

## Los Angeles Regional Water Quality Control Board

October 20, 2017

Mr. Richard Solomon  
Phillips 66 Company  
3900 Kilroy Airport Way, Suite 210  
Long Beach, California 90806

Certified Mail  
Return Receipt Required  
Claim No. 7016 1370 0001 2479 7827

**REVISED MONITORING AND REPORTING PROGRAM NO. CI-9928 – LOS ANGELES EAST TERMINAL, 13500 SOUTH BROADWAY, LOS ANGELES, CALIFORNIA (FILE NO. 13-009, ORDER NO. R4-2014-0187, SERIES NO. 024, CI-9928, GLOBAL ID. WDR100009975)**

Dear Mr. Solomon,

Since 2013, Phillips 66 Company (Discharger) have conducted several pilot tests of in situ chemical oxidation (ISCO) treatment by various chemical oxidants including activated persulfate, sodium permanganate, and RegenOx for groundwater remediation of volatile organic compounds and total petroleum hydrocarbons at the subject site. The Discharger is currently enrolled under General Waste Discharge Requirements (WDR Order No. R4-2014-0187) with a Monitoring and Reporting Program (MRP) No. CI-9928.

Based on the evaluation of pilot study results, the Discharger submitted the *In Situ Chemical Oxidation Injection Work Plan* (Work Plan) dated April 21, 2017 to propose using activated persulfate for the full scale ISCO injection to treat elevated methyl tert-butyl ether concentrations in the groundwater located downgradient of Los Angeles East Terminal. On May 25, 2017, Regional Board staff approved the Work Plan.

It is estimated that 138,000 gallons of 5% activated persulfate (activated by sodium hydroxide) solution will be injected into 69 injection points (IP-14 through IP-82) at depths from approximately 43 to 70 feet below ground surface. The injection activities are expected to take approximately three months.

The proposed discharge shall not cause the mineral constituents of the receiving groundwater at the compliance point, downgradient outside the application area, in excess of applicable limits (West Coast Basin of the Los Angeles Coastal Plain Groundwater Basin) given in Attachment B of General WDRs Order No. R4-2014-0187. The groundwater quality objectives are 800 milligrams per liter (mg/L) for total dissolved solids, 250 mg/L for sulfate, 250 mg/L for chloride, and 1.5 mg/L for boron.

The revised MRP, which reflects the full scale ISCO treatment, is enclosed. The Discharger shall comply with the Electronic Submittal of Information (ESI) requirements by submitting all reports required under the MRP, including groundwater monitoring data, discharge location data, and pdf monitoring reports to the State Water Resources Control Board GeoTracker database under Global ID WDR100009975. Please do not combine other reports with your monitoring reports. Submit each type of report as a separate document.

For all parties who upload electronic documents to State Database GeoTracker, it is no longer necessary to email a copy of these documents to [losangeles@waterboards.ca.gov](mailto:losangeles@waterboards.ca.gov) or submit hard copies to our office. The Regional Board will no longer accept documents (submitted by either hard copy or email) already uploaded to GeoTracker. Please see Electronic Submittal to the Los Angeles Regional Board for GeoTracker Users dated December 12, 2011 at: <http://www.waterboards.ca.gov/losangeles/resources/Paperless/Paperless%20Office%20for%20OGT%20Users.pdf>

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

If you have any questions, please contact the Project Manager, Dr. Ann Chang at (213) 620-6122 ([ann.chang@waterboards.ca.gov](mailto:ann.chang@waterboards.ca.gov)), or the Chief of Groundwater Permitting Unit, Dr. Eric Wu at (213) 576-6683 ([eric.wu@waterboards.ca.gov](mailto:eric.wu@waterboards.ca.gov)).

Sincerely,

  
Samuel Unger, P.E.  
Executive Officer

Enclosure: Revised Monitoring and Reporting Program No. CI-9928 dated October 20, 2017

cc: Ms. Katherine Swords, Trihydro Corporation

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

REVISED MONITORING AND REPORTING PROGRAM NO. CI-9928  
FOR  
LOS ANGELES EAST TERMINAL  
13500 SOUTH BROADWAY, LOS ANGELES, CALIFORNIA

ENROLLMENT UNDER REGIONAL BOARD  
ORDER NO. R4-2014-0187 (SERIES NO. 024)  
FILE NO. 13-009

I. MONITORING AND REPORTING REQUIREMENTS

- A. Phillips 66 Company (hereinafter Discharger) shall implement this Monitoring and Reporting Program (MRP) on the effective date (October 20, 2017) under Regional Board Order No. R4-2014-0187. The next monitoring report under this program shall be received at the Regional Board by **January 30, 2018**. 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 30
April – June	July 30
July – September	October 30
October – December	January 30

- B. If there is no discharge or injection, during any reporting period, the report shall so state. By March 1 of each year, 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 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.
- C. The Discharger shall comply with requirements contained in Section G of Regional Board Order No. R4-2014-0187 "*Monitoring and Reporting Requirements*" in addition to the aforementioned requirements.

## II. DISCHARGE MONITORING PROGRAM

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

1. Location map showing injection points used for the activated persulfate solution.
2. Written and tabular summary defining depth of injection points, quantity of the activated persulfate solution injected at each injection point, and total amount of the activated persulfate solution injected at the Site.
3. Visual inspection at each injection point shall be conducted and recorded during the injection.

## III. GROUNDWATER MONITORING PROGRAM

A groundwater monitoring program shall be implemented to evaluate impacts associated with the injection activity. Groundwater samples shall be collected from monitoring wells MW-41, MW-45, MW-47, MW-60, MW-62, MW-64, MW-69, and MW-71 (Figure 1). The Discharger shall conduct a baseline sampling prior to the proposed injection, followed by specified schedules from all eight monitoring wells for the following groundwater parameters:

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Dissolved Oxygen	mg/L	grab	Baseline and quarterly after injection
Oxidation-Reduction Potential	millivolts	grab	Baseline and quarterly after injection
pH	pH units	grab	Baseline and quarterly after injection
Specific Conductivity	mS/cm	grab	Baseline and quarterly after injection
Temperature	°C	grab	Baseline and quarterly after injection
Turbidity	NTU	grab	Baseline and quarterly after injection
Total Organic Carbon	mg/L	grab	Baseline and quarterly after injection

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total Dissolved Solids	mg/L	grab	Baseline and quarterly after injection
Sulfate	mg/L	grab	Baseline and quarterly after injection
Chloride	mg/L	grab	Baseline and quarterly after injection
Boron	mg/L	grab	Baseline and quarterly after injection
Nitrate and Nitrite	mg/L	grab	Baseline and quarterly after injection
Volatile Organic Compounds	µg/L	grab	Baseline and quarterly after injection
Total Petroleum Hydrocarbons	µg/L	grab	Baseline and quarterly after injection

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. 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 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)"

**VI. PUBLIC DOCUMENTS**

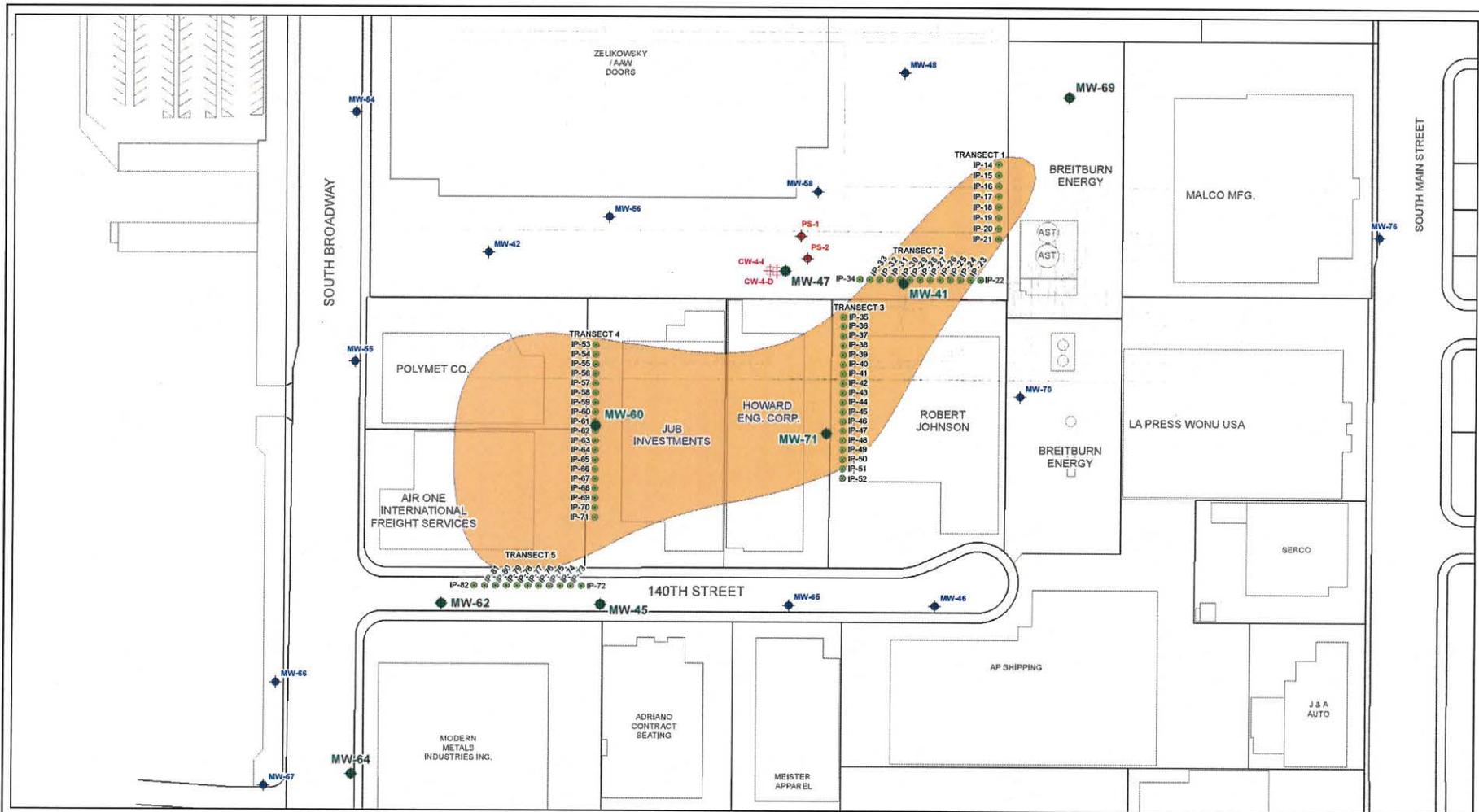
All records and reports submitted in compliance with Regional Board Order No. R4-2014-0187 and Monitoring and Reporting Program No. CI-9928 are public documents and will be made available for inspection during business hours at the office of the California Regional Water Quality Control Board, Los Angeles Region, upon request by interested parties. Only proprietary information, and only at the request of the Discharger will be treated as confidential.

**VII. ELECTRONIC SUBMITTAL OF INFORMATION**

The Discharger shall comply with the Electronic Submittal of Information (ESI) requirements by submitting all reports required under the MRP, including groundwater monitoring data in Electronic Deliverable Format, discharge location data, and searchable Portable Document Format of monitoring reports to the State Water Resources Control Board GeoTracker database under Global ID WDR100009975.

Ordered by: Samuel Unger  
Samuel Unger, P.E.  
Executive Officer

Date: October 20, 2017



**EXPLANATION**

- ◆ GROUNDWATER MONITORING WELL
- ◆ WDR MONITORING WELL
- ◆ PILOT STUDY GROUNDWATER MONITORING WELL
- ◆ INJECTION POINT
- ◆ CLUSTER WELL
- 1,300 (µg/L) MTBE CONCENTRATION IN GROUNDWATER (AUGUST 2016)

**NOTE:**  
µg/L = MICROGRAMS PER LITER.



0 120'



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Drawn By: DH

Checked By: KS

Scale: 1" = 120'

Date: 8/16/17

File: InjPoints\_Fig1.mxd

**FIGURE 1**

**PROPOSED FULL-SCALE INJECTION POINT LOCATION MAP**

**PHILLIPS 66 LOS ANGELES EAST TERMINAL 0381  
13500 SOUTH BROADWAY  
LOS ANGELES, CALIFORNIA**