

**STATE OF CALIFORNIA  
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LOS ANGELES REGION**

**RESOLUTION NO. R04-017**

**APPROVING THE INITIAL STUDY AND ADOPTING  
A MITIGATED NEGATIVE DECLARATION FOR  
CONOCOPHILLIPS COMPANY  
(76 STATION 0971)  
(OZONE INJECTION FOR GROUNDWATER CLEANUP)  
(FILE NO. I-10978)**

**WHEREAS, the California Regional Water Quality Control Board, Los Angeles Region (Regional Board) finds that:**

1. The ConocoPhillips Company (hereinafter Discharger) owns and operates a gasoline service station commonly known as 76 Station No. 0971 (Station) located at 427 North Crescent Drive, Beverly Hills, California. The Station is located at the intersection of North Crescent Drive and Santa Monica Boulevard at 118°23'59" latitude and 34°04'19" longitude. The Station has been in operation since the early 1960s. The surrounding land use is commercial.
2. On March 1, 2004, the Discharger filed a Report of Waste Discharge for injecting gaseous ozone into the shallow aquifer to remediate the contaminated groundwater at the site.
3. The Station maintains one 500-gallon waste-oil, one 10,000-gallon diesel, and two 12,000-gallon gasoline underground storage tanks (USTs) with associated dispensers and petroleum product. During the construction of a building on the adjacent property in April 1981, petroleum hydrocarbons were detected. Subsequently site characterization activities were conducted in 1981 at the Station. The site characterization activities included the installation of 26 monitoring wells located around the perimeter of the site, on the adjacent property, and in Crescent Drive and Brighton Way. Two to three inches of liquid phase hydrocarbons (LPH) were detected on monitoring wells located on the adjacent property. Groundwater pumping activities were conducted at the site for 22 days after the installation of the 26 wells. Approximately 3.104 million gallons of groundwater and 330 to 550 gallons of LPH were removed from the subsurface. In September 1988 four additional onsite-monitoring wells were installed. A maximum total petroleum hydrocarbon as gasoline (TPHg) concentration of 120 milligrams per kilogram (mg/Kg) was detected in the soil sample collected from Boring BC-2 at approximately 40 feet below ground (fbg). A maximum dissolved-phase TPHg concentration of 480 micrograms per liter (µg/L) was detected in the groundwater sample collected from monitoring well BC-2.
4. In December 1990, the waste oil UST was excavated and removed from the site. A maximum total recoverable petroleum hydrocarbon (TRPH) concentration of 28,000

September 14, 2004

mg/Kg was detected in the soil sample collected from the sidewall of the excavation at approximately eight fbg.

5. Since July 1993, additional assessment activities, including construction of monitoring wells MW-28 through MW-32, MW-8A through MW-10A, and MW-21A, hand-auger borings HA1 through HA9, and borings B-1 through B-7, were conducted at the site. The maximum hydrocarbon concentrations detected in soil samples were 2,600 mg/Kg of TPHg, 6,400 mg/Kg total petroleum hydrocarbons as diesel (TPHd), 3.6 mg/Kg of benzene, and 6.6 mg/Kg of methyl tertiary butyl ether (MTBE).
6. Groundwater samples collected from September 28, 1993 to March 19, 2004 indicated that the maximum hydrocarbon concentrations were 130,000 µg/L of TPHg (MW-1), 21,000 µg/L of TPHd (MW-2), 2,200 µg/L of benzene (MW-2), 390 µg/L of toluene (MW-28), 6,000 µg/L of ethyl-benzene (MW-2), 22,500 µg/L of xylenes (MW-2), 43,000 µg/L of MTBE (MW-10A), 840 µg/L of tertiary butyl alcohol (TBA) (MW-28).
7. The southeast rise of Santa Monica Mountains begins approximately 1.2 miles northwest of the site. The site is located at an elevation of approximately 255 feet above sea level and the local topography slopes gently to the southeast.
8. The major hydrogeologic units present beneath the site are the Exposition and Gage Aquifers. The Exposition Aquifer consists of as many as three sand and gravel layers separated in some areas by discontinuous clay and silt lenses. The Exposition Aquifer is believed to be present at a depth of approximately 80 fbg and is approximately 25 feet thick. Approximately 25 feet of relatively impermeable silts and clays separate the Gage Aquifer from the Exposition Aquifer. The Gage Aquifer is believed to be present at a depth of approximately 130 fbg and is approximately 75 feet thick. The depth to the shallow groundwater ranges from 37 to 44 fbg. The groundwater gradient is directed toward the southeast.
9. In May 2003, vapor extraction tests were conducted using vapor wells BC-1, MW-1A, MW-28, and OW-23A. The test results were used to assess the potential remedial alternatives for the site and to develop a remedial action plan (RAP). The Discharger submitted to the Regional Board a RAP dated October 15, 2003. In the RAP the Discharger proposed to use C-Sparge™ technology injecting gaseous ozone for remediation of dissolved-phase fuel constituents in groundwater and soil vapor extraction (SVE) to remediate hydrocarbons in soil. Seven C-Sparge™ injection wells (CS-1 through CS-7) were proposed to remediate hydrocarbon-impacted groundwater at the site. The RAP was conditionally approved by the Regional Board in a letter dated November 6, 2003. The ozone-injection technology was approved only on a pilot basis. If the pilot test is determined to be successful and a full-scale treatment system is proposed for the site cleanup, the Discharger is required to submit a final RAP to the Regional Board for review and approval by the Regional Board Executive Officer (Executive Officer). Upon approval of the final RAP, the monitoring and Reporting Program may be revised to incorporate the approved full-scale treatment plan.
10. The Discharger proposes to install and operate a C-Sparge™ system to remediate hydrocarbon-impacted groundwater at the site. The C-Sparge™ technology combines

low-flow [3 to 5 cubic feet per minute (cfm)] air sparging with ozonation to oxidize petroleum hydrocarbons into benign byproducts, carbon dioxide and water. Ozone is generated onsite using a control panel with a built-in compressor and ozone generator. Using perforated sparge points, microbubbles [10 to 50 micrometer (μm)] of encapsulated ozone are introduced below the water table, where the oxidation reactions take place. Seven C-Sparge™ injection wells will be installed in the vicinity of the gasoline USTs and eastern portion of the site. The C-Sparge™ injection wells will be located at approximately 60 fbg and will be screened from approximately 57.5 to 60 fbg. During sparging, no groundwater or vapors will be extracted. Sparging will be performed on a cycled basis.

11. Ozone will chemically react with hydrocarbons in the immediate vicinity of each injection point to form intermediate by-products of various smaller chain hydrocarbons and oxygenates. The following table shows the laboratory-isolated breakdown by-products that could be produced during the ozone oxidation process with the hydrocarbons:

Constituent	Breakdown Products
TPH	acetate, butyrate, formate, propionate
BTEX	Carboxylic acids
MTBE	TBA (tertiary butyl alcohol), TBF (tertiary butyl formate), formate, oxygen, hydrogen peroxide
ETBE	TBA, TBF, acetate, oxygen, hydrogen peroxide
TBA	Formaldehyde, acetate, carbon dioxide, water

Finally, the residual oxygen formed from the initial ozone reduction reaction encourages bioremediation which consumes the listed by-products and converts them to carbon dioxide and water, thereby completing process.

12. On June 13, 1994, the Regional Board adopted a revised *Water Quality Control Plan for Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) which was amended on January 27, 1997 by Regional Board Resolution No. 97-02. The Basin Plan (i) designates beneficial uses for surface waters and groundwater, (ii) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the State anti-degradation policy (*Statement of Policy with Respect to Maintaining High Quality Waters in California*, State Water Resources Control Board (State Board) Resolution No. 68-16, October 28, 1968), and (iii) describes implementation programs to protect all waters in the Region. In addition, the Basin Plan incorporates by reference applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations. The Regional Board prepared the 1994 update of the Basin Plan to be consistent with previously adopted State and Regional Board plans and policies. This project implements the plans, policies and provisions of the Regional Board's Basin Plan.

13. The Basin Plan designates beneficial uses and water quality objectives for groundwater within the Hollywood Basin as follows:

Existing: municipal and domestic supply; industrial service supply; industrial process supply, and agricultural supply.

14. The requirements contained in this Order are based on the *Basin Plan*, and, as they are met, will be in conformance with the goals of the aforementioned water quality control plans and will protect and maintain existing beneficial uses of the groundwater.
15. The permitted discharge is consistent with the anti-degradation provisions of State Board Resolution No. 68-16 (Anti-degradation Policy). The discharge may result in some localized temporary exceedance of background concentrations of dissolved oxygen, dissolved ferrous iron, total dissolved solids, sulfate, chloride, and boron. However, any parameter change resulting from the discharge:
  - a. will be consistent with maximum benefit to the people of the State,
  - b. will not unreasonably affect present and anticipated beneficial uses of such waters, and
  - c. will not result in water quality less than that prescribed in the Water Quality Control Plan for groundwater within the Hollywood Basin of the Los Angeles Coastal Plain.
16. This Regional Board has assumed lead-agency role for this project under the California Environmental Quality Act (CEQA) (Public Resources Code section 21000 et seq.) and has conducted an Initial Study in accordance with section 15063 of the "State CEQA Guidelines" at California Code of Regulations, title 14, section 15000 et seq. Based upon the Initial Study, Regional Board staff prepared a Mitigated Negative Declaration that the project, as mitigated, will not have a significant adverse effect on the environment.
17. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for this discharge and has provided them with an opportunity to submit their written views and recommendations. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge and to the tentative requirements.
18. Copies of the Initial Study, the proposed Mitigated Negative Declaration, and Tentative Waste Discharge Requirements were transmitted to all agencies and persons known to be interested in the matter.
19. All comments received have been addressed by Regional Board staff. The Regional Board considered all testimony and evidence at a public hearing held on November 4, 2004, and good cause was found to approve the Initial Study and adopt a Mitigated Negative Declaration.

**THEREFORE BE IT RESOLVED BY THE REGIONAL BOARD THAT:**

1. The Regional Board hereby approves the Environmental Checklist and adopts the Mitigated Negative Declaration for the ConocoPhillips Company, 76 Station No. 0971, Beverly Hills, project known as Injection of Gaseous Ozone for the Remediation of Groundwater.
2. A copy of this Resolution shall be forwarded to the State Water Resources Control Board.
3. A copy of this Resolution shall be forwarded to all interested parties.
4. The discharge of ozone into the shallow aquifer shall conform to all the requirements, conditions, and provisions set forth in A. *"Discharge Specifications,"* B. *"Discharge Prohibitions,"* and C. *"Provisions"* of ORDER NO. R4-2004-0178.

**CERTIFICATION**

I, Jonathan Bishop, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Los Angeles Region on December 13, 2004.

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JONATHAN S. BISHOP  
Executive Officer

December 13, 2004  
Date