

California Regional Water Quality Control Board  
North Coast Region

MONITORING AND REPORTING PROGRAM  
ORDER NO. R1-2010-0093  
(Replaces Order No. R1-2010-0007)  
FOR IN-SITU GROUNDWATER TREATMENT

PAGE PROPERTY  
3920 CANYON ROAD  
WILLITS, CALIFORNIA

Mendocino County

This Monitoring and Reporting Program is issued pursuant to California Water Code (CWC) Section 13267(b).

The groundwater monitoring program consists of sampling a total of 22 wells identified as injection area A-zone wells PPP-01, PPMW-26, PPMW-27, PPMW-28, and B-Zone well PPMW-1; performance A-zone wells PPP-03R, PPP-05, PPMW-18, PPMW-20, PPMW-22, PPMW-29, and B-zone Performance well PPMW-2R, PPMW-17, PPMW-19, PPMW-30, PPMW-35, PPMW-36, PPLF-9A, PPLF-10, and PPLF-11; and Contingency A-zone well PPMW-31, and B-Zone PPMW-32.

The injection area wells are located within the injection areas, the performance wells are located outside the injection areas and downgradient of the injection areas, and the contingency monitoring wells are located at the toe of the former landfill and between the injection areas and Darby Creek. The wells and injection areas are depicted on Figures 1 and 2.

All groundwater monitoring wells shall be sampled for the constituents indicated on Table 1, attached to this Monitoring and Reporting Program.

The depth to groundwater shall be determined to at least 0.01 foot increments in all groundwater monitoring wells prior to injection, monthly during the injection, and immediately prior to all sampling events.

All laboratory analyses must be performed by a laboratory certified for those analyses by the State of California Department of Health Services. Analytical methods for sample analyses shall achieve practical quantification reporting limits that are adequate for evaluating regulatory action levels for each constituent.

### **Contingency Plan and Actions**

The injection of the reducing agents may result in temporary increases of sulfate, and temporarily mobilize naturally-occurring arsenic, antimony, and manganese. Groundwater monitoring of contingency plan wells is required quarterly for the first year of IRA implementation, as specified in Table 1.

There is an existing groundwater extraction system at the toe of the landfill where groundwater is captured and treated at the top of the landfill to below detectable levels of hexavalent chromium. The contingency plan consists of adding existing groundwater monitoring wells to the existing extraction system, and could include, but is not limited to, monitoring wells PPMW-3R, PPMW-31, and PPMW-32.

The discharger shall provide verbal notification within 48 hours, and submit a letter notifying the Executive Officer within 5 working days of the receipt of the results from the laboratory, of any increasing trends and/or exceedences of water quality objectives.

If warranted, additional groundwater extraction shall be conducted at the contingent monitoring wells, the extraction trench, or other existing wells as directed by the Executive Officer. The discharger shall install additional extraction wells on the Site as directed by the Executive Officer to control off-site migration.

### **Darby Creek Sampling**

Baseline sampling of the constituents identified on Table 1 have been conducted in Darby Creek, and monthly sampling for hexavalent chromium is required under a separate Monitoring and Reporting Program. Sampling for dissolved manganese, arsenic and antimony, and sulfate shall be sampled in Darby Creek if increasing concentrations above baseline conditions are found. Sampling for redox potential, pH, dissolved oxygen, temperature, and conductivity shall be monitored the first month following injection and quarterly thereafter.

### **REPORTING**

The results of the first post-injection sampling events shall be submitted within 45 days following the sampling event. Quarterly sampling data is due in the semiannual monitoring reports on April 15 and October 15. The monitoring report shall summarize all monitoring data collected for the in-situ treatment, and include signed laboratory reports and field logs with instrument calibration records and measurements. The results from all subsequent sampling events will be reported in conjunction with the groundwater and surface water monitoring reports required under the Regional Water Board's Monitoring and Reporting Program No. R1-2009-0124.

Verbal reporting to Regional Water Board staff shall be provided within 48 hours of receipt of sampling data that triggers the Contingency Actions.

Monitoring data and reports shall also be submitted electronically to the State Water Resources Control Board's Geographic Environmental Information Management System database (GeoTracker) as required by Title 23, Division 3, Chapter 30, Article 2, Sections 3890-3895 of the California Code of Regulations).

Ordered by \_\_\_\_\_

Catherine Kuhlman  
Executive Officer

November \_\_\_\_, 2010

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**TABLE 1**  
**REVISED IRA MONITORING AND SAMPLING PLAN**  
Addendum to IRA Work Plan for Hexavalent Chromium  
Page Property  
Willits, California

Analyte	Analytical Method	Target Reporting Limit	Injection Area Monitoring Well <sup>1</sup>	Performance and Contingency Monitoring Well Locations <sup>2,3</sup>	Darby Creek Contingency Monitoring Locations <sup>4</sup>
Hexavalent Chromium	EPA 7199/7196 <sup>5</sup>	0.001 / 0.01 mg/L	First month following injection, quarterly for the first year of IRA implementation.	Quarterly for the first year of IRA implementation.	Quarterly for the first year of IRA implementation.
Dissolved Manganese, Arsenic and Antimony	EPA 6010B/6020	Mn: 0.02 mg/L As: 0.005 mg/L Sb: 0.002 mg/L	First month following injection, quarterly for the first year of IRA implementation.	Contingent quarterly for the first year of IRA implementation. <sup>6</sup>	Contingent monthly for arsenic for the first year of IRA implementation. <sup>7</sup>
Dissolved Organic Carbon (DOC)	SM 5310B	1 mg/L	First month following injection, quarterly for the first year of IRA implementation.	Not tested.	Not tested.
Alkalinity	SM 2320B	2 mg/L	First month following injection, quarterly for the first year of IRA implementation.	Not tested.	Not tested.
Sulfate	EPA 300.0	5 mg/L	First month following injection, quarterly for the first year of IRA implementation.	Contingent quarterly for the first year of IRA implementation. <sup>6</sup>	Contingent monthly for the first year of IRA implementation. <sup>7</sup>
Redox Potential, pH, DO, Temperature, and Conductivity	Field Measurement	NA	First month following injection, quarterly for the first year of IRA implementation.	Quarterly for the first year of IRA implementation.	Quarterly for the first year of IRA implementation.

Notes:

1 = Injection area monitoring wells include: PPP-01, PPMW-01, -26, -27, -28.

2 = Performance monitoring wells include: PPP-3R, -5, PPMW -18, -20, -22, -29, -2R, -17, -19, -30, -35, -36, PPLF-9A, -10, and -11.

3 = Contingency monitoring wells include: PPMW -31 and -32.

4 = Darby Creek monitoring locations include: PPSW -1, -2, -3, -5, and -6R.

5 = Low level (7199) analyses to be conducted when concentrations expected to be below 0.030 mg/L; otherwise standard method (7196A) will be utilized.

6 = Contingent sampling commences if increasing trends of sulfate and/or dissolved metals above baseline and MCLs are observed in the injection area wells.

7 = Contingent sampling commences if increasing trends of sulfate and/or arsenic above baseline and MCLs are observed in contingency wells.

mg/L = milligrams per liter

µg/L = micrograms per liter