Linda S. Adams
Secretary for
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California Regional Water Quality Control Board
Central Valley Region
Katherine Hart, Chair

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Arnold Schwarzenegger
Governor

15 March 2010

Tom Magney, Project Manager
Calistoga-Roivers and Associates
19449 Riverside Drive, Suite 230
Sonoma, CA 95476

NOTICE OF APPLICABILITY OF GENERAL ORDER NO. R5-2008-0149 – EQUILON ENTERPRISES, LLC, dba SHELL OIL PRODUCTS, US, AND CONESTOGA-ROVERS AND ASSOCIATES, FORMER SHELL SERVICE STATION, 5730 FOLSOM BOULEVARD, SACRAMENTO, IN-SITU REMEDIATION OF TETRACHLOROETHYLENE (PCE), SACRAMENTO COUNTY

The property owner Equilon Enterprises LLC, dba Shell Oil Products, US and project operator Conestoga-Rovers and Associates (collectively Dischargers) submitted a Notice of Intent, dated 23 October 2009 and supplemental information dated 20 November 2009, requesting coverage under General Order No. R5-2008-0149, General Waste Discharge Requirements for In-situ Groundwater Remediation at Sites with Volatile Organic Compounds, Nitrogen Compounds, Perchlorate, Pesticides, Semi-Volatile Compounds and/or Petroleum Compounds. Based on information in your submittal, it is our determination that this project meets the required conditions to be approved under Order No. 2008-0149. All of the requirements contained in the general order are applicable to your project. You are assigned Order No. R5-2008-0149-06.

Project Location:

The project is in the City of Sacramento in Sacramento County,
T8N, R5E, S9 31.56' B&M. Assessor's Parcel No. 008-0010-017-0000.

Project Description:

Operations at the Shell Service Station in Sacramento caused pollution of the soil and groundwater. The primary pollutant of concern is tetrachloroethylene (PCE). In 2005 the service station was demolished, the tanks and piping removed and soils containing unacceptable levels of fuel components and PCE were removed. Sampling of groundwater did not indicate adverse impacts associated with fuels, but did find concentrations of PCE up 27 micrograms per liter (µg/L). The concentrations of PCE exceed both the Maximum Contaminant Level and Public Health Goal values of 5 µg/L and 0.06 µg/L, respectively.

For this project, the Discharger completed a Remedial Action Plan (RAP), approved by Sacramento County. The RAP details a plan that calls for the direct injection of cheese whey, as an electron donor, at ten injection points on the property. Four hundred to 500 gallons of cheese whey mixture will be injected at each location. Edible oil could also be used as an electron donor, but only after analytical testing and approval by Regional Board staff. In addition, if the remediation process stalls due to insufficient biological activity, a biological consortium of appropriate *Dehaloicoccoides* bacteria will be injected. The Discharger conducted a similar project in San Leandro, California that demonstrated that cheese whey can assist in the dehalogenation of PCE. No additional groundwater monitor wells are anticipated at this time. It is estimated that the project will take up to a year to complete. The Discharger will also be conducting sampling and reporting the results as described in the attached Groundwater Monitoring and Reporting Program. If the Discharger desires to conduct a longer-term in-situ remediation of the groundwater or modify the injectants, a revised Notice of Intent must be submitted and a new Notice of Applicability received prior to proceeding with the additional/modified remediation.

No comments were received on the draft Notice of Applicability and Monitoring and Reporting Program during the 30-day public comment period ending 10 March 2010.

General Information:

1. The project will be operated in accordance with the requirements contained in the General Order and in accordance with the information submitted in the Notice of Intent.
2. The required annual fee (as specified in the annual billing you will receive from the State Water Resources Control Board) shall be submitted until this Notice of Applicability is officially revoked.

3. The Discharger shall comply with the attached General Order No. R5-2008-0149, General Waste Discharge Requirements for In-situ Groundwater Remediation at Sites with Volatile Organic Compounds, Nitrogen Compounds, Perchlorate, Pesticides, Semi-Volatile Compounds and/or Petroleum Compounds

4. Injection of materials other than cheese whey and *Dehaloicoccoides* bacteria into the subsurface is prohibited, unless analysis, as specified in Order No. R5-2008-0149, of the injectant is provided and approval is given by Board staff.

5. Failure to abide by the conditions of the General Order could result in an enforcement action as authorized by provisions of the California Water Code.

6. The project will implement the final contingency plan included as part of the Notice of Intent within 30-days of it being triggered.

7. The Discharger shall comply with the attached Monitoring and Reporting Program, Order No. R5-2008-0149-06, and any revisions thereto as ordered by the Executive Officer.

If you have any questions regarding this matter, please call Alexander MacDonald at (916) 464-4625 or contact him at amacdonald@waterboards.ca.gov.

PAMELA C. CREEDON
Executive Officer

Attachments

cc: Della Kramer, Regional Water Quality Control Board, Sacramento
Barry Marcus, Sacramento County Environmental Management, Sacramento

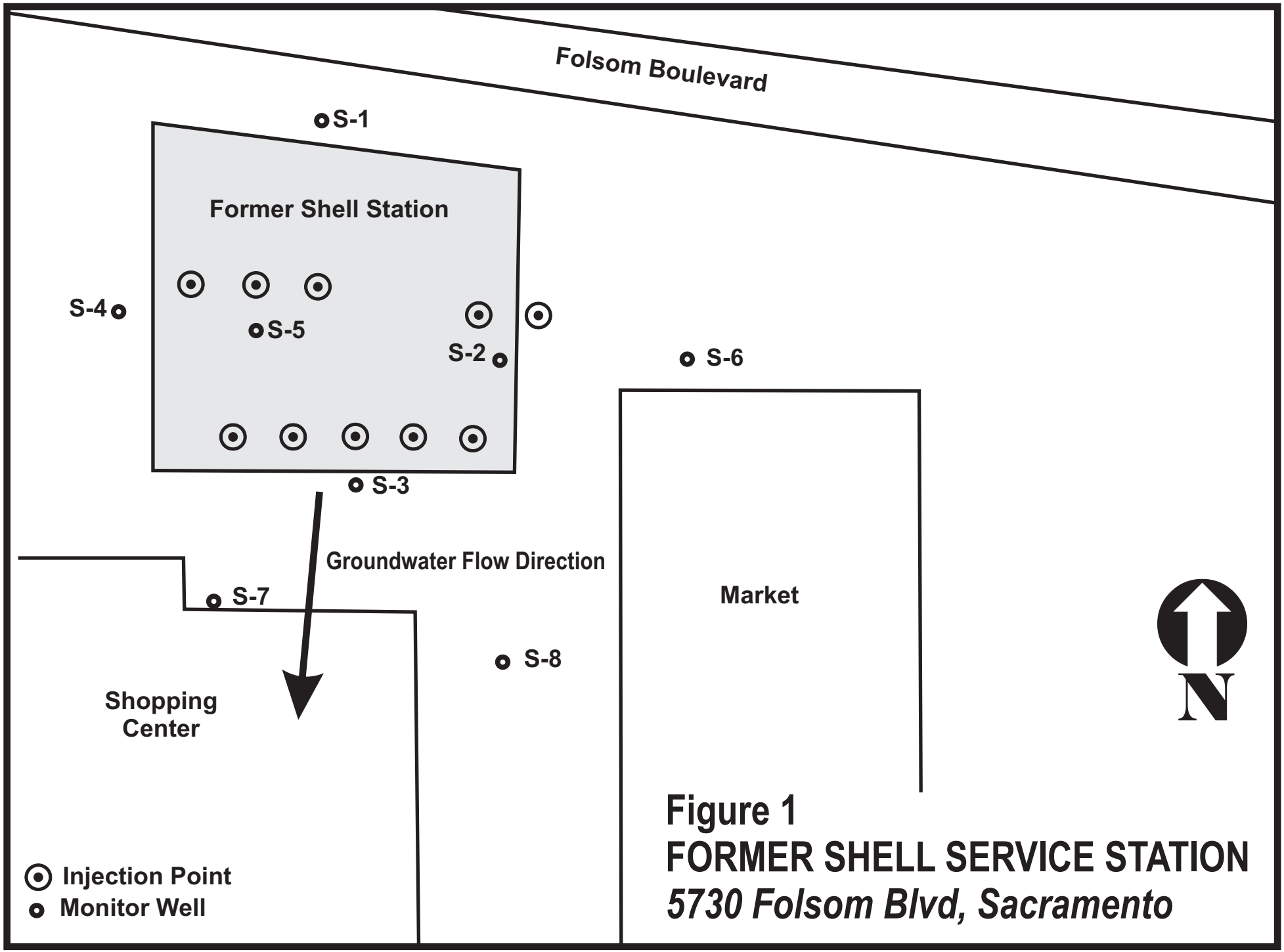

Figure 1
FORMER SHELL SERVICE STATION
5730 Folsom Blvd, Sacramento

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2008-0149-06

FOR
EQUILON ENTERPRISES, LLC, dba SHELL OIL PRODUCTS, US,
AND CONESTOGA-ROVERS AND ASSOCIATES,
5730 FOLSOM BOULEVARD, SACRAMENTO
IN-SITU REMEDIATION OF TETRACHLOROETHYLENE
SACRAMENTO COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring a groundwater extraction and treatment system. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer. As appropriate, Regional Board staff shall approve specific sample station locations prior to implementation of sampling activities.

All samples should be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form.

GROUNDWATER MONITORING

As shown on Figure 1, there are eight monitor wells and 10 injection points associated with this site. The groundwater monitoring program for these wells and any treatment system wells installed subsequent to the issuance of this MRP, shall follow the schedule below. Monitor 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, if applicable, shall also be provided in quarterly monitoring reports. Sample collection and analysis shall follow standard EPA protocol.

The monitor wells, extraction wells and/or injection wells shall be sampled according to the schedule in Table 1 and the samples analyzed by the methods in Table 2, as follows:

Table 1: Sampling Frequency and Constituent Suite

Well Number[1]	Frequency[2]	Constituent Suite(s)[3]	Monitoring Objective
S-7 and S-8	Monthly	Suites A and B	Compliance[4]
S-2 and S-5	Monthly	Suites A and B	Treatment Zone[5]
S-3	Monthly	Suites A and B	Transition Zone
S-1	Monthly	Suite B	Background[6]
S-4 and S-6	Monthly	Groundwater Elevation Only	Groundwater Flow

1 Well numbers as shown on Figure 1.
2 Prior to startup and stated frequency thereafter.
3 Constituent suite components listed in Table 2.
4 Wells used to determine compliance with water groundwater limitations.
5 Wells sampled to evaluate in-situ bioremediation progress inside the treatment zone.
6 Wells used to develop background concentrations

Table 2: Analytical Methods

Constituent	Method[1]	Maximum Practical Quantitation Limit (µg/L)[2]
Suite A		
Volatile Organic Compounds	EPA Method 8260	0.5
Total Organic Carbon	EPA Method 415	300
Suite B		
Iron, Total and Dissolved	EPA 200.7	100
Manganese, Total and Dissolved	EPA Method 200.7	25
Chloride	EPA 6500	300
Total Dissolved Solids	EPA 160.1	10,000
Potassium	EPA Method 200.7	100

[1] Or an equivalent EPA Method that achieves the maximum Practical Quantitation Limit.
[2] All concentrations between the Method Detection Limit and the Practical Quantitation Limit shall be reported as an estimated value.

FIELD SAMPLING

In addition to the above sampling and analysis, field sampling and analysis shall be conducted each time a monitor well or extraction well is sampled. The sampling and analysis of field parameters shall be as specified in Table 3.

Table 3: Field Sampling Requirements

Parameters	Units	Type of Sample
Groundwater Elevation	Feet, Mean Sea Level	Measurement
Oxidation/Reduction Potential	millivolts	Grab
Ferrous Iron (Fe^{2+})	mg/L	Grab
Electrical Conductivity	uhmos/cm	Grab
Dissolved Oxygen	mg/L	Grab
pH	pH Units (to 0.1 units)	Grab

Field test instruments (such as those used to test pH and dissolved oxygen) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are calibrated prior to each monitoring event;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and

4. Field calibration reports are submitted as described in item (b) of the "Reporting" section of this MRP.

DISCHARGE MONITORING

The Discharger shall monitor daily the discharge of water and amendments that are injected into the groundwater according to the requirements specified in Table 4. Each amendment addition shall be recorded individually, along with information regarding the time period over which the amendment was injected into the aquifer.

Table 4: Discharge Monitoring Requirements

Parameters	Units	Type of Sample
Injected Volume	gallons per day	Meter
Amendment(s) Added	kilograms per day	Measured
Biocide Added	kilograms per day	Measured

AMENDMENT ANALYSIS

Upon request, amendments shall be analyzed for the constituents listed in Table 5. The analysis should be done on the pure amendment and on a mixture of the amendment and deionized water at the estimated concentration that would be injected during the pilot project.

Table 5: Amendment Analytical Requirements

Constituent	Method[1]	Maximum Practical Quantitation Limit (µg/L)[2]
Volatile Organic Compounds	EPA 8020 or 8260B	0.5
General Minerals[3]		
Metals, Total and Dissolved[4]	EPA 200.7, 200.8	Various
Semi-Volatile Organic Compounds	EPA Method 8270	5.0
Total Dissolved Solids	EPA 160.1	10,000
pH	meter	NA
Electrical Conductivity	meter	NA

[1] Or an equivalent EPA Method that achieves the maximum Practical Quantitation Limit.
[2] All concentrations between the Method Detection Limit and the Practical Quantitation Limit shall be reported, and reported as an estimated value.
[3] Alkalinity, bicarbonate, potassium, chloride, sulfate, total hardness, nitrate, nitrite, ammonia.
[4] Metals include arsenic, barium, cadmium, calcium, total chromium, copper, iron, lead, manganese, magnesium, mercury, molybdenum, nickel, selenium and silica.

ESTABLISHMENT OF BACKGROUND CONCENTRATION VALUES

The Discharger shall develop background values for concentrations of dissolved chromium and hexavalent chromium in groundwater following the procedures found in CCR Section 20415(e)(10). The Discharger shall submit a proposal to develop the background concentrations by **20 April 2010**.

REPORTING

When reporting the data, the Discharger 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. In addition, the Discharger shall notify the Regional Board within 48 hours of any unscheduled shutdown of any soil vapor and/or groundwater extraction system. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall also be reported to the Regional Board.

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.

The Discharger shall submit quarterly electronic data reports, which conform to the requirements of the California Code of Regulations, Title 23, Division 3, Chapter 30. The quarterly reports shall be submitted electronically over the internet to the Geotracker database system by the 1st day of the second month following the end of each calendar quarter by **1 February, 1 May, 1 August, and 1 November** until such time as the Executive Officer determines that the reports are no longer necessary.

Hard copies of quarterly reports shall be submitted to the Regional Board by the **1st day of the second month following the end of each calendar quarter (i.e., by 1 February, 1 May, 1 August, and 1 November**). Each quarterly 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) pollutant concentration maps for all groundwater zones, if applicable;

(e) a table showing well construction details such as well number, groundwater zone being monitored, coordinates (longitude and latitude), ground surface elevation, reference elevation, elevation of screen, elevation of bentonite, elevation of filter pack, and elevation of well bottom;

(f) a table showing historical lateral and vertical (if applicable) flow directions and gradients;

(g) cumulative data tables containing the water quality analytical results and depth to groundwater;

(h) a copy of the laboratory analytical data report, which may be submitted in an electronic format;

(i) the status of any ongoing remediation, including an estimate of the cumulative 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; and

(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.

If requested, an Annual Report shall be submitted to the Regional Board by **1 February** 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 fourth quarter **(or second semi-annual)** monitoring report. The Annual Report shall contain the following minimum information:

(a) both tabular and graphical summaries of all data obtained during the year;

(b) groundwater contour maps and pollutant concentration maps containing all data obtained during the previous year;

(c) a discussion of the long-term trends in the concentrations of the pollutants in the groundwater monitoring wells;

(d) an analysis of whether the pollutant plume is being effectively treated;

(e) 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;

(f) an identification of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program; and

(g) if desired, a proposal and rationale for any revisions to the groundwater sampling plan frequency and/or list of analytes.

A letter transmitting the monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program on the first day of the month following adoption of this Order.

Ordered by:_____
PAMELA C. CREEDON, Executive Officer

15 March 2010
(Date)

3/10/10:AMM