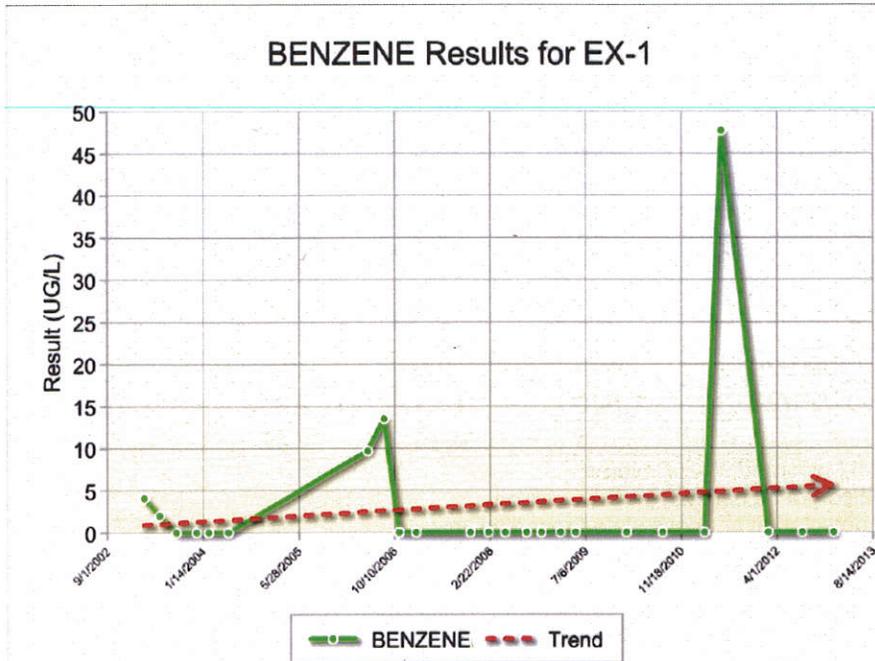
Groundwater Trends

- Groundwater monitoring data for this case is available for multiple years, with trend data for benzene and TPHg shown below:

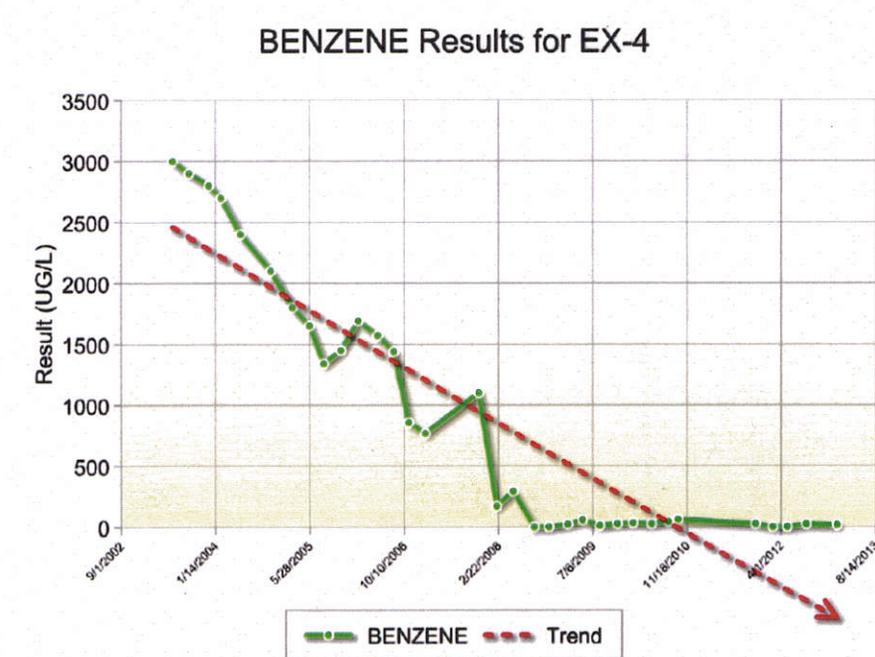
Source Area Well MW2



Source Area Well EX-1



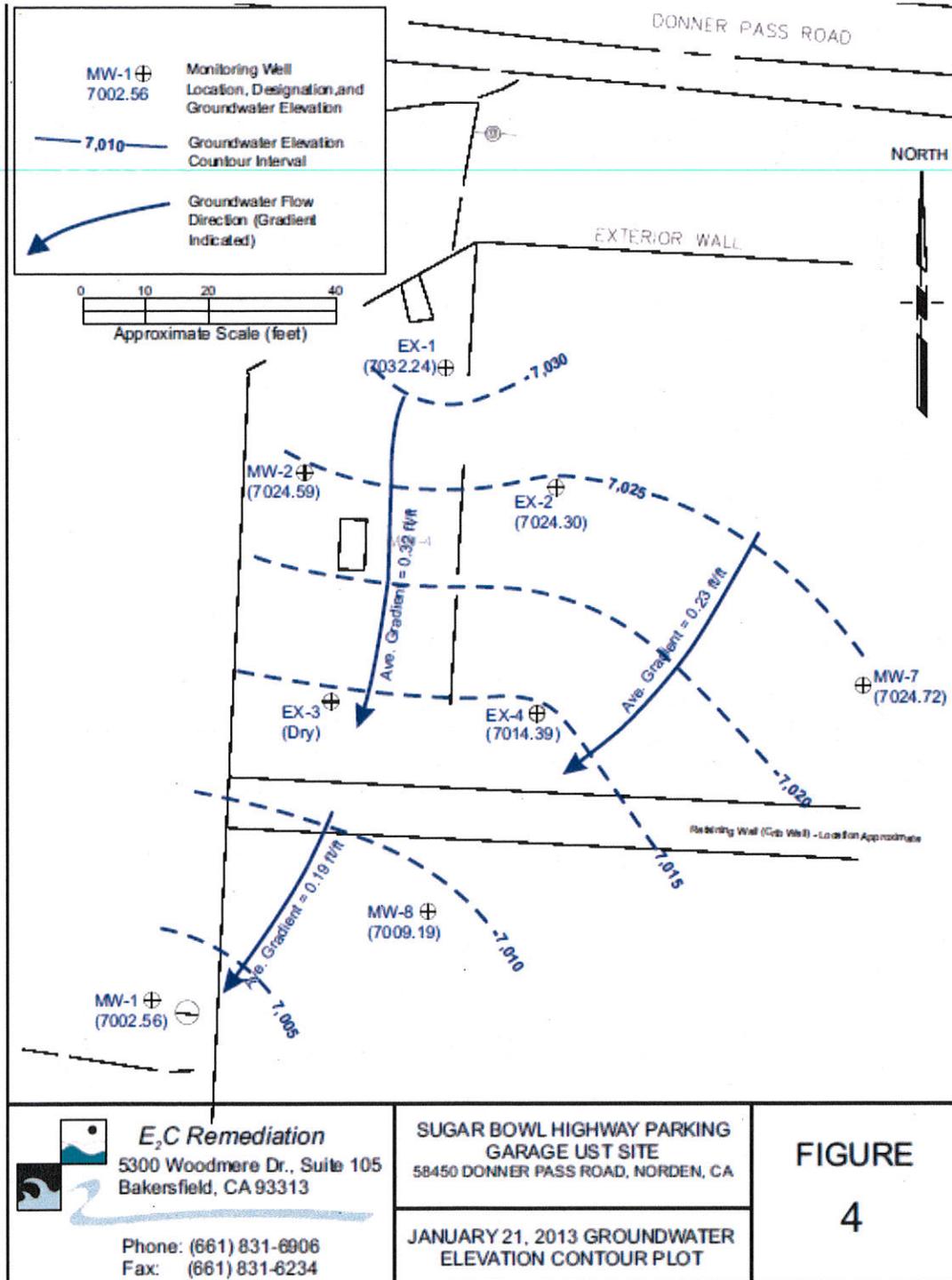
Near Downgradient Well EX-4

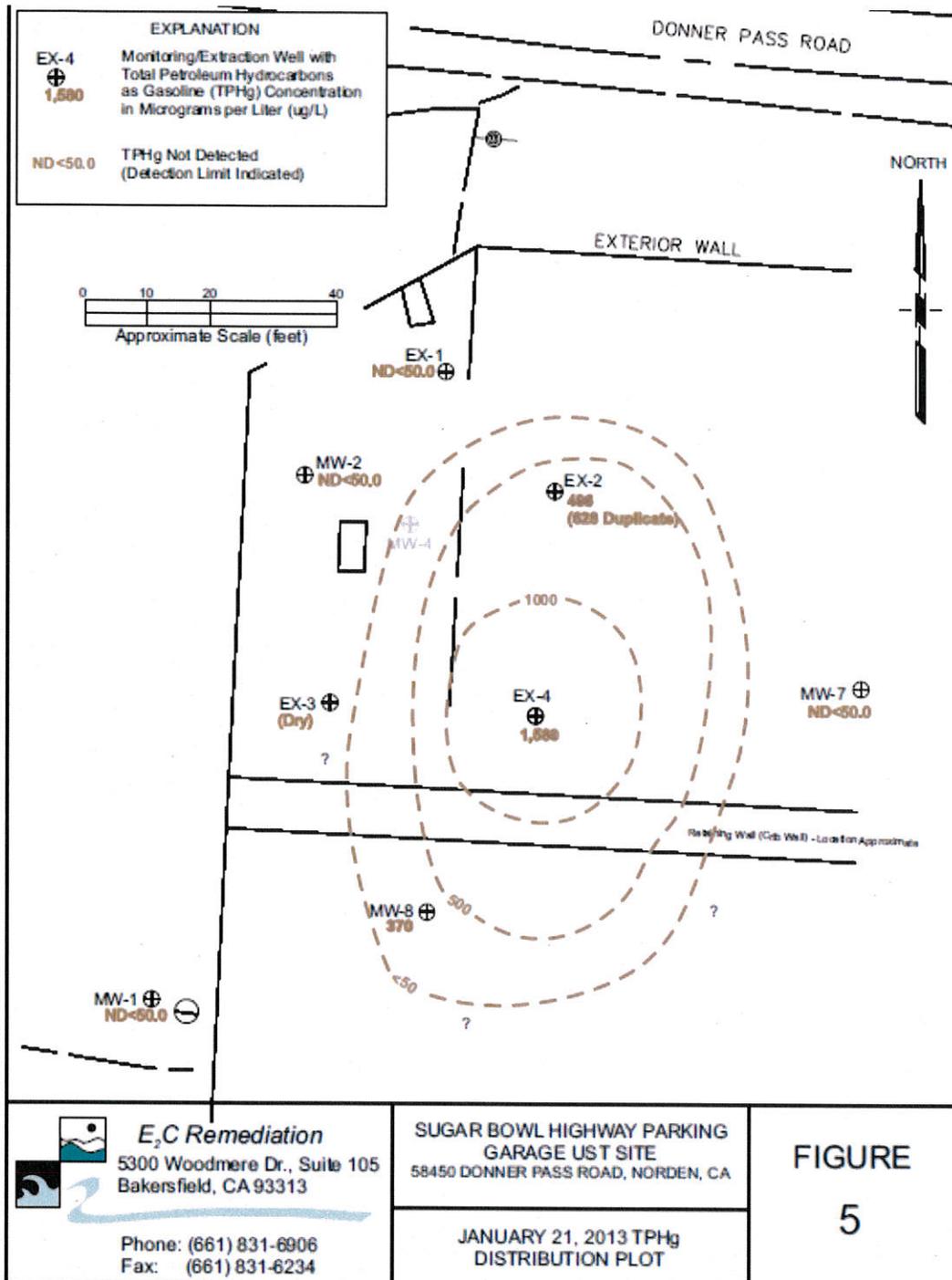


Evaluation of Current Risk

- 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: <250 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 TPHg plume is approximately 200 feet in length, with a groundwater flow direction to the southwest. There is no free product present, and the dissolved concentration of benzene and MTBE are both below the water quality objectives across all monitoring wells onsite. There are five downgradient domestic wells, with the nearest located at approximately 300 feet from the defined plume boundary. The TPHg plume appears to be localized onsite, with no downgradient movement. All downgradient domestic wells were monitored quarterly from 2002 through 2008. All wells have been non-detect for all contaminants of concern since 2008. Therefore, 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.
- Indoor Vapor Risk from Residual Petroleum Hydrocarbons: The 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 residual soil contamination found that maximum concentrations of petroleum constituents remaining in soil will have no significant risk of adversely affecting human health. The Site is a parking garage, with the original source area completely paved, with little potential for change in use. The lower garage SVE system has been recently shut down due to low recovery levels in the effluent samples. Recent sample data has shown that only TPHg remains at elevated levels in the vapor effluent (E2C Remediation, 2013). The parking garage is open on all sides allowing free air movement which further reduces any risk of indoor air intrusion.
- 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.





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SUGAR BOWL HIGHWAY PARKING GARAGE UST SITE
 58450 DONNER PASS ROAD, NORDEN, CA

JANUARY 21, 2013 TPHg DISTRIBUTION PLOT

FIGURE 5

