

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

MONITORING AND REPORTING PROGRAM NO. CI-8452
FOR
FORMER KING KARE AUTO CENTER
15045 EAST IMPERIAL HIGHWAY, LA MIRADA

ORDER NO. R4-2002-0030 (Series No. 004)
FILE NO. 01-116; UST FILE NO. I-20811

I. REPORTING REQUIREMENTS

- A. The Discharger shall implement this monitoring program on the effective date of this enrollment under Regional Board Order No. R4-2002-0030. The first monitoring report under this Program is due by January 15, 2003.

Monitoring reports shall be received by the dates in the following schedule:

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

- B. If there is no discharge or injection during any reporting period, the report shall so state. Monitoring reports must be addressed to the Regional Board, Attention: Information Technology Unit.
- C. By March 1 of each year, the Discharger shall submit an annual summary report to the Regional Board with the first annual report due March 1, 2004. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous calendar year. In addition, the Discharger shall discuss 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.
- D. The Discharger shall comply with requirements contained in Section G of Order No. R4-2002-0030 "Monitoring and Reporting Requirements" in addition to the aforementioned requirements.

II. OXYGEN RELEASE COMPOUND (ORC) INJECTION MONITORING REQUIREMENTS

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

1. Location Map showing injection point(s) of the ORC used during the reporting period.
2. Boring log of each injection point or vertical cross-section diagram of injection point(s) indicating the placement of the ORC during the reporting period.
3. Written supplemental summary including, but not limited to:
 - Depth of injection point(s);
 - Quantity of ORC injected at each point; and
 - Total amount of ORC injected.

III. GROUNDWATER MONITORING PROGRAM

A groundwater monitoring program shall be designed to detect and evaluate impacts associated with the ORC injection activities. The following shall constitute the monitoring program for Monitoring Well Nos. 7, 8, 9, 10 and 11 (Figure 2). The Discharger shall conduct initial sampling from all the monitoring wells for the following groundwater parameters within one week after the construction of Monitoring Well Nos. 7, 8, 9, 10, and 11.

<u>CONSTITUENT</u>	<u>UNITS</u>	<u>TYPE OF SAMPLE</u>	<u>MINIMUM FREQUENCY OF ANALYSIS</u>
Total Petroleum Hydrocarbon as Gasoline (EPA Method 8015M)	µg/l	grab	Quarterly
BTEX, MTBE and other oxygenates (EPA Method 8260B)	µg/l	grab	Quarterly
Total Organic Carbon (EPA Method 9060 Modified)	µg/l	grab	Quarterly
Total Dissolved Solids	mg/l	grab	Quarterly
Biochemical Oxygen Demand	mg/l	grab	Quarterly
Chemical Oxygen Demand	mg/l		Quarterly
pH	pH units	grab	Quarterly
Oxidation-Reduction Potential	millivolts	grab	Quarterly

<u>CONSTITUENT</u>	<u>UNITS</u>	<u>TYPE OF SAMPLE</u>	<u>MINIMUM FREQUENCY OF ANALYSIS</u>
Groundwater depth	Feet, below ground surface (bgs)	In situ	Quarterly
Dissolved Oxygen	µg/l	grab	Quarterly
Major Anions (chloride, sulfate, nitrate, nitrite, and sulfide)	µg/l	grab	Quarterly
Major Cations (Calcium, magnesium, potassium, sodium)	mg/l	grab	Quarterly
Carbon Dioxide	µg/l	grab	Quarterly

All groundwater monitoring reports must include, at 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

Specifications in this monitoring program are subject to periodic revisions. Monitoring requirements may be modified or revised by the Executive Officer based on review of monitoring data submitted pursuant to this Order. Monitoring frequencies may be adjusted to a less frequent basis or parameters and locations dropped by the Executive Officer if the Discharger makes a request and the request is backed by statistical trends of monitoring data submitted.

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V. CERTIFICATION STATEMENT

Each report shall contain the following completed 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)"

Ordered by: _____
Dennis A. Dickerson
Executive Officer

Date: September 9, 2002



California Regional Water Quality Control Board

Los Angeles Region



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September 9, 2002

Mr. Jeffrey Baker
Manager, Environmental Affairs and Engineering
Tesoro Petroleum Companies, Inc.
3450 South 344th Way, Suite 100
Auburn, WA 98001

GENERAL WASTE DISCHARGE REQUIREMENTS COVERAGE FOR PROPOSED OXYGEN RELEASE COMPOUND (ORC) INJECTION TO GROUNDWATER (ORDER NO. R4-2002-0030: SERIES 004) AT FORMER KING KARE AUTO CENTER AT 15045 EAST IMPERIAL HIGHWAY, LA MIRADA (UST FILE NO. I-20811; CUFID NO. 8675)

Dear Mr. Baker:

We have received your application for coverage under General Waste Discharge Requirements to emplace Oxygen Release Compound (ORC) into groundwater aquifer for use in in-situ bioremediation to address the MTBE plume in groundwater which is originated from the subject site.

We have reviewed the information provided and have determined that the proposed discharge meets the conditions specified in Regional Board 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. Please refer to the attached Fact Sheet.

Also, enclosed are Waste Discharge Requirements, Order No. R4-2002-0030, and Monitoring and Reporting Program No. CI-8452. Please note that the discharge limits in Attachment A (DWR Basin No. 4-11 [Central Basin]) of this Order are applicable to your case.

The "Monitoring and Reporting Program" requires you to implement the monitoring program on the effective date of this enrollment under Regional Board Order No. R4-2002-0030. Regional Board staff have determined that, the proposed two groundwater monitoring wells (MW-7 and MW-8) appear to be insufficient for groundwater monitoring. Therefore, you are required to install a total of five additional groundwater monitoring wells (MW-7, MW-8, MW-9, MW-10, and MW-11) to meet the conditions specified in Order No. R4-2002-0030 for the proposed project. Monitoring wells MW-7 and MW-8 can be installed at the proposed locations. Monitoring well MW-9, shall be installed between the ORC barrier and MW-8, and monitoring wells (MW-10 and MW-11) shall be installed approximately 30 feet crossgradient of ORC barrier along each side, respectively. The wells shall be constructed and installed using the same materials and methods discussed in the Regional Board workplan approved letter for downgradient well dated April 26, 2000. All these groundwater monitoring wells (MW-7 through MW-11) shall be sampled for all constituents identified in Section III-Monitoring & Reporting Requirements (Pages T-2 and T-3) prior to the application of any ORC at the site.

The "Monitoring and Reporting Program" requires you to implement the monitoring program on the effective date of this enrollment (October 15, 2002) under Regional Board Order No. R4-2002-

California Environmental Protection Agency

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption
For a list of simple ways to reduce demand and cut your energy costs, see the tips at: <http://www.swrcb.ca.gov/news/echallenge.html>



Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.

Mr. Jeffrey Baker
Former King Kare Auto Center

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September 9, 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, please include a reference to "Compliance File No. CI-8452," which will assure that the reports are directed to the appropriate file and staff. Also, please 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. Gregg Kwey at (213) 576-6702, or Mr. Noman Chowdhury at (213) 576-6704.

Sincerely,

Dennis A. Dickerson
Executive Officer

Enclosures


Fact Sheet
Board Order No. R4-2002-0030
Monitoring and Reporting Program No. CI-8452

Cc (w/o Board Order No. R4-2002-0030):

Mr. Mike Floyd, Division of Water Quality, State Water Resources Control Board
Mr. Richard Wagner, Department of Health Services, County of Los Angeles
Mr. Tim Smith, LACDPW, Environmental Programs Division
Mr. Bruce Mowry, Water Replenishment District of Southern California
Mr. Laurence Peters, La Mirada Properties, Inc., Property Owner
Mr. Harry Takach, Orion Environmental, Inc.

California Environmental Protection Agency

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 Recycled Paper

Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
320 West 4th Street, Suite 200, Los Angeles, California 90013

FACT SHEET
WASTE DISCHARGE REQUIREMENTS
FOR
FORMER KING KARE AUTO CENTER

ORDER NO. R4-2002-0030 (SERIES NO. 004)
UST FILE NO. I-20811; CUFID NO. 8675

FACILITY ADDRESS

Former King Kare Auto Center
15045 East Imperial Highway
La Mirada, CA 90638

FACILITY MAILING ADDRESS

Tesoro Petroleum Companies, Inc.
3450 South 344th Way, Suite 100
Auburn, WA 98001

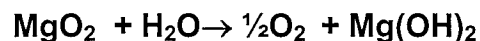
PROJECT DESCRIPTION

The Former King Kare Auto Center (Latitude: N33° 55' 00", Longitude: E118° 00' 30") is in a shopping center parking lot and is bounded by Del Taco to the west, American Tire Depot to the east, Home Depot to the north, and the Chiropractic/Medical Group to the south (across Imperial Highway). The Former King Kare Auto Center had utilized four 12,000-gallon USTs prior to 1990s. From 1992 to 2001, corrective action activities were conducted at the site. The results of these investigations indicated that the underlying soil and groundwater had been contaminated with gasoline and diesel fuel constituents including benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl tertiary butyl ether (MTBE). A soil vapor extraction system had been operated for the impacted soil remediation from January 1998 through July 1999. However, the MTBE plume in the groundwater has migrated off-site and extended over an area of approximately 250 feet by 50 feet. The analytical result of groundwater samples indicated that MTBE concentration up to 4,000 µg/l and benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations were ranged from 4,400 µg/l to ND, 19,000 µg/l to ND, 6,500 µg/l to ND, and 38,000 µg/l to ND, respectively.

A Workplan for In Situ Groundwater Remediation dated April 19, 2001, was approved by this Regional Board on May 14, 2001. The in-situ groundwater remediation work plan proposes to place an ORC barrier near the down-gradient end of the MTBE plume to remediate groundwater contamination. The target zone for remediation is approximately 15 feet in thickness of groundwater in the upper water-bearing zone. This groundwater unit consists of recent alluvium of silty clayey sand, clay, and clayey sand and is underlain by the Exposition Aquifer.

VOLUME AND DESCRIPTION OF ORC BARRIER

ORC is a proprietary formulation of magnesium peroxide intercalated with food-grade phosphate and offers a passive, cost-effective, low intensity approach to accelerating aerobic bioremediation in the oxygen-limited contaminated subsurface. ORC is environmentally safe that time-releases oxygen when hydrated in accordance with the following reaction:



When placed in aquifer, ORC releases oxygen for six months to one year and raises a significant level of oxygen up to 30 parts per million (ppm). The distribution of dissolved oxygen

(DO) in aquifer material is governed by chemical diffusion and the transportation to downgradient areas by advection. Since oxygen is often the limiting factor for aerobic microbes, indigenous aerobic microbes flourish in the presence of long-lasting oxygen and rapidly degrade groundwater pollutants into harmless products such as carbon dioxide and water.

The injection field is to include an array of two by thirteen injection points, forming a 52-foot wide barrier. The injection points will have a center-spacing of 4 feet. The dosing rate will be 2.6 pounds product per vertical foot of saturated zone, approximately 15 to 30 feet below grade, or 39 pounds per injection point. Approximately a total of 1,014 pounds of ORC, will be emplaced at the proposed location. ORC will be applied to the saturated zone using direct-push hydraulic equipment. At this point, it is expected that a one-time emplacement is adequate to remediate the groundwater contamination, without causing any groundwater degradation.

The ORC barrier emplacement activity is expected to start on October 15, 2002. There have been no adverse impacts associated with these products for remediating dissolved hydrocarbon fuel plumes in groundwater. There may be small increases associated with soluble gases such as dissolved oxygen (DO) and carbon dioxide. A groundwater and bioprocesses monitoring program will be implemented to verify the efficacy of the ORC addition to this site. The monitoring wells include one upgradient well: MW-7, and one downgradient well: MW-8 (see attached Figure 2). The proposed locations of two groundwater monitoring wells appear to be insufficient for groundwater monitoring. Therefore, you are required to install three additional monitoring wells including the proposed two monitoring wells, one in between ORC barrier and MW-8 and two monitoring wells approximately 30 feet crossgradient of ORC barrier at each side, respectively.