CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2005-0838
CALIFORNIA WATER CODE SECTION 13267
FOR
ALPHA DYNO NOBEL dba ALPHA EXPLOSIVES
AND HERCULES INCORPORATED

ALPHA EXPLOSIVES LINCOLN FACILITY
PLACER COUNTY

Alpha Explosives currently owns and operates, and Hercules Incorporated formerly operated an explosives manufacturing and retail operation at 3400 Nader Road in Lincoln. Alpha Explosives and Hercules Incorporated are collectively referred to as Discharger. Perchlorate, nitrate, and ammonium are present in elevated concentrations in the groundwater, which seasonally varies between 12 and 25 feet below ground surface. This pollution impaired the beneficial uses of this water resource. The Discharger is conducting pilot studies evaluating various carbon compounds as reducing agents to biodegrade perchlorate and nitrate in groundwater insitu.

This Monitoring and Reporting Program (MRP) is issued pursuant to Section 13267 of the California Water Code and is necessary to delineate groundwater pollutant plumes and determine whether remediation efforts are effective. Existing data and information about the site show the presence of various chemicals, including perchlorate, nitrate, and ammonium resulting from the Discharger's past operation. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer. This MRP replaces the requirements listed in MRP No. R5-2004-0814, which was issued on 21 May 2004. MRP No. R5-2002-0719, which applied to the initial bioremediation pilot study, is hereby rescinded.

Prior to construction of any new groundwater monitoring or extraction wells, and prior to destruction of any groundwater monitoring or extraction wells, the Discharger shall submit plans and specifications to the Board for review and approval. Once installed, all new wells installed for routine groundwater monitoring shall be added to the monitoring program and shall be sampled and analyzed according to the schedule below.

GROUNDWATER MONITORING

As shown on Figure 1, there are 16 monitoring wells associated with this site (MW-1 through MW-12, MW-13R, and MW-14 through MW-16)**,** and one off-site agricultural well, identified as Bakos #1. The groundwater monitoring program for the 16 monitoring wells, the agricultural well, and any wells installed subsequent to the issuance of this MRP for the purpose of routine groundwater monitoring shall follow the schedule below. In some years, rain events occurring in March prevent the Discharger from accessing some of the monitoring wells. When rains occur in March such that equipment is subject to being mired in mud, the Discharger must notify Board staff in writing and may obtain wet season groundwater samples in April. Sample collection and analysis shall follow standard EPA protocol.

Table of Constituents and Methods

Constituents	Analytical Method	Practical Quantitation Limit[1]
Depth to Groundwater	---	0.01 ft
pH and electrical conductivity	field instrumentation	---
Nitrate-Nitrite (reported as Nitrogen)	353.3	0.5 mg/l
Ammonium as Nitrogen	350.2	0.1 mg/l
Perchlorate	300.0	4 µg/l

[1] All concentrations between the Method Detection Limit and the Practical Quantitation Limit shall be reported as trace.

Table of Constituents and Monitoring Frequency

Constituents	Semi-Annually[1]	Annually[2] (first quarter)	Annually[3] (third quarter)	Biennially[4]
Depth to groundwater	MW-2, MW-4, MW-6, MW-7, MW-9, MW-10, MW-11, MW-14, MW-15, MW-16	MW-1, MW-3, MW-5, MW-8		MW-12
pH electrical conductivity	MW-2, MW-4, MW-6, MW-7, MW-9, MW-10, MW-11, MW-15, MW-16	MW-1, MW-3, MW-8	Bakos #1[5]	MW-12
Nitrate-Nitrite as Nitrogen Perchlorate	MW-2, MW-4, MW-6, MW-7, MW-9, MW-10, MW-11, MW-15, MW-16	MW-1, MW-3, MW-8	Bakos #1[5]	MW-12
Ammonium as Nitrogen	MW-2	MW-3		

[1] Semi-annually in the first quarter (January-March), weather permitting, and third quarter (July-September)
[2] Annually in the first quarter (January-March), weather permitting.
[3] Annually in the third or fourth quarter (July-December).
[4] In odd-numbered years in the first quarter (January-March), weather permitting.
[5] The sample from Bakos #1 is to be obtained as a grab sample and analyzed for perchlorate. Analysis for nitrate is not required.

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 Board within 48 hours of any unscheduled shutdown of any soil vapor and/or groundwater extraction system, if applicable.

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 second month following the end of each calendar quarter by **1 June and 1 December** until such time as the Executive Officer determines that the reports are no longer necessary.

Semi-annual 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 June and 1 December**) until such time as the Executive Officer determines that the reports are no longer necessary.

(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) isocontour 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;

(i) if applicable, the status of any ongoing remediation, including cumulative information on the 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 to the Board by **1 December** 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 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 captured by an extraction system or is continuing to spread;

(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.

The results of any monitoring done more frequently than required at the locations specified in the MRP also shall be reported to the Board. The Discharger shall implement the above monitoring program as of the date of the Order.

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

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(Date)