California Regional Water Quality Control Board
Los Angeles Region

320 West Fourth Street, Suite 200, Los Angeles, California 90013
(213) 576-6600 • Fax (213) 576-6640
http://www.waterboards.ca.gov/losangeles

Linda S. Adams
Acting Secretary for
Environmental Protection

Edmund G. Brown Jr.
Governor

February 9, 2011

Mr. Bill Grier
Clariant Corporation
4000 Monroe Road
Charlotte, NC 28205

SUBJECT: ENROLLMENT UNDER GENERAL WASTE DISCHARGE REQUIREMENTS (ORDER NO. R4-2007-0019), PROPOSED IN-SITU CHEMICAL OXIDATION USING OXYGEN RELEASE COMPOUND

SITE: FORMER CLARIANT OIL SERVICES, 801 W. 14TH STREET, LONG BEACH, CA (SCP NO. 0988, SITE ID NO. 204EB00, WDR FILE NO. 10-168, CI-9664)

Dear Mr. Grier:

California Regional Water Quality Control Board, Los Angeles Region (Regional Board) staff completed our review of your application for coverage under the General Waste Discharge Requirements (WDR) to use a Oxygen Release Compound (ORC) product for the in-situ chemical oxidation (ISCO) to remediate total petroleum hydrocarbon (TPH) and volatile organic compounds (VOCs) impact to the subsurface at the above referenced site (Site). We have determined the proposed discharge meets the conditions specified in Regional Board 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*," adopted by the Regional Board on March 1, 2007.

In May 2001, Clariant Corporation (Clariant) purchased the half-acre Site from the former Technical Service Company. The Site is located in an industrialized area and was used to store and distribute chemicals that are used in the oil production industry. Currently the Site is vacant and in the process of being redeveloped by Clariant. Contaminants of concern (COCs) sources at the Site were identified as underground storage tanks (USTs) and a leaking sewer pipe conveying fluids from an on-site laboratory. Between 1985 and 1989, these USTs and on-site laboratory were removed. These COCs have impacted soil, soil vapor, and groundwater at the Site, and include TPH-gasoline, TPH-diesel, chlorinated VOCs, benzene, toluene, ethylbenzene, and xylenes (BTEX).

The Third and Fourth Quarter 2010 groundwater monitoring was conducted with results indicating that TPH-gasoline in groundwater was detected up to 120,000 micrograms per liter (µg/L), TPH-diesel detected up to 4,500 µg/L, benzene detected up to 16,000 µg/L, ethylbenzene detected up to 3,400 µg/L, toluene detected up to 42,000 µg/L, and total xylenes detected up to 19,000 µg/L.

On December 16, 2010, we received a *Form 200, Application/Report of Waste Discharge, and General Information Form for Waste Discharge Requirements* or NPDES Permit for the Site from the Discharger. Clariant submitted the Interim Remedial Action Plan (IRAP) dated September 24, 2010, for the Site,

which was approved by the Regional Board on December 3, 2010. Clariant proposed excavation of soils contaminated with TPH in an area at the Site to remove the bulk of TPH contamination of soils. This soil excavation will not remove the entire mass of contamination and residual dissolved phase contaminants will remain in the excavation area after backfilling. The discharger therefore proposes the application of ORC product along with clean backfill material to treat residual dissolved phase contaminants in the excavation area. This proposal requires this application for WDR for the Site proposing ORC be added to the subsurface, a groundwater monitoring program, and performance goals for these remedial actions.

Based on our review of the application and subsequently submitted documents, the Regional Board concurs with the application as submitted.

You may begin the application of ORC (a compound of magnesium peroxide) which can be mixed with water to form slurry to be injected into the subsurface or applied as a soil amendment to the backfill material as proposed. Enclosed are your Waste Discharge Requirements, consisting of Regional Board Order No. R4-2007-0019 (Series No. 103) and Monitoring and Reporting Program No. CI-9543.

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-9543", 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.

To avoid paying future annual fees, please submit written request for termination of your enrollment under the general WDR in a separate letter, when your project has been 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 Dr. Kwang-il Lee at (213) 576-6734 or Mr. Robert Ehe at (213) 576-6740.

Sincerely,

Samuel Unger

Samuel Unger, PE
Executive Officer

Enclosures:

1) General Waste Discharge Requirements, Order No. R4-2007-0019 and Standard Provisions
2) Monitoring and Reporting Program, CI No. 9656
3) Figure 3
4) Fact Sheet

cc: Mr. Steven Hart, Hart & Hickman

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
MONITORING AND REPORTING PROGRAM NO. CI-9664
FOR
FORMER CLARIANT OIL SERVICES FACILITY
801 WEST 14TH STREET, LONG BEACH, CALIFORNIA
(ORC APPLICATION FOR GROUNDWATER CLEANUP)
(ORDER NO. R4-2007-0019) (Series No. 103)
(SCP FILE NO. 0988)

I. REPORTING REQUIREMENTS

A. Clariant Corporation (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 April-June 2011, shall be received at the Regional Board by July 15, 2011. Subsequent monitoring reports shall be received at the Regional Board according to the following schedule:

Monitoring Period	Report Due
January – March	April 15
April – June	July 15
July – September	October 15
October – December	January 15

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.

B. By March 1st 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 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).

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.

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. The Discharger should not implement any changes to the Monitoring and Reporting Program prior to receiving Executive Officer's written approval.

II. ORC APPLICATION MONITORING REQUIREMENTS

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

1. Location map showing placement locations, used for the oxygen release compound (ORC) (refer to attached Figure 4 for groundwater contour, Figure 5 for groundwater contaminant plume, and Figure 3 for the proposed discharge area and proposed monitoring well locations).

2. Written and tabular summary defining the quantity of ORC (a compound of magnesium peroxide) applied to the groundwater and a summary describing the process of application.

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total ORC applied	Kilograms	--	• Once

III. GROUNDWATER MONITORING PROGRAM

The Discharger shall conduct groundwater monitoring at the site. Groundwater samples shall be collected from the existing and proposed monitoring wells, up-gradient groundwater monitoring well (PMW-6), source area monitoring wells (PMW-7 and FW-1), and down-gradient monitoring wells (PMW-9, PMW-10, and MW-5) on a quarterly basis to monitor the effectiveness of the in-situ groundwater remediation. The locations of these wells are shown in the attached Figure 3. ORC application area 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
Total petroleum hydrocarbons as gasoline (TPHg) and as diesel (TPHd)	µg/L	Grab	• Quarterly[1]
Benzene, Toluene, Ehylbenzene, Xylenes (BTEX)	µg/L	Grab	• Quarterly[1]
Methyl tertiary butyl ether	µg/L	Grab	• Quarterly[1]

(MTBE), Tertiary butyl alcohol (TBA), Tertiary amyl methyl ether (TAME), Di-isopropyl ether (DIPE), ether (ETBE)			
Ethanol Formaldehyde Acetone	µg/L	Grab	• Quarterly[1]
Total dissolved solids, Arsenic, Boron, Chloride, Bromide, Sulfate, Lead, Nickel, Cadmium, Manganese	mg/L	Grab	• Quarterly[1]
Oxidation-reduction potential	milivolts		• Quarterly[1]
Dissolved Oxygen	µg/L	Grab	• Quarterly[1]
Dissolved ferrous iron	µg/L	Grab	• Quarterly[1]
Total Chromium and chromium six [2]	µg/L	Grab	• Quarterly[1]
PH	pH units	Grab	• Quarterly[1]
Temperature	^{0}F/^{0}C	Grab	• Quarterly[1]
Groundwater Elevation	Feet, mean sea level and below ground surface	In situ	• Quarterly[1]

[1] One week before injection and Quarterly thereafter

[2] The Discharger is required to monitor for total chromium and chromium six in the baseline, second and fourth quarterly sampling. If detected at any of these sampling events, the total chromium and chromium six must be monitored quarterly thereafter.

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)

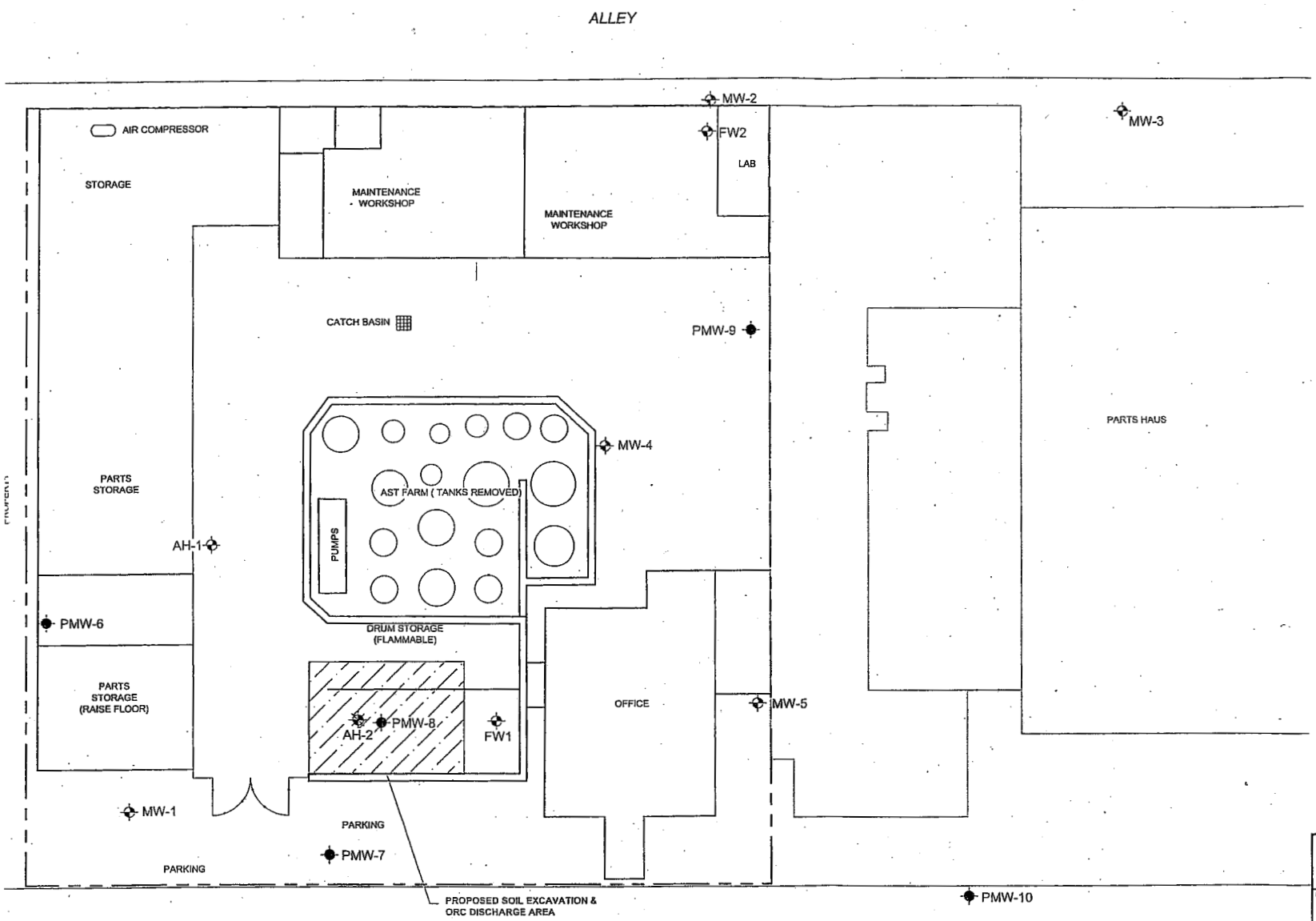
_____(Title)"

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: Samuel Unger
Samuel Unger, PE
Executive Officer

Date: February 9, 2011



LEGEND

- PROPERTY BOUNDARY
- PERMANENT MONITORING WELL
- ABANDONED MONITORING WELL
- PROPOSED MONITORING WELL

N

APPROXIMATE

0 20 40

SCALE IN FEET

TITLE

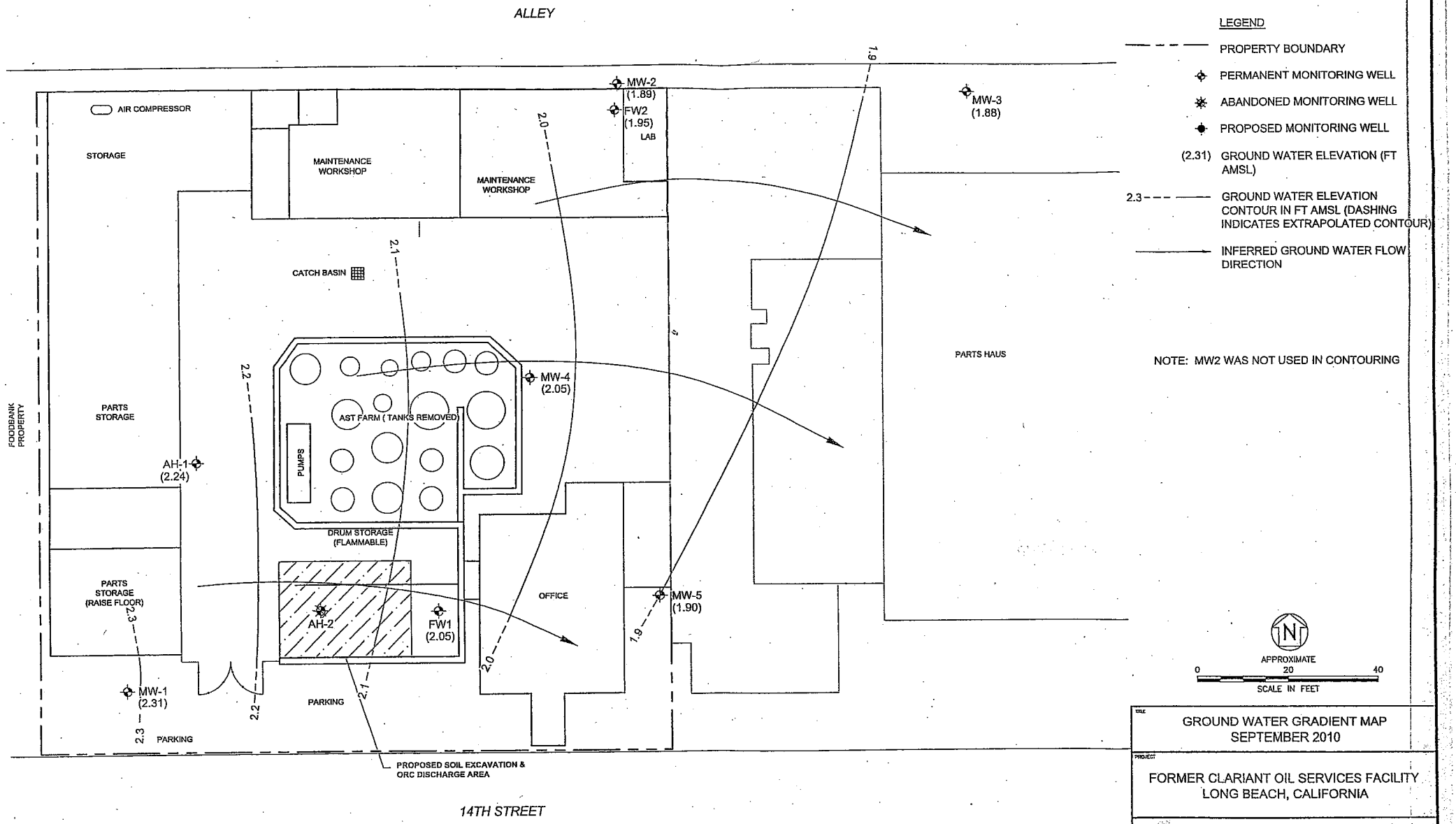
SITE PLAN

PROJECT

FORMER CLARIANT OIL SERVICES FACILITY
LONG BEACH, CALIFORNIA

Hart & Hickman
A Professional Corporation
2923 South Tryon Street-Suite 1
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f
License # C-1269

DATE: 10/13/10	REVISION NO. 0
JOB NO. CLR-033	FIGURE NO. 3



LEGEND

- PROPERTY BOUNDARY
- PERMANENT MONITORING WELL
- ABANDONED MONITORING WELL
- PROPOSED MONITORING WELL
- (2.31) GROUND WATER ELEVATION (FT AMSL)
- 2.3 GROUND WATER ELEVATION CONTOUR IN FT AMSL (DASHING INDICATES EXTRAPOLATED CONTOUR)
- INFERRED GROUND WATER FLOW DIRECTION

NOTE: MW2 WAS NOT USED IN CONTOURING

N

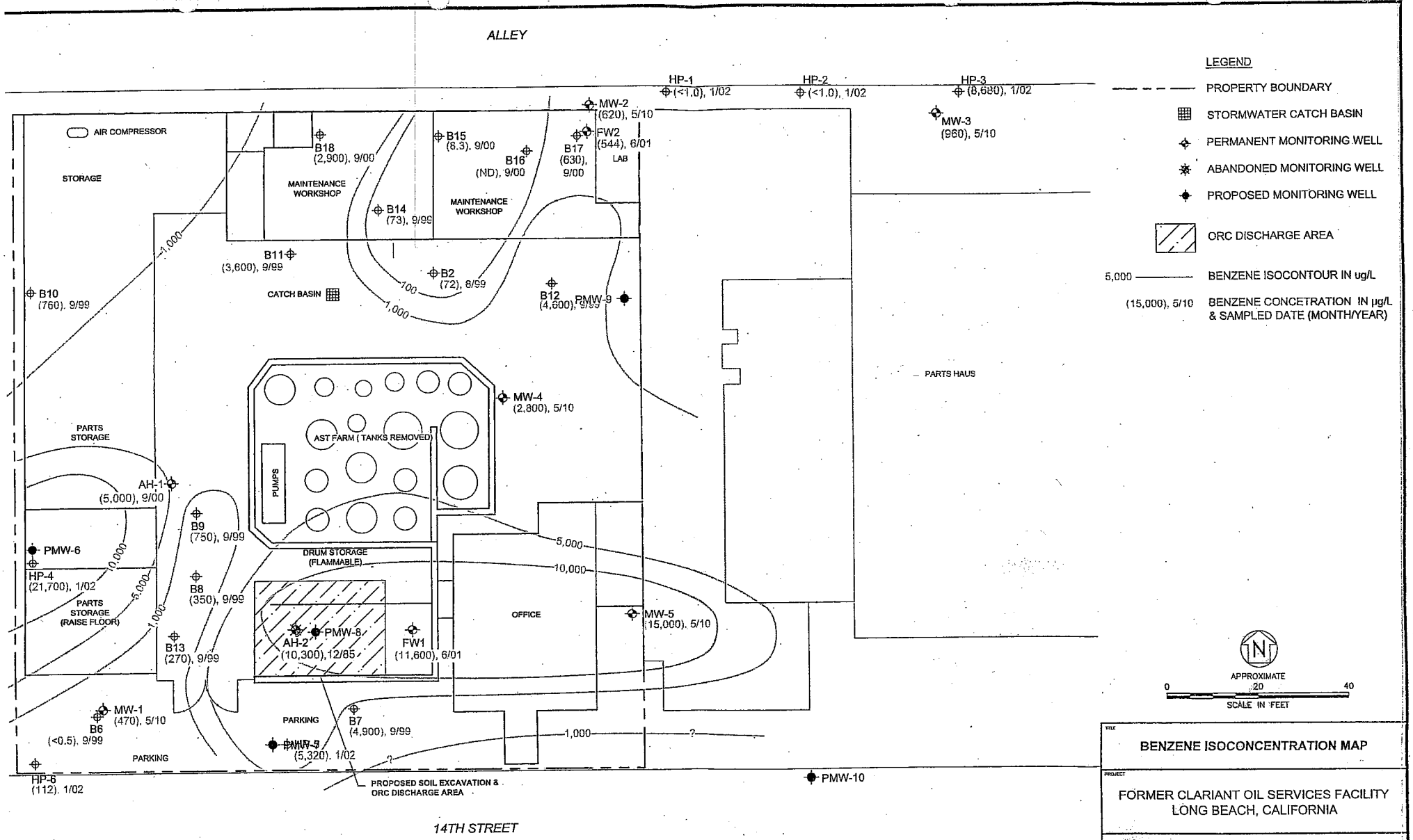
APPROXIMATE
0 20 40
SCALE IN FEET

TITLE
GROUND WATER GRADIENT MAP
SEPTEMBER 2010

PROJECT
FORMER CLARIANT OIL SERVICES FACILITY
LONG BEACH, CALIFORNIA

Hart & Hickman
A PROFESSIONAL CORPORATION
2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)
License # C-1269

DATE: 10/13/10	REVISION NO. 0
JOB NO. CLR-033	FIGURE NO. 4



TITLE

BENZENE ISOCONCENTRATION MAP

PROJECT

FORMER CLARIANT OIL SERVICES FACILITY
LONG BEACH, CALIFORNIA

Hart & Hickman
A PROFESSIONAL CORPORATION
2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)
License # C-1269

DATE: 10/13/10	REVISION NO.: 0
JOB NO.: CLR-033	FIGURE NO. 5

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 CLARIANT OIL SERVICES FACILITY 801 WEST 14TH STREET, LONG BEACH, CALIFORNIA

IN-SITU CHEMICAL TREATMENT USING ORC

ORDER NO. R4-2007-0019 (SERIES NO. 103)
CI-9664, FILE NO. 10-168

FACILITY ADDRESS
801 West 14th Street
Long Beach, CA

FACILITY MAILING ADDRESS
Mr. Bill Grier
Clariant Corporation
4000 Monroe Road
Charlotte, NC 28205

PROJECT DESCRIPTION

Site Description: The Clariant Corporation (Discharger) plans construction to redevelop former Clariant Oil Services facility site (Site) located at 801 West 14th Street in Long Beach. The approximately half-acre Site consists of is located in an industrialized area and is used to store and distribute chemicals that are used in the oil production industry. It is currently vacant and in the process of being redeveloped.

Chemicals of Concern: Contaminants of concern (COCs) detected in the subsurface at the Site include volatile organic compounds (VOCs), total petroleum hydrocarbons-gasoline (TPH-g) and total petroleum hydrocarbons-diesel (TPH-d). Sources of COCs previously identified on-site were former underground storage tanks (USTs) and a leaking sewer pipe from a former on-site laboratory. Between 1985 and 1989, these USTs and on-site laboratory were removed.

Site Assessment/Cleanup Status: Soil assessment was completed in April 2010 in the area east of a prior excavation adjacent the former 5,000-gallon UST, indicating the presence of high concentrations of TPH-g and benzene, with benzene detected in soil up to 19 milligram per kilogram (mg/kg) at 2 feet below ground surface (bgs). On December 3, 2010, the Regional Board approved *Interim Remedial Action Plan* (IRAP) dated September 24, 2010, submitted on behalf of the Discharger for the Site. The IRAP proposes soil excavation in the area of a former gasoline underground storage tank (UST), application of Oxygen Release Compound (ORC) to the bottom of this excavation, and further groundwater monitoring.

The Site is underlain by silty clay and silty sand, the depth to ground water in the area of the excavation is approximately 8 feet bgs. The proposed excavation will be extended to a depth of approximately 10 feet bgs including impacted soil in the saturated zone, which could be a continuing source of groundwater impact. Based upon the soil excavation area and excavation depth of 10 feet, approximately 250 cubic yards (approximately 350 tons) of impacted soil will be removed and disposed off-site. Following the proposed excavation and sampling, the area will be backfilled with clean, imported fill, and the surface pavement will be replaced. ORC will first be applied by mixing ORC material with backfill to be placed in the bottom 2 feet of the excavation.

VOLUME AND DESCRIPTION OF APPLICATION OF ORC

ORC Injection Description: The discharger proposes to use an ORC that is a magnesium peroxide compound that, when hydrated, produces a controlled release of oxygen for periods of up to 12 months. The produced oxygen will accelerate the rate of naturally occurring aerobic contaminant biodegradation in

ground water and saturated soils. The ORC is a powdered material that will be applied to the base of the excavation after soil removal. It is anticipated that 1,000 lbs of ORC will be applied at a rate of approximately 0.5% by weight of the soil matrix to the base of the excavation. The ORC material will be mixed with the backfill to be placed in the bottom two ft of the excavation, the mixed ORC and backfill will be placed in the excavation.

In addition, groundwater monitoring at the Site and in the vicinity of the ORC discharge area will assist in evaluating the effectiveness of the ORC on reducing the concentrations of COCs and its effect on water quality.