

EDMUND G. BROWN JR.  
GOVERNOR

MATTHEW ROXBOROUGH  
SECRETARY FOR  
ENVIRONMENTAL PROTECTION

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## Central Valley Regional Water Quality Control Board

20 June 2012

Mr. Rudy Millan  
Pacific Gas and Electric Company  
3401 Crow Canyon Road  
San Ramon, CA 94583

***NOTICE OF APPLICABILITY OF GENERAL ORDER NO. R5-2008-0149 – 039  
PACIFIC GAS AND ELECTRIC COMPANY, FORMER TRACY MANUFACTURED  
GAS PLANT SITE, 502 EAST GRANT LINE ROAD, TRACY, IN-SITU REMEDIATION  
OF TOTAL PETROLEUM HYDROCARBONS AND VOLATILE ORGANICS, SAN  
JOAQUIN COUNTY***

The Pacific Gas and Electric Company (PG&E) submitted a Notice of Intent, dated 8 March 2012, supplemental information dated 15 March 2012 and a revised Notice of Intent dated 16 March 2012, 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. R5-2008-0149-039.

**Project Location:**

The project is in the City of Tracy in San Joaquin County,  
Section 22, T2S, R5E MDB&M.  
Assessor's Parcel Nos. 250-270-08.

**Project Description:**

Past operations at the Former Tracy Manufactured Gas Plant site at 502 East Grant line Road in Tracy (See Figure 1) caused pollution of the soil and groundwater. The original principal pollutants of concern found in the soil and/or groundwater included total petroleum hydrocarbons (TPH), benzene, toluene, ethyl benzene and xylenes (BTEX) and polynuclear aromatic hydrocarbons (PAHs). The 5.2-acre facility was operated as a manufactured gas plant from 1927 to 1930 by the Tracy Gas Company. The plant was decommissioned in 1934 with the completion of the removal of all of the equipment. PG&E is the current owner of the property and it is currently used as a service center. PG&E has taken remedial actions on six areas of impact (AOIs), consisting primarily of soil excavations. During the excavation of soils at

AOI 3 and AOI 4, groundwater was found to contain residual TPH. It is estimated that approximately 210 pounds of TPH remain at AOI 3 and 0.25 pounds remain at AOI 4.

Based on the experience of PG&E and its consultant with successfully using ozone for remediating similar pollution at other of its manufactured gas plant sites, PG&E will be injecting ozone at a rate of 11 pounds per day. At that rate it is estimated that it will take approximately 190 days to remediate AOI 3 and 7 days to remediate AOI 4. As ozone creates temporary oxidating conditions, there is a concern for the formation of hexavalent chromium. As part of the project, PG&E will be monitoring for, and also be determining the background concentrations of hexavalent chromium. It is likely that the background concentration greatly exceeds the Public Health Goal for hexavalent chromium of 0.02 µg/L. Therefore, the concentration limit for hexavalent chromium at the points of compliance is set at the background concentration.

Some groundwater monitor wells already exist at the site and a number of additional monitor wells will be added in and downgradient of the treatment areas. If unacceptable concentrations of hexavalent chromium are confirmed at the points of compliance (See Figure 2) then the Discharger will undertake corrective action. The Discharger will also be conducting sampling and reporting the results as described in the attached Groundwater Monitoring and Reporting Program.

No comments were received on the draft Notice of Applicability and Monitoring and Reporting Program during the 30-day public comment period ending 15 June 2012.

**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. Injection of materials other than a solution of air and ozone and/or hydrogen peroxide into the subsurface is prohibited.
4. 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.
5. The project will implement the final contingency plan included as part of the Notice of Intent within 30-days of it being triggered.
6. The Discharger shall comply with the attached Monitoring and Reporting Program, Order No. R5-2008-0149-039, 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](mailto:amacdonald@waterboards.ca.gov).

Original signed by:

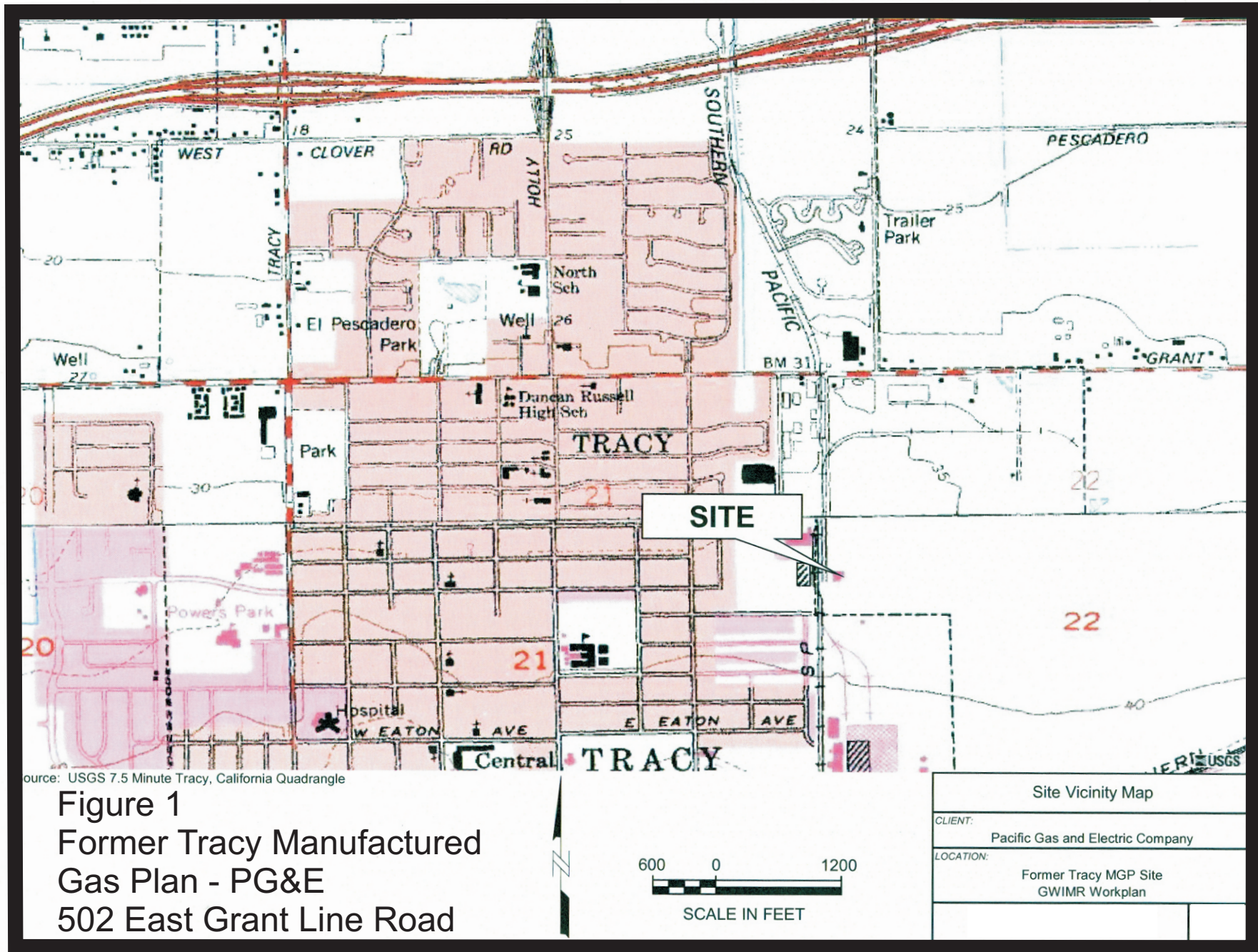
PAMELA C. CREEDON  
Executive Officer

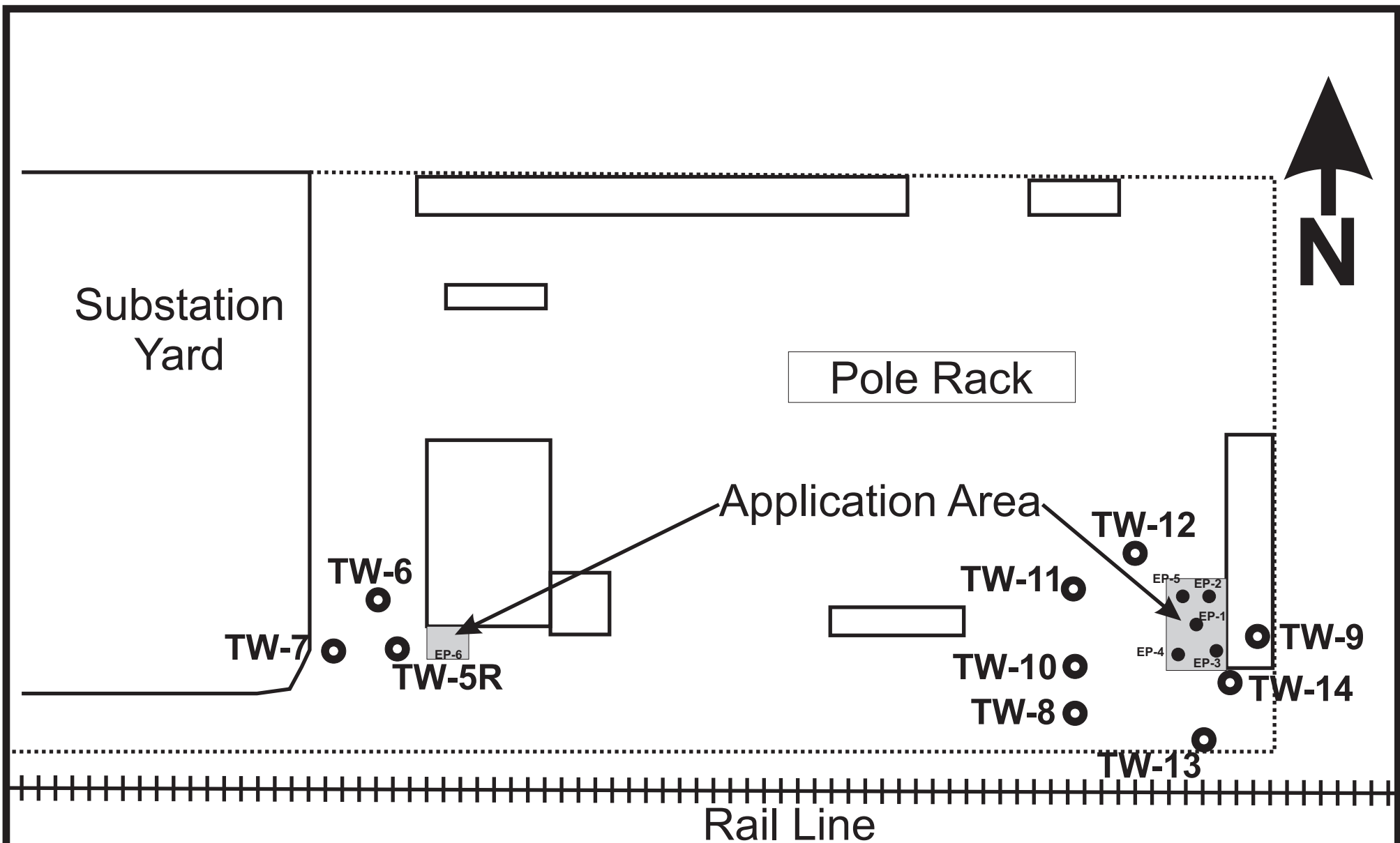
Attachments

cc: Della Kramer, Regional Water Quality Control Board, Sacramento  
Jeff Gymer, Department of Toxic Substances Control, Sacramento

bc:

XXX/xxx  
xdate  
document5  
ECM#





- Extraction Point
- Monitor Well

**Figure 2**  
**Former Tracy Manufactured**  
**Gas Plan - PG&E**  
**502 East Grant Line Road**

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2008-0149-039

FOR  
PACIFIC GAS AND ELECTRIC COMPANY  
FORMER TRACY MANUFACTURED GAS PLANT SITE  
502 EAST GRANT LINE ROAD, TRACY  
IN-SITU REMEDIATION OF TOTAL PETROLEUM HYDROCARBONS  
AND VOLATILE ORGANICS  
SAN JOAQUIN COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring an in-situ groundwater 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**

There are 22 monitor wells associated with this site, not all of which will be monitored under this program. Ten of these were specifically installed for the in-situ remediation project and are depicted on Figure 2. 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**

<b>Well Number<sup>1</sup></b>	<b>Frequency<sup>2</sup></b>	<b>Constituent Suite(s)<sup>3</sup></b>	<b>Monitoring Objective<sup>4</sup></b>
TW-6, TW-7, TW-8, TW-10, TW-11, TW-12	Monthly for first six months and Quarterly thereafter	Suites A and B	Compliance <sup>4</sup>
TW-9, TW-14, TW-13, TW-1	Monthly for first six months and Quarterly thereafter	Suite B	Background
TW-5R, EP-1, EP-2, EP-3, EP-4, EP-5 and EP-6	Quarterly	Suite B	Treatment Zone

<sup>1</sup> Well numbers as shown on Figure 2.

- <sup>2</sup> Prior to startup and stated frequency thereafter.  
<sup>3</sup> Constituent suite components listed in Table 2.  
<sup>4</sup> Wells used to determine compliance with groundwater limitations.

**Table 2: Analytical Methods**

Constituent	Method <sup>1</sup>	Maximum Practical Quantitation Limit (µg/L) <sup>2</sup>
<b>Suite A</b>		
Volatile Organics (VOCs)	EPA Method 8260	0.5
Total Petroleum Hydrocarbons - gas	EPA Method 8015M	50
Total Petroleum Hydrocarbons - diesel	EPA Method 8015M	50
Total Petroleum Hydrocarbons – motor oil	EPA Method 8015M	250
PAHs	EPA Method 8310	0.2
<b>Suite B</b>		
Hexavalent Chromium	EPA Method 218.6	0.2
Title 22 Metals <sup>3</sup>	EPA Method 6020B/7000	0.5-15

- <sup>1</sup> Or an equivalent EPA Method that achieves the maximum Practical Quantitation Limit.  
<sup>2</sup> All concentrations between the Method Detection Limit and the Practical Quantitation Limit shall be reported as an estimated value.  
<sup>3</sup> Metals include arsenic, barium, cadmium, calcium, total chromium, copper, lead, magnesium, manganese, mercury, molybdenum, nickel and silica.

**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
Electrical Conductivity	µmhos/cm	Grab
Dissolved Oxygen	mg/L	Grab
pH	pH Units (to 0.1 units)	Grab
Temperature	°C	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	Cubic feet per day	Meter
Amendment(s) Added	kilograms per day	Measured

### AMENDMENT ANALYSIS

As the proposed amendment is ozone, this requirement is not needed at this time. If different amendments are proposed for a modification of the project, such as hydrogen peroxide, then the 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 <sup>1</sup>	Maximum Practical Quantitation Limit (µg/L) <sup>2</sup>
Volatile Organic Compounds	EPA 8020 or 8260B	0.5
General Minerals <sup>3</sup>		
Metals, Total and Dissolved <sup>4</sup>	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

<sup>1</sup> Or an equivalent EPA Method that achieves the maximum Practical Quantitation Limit.  
<sup>2</sup> All concentrations between the Method Detection Limit and the Practical Quantitation Limit shall be reported, and reported as an estimated value.  
<sup>3</sup> Alkalinity, bicarbonate, potassium, chloride, sulfate, total hardness, nitrate, nitrite, ammonia.  
<sup>4</sup> 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 use the data collected during the initial sampling and additional data provided by samples from TW-9, TW-13 and TW-14 to determine background concentrations of hexavalent chromium and Title 22 Metals.

## **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: Original signed by:  
PAMELA C. CREEDON Executive Officer  
20 June 2012  
(Date)

05/14/2012:AMM