MONITORING AND REPORTING PROGRAM NO. R1-2003-0112
(Revised December 18, 2003)
FOR

SHELL OIL COMPANY,
HUMBOLDT PETROLEUM, INC.,
ROBERT H. WOTHERSPOON, JOY A. WOTHERSPOON, AND JAMES SEILER
WOTHERSPOON & WOTHERSPOON

AND

ROBERT E. IMPERIALE, JR.
400 EIGHTH STREET
FORTUNA, CALIFORNIA

Humboldt County

Underground Storage Tank Area Corrective Action
Ozone-Oxygen Sparging Treatment System

Monitoring

1. The depth to groundwater shall be determined prior to each sampling event to at least 0.01-foot increments in monitoring wells (MWs) MW-15, MW-16, MW-23 through MW-30, and MW-33 through 44.

2. Monitoring wells MW-15, MW-16, MW-23 through MW-30, and MW-33 through 44 shall be sampled before, during, and after the 12 hour pilot test, and monthly thereafter for a period of three months. Analyses shall be performed for parameters listed in items a through d below:

   (a) Indicators and nutrients including: oxidation reduction potential, pH, conductivity, temperature, dissolved oxygen, carbon dioxide, total organic carbon, phosphorus, and nitrogen;

   (b) Site contaminants of concern including: total petroleum hydrocarbons as gasoline (TPHg), total petroleum hydrocarbons as diesel (TPHd), total petroleum hydrocarbons as motor oil (TPHmo), benzene, toluene, ethylbenzene, and xylenes (BTEX);

   (c) Potential by-products including: trihalomethanes, acetaldehyde, formaldehyde, bromate and dissolved chromium, and dissolved lead;

   (d) Soil-gas and air monitoring including: TPHg, BTEX, carbon dioxide, oxygen as well as lower explosive limits (LEL) in onsite buildings and subsurface utility areas.

3. Under stable treatment system operating conditions, the groundwater measurements and sample analyses identified in items 1 and 2 above shall be collected quarterly. Post treatment monitoring shall continue quarterly for a minimum of one year after treatment system is shut down.

Reporting

1. A scaled groundwater elevation contour map shall be submitted for each set of measurements depicting the facility, groundwater flow pattern, gradient, and the location of the wells measured.

2. The results of each elevation shall be reported in tabular form indicating the surveyed elevations of each well reference point, depth to groundwater from reference point, and the actual groundwater elevation. In addition to the analytical results for parameters listed in items a through d above, the volume of water discharged to the recharge trench during the prior reporting period shall be submitted in tabular form. Data tables shall include all current and historic data for the areas begin evaluated.

3. Each monthly monitoring report including groundwater gradient maps and data tables shall be submitted to the Regional Water Board within three weeks of data/sample collection. Pilot test monitoring results shall be submitted in conjunction with the first monthly monitoring report.

4. Quarterly monitoring reports, including groundwater gradient maps and data tables, shall be submitted to this office in accordance with the following schedule:

Reporting Period	Due Date
May, June, July	August 15
August, September, October	November 15
November, December, January,	February 15
February, March, April,	May 15

5. All monitoring reports submitted to the Regional Water Board staff shall include a qualitative analysis of the data presented, changes in the data, and recommendations for the following monitoring period. Each fourth quarter monitoring report shall also include correlation to seasonal groundwater variations, an evaluation of plume migratory status, and a graphic presentation of data for each parameter of significance.

6. Monitoring data 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 16, Article 12 of the California Code of Regulations (i.e., AB2886 electronic reporting requirements).

Ordered by
for Catherine E. Kuhlman
Executive Officer

December 18, 2003

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