



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

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Arnold Schwarzenegger
Governor

April 15, 2005

Ms. Judi Proetel
Sta-Lube, Inc.
4549 Dogwood Avenue
Seal Beach, CA 90740

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
CLAIM NO. 7003 3110 0003 3258 4011

Dear Ms. Proetel:

GENERAL WASTE DISCHARGE REQUIREMENTS FOR FERROUS SULFATE, SODIUM PERSULFATE, AND HYDROGEN PEROXIDE SOLUTION AND HYDROCHLORIC ACID BUFFER SOLUTION INJECTIONS AT PETROLEUM HYDROCARBON FUEL AND/OR VOLATILE ORGANIC COMPOUND IMPACTED SITES – FORMER STA-LUBE SITE, 3039 ANA STREET, RANCHO DOMINGUEZ, CALIFORNIA (SLIC FILE NO. 0263, CI NO. 8886)

We have completed our review of your application for coverage under General Waste Discharge Requirements for the injection of ferrous sulfate, sodium persulfate, and hydrogen persulfate solution and hydrochloric acid buffer solution at the site referenced above in Rancho Dominguez, California.

Sta-Lube, Inc. (hereinafter Discharger) is conducting the groundwater cleanup activities at a former facility commonly known as the Former Sta-Lube site (Site) located at 3039 Ana Street in Rancho Dominguez, California (Figures 1 and 2) (Latitude: 118° 12' 30", Longitude: 33° 51' 45"). Stabler Properties, LLC owns the land and CRC Industries, Inc. owns the facility. The Site, encompassing approximately 2.8 acres, was formerly used by the Discharger for manufacturing paint, varnish removal, and fuel additive and for blending and packaging hand cleaners, greases, and petroleum-based lubricants between 1968 and 1986. The Discharger began operation at the site in 1968. The property was undeveloped farmland prior to 1968. The industrial activities at the Site included the use of a variety of products such as petroleum hydrocarbon derivatives and solvents including methyl chloride (MeCl) (Figure 3). Site investigations indicate that soil and groundwater have been contaminated with volatile organic compounds (VOCs). The highest concentration of methyl chloride detected in the groundwater was 2,600,000 microgram per liter ($\mu\text{g/L}$) in MW-1.

Groundwater samples collected on June 14, 2004 indicate the presence of acetone, Benzene, toluene, bromochloromethane, 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), t-1,2-dichloroethene (t-1,2-DCE), bromoform, dibromochloromethane, chloroform, methylene chloride, and 1,1,2,2-tetrachloroethane (1,1,2,2-TCA). Groundwater analytical data show that VOC concentrations ranged from non-detected to 220 micrograms per liter ($\mu\text{g/L}$) of acetone, non-detected to 6.7 $\mu\text{g/L}$ of benzene, non-detect to 34 $\mu\text{g/L}$ of toluene, non-detect to 110 $\mu\text{g/L}$ of bromochloromethane, non-detect to 27 $\mu\text{g/L}$ of 1,1-DCA, non-detect to 89 $\mu\text{g/L}$ of 1,1-DCE, non-detect to 73 $\mu\text{g/L}$ of t-1,2-DCE, non-detect to 16 $\mu\text{g/L}$ of bromoform, non-detect to 11 $\mu\text{g/L}$

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of dibromochloromethane, non-detect to 88 µg/L of chloroform, non-detect to 18,000 µg/L of methylene chloride, and non-detect to 25 µg/L of 1,1,2,2-TCA.

The Site is located within the Central Groundwater basin, a portion of the Los Angeles Coastal Plain. The near surface sediments at the site consist of the Bellflower Aquiclude, a portion of the Recent Alluvium consisting primarily of fine-grained silts and clays. These fine-grained sediments are found beneath the Sta-Lube site from ground surface to a depth of approximately 45 feet below ground surface (bgs). The groundwater table is found at a depth of approximately 40 feet bgs. Interbedded lens of sand, silts, and clays are found between 40 to 45 feet, while a coarse sand is found from 45 feet to over 130 feet bgs. The groundwater found beneath the Sta-Lube site correlates regionally with the Gaspur Aquifer. The bottom of the Gaspur Aquifer occurs at a depth of approximately 140 feet beneath the Sta-Lube site. Several aquitards (clay lenses) separate the groundwater bearing formation. The aquitards limit vertical migration of contaminant to the deeper drinking water zones. The Silverado and Sunnyside aquifers are at depths of approximately 450 to 700 feet. These deeper aquifers are considered high quality drinking water aquifers.

The California Water Company reported that production well 3S/13W 35P 01S, located approximately 1,750 feet to the southwest, is the closest active drinking water well to the Sta-Lube site. The well screen for this production well is set at a depth of 301 to 650 feet bgs and penetrates the Silverado and Sunnyside Aquifers. The California Water Company informed that inactive production Well 3S/13W 35Q 06S, which was located only 700 feet from the Sta-Lube site, was abandoned in 2002. Current and historical groundwater flow directions in the upper saturated zone show a flow direction towards the southwest, placing well 3S/13W 35P 01S directly downgradient from the Sta-Lube site. Currently the Sta-Lube plume is located in the upper 20 feet of the saturated zone underneath the site (depth of 40-60 feet bgs), while production well 3S/13W 35P 01S is extracting groundwater from depth approximately 310-650 feet bgs.

On December 15, 2004, Los Angeles Regional Water Quality Control Board staff of Remediation Section approved the In-Situ Chemical Oxidation for groundwater remediation at former Sta-Lube site. In the proposed Remediation Action Plan (RAP), the consultant (TAIT Environmental Management, Inc. (TAIT) proposes to use the in-situ chemical oxidation technology to accomplish treatment of the impacted area, which measures approximately 80 feet long by 40 feet wide, by injecting the chemicals into 23 application wells (Figure 4). The chemical oxidation technology proposes using classic Fenton's chemistry along with sodium persulfate to oxidize elevated MeCl levels in the saturated soil and groundwater. The ferrous sulfate, sodium persulfate, and hydrogen peroxide solution will be mixed and injected separately. The ferrous sulfate (catalyst) and hydrochloric acid (pH buffer) solution will be mixed in a 500-gallon mixing tank mounted a mobile trailer unit. The catalyst will be injected (gravity fed) into each of the application wells first. Following the injection of the catalyst, a 2% solution of sodium persulfate will be blended in a separate mixing tank and gravity fed into the application wells at a rate of approximately 1 to 3 gpm based on well capacity. Following the sodium persulfate application, hydrogen peroxide will be injected at 8.75% solution initially by increasing to 17.5% solution gradually at 1 to 3 gpm rate based on well capacity. It is expected that up to 3-1/2-times as much oxidant will be injected into the three side-by-side (tandem) wells located in the most

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(Former Sta-Lube Site)

- 3 -

April 15, 2005

contaminated zone (approximately 1,800 gallons of hydrogen peroxide per tandem well and 2,500 pounds of sodium persulfate per tandem). The remaining wells will receive chemical injections at an average of about 390 gallons of hydrogen peroxide per well and 535 pounds of sodium persulfate per well. Site wide, a total of approximately 12,000 gallons of peroxide and 16,600 pounds of persulfate will be injected into the 23 application wells. To maintain the acid pH in catalyst, a buffering agent (hydrochloric acid) will also be added

Any potential adverse water quality impacts that may result shall be localized, of short-term duration, and shall not impact any existing or prospective uses of groundwater.

Regional Board staff 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. 060) and Monitoring and Reporting Program No. CI-8886 and Standard Provisions.

The Monitoring and Reporting Program requires you to implement the monitoring program on the effective date of this enrollment (April 15, 2005) under Regional Board Order No. R4-2002-0030. 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-8886, 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 questions, please contact Mr. Orlando H. Gonzalez at (213) 620-2267.

Sincerely,

Jonathan S. Bishop
Executive Officer

- Enclosures: 1. Board Order No. R4-2002-0030
2. Monitoring and Reporting Program No. CI-8886

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- 4 -

April 15, 2005

cc: Mr. Ted Johnson, Water Replenishment District of Southern California
Mr. Mark Stewart, Central Basin Watermaster, California Department of Water
Resources
Mr. Adam Selisker, CRC Industries, Inc.
Mr. William Stabler, Stabler Properties, LLC
Mr. Mehmet Pehlivan, Principal Geologist, TAIT Environmental Management, Inc.

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