

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2008-0817  
CALIFORNIA WATER CODE SECTION 13267  
FOR  
WESTERN FARM SERVICE, INC., AND AGRIMUM  
STOCKTON FACILITY  
SAN JOAQUIN COUNTY

The agricultural chemical facility at 1905 North Broadway Avenue in Stockton was owned by Unocal until February 1993, when the facility and its environmental liability was purchased by Agrium (Discharger). The soil and groundwater are polluted with fertilizers, fumigants, pesticides and herbicides that were discharged to on-site ponds. Polluted groundwater is found at about 50 feet, 100 feet, and 150 feet below ground surface. This pollution impaired the beneficial use of this water resource. The ponds were excavated and covered with an engineered cap and liner. A pilot study is underway evaluating the efficacy of zero-valent iron to remove groundwater contaminants 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 1,2-dichloropropane, 1,2,3-trichloropropane, nitrate and ammonium, emanating from the property under the control of the Discharger. 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. R5-2004-0804, which was issued on 29 January 2004.

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 shall be added to the monitoring program and shall be sampled and analyzed according to the semi-annual schedule below.

### **GROUNDWATER MONITORING**

As shown on Figure 1, there are 17 monitoring wells, one extraction well, and two pilot study test wells in the A-zone (MW-1, MW-2, MW-3, MW-5, MW-6, MW-8, MW-9, MW-10, MW-12, MW-13A, MW-14A, MW-15A, MW-16A, MW-17A, MW-18A, MW-19A, MW-20A, E-1, PM-1 and PM-2); eight monitoring wells and one extraction well in the B-zone (MW-13B, MW-14B, MW-15B, MW-16B, MW-17B, MW-18B, MW-19B, MW-20B, and E-2); and two monitoring wells in the C-zone (MW-7 and MW-21). The groundwater monitoring program for the 27 monitoring wells, two extraction wells, two pilot study wells, and any wells installed subsequent to the issuance of this MRP, shall follow the schedules below in Tables 1 and 2. Analytical suites are found in Table 3.

Groundwater elevation shall be recorded and field parameters such as electrical conductivity, pH and temperature shall stabilize and be recorded prior to sample

collection. All wells, even those that are not scheduled for constituent monitoring, shall have groundwater elevations measured annually in the third quarter. Sample collection and analysis shall follow standard EPA protocol. If the carbamate/urea analytical suite is removed from the MRP, then monitoring wells MW-2, MW-3, MW-6, MW-14A and E-1 shall be analyzed for bromacil.

**Table 1. A-Zone Groundwater Monitoring Schedule<sup>1</sup>**

	Water Levels	Nitrate, nitrite (as N)	Ammonium	Volatile organic compounds	Chlorinated herbicides	Fumigants (EDB, DBCP)	Carbamate/Urea pesticides	1,2,3- trichloropropane
MW-1	A	A	A	A				A
MW-2	S	S	S	S	A	S		S
MW-3	A							
MW-5	S	S		S		S		S
MW-6	S	S	S	S	A	S	A	S
MW-8	S							B
MW-9	S	S		S		S		S
MW-10	S	S	S	S		S	S	
MW-12	A	A		A		A		A
MW-13A	A	A	A	A		A		A
MW-14A	S	S	S	S	S	S	S	S
MW-15A	S	A		A		A		A
MW-16A	S	S		S				S
MW-17A	S	A		A				A
MW-18A	S	A		A		A		A
MW-19A	A	A				A		A
MW-20A	S							A
E-1	S	S	S	S	A	S	S	

<sup>1</sup> S = Semi-annually, in the 1st and 3rd quarters (January-March, and July-September).  
 A = Annually in the 3rd quarter (July-September).  
 B = Biennially in the 3rd quarter of even-numbered years.

**Table 2. B and C-Zone Monitoring Schedule<sup>1</sup>**

	Water Levels	Nitrate, nitrite (as N)	Ammonium	Volatile organic compounds	Chlorinated herbicides	Fumigants (EDB, DBCP)	Carbamate/Urea pesticides	1,2,3- trichloropropane
MW-13B	A	A	A	A		A		A
MW-14B	S	S	S	S		S		S
MW-15B	S	A		A				A
MW-16B	S	S		S		S		S
MW-17B	S	A		A				A
MW-18B	S	A		A				A
MW-19B	A	A	A	A		A		A
MW-20B	S			A				A
E-2 (B zone)	A							
MW-7 (C zone)	A	A	A	A				A
MW-21 (C zone)	A							A

<sup>1</sup> S = Semi-annually, in the 1st and 3rd quarters (January-March, and July-September).  
 A = Annually in the 3rd quarter (July-September).

**Table 3. Analytical Suites**

Constituents	Analytical Method	Maximum Reporting Limit <sup>1</sup>
Nitrate plus Nitrite (as Nitrogen)	SM 4500	0.1 mg/L
Ammonium	SM 4500	0.1 mg/L
Volatile Organic Compounds	EPA 8260B	0.5 - 10 ug/L
Fumigants	EPA 504.1	0.02 ug/L
1,2,3-Trichloropropane <sup>2</sup>	SLR 524M EPA 504.1 EPA 8260B	0.005 ug/L 0.02 ug/L 5 ug/L
Chlorinated Herbicides <sup>3</sup>	EPA 8151A	0.5 - 5.0 ug/L
Carbamate/Urea Pesticides	EPA 8321 or EPA 632	1 - 10 ug/L

<sup>1</sup>For constituents not detected.

<sup>2</sup>The method to analyze 1,2,3-Trichloropropane should be selected such that the reporting limit is below the expected concentrations, based on recent monitoring results.

<sup>3</sup>The reporting limit for MCPP and MCPA is 500 ug/L.

## 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.

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.

Semi-annual electronic reports, which conform to the requirements of the California Code of Regulations, Title 23, Division 3, Chapter 30, shall be submitted electronically over the internet to the State Water Board Geotracker database system by the **1st day of the second month following the end of respective calendar quarter (i.e., by 1 May and 1 November)**, until such time as the Executive Officer determines that the reports are no longer necessary.

Semi-annual paper copy reports shall be submitted to the Regional Water Board by the **1st day of the second month following the end of each respective calendar quarter (i.e., by 1 May and 1 November)** until such time as the Executive Officer determines that the reports are no longer necessary. 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. Field logs may be submitted on electronic media.
- (c) Groundwater contour maps for all groundwater zones, if applicable.
- (d) Figures for all groundwater zones with summaries of analytical results posted next to respective monitoring wells, if applicable.
- (e) Isocontour pollutant concentration maps for 1,2,3-trichloropropane in first and second water-bearing zones.
- (f) 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.

- (g) A table showing historical lateral and vertical (if applicable) flow directions and gradients.
- (h) Cumulative data tables containing the most recent five years of water quality analytical results and depth to groundwater. Complete cumulative data tables may be provided on electronic media in a spreadsheet format compatible with import to a database.
- (i) A copy of the laboratory analytical data reports, which may be provided on electronic media.
- (j) 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.
- (k) 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 Regional Water Board by **1 November** 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. In addition to the information requested for the Semi-Annual Report, the Annual Report shall contain the following:

- (a) Graphical time series summaries of groundwater elevations, nitrate, 1,2-dichloropropane and 1,2,3-trichloropropane from wells representative of a cross-section of the plume.
- (b) A discussion of the long-term trends in the concentrations of the pollutants in the groundwater monitoring wells.
- (c) 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.
- (d) An identification of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.
- (e) 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 Regional Water Board. The Discharger shall implement the above monitoring program as of the date of the Order.

Ordered by:

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PAMELA C. CREEDON, Executive Officer

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15 August 2008

(Date)

