



California Regional Water Quality Control Board

Los Angeles Region



Linda S. Adams
Agency Secretary

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Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: <http://www.waterboards.ca.gov/losangeles>

Arnold Schwarzenegger
Governor

March 24, 2010

Mr. Mark Kelishadi
Mark's Chevron Station
1965 East Artesia Blvd
Long Beach, CA 90805

GENERAL WASTE DISCHARGE REQUIREMENTS FOR GROUNDWATER CLEANUP AT PETROLEUM HYDROCARBON FUEL, VOLATILE ORGANIC COMPOUND And/Or HEXAVALENT CHROMIUM IMPACTED SITES—1965 EAST ARTESIA BLVD, LONG BEACH (ORDER NO. R4-2007-0019, SERIES NO. 122; CI NO. 9586)

Dear Mr. Kelishadi:

We have received your application dated February 10, 2010, for coverage under the General Waste Discharge Requirements (WDRs) to implement a groundwater remediation project injecting Ozone at the site referenced above in Long Beach, California.

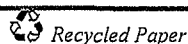
The subject site is currently an active service station with 3 underground storage tanks (USTs), 4 dispensers and a mini-market. In May 1999, 3 gasoline USTs and a waste-oil tank were removed. Soil samples collected from the bottom of the excavation detected TPHg at concentrations up to 8,250 mg/kg. Subsequently, from October 2000 to March 2002, 6 direct push soil borings and 12 groundwater monitoring wells (MW-1 through MW-12) were installed to characterize soil and groundwater beneath the site. Historically, TPHg and benzene were respectively detected at concentrations as high as 21,000 and 1,300 mg/kg in soil; and 4,600 and 44,000 µg/L in groundwater. MTBE was not detected in soil but was detected at the maximum concentration of 5,600 µg/L in groundwater. TBA was not detected in soil nor groundwater.

Groundwater monitoring indicated that petroleum hydrocarbons concentrated in the vicinity immediately south of the former USTs. TPHg, benzene, and MTBE had been detected at concentrations as high as 36,000, 580, and 3,400 µg/L, respectively, in the offsite down-gradient well MW-A2 or MW-A5. This indicated that the impacted groundwater has migrated offsite.

In addition to the excavation of 1,283 tons of impacted soil and the pump-out of 35,000 gallons of impacted groundwater during the tank removal, groundwater beneath the site was remediated with a pump-and-treat system. After operating for 18 months, the system was shut down due to its ineffectiveness to reduce the off-site contaminant plumes.

To further remediate the impacted groundwater, your consultant, Geo-Cal Inc. (GCI) submitted the "Remedial Action Plan" (RAP), dated August 29, 2008, proposing the use of Ozone/Air

California Environmental Protection Agency



Mr. Mark Kelishadi

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Sparging technology to supplement the pump-and-treat system through 11 injection points (OSP-1 through OSP-11) that are to be installed on-site and off-site around the groundwater plumes. This RAP was approved by the Regional Board on December 9, 2008.

Regional Board staff has determined that the proposed discharge 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, consisting of General WDRs Board Order No. R4-2007-0019 and Monitoring and Reporting Program No. CI-9586 and Standard Provisions. This Waste Discharge Requirements shall not be terminated without the regulatory oversight agency's prior approval.

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-9586, which will 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.

To avoid paying future annual fees, please submit 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.

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%20decisions/adopted%20orders/general%20orders/r4-2007-0019/r4-2007-0019.pdf)

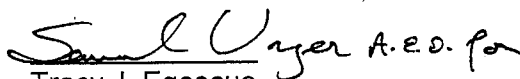
Mr. Mark Kelishadi

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If you have any questions, please contact Dr. Rebecca Chou at (213) 620-6156 for WDRs administration matters, or Mr. Gregg Kwey at (213) 576-6702 for technical matters.

Sincerely,

 A handwritten signature in cursive script, appearing to read "Tracy J. Egoscue".

Tracy J. Egoscue
Executive Officer

- Enclosure:
1. Board Order No. R4-2007-0019
 2. Standard Provisions for Reporting and Monitoring
 3. Monitoring and Reporting Program No. CI-9586

cc: Mr. Henry Olivier, Geo-Cal, Inc.

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
REVISED MONITORING AND REPORTING PROGRAM NO. CI-9586
FOR
MARK'S CHEVRON STATION
1965 EAST ARTESIA BLVD, LONG BEACH
(OZONE INJECTION FOR GROUNDWATER CLEANUP)
(ORDER NO. R4-2007-0019, SERIES NO. 122)

I. REPORTING REQUIREMENTS

- A. Mr. Mark Kelishadi (hereinafter Discharger) shall implement this revised monitoring program on the effective date of Regional Board Order No. R4-2007-0019. The first monitoring report under this program, for January to June 2010, shall be received at the Regional Board by July 15, 2010. 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
July – 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.
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- C. 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).
- D. 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.
- E. 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.

- F. 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.
- G. 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.
- H. 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.
- I. 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.
- J. 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.
- K. 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.

II. OZONE INJECTION MONITORING REQUIREMENTS

The Semi-Annually reports shall contain the following information regarding injection activities:

1. Location map showing injection points used for the Ozone. Groundwater monitoring wells shall not be used as injection points to avoid reduction of groundwater monitoring network, data bias, well screen clogging and alternation. Up to eleven injection points, OSP-1 through OSP-11 (see attached Figure 11), are proposed. Additional injection points should be reviewed and approved by the Regional Board prior to implementations.
2. Written and tabular summary defining the quantity of Ozone injected per month to the groundwater and a summary describing the days on which the injection system was in operation.

III. GROUNDWATER MONITORING PROGRAM

The Discharger shall conduct groundwater monitoring at the site. Groundwater samples shall be collected from two up-gradient groundwater monitoring wells MW-2 and MW-4, two source area wells MW-5 and MW-6 and two down-gradient wells MW-11 and MW-12 on a semi-annual basis to monitor the effectiveness of the in-situ groundwater remediation. Ozone injection points 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	• Semi-Annually ¹
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)	µg/L	Grab	• Semi-Annually ¹
Methyl tertiary butyl ether (MTBE), Tertiary butyl alcohol (TBA), Tertiary amyl methyl ether (TAME), Di-isopropyl ether (DIPE), ether (ETBE)	µg/L	Grab	• Semi-Annually ¹
Ethanol Formaldehyde Acetone	µg/L	Grab	• Semi-Annually ¹

Total dissolved solids, Arsenic, Boron, Chloride, Bromide, Sulfate, Lead, Nickel, Cadmium, Manganese	mg/L	Grab	• Semi-Annually ¹
Oxidation-reduction potential	milivolts		• Semi-Annually ¹
Dissolved Oxygen	µg/L	Grab	• Semi-Annually ¹
Dissolved ferrous iron	µg/L	Grab	• Semi-Annually ¹
Total Chromium and chromium six ²	µg/L	Grab	• Semi-Annually ¹
PH	pH units	Grab	• Semi-Annually ¹
Temperature	^o F/ ^o C	Grab	• Semi-Annually ¹
Groundwater Elevation	Feet, mean sea level and below ground surface	In situ	• Semi-Annually ¹

¹ One week before injection and Semi-Annually thereafter

² The Discharger is required to monitor for total chromium and chromium six in the baseline, second and fourth Semi-Annually 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

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 _____.

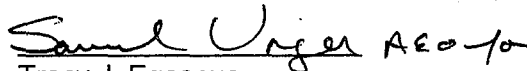
(Signature)

(Title)"

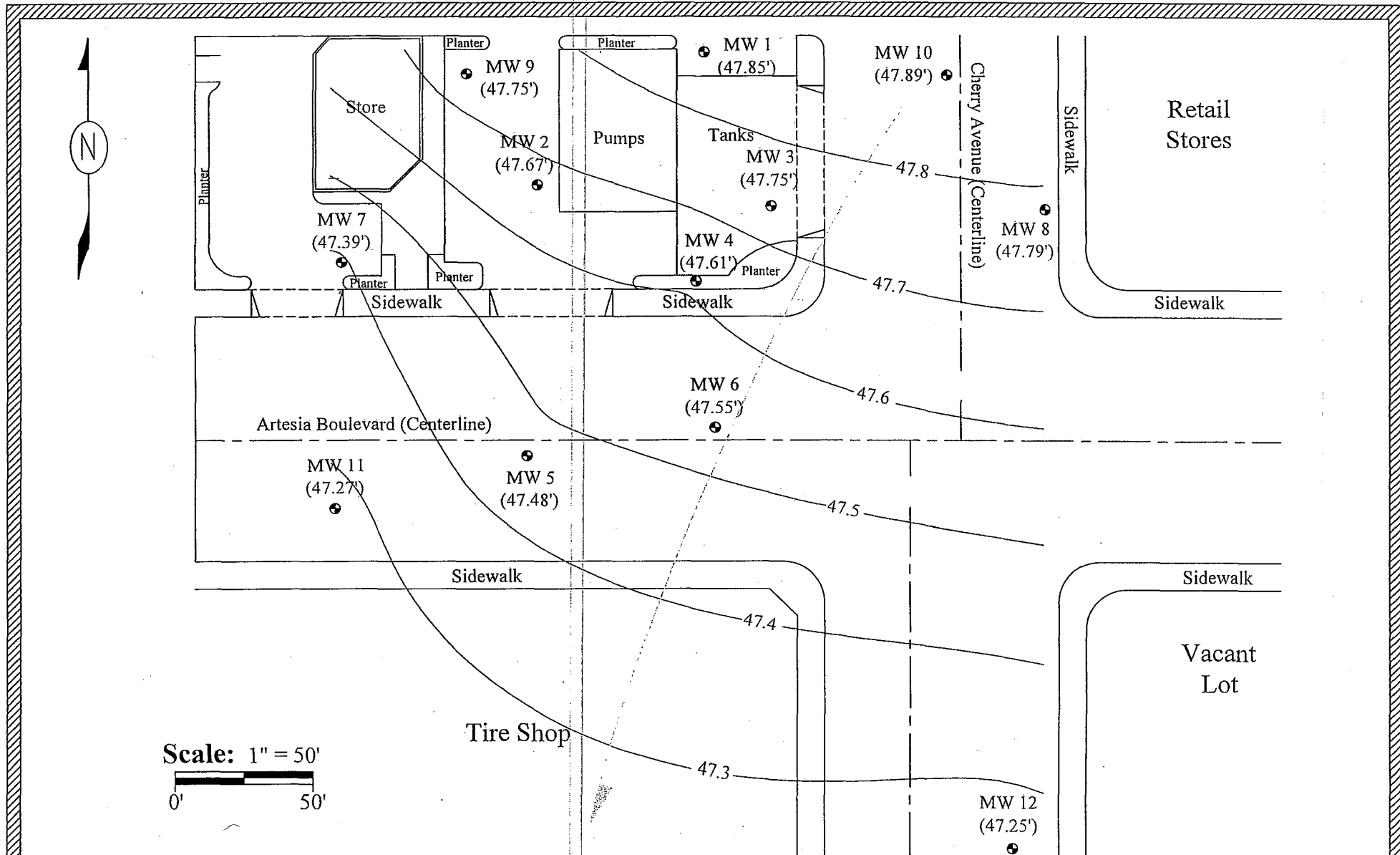
VI. PUBLIC DOCUMENTS

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:


Tracy J. Egoscue
Executive Officer

Date: March 24, 2010



Scale: 1" = 50'

GEO-CAL, INC.
 Environmental & Geotechnical Engineering
 4370 Hallmark Prkwy. Ste #101
 San Bernardino CA 92407

Figure 7
 Groundwater Contour Map
 June 10, 2008
 Chevron Gas Station
 1965 Artesia Boulevard
 Long Beach, CA

LEGEND:

- : GROUNDWATER MONITORING WELL
- (46.89') : GROUNDWATER ELEVATION (feet above mean sea level)
- : GROUNDWATER CONTOUR (feet above mean sea level)
- : DIRECTION OF GROUNDWATER FLOW

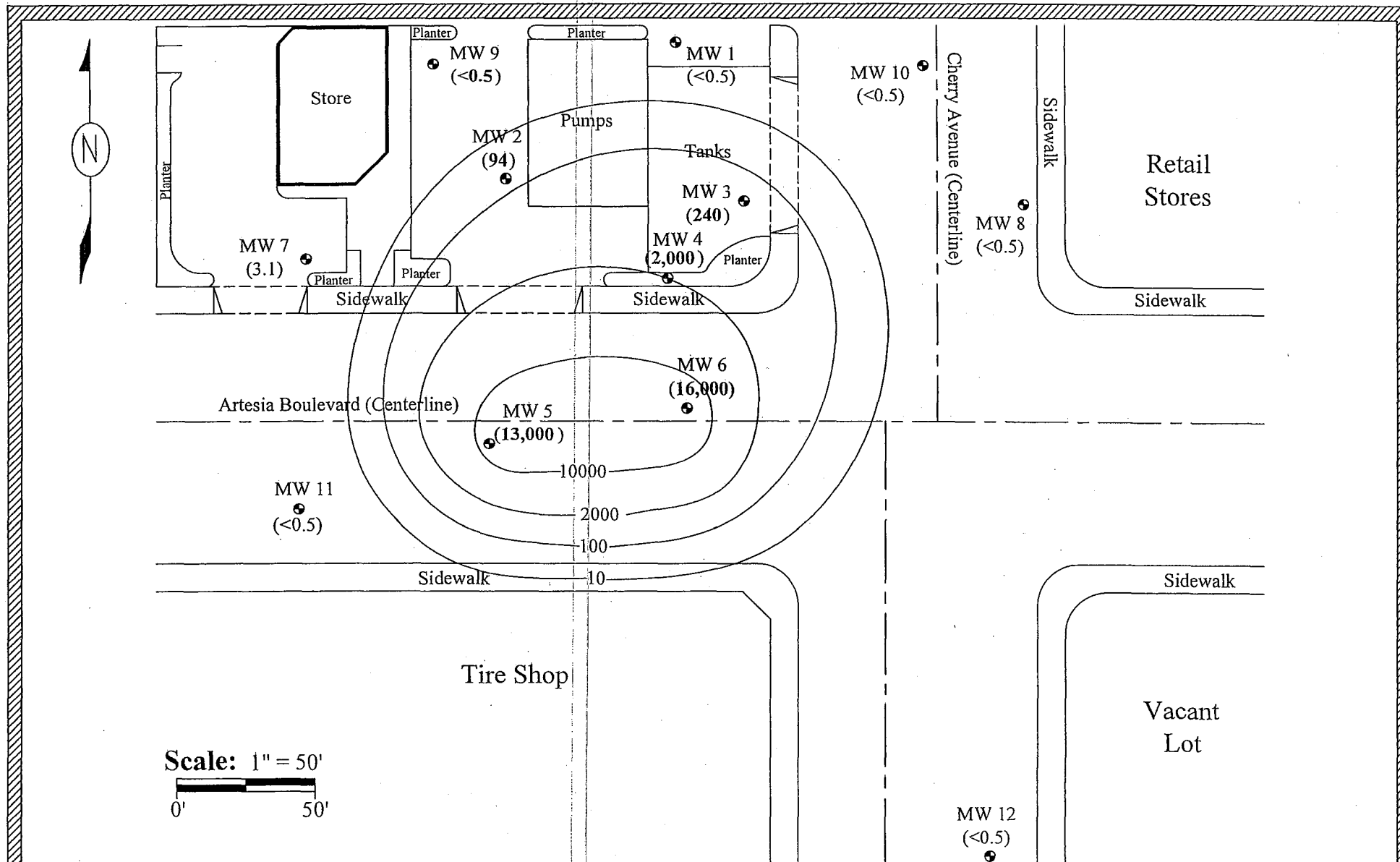




Figure 9

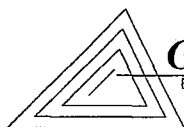
Benzene Concentration Contour Map

June 10, 2008

Chevron Gas Station
1965 Artesia Boulevard
Long Beach, CA

LEGEND:

-  : GROUNDWATER MONITORING WELL
- 24,000 : BENZENE CONCENTRATION (ug/l)
-  : ISOCONCENTRATION CONTOUR (ug/l)



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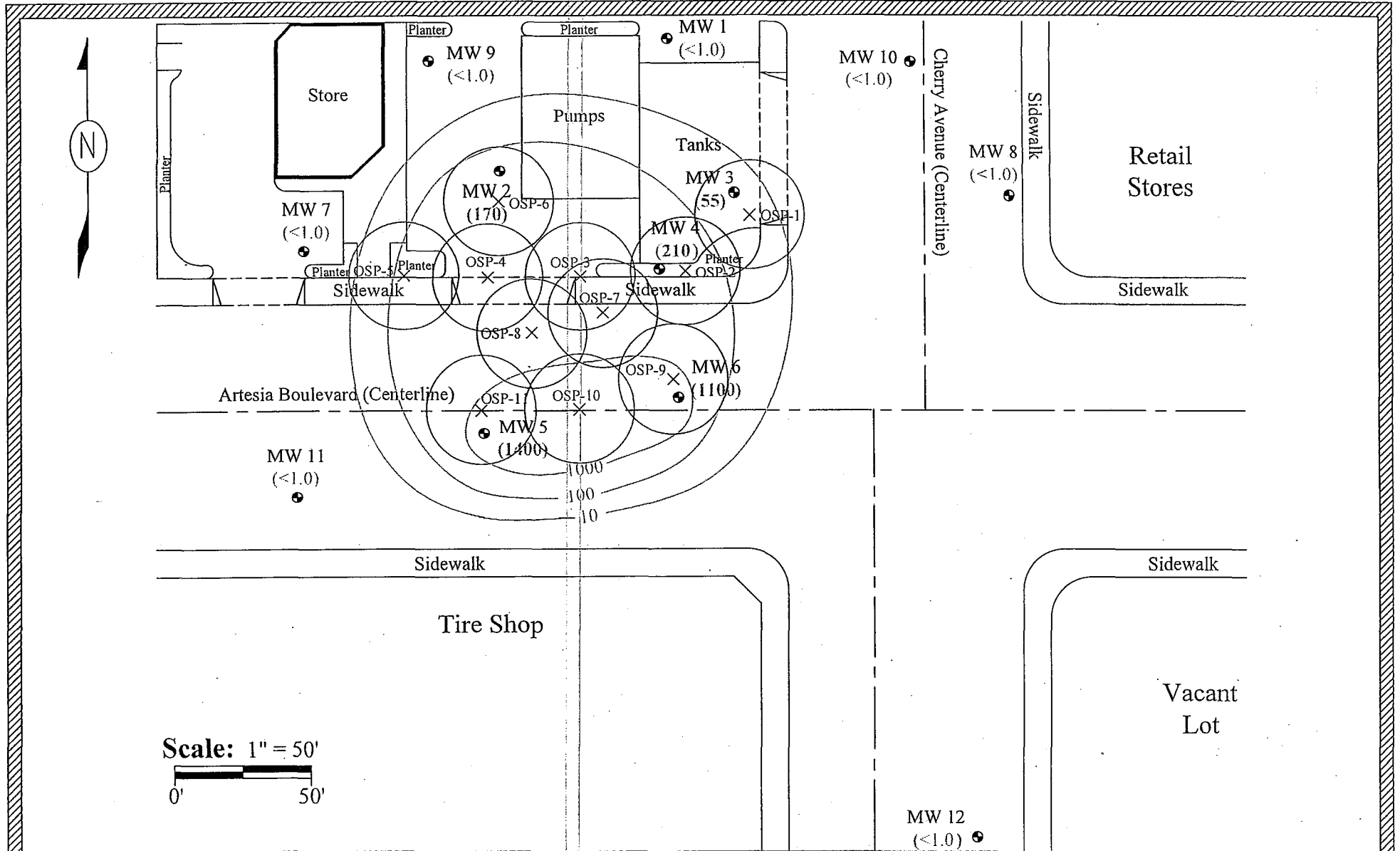






Figure 11
Proposed Sparge Well Locations

Chevron Gas Station
1965 Artesia Boulevard
Long Beach, CA

- LEGEND:**
-  : GROUNDWATER MONITORING WELL
 -  : MTBE CONCENTRATION (ug/l)
 -  : ISOCONCENTRATION CONTOUR (ug/l), June 10, 2008
 -  : PROPOSED OZONE SPARGING LOCATION AND ROI AT 20' RADIUS



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