



# California Regional Water Quality Control Board

## Los Angeles Region



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

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October 13, 2006

Ms. Kateri Luka  
Environmental Business Manager  
Atlantic Richfield Company  
1801 E. Sepulveda Blvd  
P.O. Box 6210  
Carson, CA 90749-6210

**GENERAL WASTE DISCHARGE REQUIREMENTS FOR HYDROGEN PEROXIDE SOLUTION AND OZONE INJECTION AT PETROLEUM HYDROCARBON FUEL AND/OR VOLATILE ORGANIC COMPOUND IMPACTED SITES – BURNETT STREET VALVE BOX, TERMINAL ISLAND FREEWAY, 2050 BURNETT STREET, LONG BEACH, CALIFORNIA. (SLIC NO. 696, SITE ID 1848900, ORDER NO. R4-2005-0030, CI-9086, SERIES NUMBER NO. 058)**

Dear Ms. Luka:

We have completed our review of your application for enrollment under the General Waste Discharge Requirements for the injection of hydrogen peroxide solution and ozone at the site referenced above in Long Beach, California.

Atlantic Richfield Company (hereinafter Discharger) is conducting the soil and groundwater cleanup activities at a facility commonly known as Arco Burnett Street Valve Box Facility site (Site) located at Terminal Island Freeway and 2050 Burnett Street, Long Beach, California. The Burnett Street Valve Box facility is located on the west side of State Highway 103 (Terminal Island Freeway) approximately ¼ mile south of Willow Street in Long Beach, California, centered at Latitude: 33° 48' 1.55", Longitude: 118° 13' 20.53". The subsurface soil and groundwater at the site were impacted by a pipeline release of an estimated quantity of 160,000 gallons of gasoline in 1992. Contaminants of concern (COCs) in groundwater at the site include benzene, toluene, ethyl-benzene, and xylenes (BTEX), and methyl tertiary-butyl ether (MTBE).

Despite progress in initial liquid petroleum hydrocarbons recovery using skimmer pumps, enhanced fluid recovery (EFR), and soil vapor extraction (SVE) at the site, significant petroleum impact remains within a smear zone near the water table. Based on observations during the preliminary assessment, Discharger proposed a remediation system to supplement the SVE system to target the impact within the source area smear zone. This source area remediation system consists of an air sparge unit integrated with an ozone sparge/peroxide injection unit. It will utilize the existing SVE/catalytic oxidizer unit to facilitate the collection and treatment of air/ozone sparge off-gases. The objective of the chosen remedial approach is to target petroleum impact within the source area while attempting to curtail further groundwater impact and migration. The Work Plan for the Source Area Supplemental Remediation (Work Plan), dated September 27, 2005, was approved by this Regional Board on October 26, 2005.

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Discharger proposed to use ozone with peroxide injection as a remediation technology based on its ability to effectively target high petroleum concentrations within the smear zone. Both ozone and hydrogen peroxide are authorized remediation compounds per Regional Board Order No. R4-2005-0030.

The proposed air/ozone sparging system consists of twelve (12) injection wells, of which eight (8) of these wells would be configured for ozone treatment. As treatment proceeds, the manifold configuration can be changed to allow ozone treatment of different injection wells. Ozone is injected into one well at a time while the remaining wells undergo air sparging. Ozone treatment is cycled among the eight (8) injection wells configured within both the ozone and air distribution manifolds. Hydrogen peroxide injection will accompany ozone sparging in the initial phase of ozone treatment. A separate peroxide skid contains the peroxide injection pump adjacent to the ozone sparge unit.

The ozone injection rate proposed for use at the site will be less than two pounds of ozone per day at an estimated maximum flow of 15 standard cubic feet per minute (SCFM) of ozone/air mixture to distribution manifold. The peroxide injection pump has a maximum capacity of approximately 12 gallons per day. The proposed mode of operation will be ozone/peroxide treatment at a single injection well for approximately 3 hours at approximately 4 SCFM of ozone/air mixture and 0.125 gallon of 30% hydrogen peroxide per hour. A total of 900 gallons of 25% by weight hydrogen peroxide is anticipated to be used during the course of this project. The ozone/peroxide treatment would cycle among the injection wells with air sparge treatment occurring on the remaining wells. Ozone injection is anticipated to occur for approximately 9 months. The use of peroxide in conjunction with ozone injection is anticipated to occur during the first 3 to 4 months of operation.

Any potential adverse water quality impacts that may result are expected to be localized, of short-term duration, and are not expected to impact any existing or prospective uses of groundwater. Groundwater quality shall be monitored to verify no long-term adverse impact to water quality, in accordance to the attached Monitoring and Reporting Program.

Regional Board staff have determined that the proposed discharge meets the conditions specified in Order No. R4-2005-0030, "*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. 058) and Monitoring and Reporting Program No. CI-9086 and Standard Provisions.

The Monitoring and Reporting Program requires you to implement the monitoring program on the effective date of this enrollment (October 13, 2006) 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-9086, which will assure that the reports 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.

Ms. Kateri Luka  
Atlantic Richfield Company

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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, please contact Mr. Jeffrey Hu at (213) 576-6736.

Sincerely,

Jonathan S. Bishop  
Executive Officer

Enclosures: 1. Board Order No. R4-2005-0030  
2. Monitoring and Reporting Program No. CI-9086  
3. Standard Provisions

cc: Ms. Yvonne Shanks, State Water Resources Control Board, Underground Storage Tank Cleanup Fund  
Ms. Nancy Mastumoto, Water Replenishment District of Southern California  
Captain Frank Comfort, Los Angeles City Fire Department, Underground Storage Tanks  
Ms. Valerie Toney, Los Angeles City Fire Department, Underground Storage Tanks  
Mr. Steve Compley, Arco Terminal Services Corporation  
Mr. Ken Oja, Delta Environmental Consultants, Inc.

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