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ENVIRONMENTAL PROTECTION

State Water Resources Control Board

March 17, 2014

Cheryl Hawkins
County of Sacramento
Environmental Management Department,
Hazardous Materials Division
10590 Armstrong Avenue
Mather, CA 95655

**FIFTH REVIEW SUMMARY REPORT FOR CLAIM NUMBER 9160;
COURTLAND BUS GARAGE, 146 MAGNOLIA AVENUE, COURTLAND, CA**

The UST Cleanup Fund (Fund) has completed our review of Environmental Management Department, Hazardous Materials Division (County) case number O514. The Review Summary Report for this case is enclosed for your information and comment. Please note that the Fund's recommendations are based on review of information contained in the Fund's case files, data currently in the Geotracker database and any other sources of information that were readily available to Fund staff at the time the review was conducted. Consequently, they may not reflect historical information that has not been uploaded to the Geotracker database or available in the Fund's case files and any data that has been recently submitted to your office.

The Fund requests that the County staff notify the Fund within 45 days from the date of this letter as to whether you agree or disagree with our recommendations for this case. If you agree with our recommendation, we request that you provide the Fund with an estimated timeframe to either implement the recommendations for additional corrective action or for closing this case. If you do not agree with our recommendations, we request that you provide the Fund with a summary of the reasons for disagreeing and/or impediments to implementing the recommendations for additional corrective action or closing this case. Responses to the Fund may be provided by e-mail, letter or a copy of correspondence to the Responsible Party, if the correspondence addresses all the information requested by the Fund.

Fund staff will be sending copies of all completed Review Summary Reports to claimants 45 days from the date of this letter unless the County notifies the Fund that they wish to discuss this case prior to transmittal to the claimant. If you or your staff has any questions or concerns on specific reports that you would like to discuss with the Fund prior to transmittal of the report to the claimant, please contact us within this period. The Fund reviewer name and telephone number are included on the last page of the summary Report.

Sincerely,

Robert Trommer
Senior Engineering Geologist
Chief, Technical Review Unit
Underground Storage Tank Cleanup Fund

Enc.: Claim 9160 – Fifth Review
cc: Jack Bellan, County, Sacramento

REVIEW SUMMARY REPORT – ADDITIONAL WORK
FIFTH REVIEW – FEBRUARY 2014

Agency Information

Agency Name: Sacramento County Environmental Management Division (County)	Address: 10590 Armstrong Avenue Mather, CA 95655
Agency Caseworker: Jack Bellan	Case No.: O514

Case Information

USTCF Claim No.: 9160	GeoTracker Global ID: T0606700053
Site Name: Courtland Bus Garage	Site Address: 146 Magnolia Avenue Courtland, CA 95616
Responsible Party: River Delta School District	Address: 445 Montezuma Street Rio Vista, CA 94571
USTCF Expenditures to Date: $38,315	Number of Years Case Open: 26

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606700053

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 does not meet 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).** Previous Recommendations are included in **Attachment 3: Previous Recommendations.** Highlights of the case follow:

This Site is a school bus storage and maintenance yard. An unauthorized release was reported in March 1987 following the removal of one waste oil UST in February 1987. Additionally, one 1,500-gallon diesel and one 2,000-gallon gasoline UST were removed in June 1987 and July 1987, respectively. Since 1989, two groundwater monitoring wells have been installed and rarely monitored. According to groundwater data, water quality objectives have likely been achieved or nearly achieved beneath the former USTs. No active remediation has been implemented at hits site over the past 26 years.

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 within 250 feet of the Site. No other water supply wells have been identified within 250 feet of the Site in files reviewed. The nearest surface water body (Sacramento River) is 100 feet west from the Site. Water is provided to water users near the Site by private wells. 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.

Rationale for Closure under the Policy

- General Criteria: The case does not meet all eight Policy general criteria; not in the service area of a public water system.
- Groundwater Specific Criteria: The case does not meet Policy criteria because the nature of water quality in the source area has not been adequately assessed.
- Vapor Intrusion to Indoor Air: The case does not meet Policy criteria because the maximum benzene concentration in groundwater is greater than 100 µg/L and the minimum depth to groundwater is not known with confidence.
- 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 used as a surrogate 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 Path to Closure page in GeoTracker final on November 20, 2013, the County opposes closure because:

- Case is not in the service area of a public water system.
  RESPONSE: We concur.
- Conceptual site model is inadequate.
  RESPONSE: Adequate data is available in GeoTracker to prepare a conceptual site model consistent with the Policy.
- The case does not meet Policy groundwater criteria.
  RESPONSE: We concur.

Recommendation

The Fund recommends that the County direct the Responsible Party to resample existing monitoring well to confirm that water quality objectives in the source area have been achieved. If water quality objectives have not been achieved in the source area, the County should direct the Responsible Party to define the extent of groundwater contamination.

3/17/14

Kirk Larson, P.G. Date
Engineering Geologist
Technical Review Unit
(916) 341-5663

3/17/14

Robert Trommer, C.H.G. Date
Senior Engineering Geologist
Chief, Technical Review Unit
(916) 341-5684

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]

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

[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

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

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?	☐ Yes ☐ No ☒ NA
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?	☐ Yes ☐ No ☒ NA
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).	
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)?	☒ Yes ☐ No ☐ NA
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?	☐ Yes ☐ No ☒ NA
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?	☐ Yes ☐ No ☒ NA

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

Site Location/History

- This Site is located on the northeast corner of the intersection of River Road and Magnolia Avenue and is an active bus and maintenance yard.
- The Site is bounded by the Sacramento River across River Road to the west, residences to the east, residences across Magnolia Avenue to the south, and maintenance buildings to the north.
- Site maps showing the location of the former USTs, monitoring wells, groundwater level contours, and benzene concentrations are provided at the end of this document (Black Point Environmental, Inc., 2013).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date reported: March 1987.
- Status of Release: USTs removed.

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active	Date
1	550	Waste Oil	Removed	February 1987
2	1,500	Diesel	Removed	June 1989
3	2,000	Gasoline	Removed	July 1987

Receptors

- GW Basin: Sacramento Valley - Solano.
- Beneficial Uses: Central Valley Regional Water Quality Control Board (Regional Water Board) Basin Plan lists agricultural, municipal, domestic, industrial service and process supply.
- Land Use Designation: Aerial photograph available on GeoTracker indicates mixed residential and commercial land use in the vicinity of the Site.
- Public Water System: None.
- 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 Site. No other water supply wells were identified within 250 feet of the Site in the files reviewed.
- Distance to Nearest Surface Water: The Sacramento River is approximately 100 feet to the west of the Site.

Geology/Hydrogeology

- Stratigraphy: The Site is underlain by interbedded and intermixed sand, silt, and clay.
- Maximum Sample Depth: 15 feet below ground surface (bgs).
- Minimum Groundwater Depth: Unknown
- Maximum Groundwater Depth: Unknown.
- Current Average Depth to Groundwater: Unknown.
- Saturated Zones(s) Studied: Unknown.
- Appropriate Screen Interval: Unknown.
- Groundwater Flow Direction: Easterly.

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs)
MW-1	October 1989	Unknown	Destroyed
MW-2	February 2012	10-14	NM

NM: Not measured

Remediation Summary

- Free Product: None reported in GeoTracker.
- Soil Excavation: Unknown volume of impacted soil was excavated but no information is available in GeoTracker regarding how the material was disposed.
- In-Situ Soil/Groundwater Remediation: No remediation conducted.

Most Recent Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs [mg/kg (date) sample-depth]	Maximum 5-10 feet bgs [mg/kg (date) sample-depth]
Benzene	<0.005 (05/28/08) B7-5'	<0.005 (02/28/13) MW-2-6'
Ethylbenzene	<0.005 (05/28/08) B7-5'	<0.005 (02/28/13) MW-2-6'
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)
MW-2	03/30/12	**<50**	**<0.5**	<0.5	<0.5	<1
WQOs	**-**	**5**	**0.15**	**42**	**29**	**17**

NA: Not Analyzed, Not Applicable or Data Not Available
µg/L: Micrograms per liter, parts per billion
<: Not detected at or above stated reporting limit
TPHg: Total petroleum hydrocarbons as gasoline
TPHd: Total petroleum hydrocarbons as diesel
WQOs: Water Quality Objectives, Regional Water Board Basin Plan

Groundwater Trends: No trend available.

Evaluation of Current Risk

- Estimate of Hydrocarbon Mass in Soil: None reported.
- Soil/Groundwater tested for methyl tert-butyl ether (MTBE): Soil was tested, groundwater analysis is unknown.
- Oxygen Concentrations in Soil Vapor: None reported.
- Plume Length: Unknown.
- Plume Stable or Decreasing: Unknown.
- Contaminated Zone(s) Used for Drinking Water: No.

- Groundwater Risk from Residual Petroleum Hydrocarbons: The case does not meet Policy criteria because the nature of water quality in the source area has not been adequately assessed.
- Indoor Vapor Risk from Residual Petroleum Hydrocarbons: The case does not meet Policy criteria because the maximum benzene concentration in groundwater is greater than 100 µg/L and the minimum depth to groundwater is not known with confidence.
- 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 used as a surrogate 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.

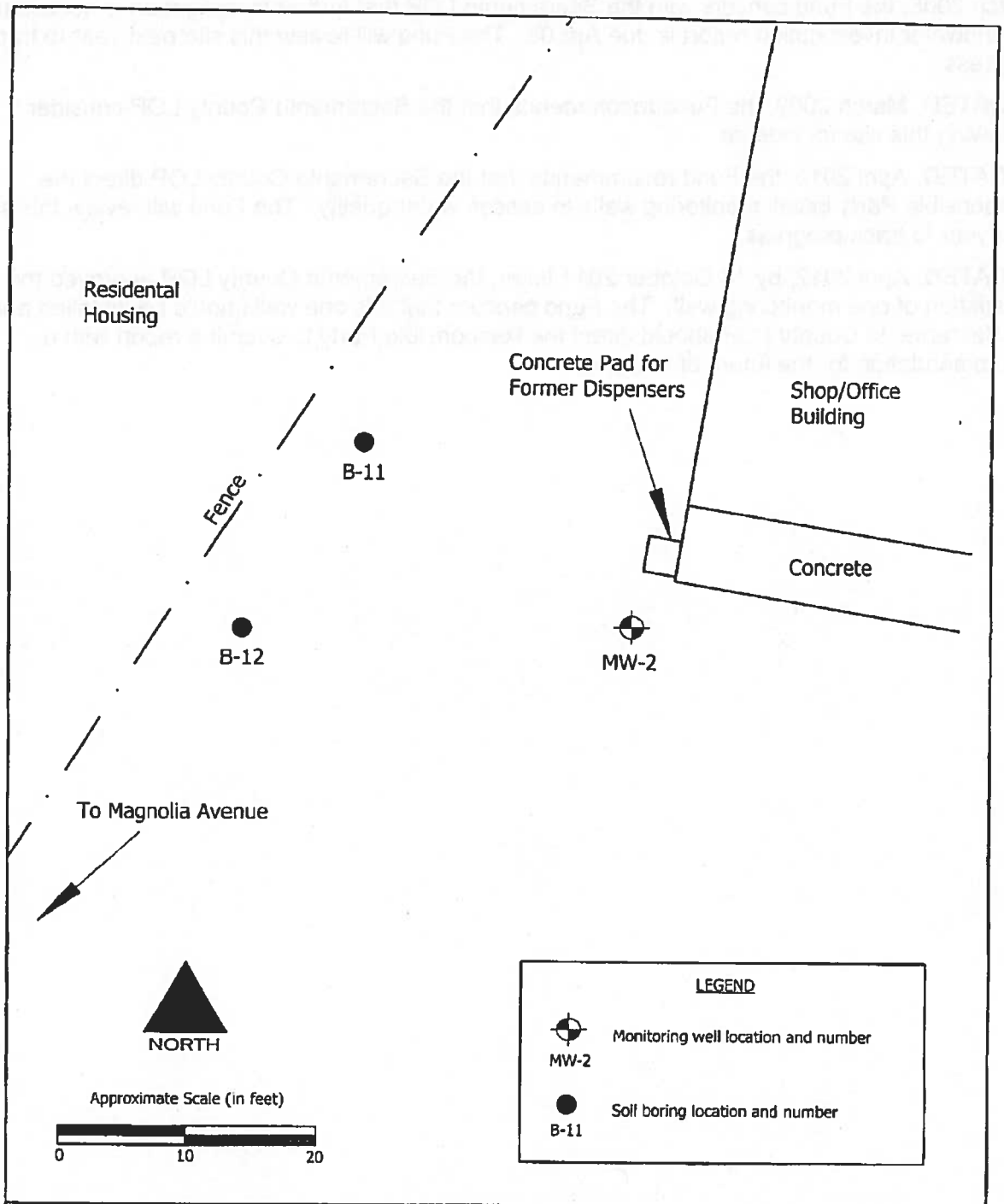
ATTACHMENT 3: PREVIOUS RECOMMENDATIONS

March 2008, the Fund concurs with the Sacramento LOP that further investigation is necessary. A groundwater investigation report is due Apr 08. The Fund will review this site next year to track progress.

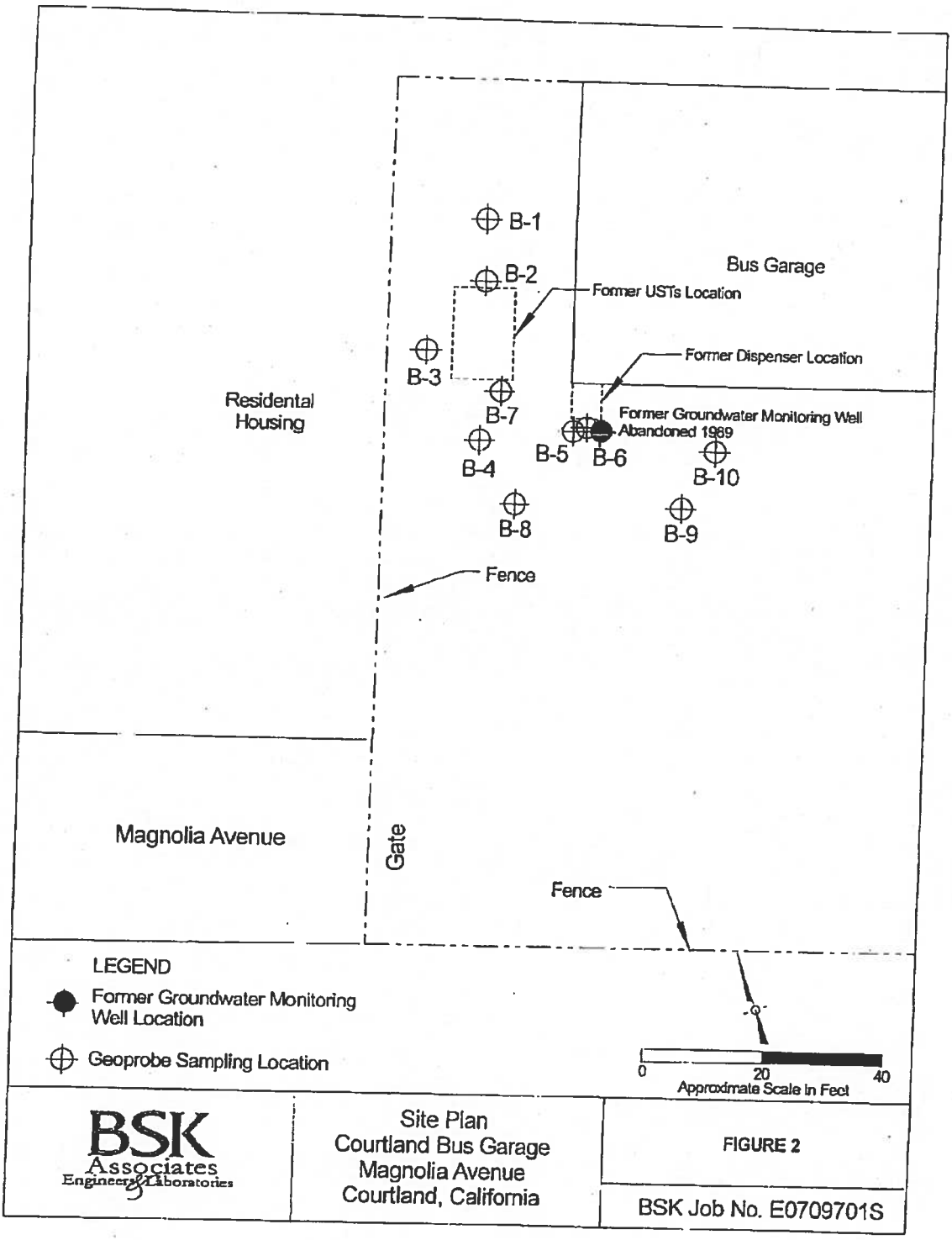
UPDATED, March 2009, the Fund recommends that the Sacramento County LOP consider reviewing this site for closure

UPDATED, April 2010, the Fund recommends that the Sacramento County LOP direct the Responsible Party install monitoring wells to assess water quality. The Fund will review this site next year to track progress.

UPDATED, April 2012, by 14 October 2011 letter, the Sacramento County LOP approved the installation of one monitoring well. The Fund concurs that this one well should be installed and that the Sacramento County LOP should direct the Responsible Party to submit a report with a recommendation for the future of this site.



BLACK POINT ENVIRONMENTAL, INC. 930 SHILOH ROAD BUILDING 40, SUITE F WINDSOR, CALIFORNIA 95492	Project No.	247	PLATE 2 SITE MAP 146 Magnolia Avenue Courtland, California
	Drawing Date	4/25/12	
	Revision Date		
	Drafted By	DMD	


B-1
B-2
B-3
B-4
B-5
B-6
B-7
B-8
B-9
B-10
Bus Garage
Former USTs Location
Former Dispenser Location
Former Groundwater Monitoring Well
Abandoned 1989
Residental
Housing
Fence
Magnolia Avenue
Gate
Fence
LEGEND
Former Groundwater Monitoring
Well Location
Geoprobe Sampling Location
0
20
40
Approximate Scale in Feet
BSK
Associates
Engineers & Laboratories
Site Plan
Courtland Bus Garage
Magnolia Avenue
Courtland, California
FIGURE 2
BSK Job No. E0709701S