



California Regional Water Quality Control Board

Los Angeles Region



Linda S. Adams
Agency Secretary

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

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Arnold Schwarzenegger
Governor

June 25, 2007

Ms. Maria Zrupko
Thrifty Oil Company
13116 Imperial Highway
Santa Fe Springs, CA 90670

GENERAL WASTE DISCHARGE REQUIREMENTS FOR GROUNDWATER CLEANUP AT PETROLEUM HYDROCARBON FUEL, VOLATILE ORGANIC COMPOUND And/OR HEXAVALENT CHROMIUM IMPACTED SITES - THRIFTY STATION # 003, 2330 E. 7TH STREET, LONG BEACH (ORDER NO. R4-2007-0019, SERIES NO. 021; CI NO. 9280)

Dear Ms. Zrupko:

We have completed our review of your application for coverage under the General Waste Discharge Requirements to inject non-hazardous ozone at the site referenced above in Long Beach, California for groundwater cleanup and remediation.

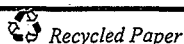
The station currently maintains three 10,000-gallon gasoline underground storage tanks (USTs) and three dispenser islands. In February 1988, three steel 10,000-gallon USTs were removed and replaced with three 10,000-gallon fiberglass USTs. 636 tons of impacted soil were excavated and disposed of off-site.

Prior to and subsequent to the tank replacement, seven groundwater monitoring wells and ten soil borings were installed to characterize soil and groundwater beneath the site. TPH, benzene, and MTBE were detected up to 16,220, 127, and 12 mg/kg, respectively in soil; and up to 448,000, 29,000, 39,000, and 3,380 µg/L, respectively in groundwater.

Between December 2002 and May 2005, the site was remediated with a vapor extraction/air sparge system. After 16,087 hours of operation, removing 33,932 lbs of hydrocarbons as vapor, the system was shut down as the influent vapor reached the asymptotic levels. Over-purging was also initiated in February 2004, as an interim remedial action, and had removed 11,198 gallons of contaminated groundwater as of November 27, 2006.

To abate the impacted groundwater beneath the site, in March 2006, you submitted a work plan in which you proposed to conduct an ozone sparging feasibility study prior to implementing a full-scale remedial system. The test will be conducted using a C-Sparge Ozone Oxidation System and five sparge points that will be installed at locations as shown in Figure 2 of the work plan. The C-Sparge technology combines low-flow air sparging with ozonation. Generated ozone microbubbles will be introduced below the groundwater table through sparge points to oxidize contaminants into benign byproducts. These byproducts and residuals include acetate, butyrate, formate, propionate, carboxylic acids, tertiary butyl formate, formaldehyde, carbon dioxide, hydrogen peroxide, and oxygen. The release of oxygen and hydrogen peroxide to groundwater promotes aerobic bacterial growth that will enhance the biodegradation process. The Regional Board approved the work plan on September 1, 2006.

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Ms. Maria Zrupko
Thrifty Oil Co.

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Regional Board staff has determined that the proposed discharge meets the conditions specified in Order No. R4-2007-0019, "Revised General Waste Discharge Requirements for Groundwater Remediation At Petroleum Hydrocarbon Fuel, Volatile Organic Compound and/or Hexavalent Chromium Impacted Sites (General WDRs)," adopted by the State Water Resources Control Board on March 1, 2007.

Enclosed are your Waste Discharge Requirements, consisting of General WDRs Board Order No. 2007-0019 and Monitoring and Reporting Program No. CI-9280 and Standard Provisions.

The WDRs issued shall not be rescinded until Regional Board staff determine the WDRs are no longer needed for the subject site.

The Monitoring and Reporting Program requires you to implement the monitoring program on the effective date of this enrollment under Regional Board Order No. R4-2007-0019. 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-9280, 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. R4-2007-0019 only to the applicant. A copy of the Order will be furnished to anyone who requests it, or on line at:

http://www.waterboards.ca.gov/losangeles/html/permits/gen_orders/R4-2007-0019/R4-2007-0019.pdf

If you have any questions, please contact Mr. Rod Nelson at (213) 576-6119.

Sincerely,


Deborah J. Smith
Interim Executive Officer

Enclosures: 1. Board Order No. R4-2007-0019
2. Monitoring and Reporting Program No. CI-9280

cc: Mr. Jeff Benedict, City of Long Beach, Department of Health and Human Services
Ms. Nancy Matsumoto, Water Replenishment District of Southern California
Mr. Mark Stewart, Central Basin Watermaster, California Department of Water Resources
Mr. Richard Vogl, GeoHydrologic Consultants, Inc.

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STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
MONITORING AND REPORTING PROGRAM NO. CI-9280
for
THRIFTY OIL COMPANY
THRIFTY STATION # 003, 2330 E. 7TH STRRET, LONG BEACH
(OZONE INJECTION FOR GROUNDWATER CLEANUP)
(ORDER NO. R4-2007-0019, SERIES NO. 021)

I. REPORTING REQUIREMENTS

- A. Thrifty Oil Company (hereinafter Discharger) shall implement this monitoring program on the effective date of Regional Board Order No. R4-2007-0019. The first monitoring report under this program, for July-September 2007, shall be received at the Regional Board by **October 15, 2007**. Subsequent monitoring reports shall be received at the Regional Board according to the following schedule:

<u>Monitoring Period</u>	<u>Report Due</u>
January – March	April 15
April – June	July 15
July – September	October 15
October – December	January 15

Monitoring reports must be addressed to the regional Board, Attention: Information Technology Unit.

- B. If there is no discharge or injection during any reporting period, the report shall so state.
- C. By January 30 of each year, beginning January 30, 2008, the Discharger shall submit an annual summary report to the Regional Board. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous calendar year. In addition, the Discharger shall explain the compliance record and the corrective actions taken, or planned, which may be needed to bring the discharge into full compliance with the waste discharge requirements (WDRs).
- D. Laboratory analyses – all chemical, bacteriological, and toxicity analyses shall be conducted at a laboratory certified for such analyses by the California Department of Health Services Environmental Laboratory Accreditation Program (ELAP). A copy of the laboratory certification shall be provided each time a new and/or renewal certification is obtained from ELAP.

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- E. The method limits (MLs) employed for effluent analyses shall be lower than the permit limits established for a given parameter, unless the Discharger can demonstrate that a particular ML is not attainable and obtains approval for a higher ML from the Regional Board Executive Officer (Executive Officer). The Discharger shall submit a list of the analytical methods employed for each test and the associated laboratory quality assurance/quality control (QA/QC) procedures upon request by the Regional Board.
- F. Groundwater samples must be analyzed within allowable holding time limits as specified in 40 CFR Part 136. All QA/QC samples must be run on the same dates when samples were actually analyzed. The Discharger shall make available for inspection and/or submit the QA/QC documentation upon request by Regional Board staff.
- G. Each monitoring report must affirm in writing that "All analyses were conducted at a laboratory certified for such analyses by the California Department of Health Services, and in accordance with current United States Environmental Protection Agency (USEPA) guideline procedures or as specified in this Monitoring Program." Proper chain of custody procedures must be followed and a copy of the completed chain of custody form shall be submitted with the report.
- H. Each monitoring report shall contain a separate section titled "Summary of Non-Compliance" which discusses the compliance record and the corrective actions taken or planned that may be needed to bring the discharge into full compliance with WDRs. This section shall be located at the front of the report and shall clearly list all non-compliance with WDRs, as well as all excursions of effluent limitations.
- I. The Discharger shall maintain all sampling and analytical results: date, exact place, and time of sampling; dates analyses were performed; analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.
- J. If the Discharger performs analyses on any groundwater samples more frequently than required by this Order using approved analytical methods, the results of those analyses shall be included in the report.
- K. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized to demonstrate compliance with the requirements and, where applicable, shall include results of receiving water observations.

II. OZONE INJECTION MONITORING REQUIREMENTS

The quarterly reports shall contain the following information regarding injection activities:

1. Location map showing injection points used for the ozone injection.
2. Written and tabular summary defining the quantity of ozone injected per month to the groundwater and a summary describing the days on which the injection system was in operation.
3. Monthly visual inspection at each injection point shall be conducted to evaluate the well casing integrity for a period of three month after each injection. The quarterly report shall include a summary of the visual inspection.
4. To avoid groundwater monitoring network reduction, data bias, and well screen clogging or alteration, no groundwater monitoring wells shall be used as injection points during the proposed ozone injection. Separate injection points/wells must be installed at the site for the injection.

III. GROUNDWATER MONITORING PROGRAM

The Discharger shall conduct groundwater monitoring at the site. Groundwater samples shall be collected from up-gradient groundwater monitoring well W-1, cross-gradient/source wells MW-1, MW-2, and MW-3, and down-gradient well MW-6 to monitor the effectiveness of the in-situ groundwater remediation (refer to attached Figure 2). Ozone injection points shall not be used as monitoring points. Groundwater shall be monitored for the duration of the remediation in accordance with the following discharge monitoring program:

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS ¹
Total petroleum hydrocarbons as gasoline (TPHg) and as diesel (TPHd)	µg/L	Grab	• Quarterly
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)	µg/L	Grab	• Quarterly
Methyl tertiary butyl ether (MTBE), Tertiary butyl alcohol (TBA), Tertiary amyl methyl	µg/L	Grab	• Quarterly

ether (TAME), Di-isopropyl ether (DIPE), ether (ETBE)			
Ethanol Formaldehyde Acetone	µg/L	Grab	• Quarterly
Total dissolved solids Boron Chloride Sulfate	mg/L	Grab	• Quarterly
Oxidation-reduction potential	milivolts		• Quarterly
Dissolved Oxygen	µg/L	Grab	• Quarterly
Dissolved ferrous iron	µg/L	Grab	• Quarterly
Total Chromium and chromium six ²	µg/L	Grab	• Quarterly
PH	pH units	Grab	• Quarterly
Temperature	⁰ F/ ⁰ C	Grab	• Quarterly
Groundwater Elevation	Feet, mean sea level and below ground surface	In situ	• Quarterly
¹ The first sampling event must be conducted one week following the ozone injection. ² The Discharger is required to monitor for total chromium and chromium six only if they are detected in the first sampling event.			

All groundwater monitoring reports must include, at a minimum, the following:

- a. Well identification, date and time of sampling;
- b. Sampler identification, and laboratory identification;
- c. Quarterly observation of groundwater levels, recorded to 0.01 feet mean sea level and groundwater flow direction.

IV. MONITORING FREQUENCIES

Monitoring frequencies may be adjusted to a less frequent basis or parameters dropped by the Executive Officer if the Discharger makes a request and the Executive Officer determines that the request is adequately supported by statistical trends of monitoring data submitted.

V. CERTIFICATION STATEMENT

Each report shall contain the following declaration:

"I certify under penalty of law that this document, including all attachments and supplemental information, was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

Executed on the _____ day of _____ at _____.

(Signature)

(Title)"

VI. PUBLIC DOCUMENTS

These records and reports are public documents and shall be made available for inspection during normal business hours at the office of the California Regional Water Quality Control Board, Los Angeles Region.

Ordered by:

David A. Bachorowski, AED
Deborah J. Smith
Interim Executive Officer

Date: June 25, 2007