

California Regional Water Quality Control Board
North Coast Region

MONITORING AND REPORTING PROGRAM
ORDER NO. R1-2010-0004
January 14, 2010

FOR IN-SITU GROUNDWATER TREATMENT

WILLITS ENVIRONMENTAL REMEDIATION TRUST
934 SOUTH MAIN STREET
WILLITS, CALIFORNIA

Mendocino County

VOC Injection area: The groundwater monitoring program consists of sampling a total of 18 A-zone wells identified as primary performance wells EM-01, W8A, W14A, GMX-3A, W9A, GMX1A, and TW7; secondary performance wells GMX-2A and GMX-7A, W17A, and GMX-8A; contingency wells IMW-14, IMW-9, IMW-13, W17A, GMX-8A, and GMX-7A; and downgradient contingency wells located on the Unocal Service Station property UMW-8, UMW-7, UMW-4, and W41A. W17A and GMX-8A are both secondary performance and contingency wells.

The primary performance wells are located within the injection areas, the secondary performance wells are located downgradient and within the injection areas, the contingency monitoring wells are located near the property boundary, and the downgradient contingency monitoring wells are located off-site to evaluate the effectiveness of the contingency action pumping wells. The wells and injection areas are depicted on Figure 1.

All groundwater monitoring wells shall be sampled for the following constituents using the methods provided below for the baseline sampling. After baseline sampling, the wells shall be sampled in accordance with the following schedule:

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Constituent	EPA Analytical Method	Primary Performance Wells	Secondary Performance Wells	Contingency Monitoring Wells
VOCs	Method 8260(B)	Quarterly	Quarterly	Quarterly
Dissolved Iron, Manganese, Arsenic and Antimony	Method 6010/6020B	Quarterly	Quarterly	Quarterly
Alkalinity	Method 310.1	Quarterly		
Nitrate	Method 300.0	Quarterly		
Sulfate	Method 300.0	Quarterly		
Dissolved Organic Carbon	Method 415.1	Quarterly		

Constituent	EPA Analytical Method	Primary Performance Wells	Secondary Performance Wells	Contingency Monitoring Wells
Redox Potential, pH, Dissolved Oxygen, Temperature, Conductivity	Field Measurements	Quarterly	Quarterly	Quarterly

Hexavalent Chromium Injection: The groundwater monitoring program consists of sampling a total of 19 A-zone and B-zone wells identified as primary performance wells IMW-7, W37A, TW-6, EW-1B, TW-2, TW-4, W21A, W24A, GMX-2A, W31B; secondary performance wells W14A, W9A, GMX-3A, and W8B; and contingency A-zone and B-zone wells W47B, W17B, IMW-13, and GMX-7A (Figure 2). Monitoring shall be conducted in accordance with the following table.

Constituent	EPA Analytical Method	Primary Performance Wells	Secondary Performance Wells	Contingency Monitoring Wells
VOCs	Method 8260(B)	Quarterly	Semiannual	Annual
Hexavalent Chromium	Method 7196 or 7199	Quarterly for TW-1, TW-6, W37A, EW-1B	--	--
Dissolved Chromium, Iron, Manganese, Arsenic and Antimony	Method 6010/6020B	Quarterly	Annual	Annual
Alkalinity	Method 310.1	Quarterly		
Nitrate	Method 300.0	Quarterly		
Sulfate	Method 300.0	Quarterly		
Dissolved Organic Carbon	Method 415.1	Quarterly		
Redox Potential, pH, Dissolved Oxygen, Temperature, Conductivity	Field Measurements	Quarterly	Annual	Annual

VOC Injection Area and Hexavalent Chromium Injection Areas

The depth to groundwater shall be determined to at least 0.01 foot increments in all groundwater monitoring wells prior to injection.

The depth to groundwater shall be determined to at least 0.01 foot increments in all wells during the injection, and during 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

The degradation of VOCs may result in temporary increases of certain VOC breakdown compounds (e.g., vinyl chloride). Further, these injections may temporarily mobilize naturally-occurring iron, manganese, arsenic and/or antimony in groundwater at the Site. The contingency plan of pumping and treating groundwater at the property boundary was initiated on June 1, 2009, just after the injection program authorized under WDRs Order No. R1-2009-0001, to provide for hydraulic control of pollutants from migrating off-site. If, due to the IRA, verified increases of trigger constituents are observed in contingency wells, pumping rates and adding additional extraction wells to the system will be evaluated to control the migration of contaminated groundwater off the Site.

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

Contingency Actions

If an increase in VOCs or metals is confirmed at any contingency well, groundwater extraction rates will be evaluated and additional groundwater monitoring wells may be placed on-line to control groundwater migration in the subject area. Based on an evaluation of the current capture zones associated with contingency extraction wells, these existing wells effectively control the shallow groundwater downgradient of the proposed IRA along the property boundary (see Figure 2). If warranted, additional groundwater pumping rates for extraction wells will be conducted at the contingent monitoring wells 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.

REPORTING

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

The results of all sampling events shall be submitted within 45 days following the sampling event. 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.

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

January 14, 2010