

California Regional Water Quality Control Board  
North Coast Region

**MONITORING AND REPORTING PROGRAM NO. R1-2006-0012**

FOR

ConocoPhillips

1300 Farmers Lane  
Santa Rosa, California  
Sonoma County

**GROUNDWATER MONITORING**

1. Prior to purging monitoring wells for sampling, each well shall be checked for the presence or absence of free product. If free product is present, the thickness shall be measured to the nearest 0.01-foot.
2. Prior to purging, the depth to groundwater shall be measured to the nearest 0.01-foot. The groundwater elevations for each monitoring event shall be reported in tabular form indicating the top of casing elevation, the groundwater elevation referenced to mean sea level and the actual depth to groundwater.
3. Prior to purging, monitoring wells MW-3, MW-4, MW-6, MW- 7, MW-8S, and MW-9S shall be tested at the depth of the well screen for the following parameters: oxidation-reduction potential, pH, temperature, and dissolved oxygen.
4. Monitoring wells MW-3, MW-4, MW-6, MW- 7, MW-8S, and MW-9S shall be sampled and analyzed within three months prior to initiating ozone injections into the subsurface, one month (plus or minus seven days) following the first ozone injections and quarterly thereafter for the following constituents of concern:
  - a. Dissolved metals: hexavalent chromium, uranium, vanadium, selenium, lead, and molybdenum.
  - b. Inorganic constituents: bromide and bromate;
  - c. Field-measured water quality parameters as listed in #3 above.
5. Monitoring wells MW-4, MW-6, MW-7, MW-7D, MW-8D, MW-8S, MW-9D, MW-9S, MW-11, and MW-12 shall be sampled and analyzed quarterly for the following constituents:
  - a. Total Petroleum Hydrocarbons as gasoline
  - b. Petroleum constituents: benzene, toluene, ethylbenzene, xylenes
  - c. Fuel oxygenates: methyl tertiary butyl ether (MTBE), diisopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), and tert-amyl methyl ether (TAME)
6. Monitoring wells MW-1, MW-2, MW-3, MW-5 and MW-10 shall be sampled annually during the 1<sup>st</sup> quarter monitoring event and analyzed for fuel oxygenates.

7. Chemical analyses must be performed by a laboratory certified by the State of California Department of Health Services.
8. Analytical methods for sample analyses shall achieve practical quantification reporting limits that are adequate for evaluating regulatory action levels for each constituent. A table of water quality objectives and common laboratory reporting limits for the constituents of concern is incorporated in this Order as Appendix A.

### REPORTING

9. Groundwater monitoring reports shall be submitted to the North Coast Regional Water Quality Control Board at 5550 Skylane Boulevard, Suite A, Santa Rosa, California, 95403 according to the following schedule:

First Quarter	=	January, February, March	Report Due April 30 <sup>th</sup>
Second Quarter	=	April, May, June	Report Due July 31 <sup>st</sup>
Third Quarter	=	July, August, September	Report Due October 31 <sup>st</sup>
Fourth Quarter	=	October, November, December	Report Due January 30 <sup>th</sup>

10. Groundwater 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).
11. Groundwater monitoring reports shall include the following elements:
  - a. A narrative description of the work conducted;
  - b. A groundwater elevation map for each sampling event;
  - c. A contaminant distribution map showing isograms for constituents of concern detected in groundwater during the monitoring event;
  - d. Analytical data tables including both current and historical analytical results;
  - e. Copies of the well purging and sampling field logs; chain of custody documents; and signed laboratory reports including quality control data and explanations of analytical anomalies, if any. These supporting documents may be included as appendices to the report
  - f. A soil vapor extraction system operational summary: The summary shall include a table summarizing the operational data, including: influent and effluent analytical results, soil vapor volume extracted, and cumulative contaminant mass removed. Copies of monitoring reports prepared for compliance with the Bay Area Air Quality Management District permit shall also be submitted to the Regional Water Board.

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

Catherine E. Kuhlman  
Executive Officer

February 8, 2006

## APPENDIX A

### Constituents of Concern

#### Including Petroleum and Redox Sensitive Chemicals

CHEMICAL	Common Minimum Detection Level	WATER QUALITY OBJECTIVE <sup>1</sup>	WATER QUALITY OBJECTIVE CITATION
Bromate	5 µg/l	10 µg/l	US EPA Primary MCL
Bromide <sup>2</sup>	100 µg/l	2300 µg/l	Suggested No Adverse Response Levels
Ethylene dibromide (Dibromoethane)	0.5 µg/l	0.05 µg/l	US EPA Primary MCL
1,2-Dichloroethane	0.5 µg/l	0.5 µg/l	For protection of domestic supply, Title 22 Section 64444.5
Petroleum Hydrocarbons as gasoline	50 µg/l	< 50 µg/l	Taste and odor threshold is 5 ug/l, but the common detection limit is 50 µg/l
Petroleum Hydrocarbons as diesel	50 µg/l	100 µg/l	Taste and Odor Threshold and 1980 U.S. EPA Suggested-No-Adverse-Response Level.
Petroleum Hydrocarbons as motor oil	50 µg/l	< 50.0 µg/l	Anti-Degradation Policy and SWRCB Resolution No. 68-16
Benzene	0.5 µg/l	0.7 µg/l	MCL is 1.0 ug/l; USEPA Health Advisory for cancer risk is 0.7 µg/l
Toluene	0.5 µg/l	42 µg/l	USEPA taste and odor threshold,
Ethyl Benzene	0.5 µg/l	29 µg/l	USEPA taste and odor threshold,
Xylenes	0.5µg/l	17 µg/l	USEPA taste and odor threshold,
Methyl tertiary butyl ether (MTBE)	0.5 µg/l	5 µg/l	USEPA taste and odor threshold,
Uranium (U)	1 µg/l	0.5 µg/l	California Public Health Goal = 0.5 µg/l
Hexavalent Chromium (Cr)	5 µg/l	21 µg/l	USEPA IRIS Reference Dose (RfD) as a drinking water level
Lead (Pb)	0.5 µg/l	2 µg/l	California Public Health Goal
Molybdenum (Mo)	3 µg/l	35 µg/l	USEPA IRIS Reference Dose (RfD) as a drinking water level
Selenium (Se)	5 µg/l	35 µg/l	USEPA IRIS Reference Dose (RfD) as a drinking water level
Vanadium (V)	50 µg/l	50 µg/l	California State Action Levels (Department of Health Services)

<sup>1</sup> The California Water Code, and regulations and policies developed thereunder require cleanup and abatement of discharges and threatened discharges of waste to the extent feasible. Cleanup and abatement activities are to provide attainment of background levels of water quality or the highest water quality that is reasonable if background levels of water quality cannot be restored. Alternative cleanup levels less stringent than background concentration shall be permitted only if the discharger demonstrates that: it is not feasible to attain background levels; the alternative cleanup levels are consistent with the maximum benefit to the people of the State; alternative cleanup levels will not unreasonably affect present and anticipated beneficial uses of such water; and they will not result in water quality lower than prescribed in the Basin Plan and Policies adopted by the State and Regional Water Boards.

<sup>2</sup> Bromide is a naturally occurring constituent analyzed to identify its presence as a potential precursor for the formation of bromate under oxidative conditions. A minimum detection level of 100 µg/l is required.

