



EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIGUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Los Angeles Regional Water Quality Control Board

November 15, 2013

Mr. Greg Grover
Circle K Stores, Inc.
255 East Rincon, Suite 100
Corona, CA 92879

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
CLAIM NO. 7012 3460 0000 2166 1603

**GENERAL WASTE DISCHARGE REQUIREMENTS FOR GROUNDWATER CLEANUP AT
PETROLEUM HYDROCARBON FUEL, VOLATILE ORGANIC COMPOUND AND/OR
HEXAVALENT CHROMIUM IMPACTED SITES
CIRCLE K STORE #2211335 (FORMER MOBIL #18-MXY)
2601 ATLANTIC AVENUE, LONG BEACH
(CASE NO. 908060107; ORDER NO. R4-2007-0019; SERIES NO. 237; CI NO. 9997)**

Dear Mr. Grover,

We have completed our review of your application for coverage under the General Waste Discharge Requirements for injection of gaseous ozone into the groundwater at the site referenced above in Long Beach, California, for groundwater cleanup and remediation pilot testing.

Circle K Store is an active gasoline service station located at the northwest corner of East Willow Street and Atlantic Avenue, Long Beach, California (Site) (Figure 1)

Since 1986, environmental investigations, including a tank replacement event and seven site assessments have been performed. Installation of four vapor monitoring wells (M-1 through M-4), three discovery wells (ALT-1 through ALT-3), seventeen groundwater monitoring wells (MW-1 through MW-17) one extraction well (EW-1), a multiple-screen observation well (OW-1A/B/C), two multiple-screen vapor extraction wells (VEW-1 and VEW-2), and one air sparge injection well (ASW-1) has also been conducted. A periodic groundwater monitoring program started in January 1992. According to the latest Semi-Annual Status Report dated June 18, 2013, the groundwater contamination beneath this site has migrated offsite. The tert-butyl alcohol (TBA) concentrations in onsite wells MW03, OW01C, ASW01 and offsite wells MW08 and MW11 show an increasing trend. On April 10, 2013, the maximum TBA concentration detected onsite was encountered in well OW01C at 59,000 microgram per liter ($\mu\text{g/L}$), and the maximum offsite TBA concentration was detected in well MW11 at 6,200 $\mu\text{g/L}$. Your consultant has submitted a workplan to install one ozone sparge well (OS-1) to conduct an ozone sparge remediation feasibility test. The proposed well (OS-1) will be installed to a depth of 52 feet below ground surface (bgs). The well will be perforated from 50 to 52 feet bgs. Ozone sparge (OS) remediation feasibility testing will be conducted using well OS-1. Wells MW01, MW02, MW03, MW17, OW01C, VEW-1 and VEW-2 will be used to establish baseline hydrocarbon concentrations and to determine the radius of influence of the OS activities. Two vapor and two groundwater samples will be collected to determine whether the vapor and groundwater concentrations decrease or increase due to OS activities. The vapor and groundwater samples

MARIA MEHRANIAN, CHAIR | SAMUEL UNGER, EXECUTIVE OFFICER

will be analyzed for total petroleum hydrocarbons as gasoline, benzene, toluene, ethylbenzene, total xylenes and oxygenates by EPA Method TO-15 and 8260B, respectively. The depths to groundwater will be measured prior to and during OS testing in wells MW-1 and OW01C to determine if OS is causing groundwater mounding. Dissolved oxygen concentrations will also be measured. Based on our review, we concur with your workplan as proposed provided the followings conditions are met:

1. All permits must be obtained from the appropriate agencies prior to the start of work.
2. The contractor who conducts the environmental work as required in this approval letter and the following order (R4-2007-0019) shall, at all times, comply with all applicable State laws, rules, regulations, and local ordinances specifically, including but not limited to, environmental, procurement and safety laws, rules, regulations, and ordinances. The contractor shall obtain the services of a Professional Geologist or Engineer, Civil (PG/PE-Civil) to comply with the applicable requirements of the Business and Professions Code, sections 7800 et seq. implementing regulations for geological or engineering analysis and interpretation for this case. All documents prepared for others by the contractor that reflect or rely upon geological or engineering interpretations by the contractor shall be signed or stamped by the PG/PE-Civil indicating her/his responsibility for them as required by the Business and Professions Code.
3. You are required to notify us at least seven working days prior to field work so that we can schedule a member of our staff to be present.
4. The status on the proposed work is to be reported in the Semi-Annual Status Report.

Regional Board staff has determined that the proposed injection of ozone 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 WDRs)," adopted by the Los Angeles Regional Water Quality Control Board on March 1, 2007.

Enclosed are your Waste Discharge Requirements (WDRs), consisting of General WDRs Board Order No. R4-2007-0019 and Monitoring and Reporting Program No. 9997 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.

In accordance with regulations adopted by the State Board in September 2004 regarding electronic submittal of information (ESI), you have been electronically submitting monitoring reports to the State Board GeoTracker system under UST Global ID T0603701829. To comply with the Monitoring and Report Program (MRP) under this WDR, you shall upload the WDR monitoring reports to the GeoTracker under two Global ID T0603701829 (continuing) and Global ID WDR100009415 (new). For more information regarding the new WDR Global ID, please see ESI training video available at: <https://waterboards.webex.com/waterboards/ldr.php?AT=pb&SP=MC&rID=44145287&rKey=7dad4352c990334b>

When submitting monitoring or technical reports to the Regional Board per these requirements, please include a reference to Compliance File No. CI-9997 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.

Mr. Greg Grover
Circle K Store #2211335

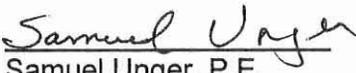
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To avoid paying future annual fees, please submit a written request for termination of your enrollment under the general permit in a separate letter, when your project has been completed and the permit is no longer needed. Be aware that the annual fee covers the fiscal year billing period beginning July 1 and ending June 30, 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 regarding the WDRs, please contact Mr. Eric Wu at (213) 620-6683 or ewu@waterboards.ca.gov. Questions regarding underground storage tank issues should be forwarded to Mr. Nhan Bao at (213) 576-6703 or nbao@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-9997
3. Standard Provisions

Cc: Kathy Jundt, State Water Resources Control Board, Underground Storage Tank Cleanup Fund
Phuong Ly, Water Replenishment District of Southern California
Carmen Piro, City of Long Beach
Anand Helekar, TRC

STATE OF CALIFORNIA
 CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
 LOS ANGELES REGION
 MONITORING AND REPORTING PROGRAM NO. CI-9997
 for
 CIRCLE K STORE #2211335 (FORMER MOBIL #18-MXY)
 2601 ATLANTIC AVENUE, LONG BEACH
 (OZONE INJECTION FOR GROUNDWATER CLEANUP)
 (ORDER NO. R4-2007-0019, SERIES NO. 237)

I. REPORTING REQUIREMENTS

- A. Circle K Stores Inc. (hereinafter Discharger) shall implement this monitoring program on the effective date of this Monitoring and Reporting Program (MRP). The first monitoring report under this program shall be received at the Regional Board by **July 15, 2014**. 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 th
July – December	January 15 th

If there is no discharge or injection during any reporting period, the report shall so state.

- B. 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.
- C. 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.
- D. 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.
- E. 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.
- F. 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 Waste Discharge Requirements

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(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.

- G. 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.
- H. 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.
- I. 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.
- J. The Discharger should not implement any changes to the Monitoring and Reporting Program prior to receiving the Executive Officer's written approval.
- K. In accordance with regulations adopted by the State Board in September 2004 regarding electronic submittal of information (ESI), the Discharger has been electronically submitting monitoring reports to the State Board GeoTracker system under UST Global ID T0603701829. To comply with the Monitoring and Reporting Program (MRP) under this WDR, the Discharger shall upload the WDR monitoring reports to the Geotracker under the two Global ID T0603701829 (continuing) and Global ID WDR100009415 (new).

II. OZONE SPARGE MONITORING REQUIREMENTS

The reports shall contain the following information regarding ozone sparging activities:

1. Written summary defining the quantity of ozone sparged to the groundwater and a summary describing the time the injection was in operation.
2. *Location map showing sparge point(s).* To avoid groundwater monitoring network reduction, data bias, and well screen clogging or alteration, no groundwater monitoring wells shall be used as sparge points. Additional sparge well(s) must be reviewed and approved by the Regional Board staff before install at the site for the ozone sparging.

III. GROUNDWATER MONITORING PROGRAM

A groundwater-monitoring program shall be designed to detect and evaluate impacts associated with the ozone sparging. The monitoring program shall consist of source wells MW01 and OW01C, up-gradient well MW03, down-gradient wells MW02 and MW17, and vapor extraction wells VEW-1 and VEW-2. (See Figure 2) A baseline monitoring and sampling shall be conducted prior to the proposed ozone sparging. Baseline monitoring will established the initial conditions with respect to the contaminant levels and depths to groundwater. The Discharger shall conduct

baseline sampling one or two weeks prior to ozone sparging. Groundwater shall be monitored for the duration of the remediation with the required frequencies for the following constituents:

CONSTITUENT	UNITS ¹	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
pH ²	PH Units	Grab	Semi-Annually
Temperature ²	^o F	Grab	Semi-Annually
Oxidation-reduction potential ²	Milivolts	Grab	Semi-Annually
Specific conductivity ²	µmhos/cm	Grab	Semi-Annually
Ferrous iron	µg/L	Grab	Semi-Annually
Dissolved Oxygen ²	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
Naphthalene	µg/L	Grab	Semi-Annually
Formaldehyde	µg/L	Grab	Semi-Annually
Total Petroleum Hydrocarbons As gasoline (TPHg)	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
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

CONSTITUENT	UNITS ¹	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Alkalinity	µg/L	Grab	Semi-Annually
Chromium (VI) ³	mg/L	Grab	Semi-Annually ³
Total Chromium ³	mg/L	Grab	Semi-Annually ³

¹ mg/L: milligrams per liter; µg/L: micrograms per liter; µmhos/cm: microohms per centimeter; °F: degree Fahrenheit.
² Field instrument will be used to test for this constituent.
³ 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 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

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 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)"

Circle K Stores #2211335
(Former Mobil Station 18-MXY)
Monitoring & Reporting Program No. CI-9997

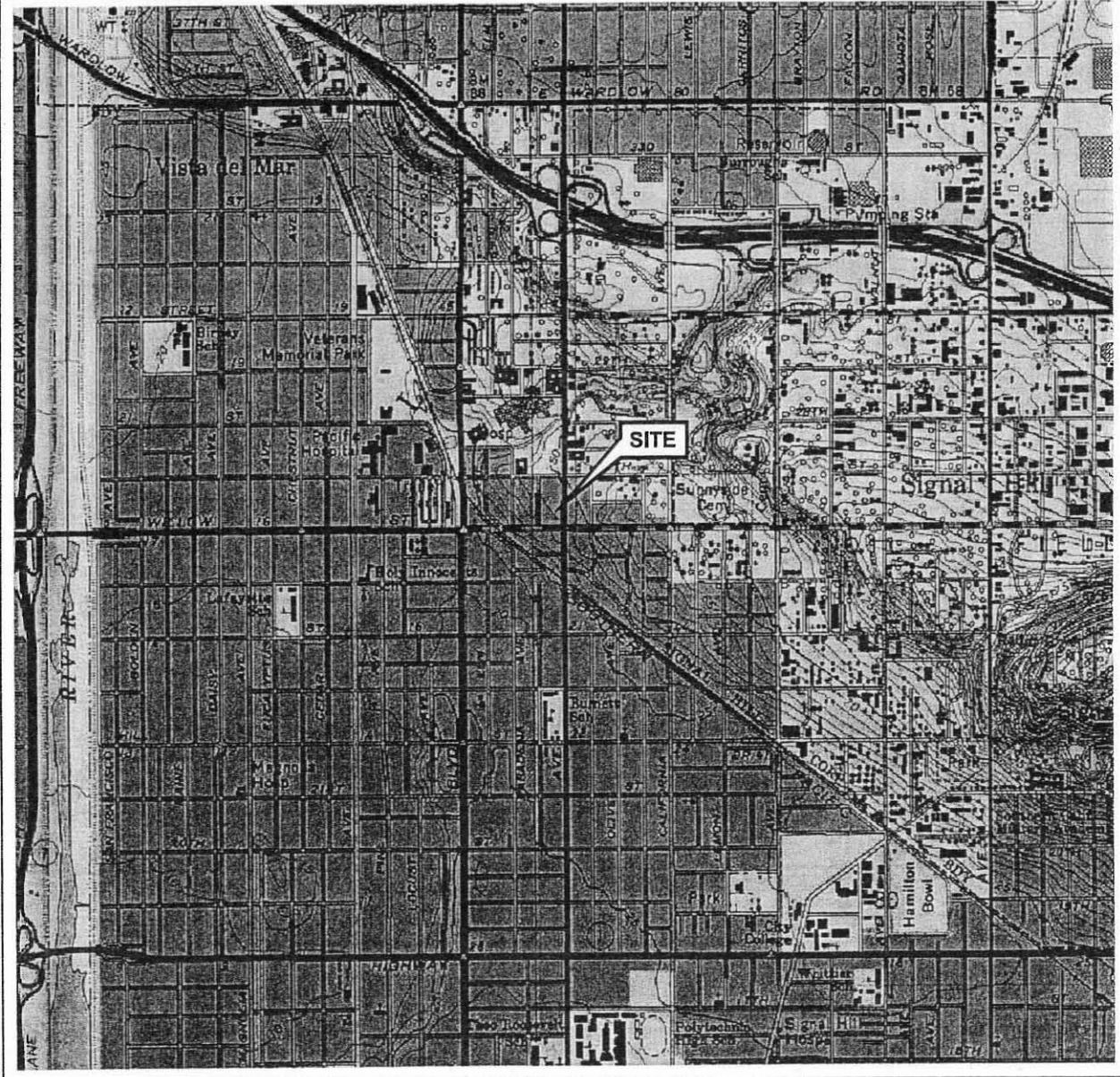
Order No. R4-2007-0019

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: November 15, 2013



SOURCE:

United States Geological Survey
7.5 Minute Topographic Map:
Los Alamitos Quadrangle

0 1/4 1/2 3/4 1 MILE



SCALE 1:24,000



QUADRANGLE
LOCATION



CIRCLE K #2211335 (18-MXY)
2601 ATLANTIC AVENUE
LONG BEACH, CALIFORNIA

VICINITY MAP

FIGURE 1

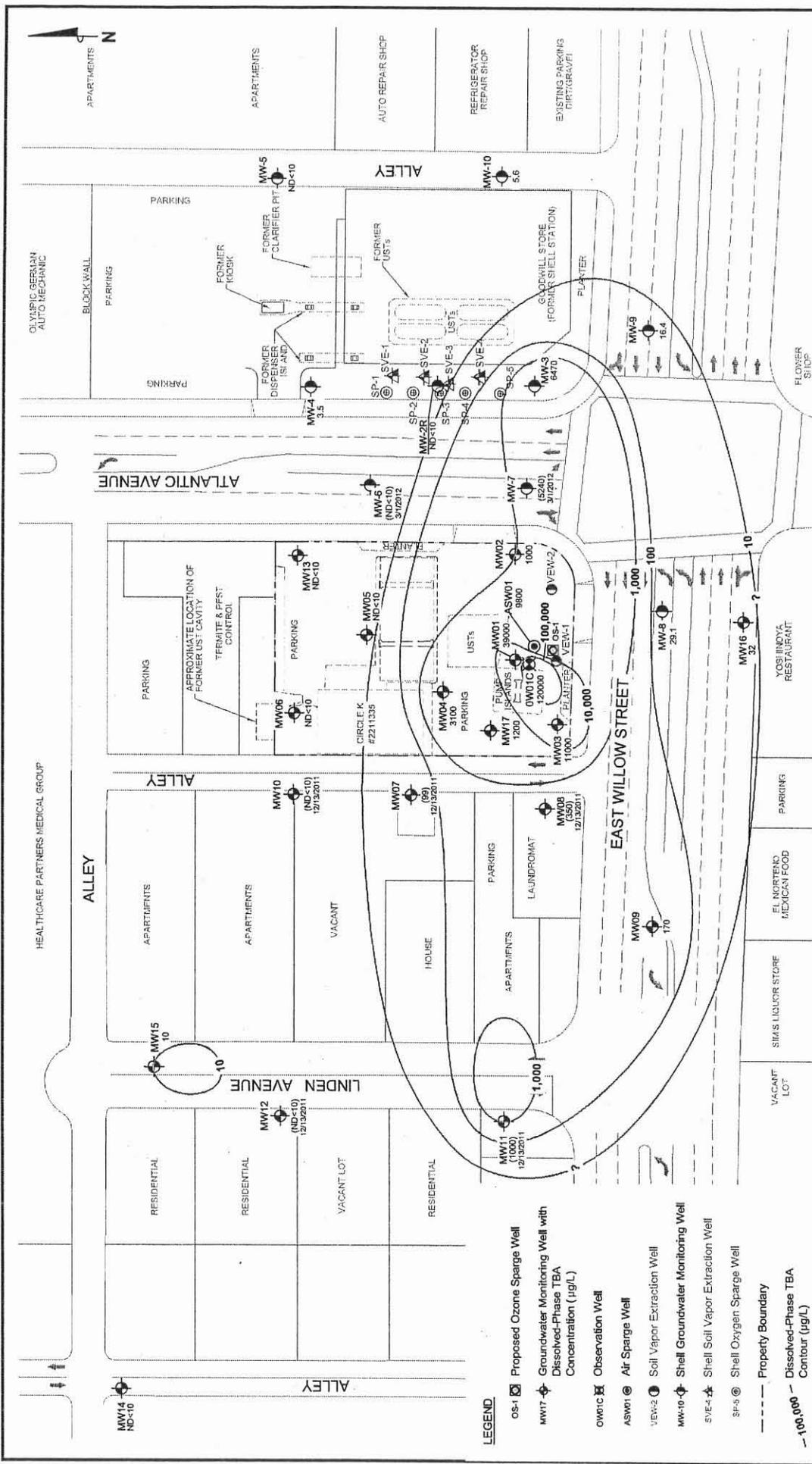


FIGURE 2

SITE PLAN WITH PROPOSED OZONE SPARGE WELL LOCATION

PROJECT: 010815

FACILITY: CIRCLE K #2211335 (18-MAY) 2807 ATLANTIC AVENUE LONG BEACH, CALIFORNIA

TRC

SCALE (FEET)

0 50

NOTES:

Groundwater analytical results shown from joint event sampling event conducted on May 8, 2012. Contour lines are interpretive and based on laboratory analysis results of groundwater samples. TBA = tertiary butyl alcohol, µg/L = micrograms per liter, ND = not detected at limit indicated on laboratory report. Property boundaries are shown in black. Former Shell Station data provided by URS. Results obtained using EPA Method 8260B. Former Shell Station data provided by URS.

- LEGEND**
- OS-1 Proposed Ozone Sparge Well
 - MW-17 Groundwater Monitoring Well with Dissolved-Phase TBA Concentration (µg/L)
 - OWNC Observation Well
 - ASW-1 Air Sparge Well
 - VIEW-2 Soil Vapor Extraction Well
 - MW-10 Shell Groundwater Monitoring Well
 - SVE-4 Shell Soil Vapor Extraction Well
 - SP-5 Shell Oxygen Sparge Well
 - Property Boundary
 - - - - - Dissolved-Phase TBA Contour (µg/L)

