



# California Regional Water Quality Control Board

## Los Angeles Region



Alan C. Lloyd, Ph.D.  
Agency Secretary

Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful

320 W. 4th Street, Suite 200, Los Angeles, California 90013  
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: <http://www.waterboards.ca.gov/losangeles>

Arnold Schwarzenegger  
Governor

July 13, 2005

Ms. Shari London  
ConocoPhillips Company  
3611 South Harbor Boulevard, Suite 200  
Santa Ana, CA 92704

**GENERAL WASTE DISCHARGE REQUIREMENTS FOR OZONE INJECTION AT PETROLEUM HYDROCARBON FUEL AND/OR VOLATILE ORGANIC COMPOUND IMPACTED SITES – 76 SERVICE STATION NO. 4454, 7751 BEVERLY BOULEVARD, LOS ANGELES, CALIFORNIA (FILE NO. 900360198; CI NO. 8922; ORDER NO. R4-2005-0030; SERIES NO. 008)**

Dear Ms. London:

We have completed our review of your application for coverage under General Waste Discharge Requirements for the ozone injection at the site referenced above in Los Angeles, California.

ConocoPhillips Company (hereinafter Discharger) is conducting the groundwater cleanup activities at a facility commonly known as 76 Service Station No. 4454 (Site) located at 7751 Beverly Boulevard in Los Angeles, California (Latitude: 34° 04' 34", Longitude: -118° 21' 27"). The Site is occupied by an operating 76 Service Station. Service station facilities include two 10,000-gallon gasoline underground gasoline storage tanks (USTs), one 10,000-gallon diesel UST, five fuel dispenser islands, and a station kiosk. The site has been developed as a service station since 1957. Surrounding properties are developed with commercial and residential uses.

Between April 1997 and June 2004, five on-site groundwater monitoring wells (MW-1, MW-2, MW-8, MW-9 and B-2R) and five off-site groundwater monitoring wells (MW-3 through MW-7) were installed and cone penetration testing was conducted at four locations (CPT-1 through CPT-4). The maximum total purgeable petroleum hydrocarbon (TPPH) concentration of 140 mg/kg was detected in soil boring MW-9 at 10.0 feet below ground surface (bgs). The maximum benzene, methyl tertiary butyl ether (MTBE), and tertiary butyl alcohol (TBA) concentrations of 0.0079 mg/kg (benzene), 44 mg/kg (MTBE), and 17 mg/kg (TBA) were detected in soil boring B-2R at approximately 19.5 feet, 11.5 feet, and 15.5 feet bgs, respectively.

In June 2002, a High Vacuum Dual Phase Extraction (HVDPE) pilot test was conducted. The results of the test indicated that HVDPE was not a viable remedial option due to the insufficient amount of mass present in the vadose zone.

In June 2004, four C-Sparge wells (CS-1 through CS-4) were installed. The maximum TPPH and MTBE concentrations of 67 mg/kg (TPPH) and 16 mg/kg (MTBE), respectively, were detected in soil boring CS-4 at approximately 12.5 feet bgs. The maximum benzene concentration of 0.68

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mg/kg was detected in soil boring CS-1 at approximately 10.5 feet bgs. The maximum TBA concentration of 14 mg/kg was detected in soil boring CS-2 at approximately 14.0 feet bgs.

Quarterly groundwater monitoring began in May 1994 (Second Quarter 1994) and continued through January 2005 (First Quarter 2005). Historically, the maximum TPH<sub>G</sub>, benzene, MTBE, and TBA concentrations were 260,000 µg/L (TPH<sub>G</sub>), 760 µg/L (benzene), 260,000 µg/L (MTBE), and 170,000 µg/L (TBA), respectively. Currently, the maximum TPPH, benzene, MTBE, and TBA concentrations are 16,000 µg/L (TPPH), 160 µg/L (benzene), 40,000 µg/L (MTBE), and 89,000 µg/L (TBA), respectively

On December 20, 2002, a "Remedial Action Plan" (RAP) dated December 19, 2002, was submitted to the Regional Board for review. The RAP proposed to implement ozone sparging using the C-Sparge system. The RAP proposed to introduce the ozone to the subsurface by installing four C-Sparge wells (CS-1 through CS-4). In a letter dated June 5, 2003, the Regional Board conditionally approved the RAP and authorized the Discharger to implement ozone sparging for a three-month test period.

In June 2004, four dual-nested C-Sparge wells (CS-1A/B through CS-4A/B) were installed. The shallow sparge points (A - Interval) are screened between 18.0 feet and 20.0 feet bgs. The deeper sparge points (B - Interval) are screened between 28.0 feet and 30.0 feet bgs.

The C-Sparge system generates approximately 3 to 6 standard cubic feet per minute (scfm) of an ozone/air mixture at a maximum pressure of approximately 60 pounds per square inch (psi). Ozone is generated within a corona discharge tube, which ionizes di-atomic oxygen (O<sub>2</sub>) produced by an oxygen generator into ozone (O<sub>3</sub>). The concentration of ozone in the system's output flow is adjustable from 100 to 300 parts per million by volume (ppmv) based on the concentration of O<sub>2</sub> input. When the ozone/air mixture is sparged through the sparge well points set in the aquifer; the ozone oxidizes petroleum hydrocarbons in-situ.

Regional Board staff has determined that the proposed discharge meets the conditions specified in Order No. R4-2005-0030, "*Revised General Waste Discharge Requirements for Groundwater Remediation at Petroleum Hydrocarbon Fuel and/or Volatile Organic Compound Impacted Sites,*" adopted by this Regional Board on May 5, 2005.

Enclosed are your Waste Discharge Requirements, consisting of Regional Board Order No. R4-2005-0030 (Series No. 008) and Monitoring and Reporting Program No. CI-8922 and Standard Provisions.

The Monitoring and Reporting Program requires you to implement the monitoring program on the effective date of this enrollment (June 30, 2005) under Regional Board Order No. R4-2005-0030. All monitoring reports shall be sent to the Regional Board, ATTN: Information Technology Unit.

When submitting monitoring or technical reports to the Regional Board per these requirements, please include a reference to Compliance File No. CI-8922, which will assure that the reports

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are directed to the appropriate file and staff. Do not combine other reports with your monitoring reports. Submit each type of report as a separate document.

We are sending a copy of Order No. R4-2005-0030 only to the applicant. A copy of the Order will be furnished to anyone who requests it.

**If you have any questions concerning this matter, please call Mr. Rodney Nelson at (213) 620-6119.**

Sincerely,

**DAVID BACHAROWSKI SIGNED FOR**

Jonathan S. Bishop  
Executive Officer

Enclosures:    1. Board Order No. R4-2005-0030  
                  2. Monitoring and Reporting Program No. CI-8922

cc:    Ms. Yvonne Shanks, State Water Resources Control Board, Underground Storage  
          Tank Cleanup Fund  
      Mr. Daniel P. Piroton, Los Angeles Regional Water Quality Control Board,  
          Underground Storage Tank Program, Los Angeles Coastal Unit  
      Mr. Jay Badiei, Delta Environmental Consultants, Inc.

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