

State Water Resources Control Board

UST CASE CLOSURE REVIEW SUMMARY REPORT

Agency Information

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| Agency Name: Sonoma Department of Environmental Health Services (County) | Address: 625 5 th Street, Santa Rosa, CA 95404 |
| Agency Caseworker: Becky Vermeer | Case No.: 00001776 |

Case Information

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| USTCF Claim No.: 504 | Global ID: T0609700875 |
| Site Name: Office Helper Products | Site Address: 1330 Ross Street, Petaluma, CA 94952 |
| Responsible Party 1: Roy & Yvonne Dott Trust | Address: 2905 Las Gallinas Avenue, San Rafael, CA 94903-1451 |
| Responsible Party 2: Spongberg Family Trust | Private Address |
| USTCF Expenditures to Date: \$170,824 | Number of Years Case Open: 24 |

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0609700875

Summary

The Low-Threat Underground Storage (UST) 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 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 Site Information**. Highlights of the Conceptual Site Model of the case follow:

An unauthorized release was reported in October 1988 following the removal of one 1,000-gallon gasoline UST. In November 2007 approximately 278 tons of petroleum-impacted soil were excavated, removed, and replaced with clean imported fill. No active remediation has been conducted. Since 1998, four monitoring wells have been installed and monitored. According to groundwater data, water quality objectives have been achieved or nearly achieved for all constituents.

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 1,000 feet of the projected plume boundary. No other water supply wells have been identified within 1,000 feet of the projected plume boundary in files reviewed. Water is provided to water users near the Site by the City of Petaluma. 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 and stable, and concentrations are 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 general criteria.
- Groundwater Specific Criteria: The case meets Policy Criterion 1 by Class 2. The contaminant plume that exceeds water quality objectives is less than 250 feet in length. There is no free product. The nearest water supply well or surface water body is greater than 1,000 feet from the projected plume boundary. The dissolved concentration of benzene is less than 3,000 µg/L, and the dissolved concentration of methyl tert-butyl ether (MTBE) is less than 1,000 µg/L.
- 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 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 Response

The County in a memo dated February 24, 2012, responded to the Cleanup Fund's 5-Year Review recommendation to pursue closure February 6, 2012:

- Although the overall concentrations of 1,2-Dichloroethane (1,2 DCA) show a decreasing trend, the last seven sampling events indicate an increasing post-remedial concentration trend that is well above the cleanup goal of 0.5 parts per billion (ppb). This trend is an indication of an unstable plume that has not been completely characterized.
RESPONSE: The source of contamination has been removed. Water quality objectives have been achieved or nearly achieved for all constituents except 1,2 DCA. Minor fluctuations in 1,2 DCA are consistent with fluctuations of groundwater elevation. The residents in the area are served water by the City of Petaluma.

- The Site has not been sufficiently characterized to define the lateral extent of 1,2 DCA in groundwater. Additional site characterization is necessary downgradient of MW-2 to define the groundwater plume and to adequately assess the threat to human health and safety, and the environment. An investigation work plan has been approved; however, the work has not yet been implemented.

RESPONSE: Further investigation will not alter the conceptual site model. The aerial extent of the 1,2 DCA plume was half as large in 2011 as it was in 2002. The tiny mass of 1,2 DCA is decreasing and does not threaten public health or water quality.

- A groundwater sample from the City of Petaluma Municipal well located more than 3,000 feet downgradient has not yet been obtained. Although the well draws from a deeper aquifer, pumping could induce a vertical gradient and potentially draw shallow contamination to a greater depth. One of the constituents of concern, 1,2 DCA, is a chlorinated solvent and a dense non-aqueous phase liquid (DNAPL) which will seek a lower level in an aquifer. There is insufficient data to determine if 1,2 DCA could threaten the municipal well when the plume appears unstable and characterization is incomplete. Lithology in the vicinity consists of hundreds of feet of alluvium overlying bedrock. Although the alluvium may locally exhibit confined aquifer characteristics, vertical connectivity between water bearing zones has been demonstrated at the nearby sites.

RESPONSE: Free phase 1,2 DCA has never been identified or stored near this Site. Dissolved 1,2 DCA is not more dense than surrounding groundwater and only a tiny mass of 1,2 DCA remains near the source area. The petroleum release occurred over 24 years ago. It is highly unlikely that 1,2 DCA from this site could impact the City of Petaluma well at a distance of 3,000 feet.

- The Site does not currently meet closure criteria with an increasing trend of 1,2 DCA in downgradient MW-2, and an undefined plume boundary.

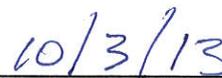
RESPONSE: The Site meets all eight criteria of the Policy and is recommended for petroleum hydrocarbon UST case closure.

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



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



Date

Prepared by: Abdul Karim Yusufzai

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

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| <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.

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| <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 checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input 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 checked="" type="checkbox"/> 3 <input type="checkbox"/> 4</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> |

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| <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 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>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 a commercial building bounded by commercial properties across Ross Street to the west and commercial properties and parking lots to the north, east, and south.
- A Site map showing the location of the UST excavation limits, monitoring wells, and groundwater flow direction is provided at the end of this closure review summary (Trans Tech Consultants, 2011).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date reported: October 1988.
- Status of Release: USTs removed.
- Free Product: Free product was observed during tank excavation. No free product noted since 1998.

Tank Information

| Tank No. | Size in Gallons | Contents | Closed in Place/ Removed/Active | Date |
|----------|-----------------|----------|------------------------------------|---------------|
| 1 | 1,000 | Gasoline | Removed | December 1998 |

Receptors

- GW Basin: Petaluma Valley.
- Beneficial Uses: San Francisco Regional Water Quality Control Board (Regional Water Board) Basin Plan Lists Agricultural, Municipal, and Domestic Supply and Potentially Industrial Service and Process Supply.
- Land Use Designation: Commercial.
- Public Water System: City of Petaluma.
- 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 1,000 feet of the projected plume boundary. No other water supply wells were identified within 1,000 feet of the projected plume boundary in the files reviewed.
- Distance to Nearest Surface Water: There is no identified surface water within 1,000 feet of the projected plume boundary.

Geology/Hydrogeology

- Stratigraphy: The soils beneath the Site consist of clay to approximately 10 feet below ground surface (bgs), underlain by gray silty sandy clay and clayey sand.
- Maximum Sample Depth: 15 feet bgs.
- Minimum Groundwater Depth: 4.71 feet bgs at monitoring well MW-2.
- Maximum Groundwater Depth: 7.97 feet bgs at monitoring well MW-3.
- Current Average Depth to Groundwater: Approximately 6 feet bgs.
- Saturated Zones(s) Studied: Approximately 5-19 feet bgs.
- Appropriate Screen Interval: Yes.
- Groundwater Flow Direction: Southwest to southeast with an average gradient of 0.016 feet/foot (April 2011).

Monitoring Well Information

| Well Designation | Date Installed | Screen Interval (feet bgs) | Depth to Water (feet bgs) (04/24/11) |
|------------------|----------------|----------------------------|--------------------------------------|
| MW-1 | September 1989 | 4-19 | 5.64 |
| MW-2 | August 2001 | 5-18 | 5.90 |
| MW-3 | August 2001 | 5-18 | 6.07 |
| MW-4 | May 2002 | 5-18 | 5.93 |

Remediation Action

- Free Product: Free product was noted in the tank basin during the tank removal. No free product has been reported since 1998.
- Soil Excavation: In 1988, petroleum-impacted soil was excavated and removed. Petroleum-impacted soil could not be removed from the north and south portions of the excavation due to their proximity to the onsite building and property line. In November 2007, approximately 278 tons of petroleum-impacted soil was excavated to approximately 10 feet bgs, transported to the Keller Canyon Landfill for disposal, and replaced with clean fill.
- In-Situ Soil/Groundwater Remediation: None reported.

Most Recent Concentrations of Petroleum Constituents in Soil

| Constituent | Maximum 0-5 feet bgs [mg/kg, (date), boring] | Maximum 5-10 feet bgs [mg/kg, (date), boring] |
|--------------|--|---|
| Benzene | 0.084 (09/20/89), B-5 | 6.3 (06/06/97), B-8 |
| Ethylbenzene | 0.039 (12/01/98), B-7 | 18 (06/06/97), B-8 |
| 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) | Benzene (µg/L) | Toluene (µg/L) | Ethyl-Benzene (µg/L) | Xylenes (µg/L) | MTBE (µg/L) | 1,2 DCA (µg/L) |
|-------------|-------------|-------------|----------------|----------------|----------------------|----------------|-------------|----------------|
| MW-1 | 04/24/11 | 94 | <1.0 | <1.0 | <1.0 | <1.0 | 3.9 | 6.7 |
| MW-2 | 04/24/11 | <50 | <1.0 | <1.0 | <1.0 | <1.0 | 6.2 | 6.0 |
| MW-3 | 04/24/11 | <50 | <1.0 | <1.0 | <1.0 | <1.0 | 0.79 | <0.5 |
| MW-4 | 04/24/11 | 390 | <1.0 | <1.0 | 7.9 | 1.5 | <1.0 | <0.5 |
| WQOs | - | -- | 1 | 150 | 700 | 1,750 | 5 | 0.5 |

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

MTBE: Methyl tert-butyl ether

1,2 DCA: 1,2 Dichloroethane

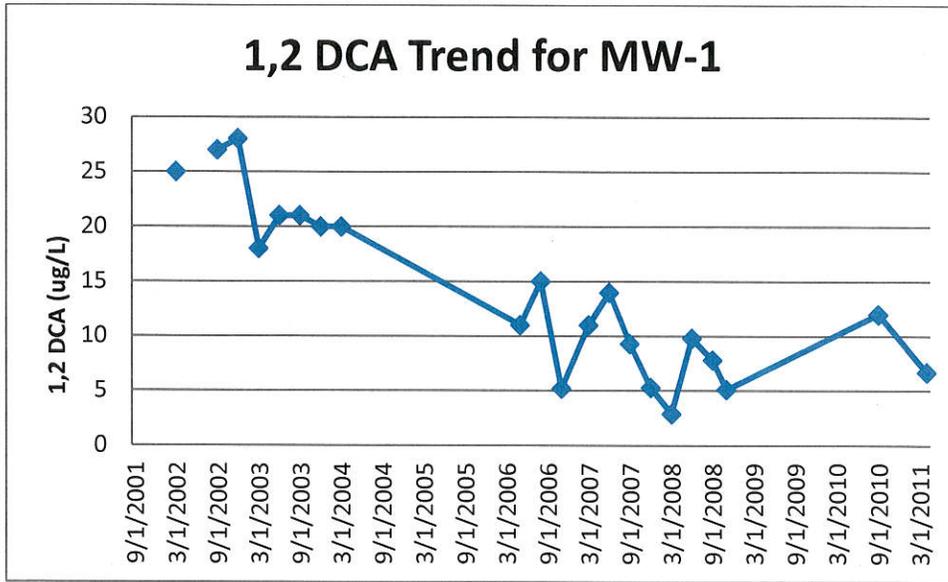
WQOs: Water Quality Objectives, San Francisco Regional Water Quality Control Board, (Regional Water Board) Basin Plan

--: Regional Water Board Basin Plan does not have a numeric water quality objective for TPHg

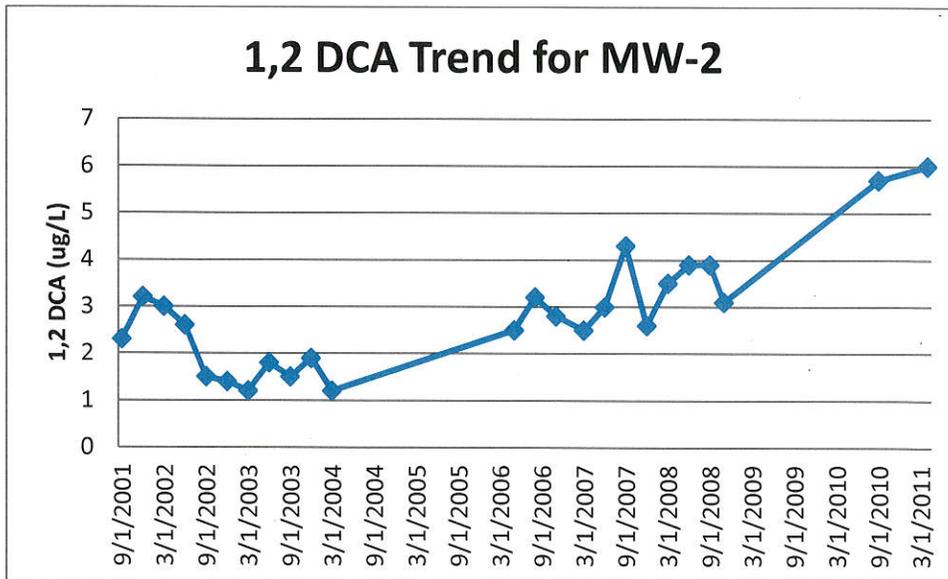
Groundwater Trends

- There are 22 years of groundwater monitoring data for this case. 1,2 DCA trends are shown below: Source Area (MW-1) and Downgradient (MW-2). Water quality objectives have been achieved for all constituents except 1,2 DCA. The aerial extent of the 1,2 DCA plume is half as large in 2011 as it was in 2002.

Source Area Well



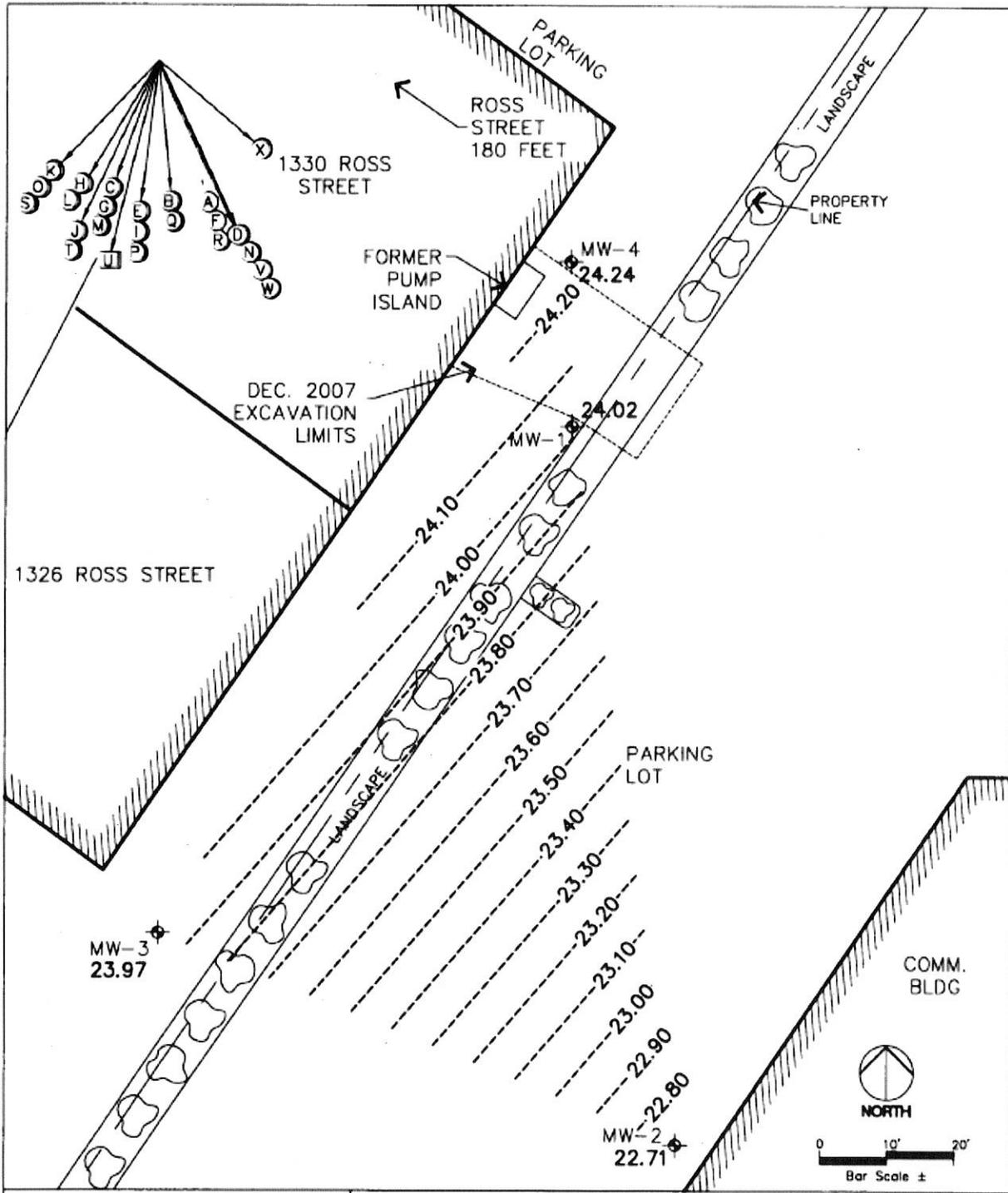
Downgradient Well



Evaluation of Current Risk

- Estimate of Hydrocarbon Mass in Soil: None reported.
- Soil/Groundwater tested for MTBE: Yes.
- Oxygen Concentrations in Soil Vapor: None reported.
- Plume Length: <250 feet, based on projected plume boundary.

- Plume Stable or Decreasing: Yes, decreasing in aerial extent since 2002.
- Contaminated Zone(s) Used for Drinking Water: No.
- Groundwater Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 1 by Class 2. The contaminant plume that exceeds water quality objectives is less than 250 feet in length. There is no free product. The nearest water supply well or surface water body is greater than 1,000 feet from the projected plume boundary. The dissolved concentration of benzene is less than 3,000 µg/L, and the dissolved concentration of MTBE is less than 1,000 µg/L.
- Indoor Vapor Risk from Residual Petroleum Hydrocarbons: 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 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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|  TRANS TECH CONSULTANTS 930 SHILOH RD., BLDG. 44, SUITE J WINDSOR, CA 95492 PHONE: 707-837-8408 FAX: 707-837-7334 | | SITE PLAN & GROUNDWATER ELEVATION CONTOUR MAP FOR 04/24/11 1330 ROSS STREET PETALUMA, CALIFORNIA | | | | PLATE: 2 |
| DRAWN BY: MED | DWG NAME: 1042.01 GWFP | APPR. BY: BRH | JOB NUMBER: 1042.01 | W.O. NUMBER: REVISIONS: | DATE: 05/12/11 | SHEET: 1 OF 2 |

