

State Water Resources Control Board

UST CASE CLOSURE REVIEW SUMMARY REPORT

Agency Information

Agency Name: San Joaquin County Environmental Health Department (County)	Address: 1868 East Hazelton Avenue Stockton, CA 95205
Agency Caseworker: Vicki McCartney	Case No.: 1039

Case Information

USTCF Claim No.: 5820	GeoTracker Global ID: T0607700391
Site Name: Chevron #9-0557	Site Address: 139 Center Street South Stockton, CA 95201
Responsible Party: Chevron Environmental Management Attn: Joe Watterson	Address: 6101 Bollinger Canyon Rd San Ramon, CA 94583
USTCF Expenditures to Date: \$1,082,501	Number of Years Case Open: 23

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0607700391

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:

The Site is currently a vacant lot in Stockton, California. An unauthorized release was reported in April 1990. Approximately 350 cubic yards of impacted soil were excavated and disposed offsite during the 2003 tank removal. Dual phase extraction pilot test was performed for four days in 2003, and 22 pounds of TPHg were removed. Approximately 15 pounds of ozone were sparged in a pilot test, which was determined not to be feasible. Since 1991, twenty-one groundwater monitoring wells have been installed (9 wells abandoned) and monitored. According to groundwater data, water quality objectives have been achieved or nearly achieved for all constituents except for TPHg, benzene, toluene, ethylbenzene, and xylene in source area wells MW-15d, and MW-182d.

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 defined plume boundary. No other water supply wells have been identified within 1,000 feet of the defined plume boundary in files reviewed. Water is provided to water users near the Site by the Stockton East Water District and California Water Service.

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 Policy general criteria.
- Groundwater Specific Criteria: The case meets Policy Criterion 1 by Class 4. The contaminant plume that exceeds water quality objectives is less than 1,000 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 defined plume boundary. The dissolved concentrations of benzene and MTBE are each less than 1,000 µg/L.
- Vapor Intrusion to Indoor Air: The case meets Policy Criterion 2a by Scenario 3b. The maximum benzene concentration in groundwater is less than 1,000 µg/L. The minimum depth to groundwater is greater than 10 feet, overlain by soil containing less than 100 mg/kg of TPH.
- Direct Contact and Outdoor Air Exposure: The case meets Policy Criterion 3b. 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. Residual contamination was removed by excavation.

Objections to Closure and Responses

According to GoeTracker, the County responded to the March 2013 Low-Threat Closure Request, and stated that before the County can complete the site closure consideration two items need to be addressed:

- Provide an explanation why contaminants of concern continue to increase in groundwater monitored by MW-15D.
RESPONSE: Residual contamination is confined to the source area and the case meets Policy Criterion 1 by Class 4.
- Provide the technical justification for the use of the geometric mean rather than the arithmetic mean when calculating the mass estimates of TPHg in soil and TPHd in groundwater; and clarify why the height (h) was multiplied by 0.8 to get a volume of 7,700,000 cubic feet when calculating the TPHd mass in groundwater.
RESPONSE: Mass balance calculations are not required under the Policy.

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.

Chevron #9-0557
139 Center Street South, Stockton
Claim No: 5820

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 the Policy. San Joaquin County has the regulatory responsibility to supervise the abandonment of monitoring wells.

Lisa Babcock

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

9/29/13

Date

Prepared by: Bruce Locken

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 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>General Criteria 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.
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 checked="" 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?</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>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. 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 type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" 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>

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

Site Location/History

- This case is located on the northwest corner of West Washington Street and South Center Street and is an empty lot.
- The Site is bounded by the California Highway 4 and a vacant lot to the south, city manager's office across South Center Street to the east, and a Greyhound bus facility to the north and west.
- Site map showing the location of the former USTs, monitoring wells and groundwater level contours is provided at the end of this closure review summary (Holguin, Fahan & Associates, Inc., [HFA] 2012).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date reported: April 1990.
- Status of Release: USTs removed.
- Free Product: None reported since October 2002.

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active	Date
1	10,000	Gasoline	Removed	2003
2	10,000	Gasoline	Removed	2003
3	5,000	Gasoline	Removed	2003
4	5,000	Diesel	Removed	2003
5	1,000	Waste Oil	Removed	2003

Receptors

- GW Basin: San Joaquin Valley - Eastern San Joaquin.
- Beneficial Uses: The Central Valley Regional Water Quality Control Board (Regional Water Board) Basin Plan lists agricultural, municipal, domestic, and industrial supply.
- Land Use Designation: Aerial photograph available on GeoTracker indicates mixed industrial, commercial, and residential land use in the vicinity of the Site.
- Public Water System: Stockton East Water District and California Water Service.
- 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 defined plume boundary. No other water supply wells were identified within 1,000 feet of the defined plume boundary in the files reviewed.
- Distance to Nearest Surface Water: There is no identified surface water within 1,000 feet of the defined plume boundary.

Geology/Hydrogeology

- Stratigraphy: The Site is underlain by interbedded and intermixed sand, silt, and clay.
- Maximum Sample Depth: 120 feet below ground surface (bgs).
- Minimum Groundwater Depth: 19.46 feet bgs at monitoring well MW-16.
- Maximum Groundwater Depth: 29.67 feet bgs at monitoring well MW-8.
- Current Average Depth to Groundwater: Approximately 20 feet bgs.

- Saturated Zones(s) Studied: Approximately 20 - 60 feet bgs in the first saturated zone, and 100 – 105 feet bgs in the second saturated zone.
- Appropriate Screen Interval: Well screens submerged.
- Groundwater Flow Direction: South by southeast with an average gradient of 0.001 feet/foot (August 2012).

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (08/10/2012)
MW-3	02/15/91	35-60	20.31
MW-5	11/4/92	35-60	20.88
MW-6	09/14/93	35-60	20.23
MW-7	11/30/95	32-52	19.78
MW-8	10/06/97	22-42	20.00
MW-13	06/18/02	19-34	19.84
MW-14	03/31/04	20-30	20.18
MW-15	04/01/01	20-30	19.90
MW-15d	04/01/04	46-51	20.17
MW-16	03/31/04	20-30	19.62
MW-17	03/31/04	20-30	20.09
MW-18d2	11/27/07	100-105	20.32

NM: Not measured

Remediation Summary

- Free Product: Up to 0.15 feet noted in MW-9, none reported since October 2002.
- Soil Excavation: Approximately 350 cubic yards of impacted soil were excavated in 2003 during tank removal and disposed offsite.
- In-Situ Soil/Groundwater Remediation: Dual phase extraction pilot test was performed for four days in 2003, and 22 pounds of TPHg were removed. Approximately 15 pounds of ozone were sparged in a pilot test; determined not to be feasible.

Most Recent Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs* [mg/kg (date)]	Maximum 5-10 feet bgs [mg/kg (date)]
Benzene	NA	0.0006 (12/14/10)
Ethylbenzene	NA	<0.001 (12/14/10)
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

*Removed by excavation

Most Recent Concentrations of Petroleum Constituents in Groundwater

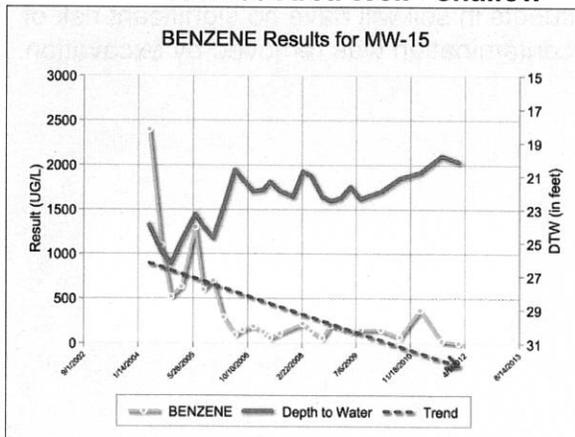
Sample	Sample Date	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
MW-3	08/23/06	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5
MW-5	08/01/07	<50	<0.5	<0.5	<0.5	<0.5	<0.5	4
MW-6	08/23/06	<50	<0.5	<0.5	<0.5	<0.5	0.8	<5
MW-7	08/10/12	170	<0.5	<0.5	<0.5	<0.5	<0.5	<2
MW-8	08/10/12	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<2
MW-13	08/23/06	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5
MW-14	08/10/12	<50	<0.5	<0.5	<0.5	<0.5	1	<2
MW-15	08/10/12	470	<0.5	<0.5	<0.5	<0.5	<0.5	29
MW-15d	08/10/12	19,000	650	410	960	1,500	<5	<20
MW-16	08/01/07	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<2
MW-17	08/10/12	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<2
MW-18d2	08/10/12	1,200	2	1	0.8	2	<0.5	<2
WQOs	-	5	0.15	42	29	17	5^a	1,200^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
 MTBE: Methyl tert-butyl ether
 TBA: Tert-butyl alcohol
 WQOs: Water Quality Objectives, Regional Water Board Basin Plan
^a: Secondary maximum contaminant level (MCL)
^b: California Department of Public Health, Response Level

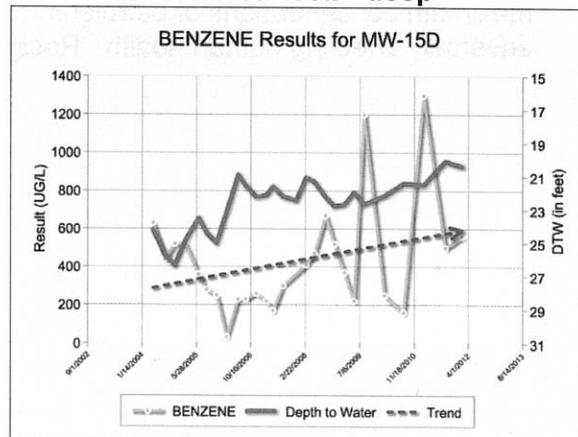
Groundwater Trends

- Since 1991, twenty-one groundwater monitoring wells have been installed and regularly monitored (nine wells abandoned). Benzene trends are shown below: Source Area Shallow (MW-15), Source Area Deep (MW-15D), Near Downgradient (MW-7), and Far Downgradient (MW-8). The concentrations of petroleum hydrocarbon plume is stable, defined and decreasing.

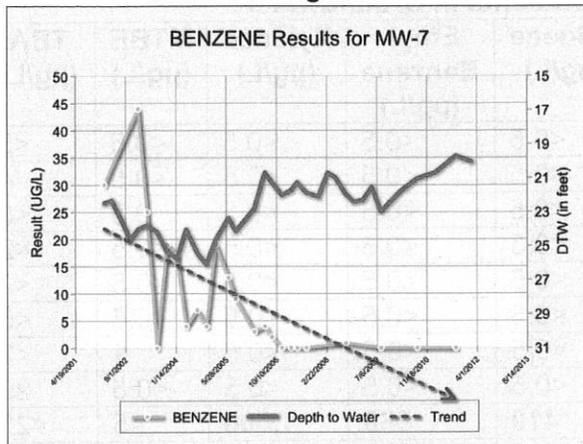
Source Area Well - shallow



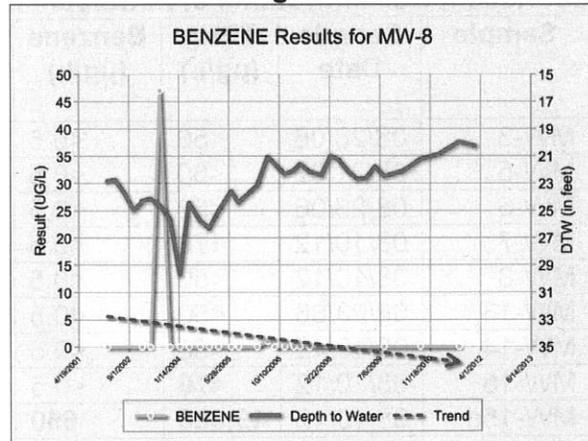
Source Area Well - deep



Near Downgradient Well

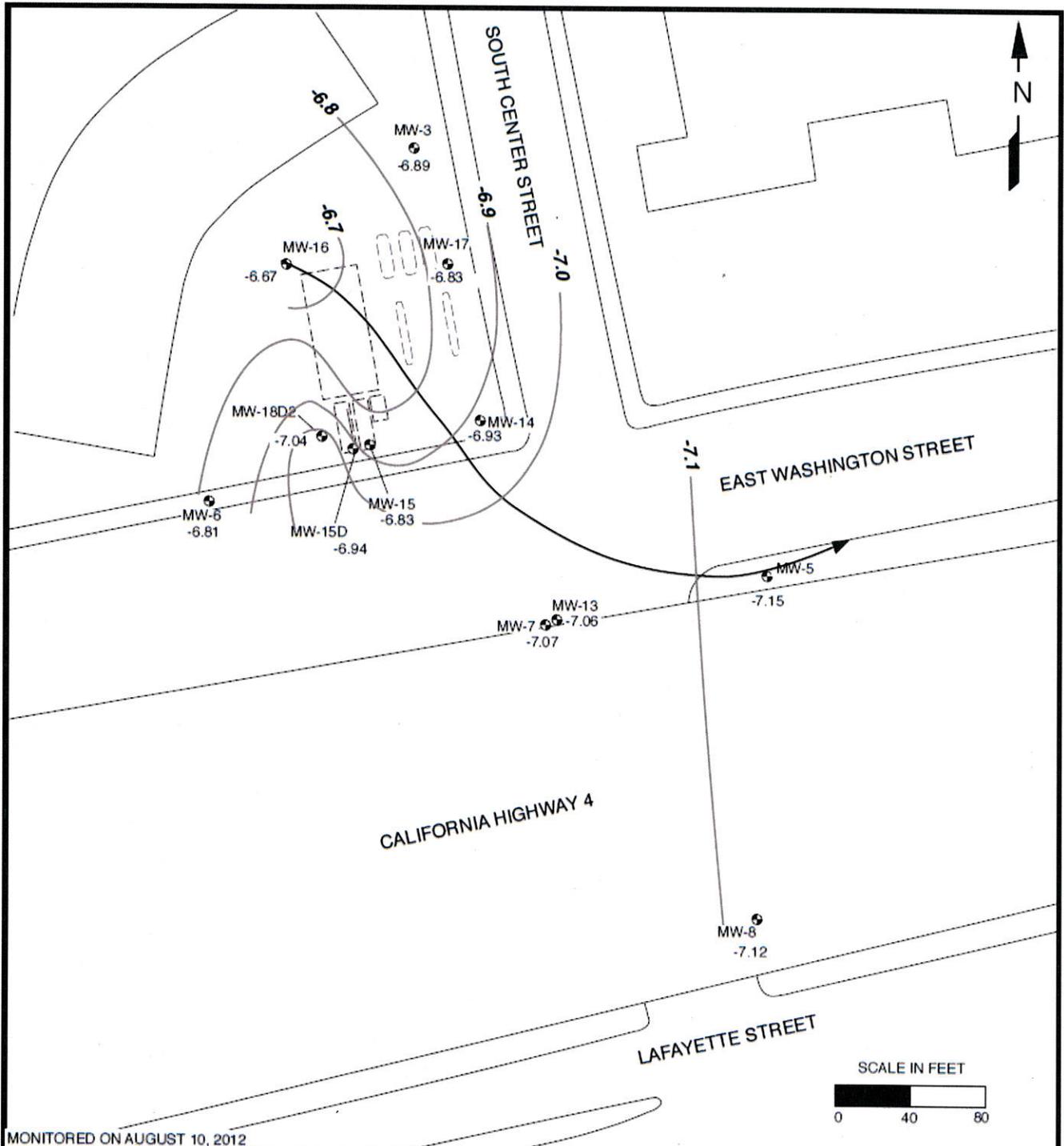


Far Downgradient Well



Evaluation of Current Risk

- Estimate of Hydrocarbon Mass in Soil: 7,700 pounds of TPH-g (HFA 2013).
- 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 4. The contaminant plume that exceeds water quality objectives is less than 1,000 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 defined plume boundary. The dissolved concentrations of benzene and MTBE are each less than 1,000 µg/L.
- Indoor Vapor Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 2a by Scenario 3b. The maximum benzene concentration in groundwater is less than 1,000 µg/L. The minimum depth to groundwater is greater than 10 feet, overlain by soil containing less than 100 mg/kg of TPH.
- Direct Contact Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 3b. A professional assessment of site-specific risk from exposure shows that maximum concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health. Residual contamination was removed by excavation.



EXPLANATION		CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
⊕	GROUNDWATER MONITORING WELL	FORMER SERVICE STATION #9-0557 139 SOUTH CENTER STREET STOCKTON, CALIFORNIA FIGURE 5 - GROUNDWATER ELEVATION CONTOUR MAP FOR THIRD QUARTER 2012
-6.9	CONTOUR OF GROUNDWATER ELEVATION (feet above MSL)	
#	GROUNDWATER ELEVATION (feet above MSL)	HOLGUIN, FAHAN & ASSOCIATES, INC.
←	GROUNDWATER FLOW DIRECTION	

REVISION DATE: SEPTEMBER 17, 2012:TGM

