



California Regional Water Quality Control Board Central Valley Region

Katherine Hart, Chair



Linda S. Adams
Acting Secretary for
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Protection

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Edmund G. Brown Jr.
Governor

14 January 2011

Mr. Percy Antonio
c/o Mr. Michael Brady
Scharff, Brady & Vinding
400 Capitol Mall, #2640
Sacramento, California 95814

NOTICE OF APPLICABILITY OF GENERAL ORDER NO. R5-2008-0149, FORMER M & M MINI MART, 1085 EAST STREET, WOODLAND, YOLO COUNTY (LUSTIS NO. 570301)

Mr. Percy Antonio (hereafter "Discharger"), and the project operator, Geocon Consultants, Inc., submitted a Notice of Intent on 27 October 2010, 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 R5-2008-0149. You are assigned Order No. R5-2008-0149-026.

Project Location:

The project is in the City of Woodland in Yolo County, T10N, R2E, S33, Diablo B&M. The assessor parcel number is 066-160-019, this parcel is owned by Percy Antonio.

Project Description:

Petroleum hydrocarbon fuel dispensing at the Former M & M Mini Mart station have caused a pollution of soil and groundwater by petroleum constituents. The primary constituents are total petroleum hydrocarbons as diesel (TPHd), total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and total xylenes (BTEX), methyl tert-butyl ether (MtBE), tertiary butyl alcohol (TBA), and tertiary amyl methyl ether (TAME). In 1999 petroleum impacts were found during removal of the underground storage tank (UST) system. From 1999 to present a number of soil and groundwater investigations have been completed. A limited remedial measure using high-vacuum dual-phase extraction has been conducted in the past, but test results indicated this was not a feasible remedial alternative. It has been determined that additional remedial efforts are required to more expeditiously and cost-effectively clean up the impacts to soil and groundwater.

The Discharger conducted a bench scale test and limited pilot study, which will now be followed by full implementation for remediating the existing petroleum impacts using in-situ chemical oxidation. The Discharger proposes to inject ozone at various locations within the identified boundary seen in the attached Figure 3. The Discharger will also be conducting the

California Environmental Protection Agency

applicable sampling and reporting. Central Valley Water Board staff concurred with the Discharger that the results of bench scale and pilot tests indicate ozone sparging is an appropriate remedial alternative and the Discharger should proceed with full remedial implementation. Adequate fail-safe alternates are contained within the Discharger's proposal, should adverse water quality conditions, such as the creation of Cr+6, occur.

No comments were received regarding the subject Order during the 30-day public comment period ending on 23 November 2010.

General Information:

1. The project will be operated in accordance with the requirements contained in the General Order No. R5-2008-0149 and in accordance with the information submitted in the Notice of Intent, and otherwise as specified in this Notice of Applicability.
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 those specified in the Notice of Intent into the subsurface is prohibited, unless analysis, as specified in Order No. R5-2008-0149, the injectant is provided and approval is given by Board staff.
4. Failure to abide by the conditions of the General Order and this Notice of Applicability can result in enforcement actions as authorized by provisions of the California Water Code.
5. The Discharger shall comply with the attached Monitoring and Reporting Program, and any revisions thereto as ordered by the Executive Officer or directed by Central Valley Water Board staff.

If you have any questions regarding this matter, please call David Stavarek at (916) 464-4673 or he can be reached by e-mail at dstavarek@waterboards.ca.gov.

PAMELA C. CREEDON
Executive Officer

Attachments

cc: Mr. Mark Owens, SWRCB UST Cleanup Fund, Sacramento
Mr. Bahram Kavousi, Yolo County Environmental Health Services, Woodland
Mr. John Pfeiffer, Geocon Consultants, Inc., Rancho Cordova

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2008-0149-026

FOR
IN-SITU GROUNDWATER REMEDIATION AT SITES WITH VOLATILE ORGANIC
COMPOUNDS, NITROGEN COMPOUNDS, PERCHLORATE, PESTICIDES,
SEMI-VOLATILE COMPOUNDS AND/OR PETROLEUM HYDROCARBONS
FOR
PERCY ANTONIO
FORMER M & M MINI MART
1085 EAST STREET, WOODLAND
YOLO COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring a groundwater extraction and/or treatment system. This MRP is issued pursuant to California Water Code section 13267, and has been prepared based on Attachment C, a part of General Order R5-2008-0149.

No changes to this MRP shall be implemented unless and until a revised MRP is issued by the Executive Officer of the Central Valley Regional Water Quality Control Board (Central Valley Water Board). As appropriate, Central Valley Water Board staff shall approve specific sample station locations and analyses prior to implementation of sampling activities.

PROJECT

1. **Parties Submitting a Notice of Intent under General Order R5-2008-0149:**
Percy Antonio (hereafter referred to as "Discharger").
2. **Project Location:** The project is in the City of Woodland in Yolo County, T10N, R2E, S33, Diablo B&M. The assessor parcel number is 066-160-019.
3. **Project Description:** An unauthorized release from the petroleum hydrocarbon fuel dispensing system at Former M & M Mini Mart station has caused a pollution of soil and groundwater by petroleum constituents. The primary constituents are total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, total xylenes, methyl tert-butyl ether (MtBE), tertiary butyl alcohol (TBA), and tertiary amyl methyl ether (TAME). In 1999 petroleum impacts were found during removal of the underground storage tank (UST) system. From 1999 to present a number of soil and groundwater investigations have been completed. In 2004 a limited remedial measure using high-vacuum dual-phase extraction was conducted, but test results indicated this was not a feasible remedial alternative. It has been determined that additional remedial efforts are required to more expeditiously and cost-effectively clean up the impacts to soil and groundwater.

The Discharger conducted a bench scale test and limited pilot study, which will now be followed by full implementation for remediating the existing petroleum impacts using in-situ chemical oxidation. The Discharger proposes to use ozone sparging at various locations as seen in the attached Figure 3. The Discharger will also be conducting the applicable

sampling and reporting. Central Valley Water Board staff concurred with the Discharger that the results of bench scale and pilot tests indicate ozone sparging is an appropriate remedial alternative and the Discharger should proceed with full remedial implementation. Adequate fail-safe alternates are contained within the Discharger's proposal, should adverse water quality conditions, such as the creation of Cr+6, occur.

LEGAL REQUIREMENTS

4. CWC section 13267 states, in relevant part:

(a) A regional board ... in connection with any action relating to any plan or requirement authorized by this division, may investigate the quality of any waters of the state within its region.

(b)(1) In conducting an investigation specified in subdivision (a), 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 Dischargers have submitted a Notice of Intent to the Board indicating that they are responsible for the project subject to Order R5-2008-0149. The reports required herein are necessary to ensure compliance with Order R5-2008-0149.

5. CWC section 13268 states, in relevant part:

(a)(1) Any person failing or refusing to furnish technical or monitoring program reports ... 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).

(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.

It is Hereby Ordered that the Discharger shall comply with the following Monitoring and Reporting Program requirements:

GENERAL REQUIREMENTS

1. 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

2. There are 37 monitor wells, 22 ozone sparging wells, one observation well, and one piezometer located onsite and offsite that are associated with this Site. The groundwater monitoring program for these wells and any 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. Sample collection and analysis shall follow standard Environmental Protection Agency (EPA) Method protocol.

The monitor wells and/or observation 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 Suite¹

Well Number	Frequency	Constituent Suite(s) ²	Monitoring Objective
MW6S, MW6D, MW15D, MW17S, MW17D, MW18DR	Annual ³	Suites A and C ¹	Compliance ⁴
MW9, MW13S, MW13I	Semi-Annual ⁵	Suites A and B ¹	Transition Zone ⁶
MW3, MW11, MW19S, MW19I, MW19D	Quarterly	Suite A ¹	Compliance ⁴
MW2, MW15S, MW15I, MW17I, MW18D	Semi-Annual ⁵	Suites A and C ¹	Compliance ⁴
MW13D, MW14S, MW14I, MW14D	Quarterly	Suites A and B ¹	Treatment ⁷ and Transition ⁶ Zone
MW9, MW13S, MW13I, MW13D, MW14S, MW14I, MW14D	Prior to Startup ⁸	Suites A and B ¹	Baseline ⁴

¹ CVWater Board staff may request sampling of any of the fourteen monitoring wells not listed in Table 1, and/or change sampling frequency of wells and constituent suite listed in Tables 1 and 2.

² Constituent suite components listed in Table 2.

³ To be sampled during the second quarter.

⁴ Wells used to determine compliance with groundwater limitations.

⁵ To be sampled during the second and fourth quarters.

⁶ Wells sampled to evaluate migration of pollutants upgradient and downgradient of the treatment zone.

⁷ Wells to be sampled to evaluate progress of in-situ remediation of the treatment zone.

⁸ Wells to be sampled to establish pollutant levels before startup of system, then once during the first, second, and third month of operation after startup to establish preexisting conditions and check for any immediate adverse conditions caused by the in-situ remediation.

Table 2: Analytical Methods

Constituent	Method ¹	Maximum Practical Quantitation Limit (ug/L) ²
Suite A		
TPHg	EPA 8015M	50
BTEX, MTBE, TBA, TAME	EPA 8260B	0.5, TBA = 10
Suite B		
Hexavalent Chromium	EPA 7199	1.0
Acetone	EPA 8260B	10
Suite C		
Trichloroethene (TCE)	EPA 8260B	0.5

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

3. 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
Temperature	°F	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.

INJECTION MONITORING

4. Ozone injection will be monitored and the amount recorded, along with information regarding the time period over which ozone is injected into the aquifer.

Table 4: Ozone Injection Monitoring Requirements

Parameters	Units	Type of Sample
Injected Volume	Cubic feet per minute	Meter

AMENDMENT ANALYSIS

5. No amendments shall be added, therefore, no amendment analysis is necessary.

ESTABLISHMENT OF BACKGROUND CONCENTRATION VALUES

6. The Discharger shall develop background values for concentrations of Cr+6, total dissolved solids, and electrical conductivity in groundwater following the procedures found in California Code of Regulations, title 27, section 20415(e)(10). The Discharger shall submit a proposal to develop the background concentrations as determined by Central Valley Water Board staff.

REPORTING

7. 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 Central Valley Water 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 Central Valley Water Board.
8. 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.
9. 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 30th day of the month following the end of each calendar quarter by

30 April, 30 July, 30 October, and 30 January until such time as the Executive Officer determines that the reports are no longer necessary. Hard copies of quarterly reports shall also be submitted to the Central Valley Water Board by the 30th day of the month following the end of each calendar quarter. 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.

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, which can be found at:

[http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/
std_provisions/wdr-mar1991.pdf](http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/std_provisions/wdr-mar1991.pdf)

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

(Date)