



California Regional Water Quality Control Board
Central Valley Region
Katherine Hart, Chair



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Edmund G. Brown Jr.
Governor

Matthew Rodriguez
Secretary for
Environmental Protection

21 December 2011

Mr. Jack Schwartz
Gladding McBean
601 7th Street
Lincoln, CA 95648

**NOTICE OF APPLICABILITY OF GENERAL ORDER NO. R5-2008-0149-011,
GLADDING MCBEAN COMPANY COAL TAR LANDFILL, 601 7th STREET, LINCOLN,
IN-SITU REMEDIATION OF VOLATILE ORGANIC COMPOUNDS, PLACER COUNTY**

Gladding McBean Company (Discharger) submitted a Notice of Intent, dated 23 October 2009, requesting coverage under General Order No. R5-2008-0149, and a Contingency Plan dated 19 September 2011 for 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. R5-2008-0149. All of the requirements contained in the General Order are applicable to your project. You are assigned Order No. R5-2008-0149-011.

Project Location:

The project is in the City of Lincoln, Placer County, Latitude 38°54'4.81" N, Longitude 121°17'22.32"W, Assessor's Parcel No's. 008-010-026 & 27. In-situ treatment will be conducted in the Gladding McBean landfill located north of the Gladding McBean ceramics plant at 601 7th Street, Lincoln.

Project Description:

Operations at the Gladding McBean Company landfill caused pollution of the soil and groundwater. The primary pollutants of concern are 1,1,1-trichloroethane (1,1,1-TCA) and its breakdown products, and trichloroethylene (TCE) and its breakdown products. Groundwater monitoring data show that indigenous bacteria are capable of promoting reductive dechlorination, however, long-term trends indicate the natural processes are not sufficient to remediate the remaining chlorinated hydrocarbons in a timely manner. The Discharger is proposing a field pilot study to evaluate the effectiveness of enhanced in-situ bioremediation in treating the 1,1,1-TCA, TCE, and their daughter products.

For this project, the Discharger proposes to inject sucrose (table sugar) as a source of organic carbon and molecular hydrogen for anaerobic reductive dechlorination of the pollutants of concern. The Discharger proposes to initially inject 1,500 gallons of a solution

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containing about 500 pounds of sugar (about 4% organic carbon) in each of three new injection wells. The initial injection is intended to evaluate the effect of this electron donor. It is anticipated that a second injection will be completed in about 4 to 6 months. This Notice of Applicability also covers the Dischargers' use of emulsified soybean oil, when it provides an analysis and a proposal to inject it, subject to Central Valley Water Board staff concurrence.

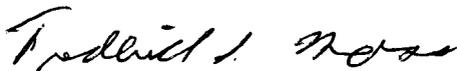
The Discharger will also be conducting sampling and reporting the results as described in the attached Monitoring and Reporting Program. If the Discharger desires to conduct longer-term in-situ remediation of the groundwater, a revised Notice of Intent must be submitted and a new Notice of Applicability received prior to proceeding with the additional remediation.

On 22 September 2011, the Discharger circulated a fact sheet describing the project and providing interested parties with 30 days to submit comments or questions. No comments were received by 28 October 2011.

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 sugar or emulsified soybean oil 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 as described in the 19 September 2011 Contingency Plan within 30 days of it being triggered.
6. The Discharger shall comply with the attached Monitoring and Reporting Program, Order No. R5-2008-0149-011, and any revisions thereto as ordered by the Executive Officer.

If you have any questions regarding this matter, please call Gerald Djuth at (916) 464-4677 or contact him at gdjuth@waterboards.ca.gov.



 PAMELA C. CREEDON
Executive Officer

Attachments

Distribution List:

Ms. Della Kramer, Regional Water Quality Control Board, Sacramento
Mr. Aaron O'Brien, Tamalpais Environmental Consultants, Fairfax
Ms. Jill Pahl, Placer County Environmental Health, Auburn

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2008-0149-011

FOR
IN-SITU GROUNDWATER REMEDIATION AT SITES WITH VOLATILE ORGANIC
COMPOUNDS, NITROGEN COMPOUNDS, PERCHLORATE, PESTICIDES,
SEMI-VOLATILE COMPOUNDS AND/OR PETROLEUM HYDROCARBONS

GLADDING MCBEAN COAL TAR LANDFILL
PLACER COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring a groundwater treatment system at the Gladding McBean Coal Tar Landfill at 601 Seventh Street in Lincoln. 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, Central Valley Regional Water Quality Control Board (Central Valley Water 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, this pilot study groundwater treatment system is associated with five monitoring wells (designated MWS-1, MWS-4, MWS-6, PW-1, and PW-2), two extraction wells (designated EW-1, and EW-2), one proposed monitoring well (MWS-10), three proposed injection wells (IW-1, IW-2, and IW-3), and a proposed soil gas monitoring well (GM-4).

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. Sample collection and analysis shall follow standard EPA protocol.

The monitor wells, extraction wells, and injection wells shall be sampled according to the schedule in Table 1 and the samples analyzed by the methods in Table 2. Soil gas monitoring shall proceed pursuant to Table 3. Gladding McBean also conducts routine groundwater and soil gas monitoring pursuant to MRP R5-2003-0805. In the case of duplicative monitoring between the two monitoring and reporting programs, one sample may satisfy the requirements of both monitoring programs. It is not the intent to require duplicative sampling and analyses.

Table 1: Sampling Frequency and Constituent Suite

Well Number ¹	Frequency	Constituent Suite(s) ²	Monitoring Objective
MWS-6, MWS-10, IW-1, IW-2, IW-3, PW-2	Before Injection, Monthly/Quarterly ³	A, B	Treatment Zone
	Before Injection, Semi-Annually	D	
GM-4	Before Injection, Monthly/Quarterly ³	D	Treatment Zone
EW-1, EW-2, PW-1	Before Injection, Quarterly ⁴	A	Transition Zone
	Semi-Annually	B, D	
MWS-4	Before Injection, Semi-Annually	A, B, D	Compliance
MWS-1	Before Injection, Semi-Annually	B, C, D	Background

¹ Well numbers as shown on Figure 1.

² Constituent suite components listed in Table 2.

³ Wells designated as Monthly/Quarterly shall be sampled monthly for at least three months after an injection event, quarterly for at least two quarters, and semi-annually in the first and third quarters (Jan-Mar, July-Sept).

⁴ Wells designated as Quarterly shall be sampled for at least three quarters after an injection, and semi-annually in the first and third quarters (Jan-Mar, July-Sept).

Table 2: Analytical Methods

Constituent	Method ¹	Maximum Practical Quantitation Limit ² (ug/L)
Suite A		
Volatile Organic Compounds	EPA 8260B	0.5
Nitrate	EPA 300	1,000
Sulfate	EPA 300	1,000
Total Dissolved Solids	EPA 160.1 or SM 2540C	10,000
Alkalinity (total)	EPA 2320B or 310.1	2,000
Total Organic Carbon	EPA 415 or SM 5310B	1,000
Suite B		
Dissolved Metals ³ (including arsenic, iron, manganese)	EPA 200.7	Various
Suite C		
Total Dissolved Solids	EPA 160.1 or SM 2540C	10,000
Suite D		
Methane, Dissolved	RSK 175 or ASTM D1946	0.1

¹ Or an equivalent 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.

³ Samples to be analyzed for dissolved metals shall be filtered in the field.

Table 3: Soil Gas Monitoring Frequency and Constituents

Well Number ¹	Frequency	Constituents	Monitoring Objective
MWS-6, GM-4	Monthly/Qtrly ²	VOCs ³	Treatment Zone

¹ Well numbers as shown on Figure 1.

² Wells designated as Monthly/Quarterly shall be sampled monthly for at least three months after an injection event, quarterly for at least two quarters, and semi-annually thereafter.

³ Method TO-15 or equivalent.

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 4.

Table 4: Field Sampling Requirements

Parameters	Units	Type of Sample
Groundwater Elevation	Feet, Mean Sea Level	Measurement
Oxidation-Reduction Potential	Millivolts	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 5. Each amendment addition shall be recorded individually, along with information regarding the time period over which the amendment was injected into the aquifer.

Table 5: 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

Prior to use, amendments shall be analyzed for the constituents listed in Table 5. Central Valley Water Board has received an analysis for sugar. If Gladding McBean chooses to add emulsified oil as an amendment, it must submit an analysis of the product for Central Valley Water Board staff's approval. The analysis should be done 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 (ug/L) ²
Volatile Organic Compounds	EPA 8020 or 8260B	0.5
General Minerals ³	Various	Various
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 volatile organic compounds in compliance well(s) and background well(s) following the procedures found in CCR Section 20415(e) (10). The Discharger shall submit a proposal to develop the background concentrations for other geochemical parameters by **27 January 2012**.

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 Central Valley Water 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 data reports shall be submitted electronically over the internet to the Geotracker database system by **1 February, 1 May, 1 August, and 1 November** until quarterly reports are no longer appropriate pursuant to Table 1.

The quarterly data reports should include the following information:

- (a) Amendments injected, dates, volume, and injection locations.
- (b) Tabulated sample locations, analyses and results, including detection levels for undetected results.
- (c) A figure showing injection and sample locations.

Semi-annual reports shall be submitted to the Central Valley Water Board by the **1st day of the second month following the end of each reporting period (i.e., by 1 May and 1 November)**. These reports shall contain an evaluation of the effectiveness and progress of the remediation. The content of the Semi-Annual Reports may be combined with the Semi-Annual Report required by Monitoring and Reporting Program No. R5-2003-0805. The Semi-Annual Reports shall contain 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.
- (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) Cumulative data tables containing the water quality analytical results and depth to groundwater.
- (g) A copy of the laboratory analytical data report, which may be submitted in an electronic format.
- (h) The status of the remediation, system operating time, the effectiveness of the remediation system, and any field notes pertaining to the operation and maintenance of the system.
- (i) 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.

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

Ordered by:

Fredrick L. Moss
for PAMELA C. CREEDON, Executive Officer

21 December 2011

(Date)

Figure 1. Pilot Study Monitoring Well Layout

