

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

MONITORING AND REPORTING PROGRAM NO. CI-9416  
FOR  
GROUNDWATER PLUME AREA 1 AND AREA 2  
PIER A WEST/AREA 2  
101-501 NORTH HENRY FORD AVENUE, WILMINGTON, CALIFORNIA

ORDER NO. R4-2007-0019  
SERIES 061

**I. REPORTING REQUIREMENTS**

- A. The Discharger shall implement this monitoring program on the effective date of this enrollment (May 28, 2008) under Regional Board Order No. R4-2007-0019. The first monitoring report under this Program is due by October 15, 2008.

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. 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. R4-2007-0019 “*Monitoring and Reporting Requirements*” in addition to the aforementioned requirements.

**II. IN-SITU CHEMICAL OXIDATION (ISCO) INJECTION MONITORING REQUIREMENTS**

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

- A. Location maps showing barriers and injection points for the permanganate, ozone and hydrogen peroxide solutions.

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- B. Written summary defining:
1. Depth of injection points;
  2. Quantity of each solution injected per injection point;
  3. Total amount of each solution injected at site; and
  4. Verification of each solution injected.

### III. GROUNDWATER MONITORING PROGRAM

The Discharger may use existing data for background groundwater characteristics. The following shall constitute the monitoring program. The Discharger shall conduct baseline sampling prior to ISCO injections, followed by week 1, week 2, week 4, week 8, week 12, and week 16 sampling events after the ISCO injections from monitoring wells and injection wells (listed below) (see also Figures 1 through 4) for the following groundwater parameters:

WELL NUMBER	WELL STATUS
<i>Sodium Permanganate Solution (Area 1)</i>	
LTUN-MW-1	Down gradient monitoring well
OP-1 <sup>(1)</sup>	Cross gradient monitoring well
OP-2 <sup>(1)</sup>	Cross gradient monitoring well
OP-3 <sup>(1)</sup>	Cross gradient monitoring well
OP-4 <sup>(1)</sup>	Cross gradient monitoring well
OP-5 <sup>(1)</sup>	Cross gradient monitoring well
OP-6 <sup>(1)</sup>	Up gradient monitoring well
<i>Sodium Permanganate Solution (Area 2)</i>	
PierAW-7	Cross gradient monitoring well
OP-21 <sup>(1)</sup>	Cross gradient monitoring well
OP-22 <sup>(1)</sup>	Cross gradient monitoring well
OP-23 <sup>(1)</sup>	Cross gradient monitoring well
OP-24 <sup>(1)</sup>	Cross gradient monitoring well
OP-25 <sup>(1)</sup>	Cross gradient monitoring well
OP-26 <sup>(1)</sup>	Up gradient monitoring well
OP-27 <sup>(1)</sup>	Down gradient monitoring well
OP-28 <sup>(1)</sup>	Monitoring well within the injection area
OP-29 <sup>(1)</sup>	Cross gradient monitoring well
<i>Ozone and hydrogen peroxide (Area 1)</i>	
SP-1 through SP-11	Injection wells
LTUN-MW-4	Up gradient monitoring well
PierAW-2	Down gradient monitoring well

<sup>1</sup> A new groundwater monitoring well shall be installed prior to start of the ISCO program

WELL NUMBER	WELL STATUS
OP-1 <sup>(1)</sup>	Cross gradient monitoring well
OP-2 <sup>(1)</sup>	Cross gradient monitoring well
OP-3 <sup>(1)</sup>	Cross gradient monitoring well
OP-4 <sup>(1)</sup>	Cross gradient monitoring well
OP-5 <sup>(1)</sup>	Cross gradient monitoring well
OP-6 <sup>(1)</sup>	Up gradient monitoring well
<i>Ozone and hydrogen peroxide (Area 1)</i>	
SP-21 through SP-28	Injection wells
PierAW-6	Up gradient monitoring well
PierAW-4	Down gradient monitoring well
PierAW-7	Cross gradient monitoring well
OP-21 <sup>(1)</sup>	Monitoring well within the injection area
OP-22 <sup>(1)</sup>	Monitoring well within the injection area
OP-23 <sup>(1)</sup>	Monitoring well within the injection area
OP-24 <sup>(1)</sup>	Monitoring well within the injection area
OP-25 <sup>(1)</sup>	Down gradient monitoring well
OP-26 <sup>(1)</sup>	Cross gradient monitoring well
OP-27 <sup>(1)</sup>	Down gradient monitoring well
OP-28 <sup>(1)</sup>	Monitoring well within the injection area
OP-29 <sup>(1)</sup>	Up gradient monitoring well

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total daily injection waste flow	gallons/day (to indicate solution concentration)	In-Situ	Daily during injection
Groundwater Elevation	Feet, mean sea level (msl) and below ground surface (bgs)	In-Situ	Baseline, Weeks 1, 2, 4, 8, 12, 16, semi-annually, and annually
pH	pH units	grab	Baseline, Weeks 1, 2, 4, 8, 12, 16, semi-annually, and annually
Temperature	Degrees C	grab	Baseline, Weeks 1, 2, 4, 8, 12, 16, semi-annually, and annually

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Dissolved Oxygen	µg/l	grab	Baseline, Weeks 1, 2, 4, 8, 12, 16, semi-annually, and annually
Turbidity	NTU	grab	Baseline, Weeks 1, 2, 4, 8, 12, 16, semi-annually, and annually
Specific Conductance	mS/cm	grab	Baseline, Weeks 1, 2, 4, 8, 12, 16, semi-annually, and annually
Oxidation-Reduction Potential	Millivolts	grab	Baseline, Weeks 1, 2, 4, 8, 12, 16, semi-annually, and annually
Total Organic Carbon (EPA Method 415.1)	µg/l	grab	Baseline, Weeks 1, 2, 4, 8, 12, 16, semi-annually, and annually
Chlorinated Volatile Organic Compounds (EPA Method 8260B)	µg/l	grab	Baseline, Weeks 1, 2, 4, 8, 12, 16, semi-annually, and annually
Total Petroleum Hydrocarbons (EPA Method 8015C)	µg/l	grab	Baseline, Weeks 1, 2, 4, 8, 12, 16, semi-annually, and annually
Dissolved Metals (arsenic, barium, boron, cadmium, chromium, hexavalent chromium, copper, iron, lead, manganese, mercury, selenium, and zinc)	µg/l	grab	Baseline, Weeks 1, 2, 4, 8, 12, 16, semi-annually, and annually
Major Anions (bromide, nitrate, nitrite, O-phosphate, and sulfide)	mg/l (as Nitrogen)	grab	Baseline, Weeks 1, 2, 4, 8, 12, 16, semi-annually, and annually
Major Cations (barium, calcium, magnesium, manganese, potassium, and sodium)	mg/l	grab	Baseline, Weeks 1, 2, 4, 8, 12, 16, semi-annually, and annually
Color	color unit	grab	Baseline, Weeks 1, 2, 4, 8, 12, 16,

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
			semi-annually, and annually
Permanganate	mg/l	grab	Baseline, Weeks 1, 2, 4, 8, 12, 16, semi-annually, and annually
Alkalinity, as CaCO	mg/l	grab	Baseline, Weeks 1, 2, 4, 8, 12, 16, semi-annually, and annually

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; and
- D. Tabular and graphical summaries of all the monitoring data.

**IV. 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)"

Pier A West/Area 2  
(Groundwater Plume Area 1 and Area 2)  
WDR Order No. R4-2007-0019  
Monitoring and Reporting Program No. CI-9416

File No. 01-116

**V. 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.

All records and reports submitted in compliance with this Order are public documents and shall be made available for inspection during business hours at the office of the California Regional Water Quality Control Board, Los Angeles Region, upon requested by interested parties. Only proprietary information, and only at the request of the Discharger will be treated as confidential.

Ordered by: \_\_\_\_\_  
Tracy J. Egoscue  
Executive Officer

Date: May 28, 2008