26 March 2015

Torrey Harding
Diamond Foods, Inc.
1050 South Diamond Street
Stockton, CA 95205

NOTICE OF APPLICABILITY OF GENERAL ORDER NO. R5-2015-0012-003, IN-SITU REMEDIATION PILOT TEST, DIAMOND FOOD FACILTY, 1050 SOUTH DIAMOND STREET, STOCKTON, SAN JOAQUIN COUNTY

Diamond Foods, Inc. (Discharger) submitted a completed Notice of Intent, dated 19 December 2014, requesting coverage under General Order No. R5-2015-0012, General Waste Discharge Requirements for In-situ Groundwater Remediation and Discharge of Treated Groundwater to Land. Based on information in your submittal, it is our determination that this project meets the required conditions to be approved under Order No. 2015-0012. All of the requirements contained in the general order are applicable to your project. You are assigned Order No. R5-2015-0012-003.

Project Location:

The project is in San Joaquin County, Township 1N, Range 7E, Section 45, Mount Diablo Baseline & Meridian. Assessor's Parcel No. 155-32-019; Latitude 37°56'56.3" N, Longitude 121°15'22.5"W.

Project Description:

The Diamond Foods facility has been operating as mainly a walnut processing plant since the 1950s. Hexavalent chromium was previously used as corrosion inhibitor for a former cooling tower at the site, and is believed to be the source of hexavalent chromium groundwater impacts immediately north of the main processing building. The Discharger is proposing a field pilot test to evaluate the effectiveness of in-situ treatment of the hexavalent chromium using calcium polysulfide (Cascade®) based on previous bench-scale testing. The pilot test was proposed in 19 December 2014 *Pilot Study Work Plan* prepared by Cardno ATC for the site.

For the pilot study, the Discharger proposes to inject 1,500 gallons of calcium polysulfide solution under pressure into groundwater monitoring well MW-3, followed by 100 gallons of chase water to push the solution into the formation. A packer will be used to seal off the well at the top of the well screen and the calcium polysulfide solution will be injected under a maximum pressure of 40 pounds per square inch. The calcium polysulfide is intended to create reducing conditions in the groundwater to convert the hexavalent chromium into trivalent chromium. The Discharger will install two observation wells in the treatment zone to observe the effectiveness of the pilot test in the groundwater around monitoring well MW-3.

Contingency Plan:

In-situ remediation for reducing hexavalent chromium concentrations in groundwater can be an effective remediation alternative. Secondary effects of injection may include an elevation of pH and the formation of by-products. However, these secondary effects are generally limited in duration and/or in a relatively small portion of the aquifer.

Groundwater limitations require pH of the groundwater, at the compliance points, downgradient and outside the treatment zone to shift outside the range of 6.5 to 8.5. The addition of Cascade® in bench scale testing has shown that the potential to elevate the pH of the groundwater exists. However, elevated pH levels generated during application of Cascade® was also observed to decrease over time.

Should periodic monitoring indicate the pH or any other detected by-products are not naturally attenuating at an acceptable rate (a downward trend over the six-month monitoring period), a contingency plan will be implemented.

Under the contingency plan, if pH at compliance points is measured using portable monitoring equipment to exceed 8.5, then efforts will be made to reduce the pH to within the approved range by adding an appropriate acid into the injection well following consultation with Central Valley Water Board staff.

Monitoring and Reporting Program:

The Discharger will be conducting sampling during the period of the pilot test and reporting the results as described in the attached Groundwater Monitoring and Reporting Program.

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 completed 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 water and calcium polysulfide 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 Discharger shall comply with the attached Monitoring and Reporting Program, Order No. R5-2015-0012-003, and any revisions thereto as ordered by the Executive Officer.

If you have any questions regarding this matter, please call Bill Brattain at (916) 464-4622.

Original signed by Duncan Austin, for

PAMELA C. CREEDON
Executive Officer

Attachment

cc: Jeanne Homsey, P.E., Cardno ATC, Modesto

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2015-0012-003

FOR
IN-SITU GROUNDWATER REMEDIATION AND DISCHARGE OF
TREATED GROUNDWATER TO LAND

DIAMOND FOODS INC.
1050 SOUTH DIAMOND STREET, STOCKTON
SAN JOAQUIN COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring the progress of a Pilot Study using calcium polysulfide and chase water as an in-situ application to reduce hexavalent chromium to trivalent chromium at Diamond Foods Inc., 1050 South Diamond Street, Stockton, California. 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, 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.

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 seven monitoring or observation wells associated with the Pilot Study at this site, including MW-1, MW-3, MW-6, MW-7, MW-8, OBSW-s (proposed), and OBSW-d (proposed). The locations of these wells are shown on Figure 2, with the exception of MW-1 which is located at the southern end of the 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. Sample collection and analysis shall follow standard EPA protocol and sample analyses shall be completed by a California state-certified laboratory.

The monitoring 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
MW-3 (injection well)	Baseline (prior to injection), one, three, and six months after injection for pilot study.	Suite A,B and Field Sampling	Treatment Zone[5]
OBSW-s (proposed observation well, shallow zone)	Baseline (prior to injection), one, three, and six months after injection for pilot study.	Suite A,B and Field Sampling	Treatment Zone[5]
OBSW-d (proposed observation well, deep zone)	Baseline (prior to injection), one, three, and six months after injection for pilot study.	Suite A,B and Field Sampling	Treatment Zone[5]
MW-6	Baseline (prior to injection), one, three, and six months after injection for pilot study.	Suite A,B and Field Sampling	Compliance[4]
MW-1	Baseline (prior to injection)	Suite A,B and Field Sampling	Background[7]
MW-7	Baseline (prior to injection)	Suite A,B and Field Sampling	Background[7]
MW-8	Baseline (prior to injection)	Suite A,B and Field Sampling	Background[7]

[1] Well numbers as shown on Figure 2.
[2] i.e., weekly, monthly, quarterly, annually, other.
[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 sampled to evaluate migration of pollutants within the treatment zone.
[7] Wells used to develop background concentrations.

Table 2: Analytical Methods

Constituent	Method[1]	Maximum Practical Quantitation Limit (ug/L)[2]
Suite A		
Sulfate	EPA 6500	200
Sulfide	Hach Method 8131	30
Suite B		
Iron, Total and Dissolved	EPA 200.7	100
Ferrous and Ferric Iron	EPA 200, 6020 or SM3000	100
Hexavalent Chromium	EPA 7199	0.3
Phosphorous	EPA 200.7, 365	1,000
Metals, Total and Dissolved[3]	EPA 200.7, 200.8	Various

[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.
[3] Metals include 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 monitoring 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	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

AMENDMENT ANALYSIS

Prior to use, 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. Since the amendment will be injected into MW-3 without prior mixing, pure amendment and amendment at a concentration of 25 milliliters per liter (ml/L) will be analyzed. A concentration of 25 ml/L is the desired dose to be achieved once mixing with groundwater within a radius of ten to fifteen feet from the injection well.

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 use the data during the baseline sampling event collected from OBSW-s (proposed), OBSW-d (proposed), MW-1, MW-3, MW-6, MW-7, and MW-8 to determine background concentrations of sulfate, sulfide, phosphorous, dissolved manganese, total and dissolved iron, total dissolved solids, pH, and electrical conductivity in the groundwater. The Discharger shall complete a baseline monitoring event in accordance with Tables 1 and 2 to establish groundwater quality conditions prior to the implementation of the Pilot Study.

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. 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 Civil Engineer or Geologist or their subordinate and signed by the registered professional.

The Discharger shall submit two (2) 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**, or a date approved in writing by Central Valley Water Board staff.

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; and

(i) a description of amendment analysis and injection activities including quantities of water and amendments injected into the groundwater, along with time period over which the amendments were injected into the aquifer.

The Discharger shall submit an Annual Report shall be submitted to the Central Valley Water Board by **1 February** of each year, or as indicated by Central Valley Water Board staff. The Annual Report shall be submitted over the internet to the GeoTracker database system. This report shall contain an evaluation of the effectiveness and progress of the investigation and remediation, and may be substituted for the fourth quarter 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.

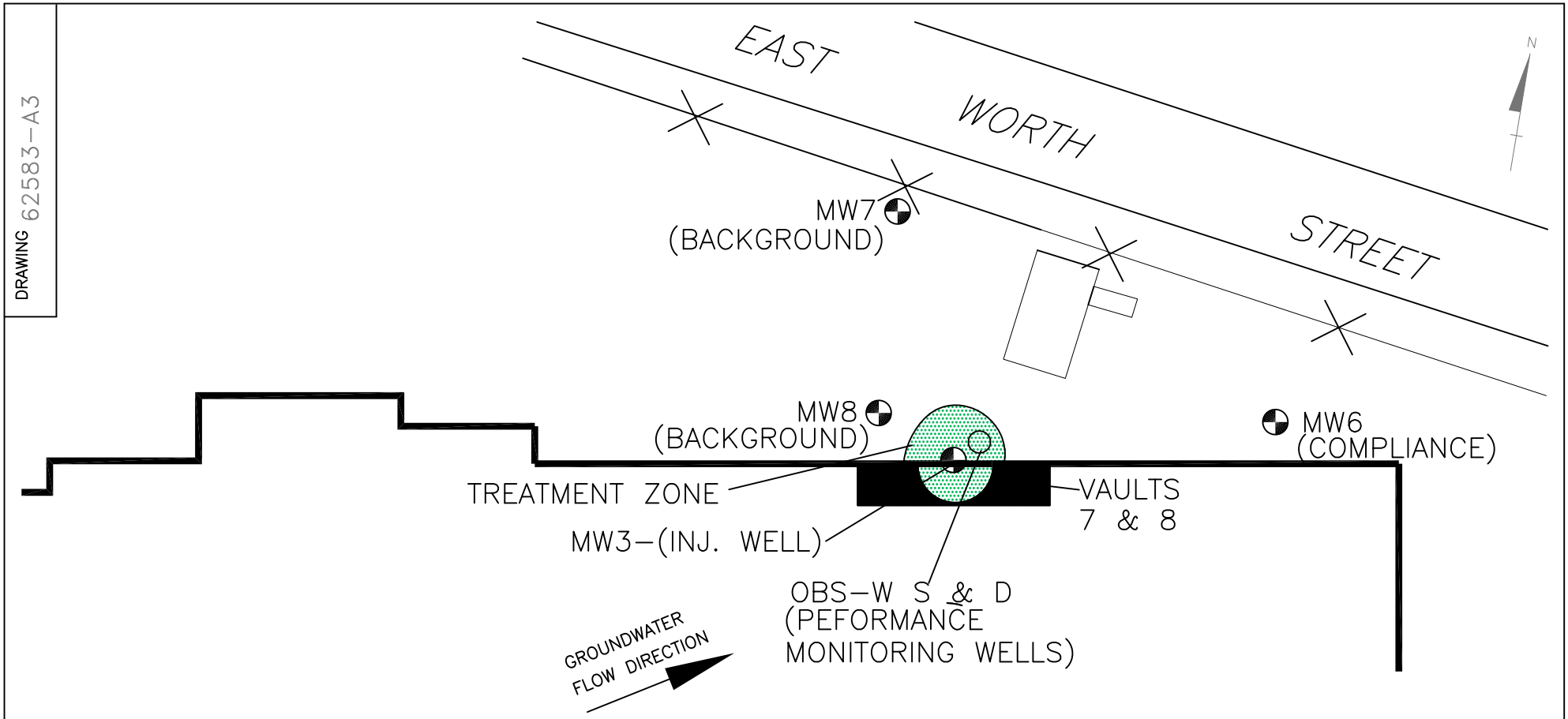
A letter transmitting the monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger 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 March 1991 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 Duncan Austin, for*
PAMELA C. CREEDON Executive Officer

26 March 2015
(Date)

DRAWING 62583-A3



PROCESSING PLANT

SITE PLAN
DIAMOND WALNUT GROWERS
1050 SOUTH DIAMOND STREET
STOCKTON, CALIFORNIA

PREPARED FOR
DIAMOND WALNUT GROWERS
STOCKTON, CALIFORNIA

LEGEND:

- MONITORING WELL
- FORMER UNDERGROUND VAULT
- PROPOSED OBSERVATION WELL

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
2	1/09/15		JS		JH

Cardno ATC

DATE: 01/05/15	FIGURE 2	DRAWING NUMBER 62583-A3
SCALE: NTS		