

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2010-0832
CALIFORNIA WATER CODE SECTION 13267
FOR

THE ATLANTIC RICHFIELD OIL COMPANY/ARCO, AND
THE THOMAS AND JOSEPHINA KALAPURAYIL FAMILY TRUST,
MR. GEORGE PUTHENPURAYIL, AND MS. SHYLIMOL ABRAHAM

FORMER ARCO SERVICE STATION NO. 2019
3801 47TH AVENUE
SACRAMENTO COUNTY

This Order is issued to Atlantic Richfield Oil Company/Arco (Arco), and Thomas and Josephina Kalapurayil Family Trust, Mr. George Puthenpurayil, and Ms. Shylimol Abraham (hereafter collectively referred to as Dischargers) pursuant to California Water Code section 13267, which authorizes the Executive Officer of the California Regional Water Quality Control Board, Central Valley Region (hereafter Central Valley Water Board) to issue a Monitoring and Reporting Order (Order).

The Executive Officer finds:

INTRODUCTION

1. A petroleum discharge from the former underground storage tank system occurred while the property and former service station was owned and operated by the Atlantic Richfield Oil Company/Arco (Arco). The Thomas and Josephina Kalapurayil Family Trust, Mr. George Puthenpurayil, and Ms. Shylimol Abraham purchased the property in January 2002, after in place abandonment of the tank system had been completed.
2. The Former Arco Service Station No. 2019 at 3801 47th Avenue in Sacramento, Sacramento County (Site), is situated on the northeast corner of 47th Avenue and Martin Luther King Boulevard. The Site is a former gasoline service station, and is currently a vacant lot proposed for development into a fast food restaurant.
3. Fruitridge Vista Water Company Well #11 is located approximately 500 feet southwest of the Site. Well #11 is 452 feet deep, is impacted by methyl tertiary butyl ether (MTBE), and was taken out of service in 1998. MTBE impacts to this well are not from this Site.
4. Groundwater is first encountered at approximately 40 feet below ground surface (bgs) below the former Arco site. Groundwater samples have contained petroleum hydrocarbon constituents at maximum concentrations of: total petroleum hydrocarbons as gasoline (TPH-G) 120,000 micrograms per liter (ug/l), benzene 23,000 ug/l, toluene

26,000 ug/l, ethylbenzene 2,000 ug/l, xylenes 15,000 ug/l, MTBE 3,600 ug/l, and 1,2-dichloroethane (1,2-DCA) 2,100 ug/l.

5. During the first quarter 2010, petroleum hydrocarbon constituents were detected at maximum concentrations of: TPH-G 1,700 ug/l, total petroleum hydrocarbons as diesel (TPH-D) 650 ug/l, benzene 950 ug/l, toluene 490 ug/l, ethylbenzene 100 ug/l, xylenes 820 ug/l, naphthalene 42 ug/l, lead 7.18 ug/l, 1,2-DCA 8.8 ug/l, tert butyl alcohol 13 ug/l, and MTBE 11 ug/l. This pollution has impaired the beneficial uses of the underlying water resource.
6. A soil vapor extraction (SVE) system and an air sparge system began operation in May and June 2008, respectively.
7. This Monitoring and Reporting Program (MRP) is issued by the Central Valley Water Board, pursuant to California Water Code (CWC) section 13267 and is necessary to delineate waste discharged from the former Arco Service Station No. 2019, characterize groundwater pollutant plumes and determine whether remediation efforts are effective.
8. Existing data and information about the Site show the presence of petroleum hydrocarbons, including TPH-G, benzene, toluene, ethylbenzene, and xylenes (BTEX), 1,2-DCA, and naphthalene emanating from the property resulting from former operations at the Site. Based on the available data the Dischargers are responsible for the discharge because they currently own the property, or they owned the property and owned and operated the former UST system at the time of the release.
9. The Dischargers shall not implement any changes to this Order unless and until a revised Order is issued by the Executive Officer. This Monitoring and Reporting Order replaces the requirements listed in MRP No. R5-2009-0828, which was issued on 8 July 2009, because the Discharger requested monitoring reductions.
10. Prior to construction of any new groundwater monitoring or extraction wells, and prior to destruction of any groundwater monitoring or extraction wells; the Discharger shall submit plans and specifications to the Central Valley Water Board for review and approval. Once installed, all new monitoring wells shall be added to the monitoring program and shall be sampled and analyzed according to the schedule below.

LEGAL PROVISIONS

12. CWC section 13267 states, in part:

- (b)(1) In conducting an investigation, the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or, discharging, or who proposes to discharge waste within its region . . . shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report

and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

The reports required herein are necessary for the reasons described in this Order, to assure protection of waters of the state, and to protect public health and the environment.

13. CWC section 13268 states, in part:

(a)(1) Any person failing or refusing to furnish technical or monitoring program reports as required by subdivision (b) of Section 13267 . . . or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in accordance with subdivision (b).

(b)(1) Civil liability may be administratively imposed by a regional board in accordance with Article 2.5 (commencing with Section 13323) of Chapter 5 for a violation of subdivision (a) in an amount which shall not exceed one thousand dollars (\$1,000) for each day in which the violation occurs.

(c) Any person discharging hazardous waste, as defined in Section 25117 of the Health and Safety Code, who knowingly fails or refuses to furnish technical or monitoring program reports as required by subdivision (b) of Section 13267, or who knowingly falsifies any information provided in those technical or monitoring program reports, is guilty of a misdemeanor, may be civilly liable in accordance with subdivision (d), and is subject to criminal penalties pursuant to subdivision (e).

(d)(1) Civil liability may be administratively imposed by a regional board in accordance with Article 2.5 (commencing with Section 13323) of Chapter 5 for a violation of subdivision (c) in an amount which shall not exceed five thousand dollars (\$5,000) for each day in which the violation occurs.

Failure to submit the required reports to the Central Valley Water Board according to the schedule detailed herein may result in enforcement action(s) being taken against you, which may include the imposition of administrative civil liability pursuant to CWC section 13268. Administrative civil liability of up to \$5,000 per violation per day may be imposed for non-compliance with the directives contained herein.

REQUIRED ACTIONS

IT IS HEREBY ORDERED that, pursuant to California Water Code section 13267, Atlantic Richfield Oil Company/Arco (Arco), and Thomas and Josephina Kalapurayil Family Trust, Mr. George Puthenpurayil, and Ms. Shylimol Abraham shall conduct monitoring and reporting in compliance with the following:

Monitoring Specifications

1. The Discharger shall implement monitoring according to the schedule shown in Table 1. As shown on Figure 1, there are 29 wells, MW-1 through MW-25, VE-1, VE-2 (VE-2S),

SP-1 (VE-2D), and VE-3 associated with the former Arco site. This Monitoring Order applies to these 29 wells and any wells installed subsequent to the issuance of this Order. The Discharger shall collect samples using standard Environmental Protection Agency (EPA) protocol.

2. Monitoring wells with free phase petroleum product or visible sheen shall be monitored, at a minimum, for product thickness and depth to water. The volume of extracted groundwater also shall be provided in semi-annual monitoring reports.
3. The Discharger shall analyze samples according to standard Environmental Protection Agency (EPA) protocol using methods shown in Table 2. All wells shall be monitored semi-annually for water levels and the presence and thickness of free product.

Table 1. Monitoring Frequency

	Semi-annually²	Annually³
Wells¹	MW-1 through MW-5 MW-8 MW-9 MW-10 MW-14 through MW-25 VE-1 VE-2 SP-1 VE-3 any new monitoring wells	MW-6 MW-7 MW-11 MW-12 MW-13

- 1 Wells shall be monitored semi-annually for Depth to Groundwater
- 2 Wells that must be sampled semi-annually shall be sampled during the first (January-March) and third (July-September) quarters.
- 3 Wells shall be sampled annually during the third quarter.

Table 2. Analytical Methods

Constituents	EPA Analytical Method³	Maximum Practical Quantitation Limit (ug/l)⁴
Depth to Groundwater	---	+/- 0.01 ft
Total Petroleum Hydrocarbons as Gasoline (TPH-G)	8015M	50
Total Extractable Petroleum Hydrocarbons as Diesel (TPH-D) ^{5,7}	8015M	50
BTEX	8020 or 8260B	0.5
1,2-Dichloroethane	8260B	0.5
Naphthalene ^{6,7}	8260B or 8270	0.50

- 3 Report all discrete peaks identified during the normal course of analysis for chemicals of concern.
 - 4 All concentrations between the Method Detection Limit and the Practical Quantitation Limit shall be reported as trace.
 - 5 Analyze for TPH-D in wells MW-1, MW-3 through MW-6, MW-9 through MW-16, MW-18, and MW-20.
 - 6 Analyze for naphthalene only in wells MW-1, MW-5, MW-10, MW-14, and MW-15.
 - 7 TPH-D and naphthalene may be eliminated from the list of analytes, with Central Valley Water Board staff concurrence, pending 2 consecutive monitoring events of non-detect results at the Practical Quantitation Limit.
- BTEX = benzene, toluene, ethylbenzene, and total xylenes

Reporting Specifications

4. When reporting the data, the Dischargers shall arrange the information in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner as to illustrate clearly the compliance with this Order.
5. As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all reports shall be prepared by a registered professional or their subordinate and signed by the registered professional.
6. The Dischargers shall submit a paper copy of the semi-annual report to this Central Valley Water Board office and submit the semi-annual electronic data reports, which conform to the requirements of the California Code of Regulations, Title 23, Division 3, Chapter 30, electronically over the internet to the State Water Board's GeoTracker database system. Both the paper copy and the electronic submittal are due by the 15th day of the second month following the end of each half of the year; **15 August** (1st half of the year), and **15 February** (2nd half of the year). Semi-annual reports shall be submitted until such time as the Executive Officer determines that the reports are no longer necessary. Each semi-annual report shall include the following minimum information:
 - (a) A description and discussion of the groundwater sampling event and results, including trends in the concentrations of pollutants and groundwater elevations in the wells, how and when samples were collected, and whether the pollutant plume(s) is delineated.
 - (b) Field logs that contain, at a minimum, water quality parameters measured before, during, and after purging, method of purging, depth of water, volume of water purged, etc.
 - (c) Groundwater contour maps for all groundwater zones, if applicable.
 - (d) Concentration contour maps for all groundwater zones for TPH-G, benzene, 1,2-DCA, and naphthalene.
 - (e) A table showing well construction details such as well number, groundwater zone being monitored, ground surface elevation, screen interval, bentonite interval, filter pack interval, and total depth of the well.
 - (f) A table showing historical lateral and vertical (if applicable) down-gradient directions and gradients.
 - (g) Cumulative data tables containing the water quality analytical results and depth to groundwater for all monitoring wells for the past five years, at a minimum. The Central Valley Water Board staff may request additional data as necessary.

- (h) A copy of the laboratory analytical data report.
 - (i) If applicable, the status of any ongoing remediation, including cumulative information on the mass of pollutant removed from the subsurface, system operating time, the effectiveness of the remediation system, and any field notes pertaining to the operation and maintenance of the system.
 - (j) If applicable, the reasons for and duration of all interruptions in the operation of any remediation system, and actions planned or taken to correct and prevent interruptions.
7. An Annual Report shall be submitted to the Central Valley Water Board by 15 February (or 15 November) of each year. This report shall contain an evaluation of the effectiveness and progress of the investigation and remediation, and may be substituted for the second semi-annual monitoring report, provided that all the information that must be submitted in the semi-annual report is included along with the following minimum information:
- (a) Tabular summaries of all data obtained during the year.
 - (b) Graphical summaries, of TPH-G, benzene, and naphthalene concentrations, groundwater elevation data, and remediation system operation versus time for wells MW-1, MW-4, MW-12, MW-13, MW-14, and MW-15, and additional wells as requested by Central Valley Water Board staff.
 - (c) A rose diagram presenting groundwater flow direction and magnitude data.
 - (d) Contaminant concentration contour maps for TPH-G, benzene, and naphthalene for each monitoring event from the previous year.
 - (e) A discussion of the long-term trends in the concentrations of the pollutants in the groundwater monitoring wells.
 - (f) An analysis of whether the pollutant plume is being captured by an extraction system or is continuing to spread.
 - (g) A description of all remedial activities conducted during the year, an analysis of their effectiveness in removing the pollutants, and plans to improve remediation system effectiveness.
 - (h) An identification of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.
 - (i) If desired, a proposal and rationale for any revisions to the groundwater sampling plan frequency and/or list of analytes.

8. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Order also shall be reported to the Central Valley Water Board.

The Discharger shall implement the above monitoring program as of the date of the Order.

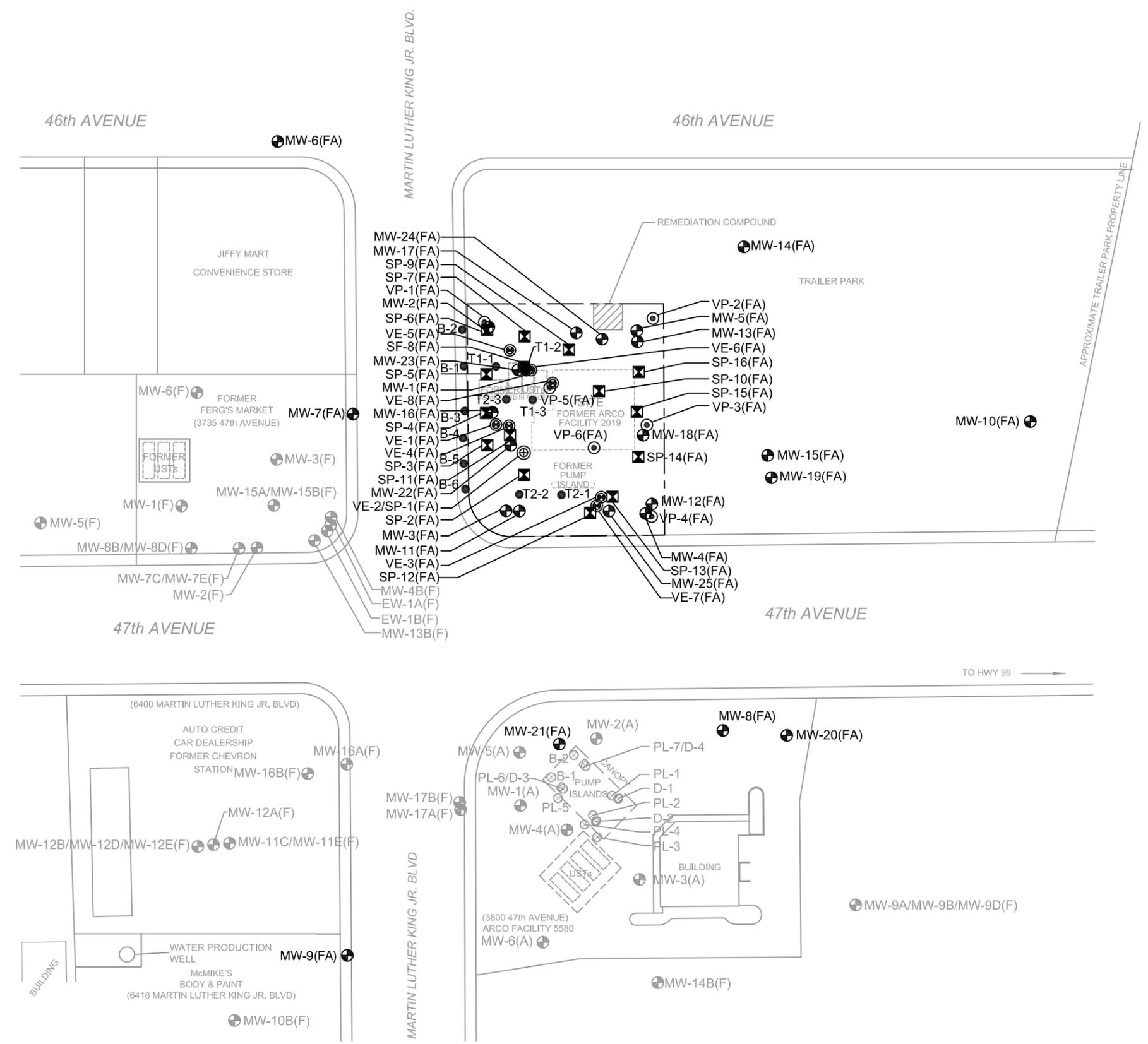
Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Resources Control Board to review the action in accordance with CWC section 13320 and California Code of Regulations, Title 23, Sections 2050 and following. The State Water Resources Control Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday (including mandatory furlough days), the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

This Order is effective upon the date of signature.

Ordered by: original signed by Frederick Moss for
PAMELA C. CREEDON, Executive Officer

15 November 2010
(Date)

CITY: PETALUMA, CA. DIV: GROUP: ENV. DR: J. HARRIS. LD: P. S. GLENN. PM: S. DAVIS. TM: T. NICHOLS. LVR: OPTION: OFF. REF: C:\Documents and Settings\jrharris\My Documents\ENVCAD\RETURN\TO\EMERYVILLE, CA\GPR\BPNAC\40\N0000\GPR\BPNAC\40-0263.dwg LAYOUT: 2. SAVED: 8/12/2010 10:00 AM. ACADVER: 18.05 (LMS TECH). PAGES: 2. PLOTTED: 11/17/2010 2:52 PM BY: HARRIS, JESSICA



- LEGEND**
- SITE BOUNDARY (APPROXIMATE)
 - MW-1(FA) ⊕ GROUNDWATER MONITORING WELL (FORMER ARCO 2019)
 - MW-1(F) ⊕ GROUNDWATER MONITORING WELL (FERG'S)
 - MW-1(A) ⊕ GROUNDWATER MONITORING WELL (ARCO 5580)
 - VE-1(FA) ⊕ SOIL VAPOR EXTRACTION WELL (FORMER ARCO 2019)
 - SP-1(FA) ⊕ AIR SPARGING WELL (FORMER ARCO 2019)
 - VE-2/SP-1(FA) ⊕ VAPOR EXTRACTION/AIR SPARGING WELL (FORMER ARCO 2019)
 - VP-1(FA) ⊕ SOIL VAPOR PROBE LOCATION (FORMER ARCO 2019)
 - B-1 ⊗ SOIL SAMPLE LOCATION (ARCO 5580)
 - B-1 ⊙ SOIL BORING LOCATION (FORMER ARCO 2019)

NOTE:
 BASE MAP PROVIDED BY STANTEC, JOB NUMBERS 211601025 AND 211601190, DATED 6/23/2009, AT A SCALE OF 1"=80'.

80' 0 80' 160'
 1"=80'

FORMER ARCO SERVICE STATION No. 2019
 3801 47TH AVENUE, SACRAMENTO, CALIFORNIA
**FIRST SEMI-ANNUAL 2010 GROUNDWATER
 MONITORING AND REMEDIATION PROGRESS REPORT**

SITE PLAN

FIGURE
2