CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2008-0149-005, Revision 1

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

CONTINENTAL GRAIN COMPANY
SAN JOAQUIN COUNTY

This Monitoring and Reporting Program, Revision 1 (MRP) describes revised requirements for monitoring a groundwater extraction and treatment system at the French Camp Grain Elevators at 9504 South Harlan Road in San Joaquin County. This MRP is issued pursuant to Water Code Section 13267, and replaces the requirements listed in MRP No. R5-2008-0149-005, which was adopted on 29 December 2009. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer. As appropriate, California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) staff shall approve specific sample station locations prior to implementation of sampling activities. This Monitoring and Reporting Program is in addition to routine groundwater monitoring prescribed by Monitoring and Reporting Program No. R5-2014-0813.

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 Attachment A, there are 17 monitor wells, 2 extraction wells, and 2 injection wells associated with this site. Only the wells listed in Table 1 are associated with the groundwater treatment system. Monitoring wells MW-2B and MW-7B will be destroyed when site rail reconfigurations begin. The groundwater monitoring program for the wells listed in Table 1 and any treatment system wells installed subsequent to the issuance of this MRP, shall follow the schedule below. When sampling required by this MRP is duplicative of sampling required by the separate Monitoring and Reporting Order issued to the Discharger, one sample and analysis can satisfy the requirements of both Orders. The volume of extracted groundwater shall also be provided in semi-annual monitoring reports. Sample collection and analysis shall follow standard EPA protocol.

The monitoring wells, extraction wells and/or injection wells shall be sampled according to the schedule in Table 1, the samples analyzed by the methods in Table 2, pursuant to the monitoring objectives shown in Table 3, as presented on the following pages.

Table 1: Sampling Frequency[1] and Constituent Suites[2]

Well Number[3]	Volatile Organic Compounds	1,2,3-Trichloropropane	Dissolved Organic Carbon
MW-1B	Biennially	Biennially	Biennially
MW-2B[4]	Biennially	Biennially	Biennially
MW-3B	Semi-Annually	Semi-Annually	Semi-Annually
MW-4B	Annually	Annually	Annually
MW-5B	Semi-Annually	Semi-Annually	Semi-Annually
MW-7B[4]	Annually	Annually	Annually
MW-9B	Semi-Annually	Semi-Annually	Semi-Annually
MW-10B	Semi-Annually	Semi-Annually	Semi-Annually
MW-13B	Semi-Annually	Semi-Annually	Semi-Annually
EW-11B	Semi-Annually	Semi-Annually	Semi-Annually
EW-12B	Semi-Annually	Semi-Annually	Semi-Annually

[1] Semi-Annual sampling is to occur in the 1st and 3rd quarters (January-March, July-September); Annual sampling is to occur in the first quarter (January-March); Biennial sampling is to occur in the first quarter (January-March) in even numbered years.

[2] Constituent suite analytical methods listed in Table 2.

[3] The location of identified wells are shown on Attachment 1.

[4] Wells to be destroyed at a date yet to be determined.

Table 2: Analytical Methods

Constituents	Analytical Method[5]	Maximum Practical Quantitation Limit [6]
Volatile Organic Compounds	EPA 8260B	0.5 ug/L
1,2,3-Trichloropropane[7]	EPA 8260B, EPA 504.1, or SRL 524M-TCP	0.5, 0.02, or 0.005 ug/L
Carbon, dissolved organic	SM 5310D	0.5 mg/L

[5] Or an equivalent EPA Method that achieves the maximum Practical Quantitation Limit.

[6] All concentrations between the Method Detection Limit and the Practical Quantitation Limit shall be reported as an estimated value.

[7] If 1,2,3-TCP is expected to exceed 0.5 ug/L, then Method 8260B may be used, and if it is expected to exceed 0.02 ug/L, then Method 504.1 may be used. If 1,2,3-TCP is not detected greater than 0.02 ug/L, then SRL 524M-TCP must be used in the next regularly scheduled sampling event.

Table 3: Monitoring Well Objectives

Monitoring Well	Monitoring Objective	Objective Definition
MW-1B, MW-2B	Background	Wells used to develop background concentrations.
MW-3B, MW-9B, MW-10B	Treatment zone	Wells sampled to evaluate in-situ bioremediation progress inside the treatment zone.
MW-4B, MW-13B, EW-11B, EW-12B	Transition Zone	Wells sampled to evaluate migration of pollutants within the treatment zone.
MW-5B, MW-7B	Compliance	Wells used to determine compliance with water groundwater limitations.

FIELD SAMPLING

In addition to the above sampling and analysis, field sampling and analysis shall be conducted each time a monitoring 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	Minimum Unit of Measurement
Groundwater Elevation	Feet, Mean Sea Level	Measurement	0.01 feet
Oxidation-Reduction Potential	Millivolts	Grab	300 millivolts
Electrical Conductivity	uS/cm^2	Grab	50 uS/cm^2
Dissolved Oxygen	mg/L	Grab	1 mg/L
pH	pH Units	Grab	0.1 pH Unit

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 record the flow rate and cumulative volume of water reinjected into each injection point. If the Contingency Plan is initiated, the Discharger shall record the addition of 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

An amendment analysis has been provided to Central Valley Water Board staff.

ESTABLISHMENT OF BACKGROUND CONCENTRATION VALUES

The Discharger developed background values for concentrations of various constituents, including total dissolved solids, chloride, carbon dioxide, methane, total and dissolved iron, nitrate, sulfate, and alkalinity.

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 Central Valley Water Board within 48 hours of any unscheduled shutdown of any 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 semi-annual electronic data reports, which conform to the requirements of the California Code of Regulations, Title 23, Division 3, Chapter 30. The semi-annual reports shall be submitted electronically over the internet to the Geotracker database

system by the 1st day of the third month following the end of each respective calendar quarter, (by **1 June, and 1 December),** or as otherwise indicated by Central Valley Water Board staff, until such time as the Executive Officer determines that the reports are no longer necessary.

Hard copies or electronic copies of semi-annual reports shall be submitted to the Central Valley Water Board by the **1st day of the third month following the end of each respective calendar quarter (i.e., by 1 June, and 1 December**) or as otherwise indicated by Central Valley Water Board staff. 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) 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.

An Annual Report shall be submitted electronically over the internet to the Geotracker database system and provided in hardcopy format to the Central Valley Water Board by **1 June** of each year, or as otherwise indicated by Central Valley Water Board staff. This report shall contain an evaluation of the effectiveness and progress of the investigation and

remediation, and may be substituted for the first semi-annual monitoring report. The report may be incorporated with semi-annual reporting required by any additional Monitoring and Reporting Programs issued to the Discharger for this site. 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: Andrew Attwood
For PAMELA C. CREEDON Executive Officer

7/28/14
(Date)

ATTACHMENT A
French Camp Elevator Location of Monitoring Wells, Injection Wells and Extraction Wells.