



EDMUND G. BROWN JR.  
GOVERNOR

MATTHEW RODRIGUEZ  
SECRETARY FOR  
ENVIRONMENTAL PROTECTION

## Los Angeles Regional Water Quality Control Board

January 15, 2013

Ms. Janet Wager, Contracts Manager  
BP Remediation Management, of ARCO  
201 Helios Way, Sixth Floor  
Houston, TX 77079

Certified Mail  
Return Receipt Requested  
7005 0390 0000 4138 5955

**GENERAL WASTE DISCHARGE REQUIREMENTS FOR GROUNDWATER CLEANUP AT  
PETROLEUM HYDROCARBON FUEL, VOLATILE ORGANIC COMPOUND AND/OR  
HEXAVALENT CHROMIUM IMPACTED SITES  
FORMER ARCO STATION NO. 03100 (C-1 SITE)  
20810 AVALON BOULEVARD, CARSON, CA (CASE NO. I-05270)  
(ORDER NO. R4-2007-0019, SERIES NO. 206; CI NO. 9892)**

Dear Ms. Janet Wager:

We have completed our review of your application for coverage under the General Waste Discharge Requirements for sodium persulfate application at the site referenced above in Los Angeles, California, for groundwater cleanup and remediation.

The site is currently a gasoline service station located at the southwest corner of Prairie Avenue and Redondo Beach Boulevard in Torrance, California (Site) (Figure 1) (Latitude: N 33 ° 50' 29.78", Longitude: W 118 ° 15' 24").

Two 12,000-gallon and one 8,000-gallon gasoline underground storage tanks (USTs) were removed from the site in 2007. Several site assessments have been conducted at the site since 1989. Site investigations found soil and groundwater contamination beneath the Site. A periodic groundwater monitoring program was initiated in 1996. The most recent monitoring data showed the maximum concentrations of total petroleum hydrocarbon as gasoline (TPHg) at 1,900 µg/L, methyl tertiary butyl ether (MTBE) at 4,700 µg/L, and tertiary butyl alcohol (TBA) at 1,400 µg/L.

Soil beneath the site consists of silty sand and clay from the surface to 36 feet below ground surface (bgs). In February 2012, the groundwater table was measured at approximately 7 feet bgs, and the groundwater flow direction was toward the northwest. The nearest production well (Well No. 04S13W17D02S) is about 4,356 feet away.

On behalf of the responsible party, Arcadis submitted a "Remedial Action Plan" (the RAP) dated October 10, 2012, for the Site and proposed to inject sodium persulfate (as In Situ-Chemical Oxidation ISCO) into the saturated zone to enhance aerobic oxidation of residual fuel constituents in the groundwater (See Figure 2 for injection locations). In a directive dated October 18, 2012, Regional Board staff approved the RAP.

MARIA MEHRANIAN, CHAIR | SAMUEL UNGER, EXECUTIVE OFFICER

320 West 4th St., Suite 200, Los Angeles, CA 90013 | [www.waterboards.ca.gov/losangeles](http://www.waterboards.ca.gov/losangeles)

Regional Board staff has determined that the proposed discharge of sodium persulfate 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 WDR)*," adopted by the Los Angeles Regional Water Quality 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-9892 and Standard Provisions.

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

When submitting monitoring or technical reports to the Regional Board per these requirements, please include a reference to Compliance File No. CI-9892 to 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.

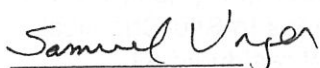
We are sending a copy of Order No. R4-2007-0019 only to the applicant. A copy of the Order will be furnished to anyone who requests it, or on line at:  
[http://www.waterboards.ca.gov/losangeles/board\\_decisions/adopted\\_orders/general\\_orders/r4-2007-0019/r4-2007-0019.pdf](http://www.waterboards.ca.gov/losangeles/board_decisions/adopted_orders/general_orders/r4-2007-0019/r4-2007-0019.pdf)

In accordance with regulations adopted by the State Water Resource Control Board (State Board) in September 2004 regarding electronic submittal of information (ESI), the Discharger has been electronically submitting Underground Storage Tank Program (UST) technical reports to the State Board GeoTracker system under the UST Global ID T0603703057. To comply with this MRP, the Discharger shall upload the MRP monitoring reports to the Geotracker under the two Global ID T0603703057 (continuing) and WDR WDR100007016 (new). For more information regarding the WDR Global ID, please see the ESI training video at:  
<https://waterboards.webex.com/waterboards/ldr.php?AT=pb&SP=MC&rID=44145287&rKey=7dad4352c990334b>.

To avoid paying future annual fees, please submit a written request for termination of your enrollment under the general permit in a separate letter when your project has been completed and the permit is no longer needed. Be aware that the annual fee covers the fiscal year billing period beginning July 1 and ending June 30 of the following year. You are required to pay the full annual fee if your request of termination is made after the beginning of the fiscal year.

If you have any questions regarding Order No. R4-2007-0019, please contact Mr. Eric Wu at (213) 620-6683 or [ewu@waterboards.ca.gov](mailto:ewu@waterboards.ca.gov). Questions regarding the UST issues should be forwarded to Magdy Baiady at (213) 576-6699 or [mbaiady@waterboards.ca.gov](mailto:mbaiady@waterboards.ca.gov).

Sincerely,

  
Samuel Unger, P.E.  
Executive Officer

Enclosures: 1. Board Order No. R4-2007-0019

2. Monitoring and Reporting Program No. CI-9892
3. Standard Provisions

cc: Kathy Jundt, State Water Resources Control Board, Underground Storage Tank Cleanup  
Fund  
Phuong Ly, Water Replenishment District of Southern California  
Kenneth Lew, City of Torrance Fire Department  
Katherine Brandt, Arcadis US, Inc.  
Mark O'Neil, Arcadis US, Inc.

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STATE OF CALIFORNIA  
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LOS ANGELES REGION  
MONITORING AND REPORTING PROGRAM NO. CI-9892  
for  
ARCO STATION NO. 03100  
20810 AVALON BOULEVARD, CARSON, CA  
(SODIUM PERSULFATE FOR GROUNDWATER CLEANUP)  
(ORDER NO. R4-2007-0019, SERIES NO. 206)

I. REPORTING REQUIREMENTS

- A. BP remediation management of Atlantic Richfield Company (ARCO) (Discharger) shall implement this monitoring program on the effective date of the enrollment under Regional Board Order No. R4-2007-0019. The first monitoring report under this program shall be received at the Regional Board by **July 15, 2013**. Subsequent monitoring reports shall be received at the Regional Board according to the following schedule:

<u>Monitoring Period</u>	<u>Report Due</u>
January – June	July 15 <sup>th</sup>
July – December	January 15 <sup>th</sup>

- B. If there is no discharge or injection during any reporting period, the report shall so state.
- C. 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.
- D. 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.
- E. 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.
- F. 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.

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- G. 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.
- H. 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.
- I. 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.
- J. 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.
- K. In accordance with regulations adopted by the State Water Resource Control Board (State Board) in September 2004 regarding electronic submittal of information (ESI), the Discharger has been electronically submitting Underground Storage Tank Program (UST) technical reports to the State Board GeoTracker system under the UST Global ID T0603703057. To comply with this MRP, the Discharger shall upload the MRP monitoring reports to the Geotracker under the two Global ID T0603703057 (continuing) and WDR100007016 (new).

## II. DISCHARGE MONITORING REQUIREMENTS

The reports shall contain the following information regarding injection activities:

1. Location map showing application area.
2. Written summary defining:
  - Depth of insertion and depth to groundwater;
  - Quantity of sodium persulfate per area; and
  - Total amount of sodium persulfate applied at site.
3. Groundwater monitoring wells shall not be used as sodium persulfate injection points to avoid reduction of groundwater monitoring network, data bias, well screen clogging and alternation. Separate injection points must be installed for the proposed chemical oxidation injection.

III. GROUNDWATER MONITORING PROGRAM

A groundwater-monitoring program shall be designed to detect and evaluate impacts associated with the sodium persulfate application. The monitoring program shall consist of upgradient wells B-18 and B-22, source well B-20A and downgradient well B-14 (See Figure 2). A baseline monitoring and sampling shall be conducted one or two weeks prior to the proposed sodium persulfate application. Baseline monitoring will establish the initial conditions with respect to the contaminant levels. These sampling stations shall not be changed and any proposed change of monitoring locations shall be identified and approved by the Executive Officer. The Discharger shall conduct regular sampling with the required frequencies from the up-gradient, down-gradient, and source monitoring wells for the following constituents:

<u>CONSTITUENT</u>	<u>UNITS</u> <sup>1</sup>	<u>TYPE OF SAMPLE</u>	<u>MINIMUM FREQUENCY OF ANALYSIS</u>
pH <sup>2</sup>	PH units	Grab	Semi-Annually
Temperature <sup>2</sup>	<sup>0</sup> F	grab	Semi-Annually
Oxidation-reduction potential <sup>2</sup>	Milivolts	grab	Semi-Annually
Specific conductivity <sup>2</sup>	µmhos/cm	grab	Semi-Annually
Ferrous iron	µg/L	grab	Semi-Annually
Dissolved Oxygen <sup>2</sup>	µg/L	grab	Semi-Annually
MTBE	µg/L	grab	Semi-Annually
Tert-Butyl Alcohol (TBA)	µg/L	grab	Semi-Annually
Di-isopropyl Ether (DIPE)	µg/L	grab	Semi-Annually
Ethyl-t-Butyl Ether (ETBE)	µg/L	grab	Semi-Annually
Tert-Amyl-Methyl Ether (TAME)	µg/L	grab	Semi-Annually
Acetone	µg/L	grab	Semi-Annually
Formaldehyde	µg/L	grab	Semi-Annually
Total Petroleum Hydrocarbons as gasoline (TPHg)	µg/L	grab	Semi-Annually
Carbon tetrachloride	µg/L	grab	Semi-Annually
Benzene	µg/L	grab	Semi-Annually
Ethylbenzene	µg/L	grab	Semi-Annually
Toluene	µg/L	grab	Semi-Annually
Total xylenes	µg/L	grab	Semi-Annually

Naphthalene	µg/L	grab	Semi-Annually
Methane	µg/L	grab	Semi-Annually
Total organic carbon	µg/L	grab	Semi-Annually
Total dissolved solids	mg/L	grab	Semi-Annually
Sulfate	mg/l	grab	Semi-Annually
Chloride	mg/L	grab	Semi-Annually
Boron	mg/L	grab	Semi-Annually
Carbon dioxide	mg/L	grab	Semi-Annually
Manganese	µg/L	grab	Semi-Annually
Total iron	µg/L	grab	Semi-Annually
Alkalinity	µg/L	grab	Semi-Annually
Chromium (VI) <sup>3</sup>	mg/L	grab	Semi-Annually <sup>3</sup>
Total Chromium <sup>3</sup>	mg/L	grab	Semi-Annually <sup>3</sup>

<sup>1</sup> mg/L: milligrams per liter; µg/L: micrograms per liter; µmhos/cm: microohms per centimeter; °F: degree Fahrenheit.

<sup>2</sup> Field instrument will be used to test for this constituent.

<sup>3</sup> The Discharger is required to monitor for total chromium and chromium six in the baseline, second and fourth semi-annual sampling. If detected at any of these sampling events, the total chromium and chromium six must be monitored semi-annually thereafter.

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.



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:

Samuel Unger  
Samuel Unger, P.E.  
Executive Officer

Date: January 15, 2013

