



California Regional Water Quality Control Board

Los Angeles Region

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

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Gray Davis
Governor

Winston H. Hickox
Secretary for
Environmental
Protection

August 28, 2003

Ms. Abbe Burns
Ventura County Fire Department
165 Durley Avenue
Camarillo, CA 93010

Dear Ms. Burns:

GENERAL WASTE DISCHARGE REQUIREMENTS FOR HYDROGEN PEROXIDE PASSIVE INFILTRATION AT PETROLEUM HYDROCARBON FUEL AND/OR VOLATILE ORGANIC COMPOUND IMPACTED SITES – VENTURA COUNTY FIRE STATION # 30, 325 HILLCREST DRIVE, THOUSAND OAKS, CALIFORNIA (FILE NO. 03-108, CI NO. 8624)

We have completed our review of your application for Waste Discharge Requirements to passively infiltrate hydrogen peroxide with Fenton's reagent into groundwater wells at the above referenced site.

For the past two years, the Ventura County Fire Department (Discharger) has been using a pump-and-treat technology to remediate groundwater contaminated with total petroleum hydrocarbon compounds. The contaminants include gasoline, benzene, toluene, ethyl benzene, methyl-tertiary –butyl-ether, and xylene. The extracted groundwater is treated on site with granular activated carbon and discharged to Arroyo Conejo, thence to Calleguas Creek. The discharge was enrolled under a general National Pollutant Discharge Elimination System (NPDES) permit (CAG834001, Order No. R4-2002-0125) on January 9, 2003. The Discharger intends to continue discharging the treated groundwater to the Calleguas Creek.

The Discharger has indicated that the continual groundwater, soil vapor, and /or two-phase extraction from multi-use wells (such as the extraction occurring during the ongoing remediation at the Site) causes well screens to become plugged with organic material, algae, mineral deposits, and/or fine-grained sediment. The build-up of material along the well screens can lead to low-yielding extraction recoveries. Therefore, the Discharger is intending to clean and rehabilitate the wells (MW-14, MW-15, MW-18, MW-19, and MW-20) using hydrogen peroxide with Fenton's reagent. The purpose of the passive infiltration of the hydrogen peroxide with Fenton's reagent at these wells is: to clean and rehabilitate screens of the wells used for extraction or at nearby wells which may have been influenced by the extraction and to enhance groundwater remediation.

Chemical oxidation using hydrogen peroxide with Fenton's reagent is a well-known method for producing hydroxyl radicals, which are very effective oxidizing agents. The technology has been used to remediate organic-contaminated soils and groundwater. The Discharger intends to first use passive infiltration of hydrogen peroxide with Fenton's reagent into five wells (MW-14, MW-15, MW-18, MW-19, and MW-20) located at the Oaks Mall parking lot (Figure: Plate 2). If the results indicate improvement in groundwater quality, the Discharger may continue the treatment at the same wells. The concentration of the proposed hydrogen peroxide with

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Fenton's reagent will range from six to ten percent, and the volume will be approximately five gallons per well. The hydrogen peroxide with Fenton's reagent will be poured slowly into each well and flushed throughout the entire screen interval using a clean downhole surge block.

Regional Board staff have concerned that the hydrogen peroxide with Fenton's reagent under certain condition may cause damage to the well casing due to strong oxidation and precipitation of metals. If the injection wells are damaged as a result of the injections, you are required to reconstruct or replace the damaged wells within 60 days from the date of discovering the damage.

On March 24, 2003, the Ventura County Environmental Health Division approved the workplan to perform well cleaning and rehabilitation at the selected groundwater wells.

Regional Board staff have reviewed the information provided and have determined that the proposed discharge meets the conditions specified in Order No. R4-2002-0030, "*General Waste Discharge Requirements for Groundwater Remediation at Petroleum Hydrocarbon Fuel and/or Volatile Organic Compound Impacted Sites*," adopted by this Regional Board on January 24, 2002.

Enclosed are your Waste Discharge Requirements, consisting of Regional Board Order No. R4-2002-0030 (Series No. 033) and Monitoring and Reporting Program No. CI-8624.

The Monitoring and Reporting Program requires you to implement the monitoring program on the effective date of this enrollment (August 28, 2003) under Regional Board Order No. R4-2002-0030. All monitoring reports should be sent to the Regional Board, ATTN: Information Technology Unit.

When submitting monitoring or technical reports to the Regional Board per these requirements, include a reference to "Compliance File No. CI-8624", 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.

We are sending a copy of Order No. R4-2002-0030 only to the applicant. A copy of the Order will be furnished to anyone who requests it. If you have any additional questions, please contact Mr. Orlando H. Gonzalez at (213) 620-2267 or Dr. Kwang-il Lee at (213) 620-2269.

Sincerely,

Dennis A. Dickerson
Executive Officer

California Environmental Protection Agency

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Enclosures:

1. Board Order No. R4-2002-0030
2. Monitoring and Reporting Program No. CI-8624
3. Standard Provisions applicable to Waste Discharge Requirements (addressee only)

cc: Mr. Robert Sams, Office of Chief Counsel, State Water Resources Control Board
Mr. Michael Lauffer, Office of Chief Counsel, State Water Resources Control Board
Mr. James Evans, Ventura County Environmental Health Division, Liquid Waste
Ms. Melinda Talent, Ventura County Environmental Health Division, Land Use Unit
Mr. K. Craig Klein, LUFT Program, Ventura County Environmental Health Division
Mr. J. F. Fakhoury, Ventura County Public Works
Mr. George Ehrhardt, City of Thousand Oaks
Ms. Carol B. Shestag, Applied Environmental Technologies, Inc.

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