



California Regional Water Quality Control Board Los Angeles Region



Matthew Rodriguez
Secretary for
Environmental Protection

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

Edmund G. Brown Jr.
Governor

October 27, 2011

Mr. Mike Mulhern
City of Los Angeles Department of Public Works
Geotechnical Engineering Division (GED)
1149 South Broadway Street, Suite 120
Los Angeles, CA 90015-2213

**GENERAL WASTE DISCHARGE REQUIREMENTS FOR GROUNDWATER CLEANUP AT
PETROLEUM HYDROCARBON FUEL, VOLATILE ORGANIC COMPOUND AND/OR
HEXAVALENT CHROMIUM IMPACTED SITES (ORDER NO. R4-2007-0019)
LANZIT PROJECT (FORMER CALTRANS SITE)
930 EAST 111TH PLACE, LOS ANGELES, CALIFORNIA
(CI-9760, SERIES NO. 176); (UST FILE NO. 900590061)**

Dear Mr. Mulhern:

We have completed our review of your application for coverage under the General Waste Discharge Requirements (WDR) to inject 3D Microemulsion (3DMe) solution (a type of emulsified oil compound of lactic and fatty acids, glycerol and glycerol tripoly lactate) and hydrogen release compound (HRC) primer solution into the subsurface to remediate volatile organic compounds (VOCs) contamination in the groundwater beneath the site.

The City of Los Angeles (hereinafter Discharger) owns the Lanzit facility (Site) located immediately south of Compton Creek and north of an active Southern Pacific rail line in Los Angeles, California (Figures 1 and 2). The site is currently a vacant 10-acre lot.

The Site was a former CalTrans material and storage facility from 1947 to 1991. The site has been vacant since 1991. The site contained one 550-gallon waste oil tank, two warehouses, three structures, a bermed concrete wash area, a wood storage area, a clarifier and a railroad spur. The UST reportedly may have contained gasoline or paint thinner. The former structures consisted of a Quonset hut, a former oil shed and storage building. The structures reportedly stored flammable and corrosive materials, motor oil and vehicle supplies, gasoline, oil and paint and trichloroethene.

The site is located within the Los Angeles Coastal Plain Groundwater Basin. The subsurface lithology of the Site consists of sand, silty sand, and silt from surface to approximately 80 feet below ground surface (bgs), the maximum depth drilled at the site. The nearest production well (03S13W04N03S) is located approximately 1,794 feet from the site.

Several site investigations were conducted at the site between 1990 and 2007, which included waste oil tank removal, drilling of soil borings, bucket auger excavation, soil vapor sampling and installation of groundwater monitoring wells. Site investigations found that the soil and groundwater beneath the site have been impacted by fuel constituents and chlorinated solvents.

California Environmental Protection Agency

Currently, there are sixteen groundwater monitoring wells (PMW-1 through PMW-3; PMW-4b, PMW-5 through PMW-15; and URSMW-3) installed at the site. Groundwater monitoring has been conducted at the site since June 2004. The most recent monitoring data (June 2011) indicated up to 99 µg/L 1,1 DCE (dichloroethene), 1,369.9 µg/L trichloroethene (TCE), and 27.3 µg/L tetrachloroethene (PCE). Total petroleum hydrocarbons (TPH_G) and fuel oxygenates have been non-detect since December 2008 and were not analyzed in this sampling event. Depth to groundwater was measured at approximately 54 feet bgs and groundwater flow direction is toward the northeast (Figures 3, 4 and 5).

In a remedial action plan (RAP) dated June 2, 2008, your consultant Pinnacle Environmental Technologies (Pinnacle) proposed to address the high levels of the groundwater VOC contamination originating from the site. Our letter dated November 21, 2008 required the City of Los Angeles to submit a revised RAP selecting another material listed on the Waste Discharge Requirement (WDR) to be used for in-situ purposes or to apply for a site specific WDR. In a revised RAP dated December 22, 2008, Pinnacle proposed to address impacted groundwater beneath the site that primarily consists of chlorinated solvents (TCE and PCE) using in-situ bioremediation.

Pinnacle submitted an "Amendment to the December 22, 2008 RAP" dated May 27, 2011 proposing to inject 3D Microemulsion solution and HRC Primer solution into the subsurface to reduce the TCE and PCE concentrations and related breakdown products in groundwater beneath the site. The HRC is known as 3D Microemulsion (3DMe or HRC-Advanced) produced by Regenesys[®]. Pinnacle proposed to install a total of 375 injection points spaced on 20-foot centers within the treatment area in the southwest corner of the site. Each boring will be advanced to approximately 75 feet bgs using direct push. Approximately 83,000 gallons of water will be used to produce the injection solution. The solution will consist of 30:1 dilution of water and will be injected at a rate of 10 gallons per minute. An estimated 689 gallons of solution will be pumped into each injection point.

Pinnacle proposed to inject approximately 69,000 pounds of 3DMe solution and 10,000 pounds of hydrogen peroxide (HRC) primer solution into the proposed 375 injection points at five-foot increments from a starting depth of 48 feet bgs up to 68 feet bgs near the treatment area (Figure 6). 3DMe and HRC have been demonstrated to support reductive (anaerobic) dechlorination of chlorinated VOCs in the subsurface.

In a Regional Board staff directive dated August 10, 2011, the RAP Amendment was approved.

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 Site (General WDRs)" adopted by the Los Angeles Regional Water Quality Control Board on March 1, 2007.

Enclosed are the Waste Discharge Requirements, consisting of Regional Board Order No. R4-2007-0019, Monitoring and Reporting Program No. CI-9760, and Standard Provisions.

The WDRs issued shall not be terminated until Regional Board staff determines the WDRs are no-longer needed for the site cleanup.

Mr. Mike Mulhern - 3 -
City of Los Angeles Department of Public Works

October 27, 2011

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, please include a reference to Compliance File No. CI-9760 to assure that the reports are directed to the appropriate staff. Do not combine other reports with your monitoring reports complying with Order No. R4-2007-0019. Submit each type of report as a separate document.

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. A copy of the Order can also be found online at: http://www.waterboards.ca.gov/losangeles/board_decisions/adopted_orders/general_orders/r4-2007-0019/r4-2007-0019.pdf

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.

If you have any questions regarding the WDR, please contact the Project Manager of Groundwater Permitting, Dr. Ann Chang at (213) 620-6122 or aching@waterboards.ca.gov or Unit Chief of Groundwater Permitting, Dr. Eric Wu at (213) 576-6683 or ewu@waterboards.ca.gov. Questions regarding the underground storage tank issues should be forwarded to Ms. Chandra Tyler at (213) 576-6782 or cetyler@waterboards.ca.gov.

Sincerely,

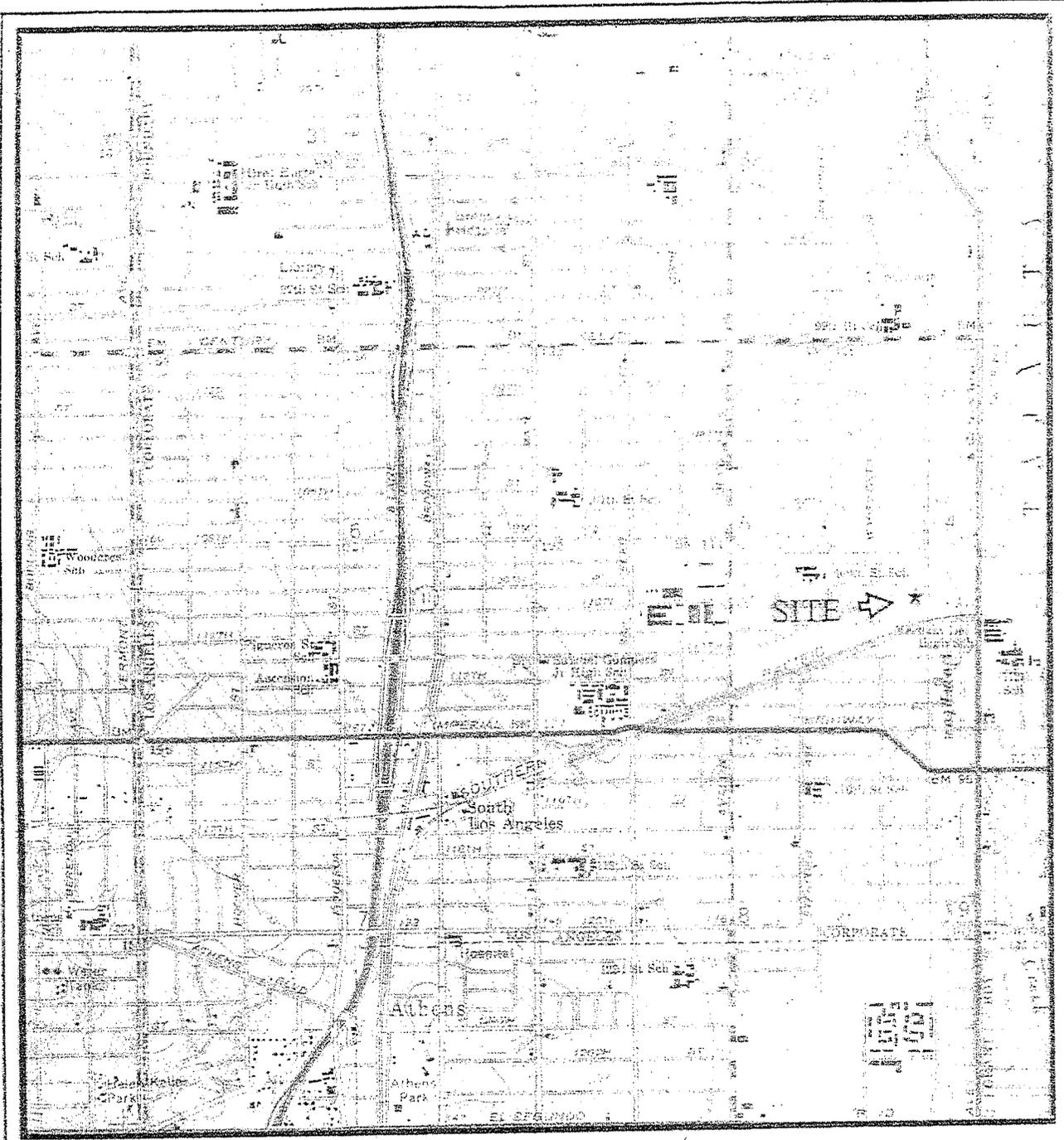


Samuel Unger, P.E.
Executive Officer

- Enclosures: 1. Board Order No. R4-2007-0019
2. Monitoring and Reporting Program No. CI-9760
3. Standard Provisions

cc: Kathy Jundt, State Water Resources Control Board, UST Cleanup Fund
Phuong Ly, Water Replenishment District of Southern California
Eloy Luna, City of Los Angeles Fire Department, Underground Tanks
Captain Matthew Gatewood, City of Los Angeles Fire Department, Underground Tanks
Keith Thompson, Pinnacle Environmental Technologies
Christopher Johnson, City of Los Angeles, Department of Public Works,
Bureau of Engineering Geotechnical Engineering Division
Alecia Simona, City of Los Angeles, General Services Department,
Asset Management Division

California Environmental Protection Agency



Base Map - USGS 7.5 Minute Quadrangle, Inglewood

NORTH

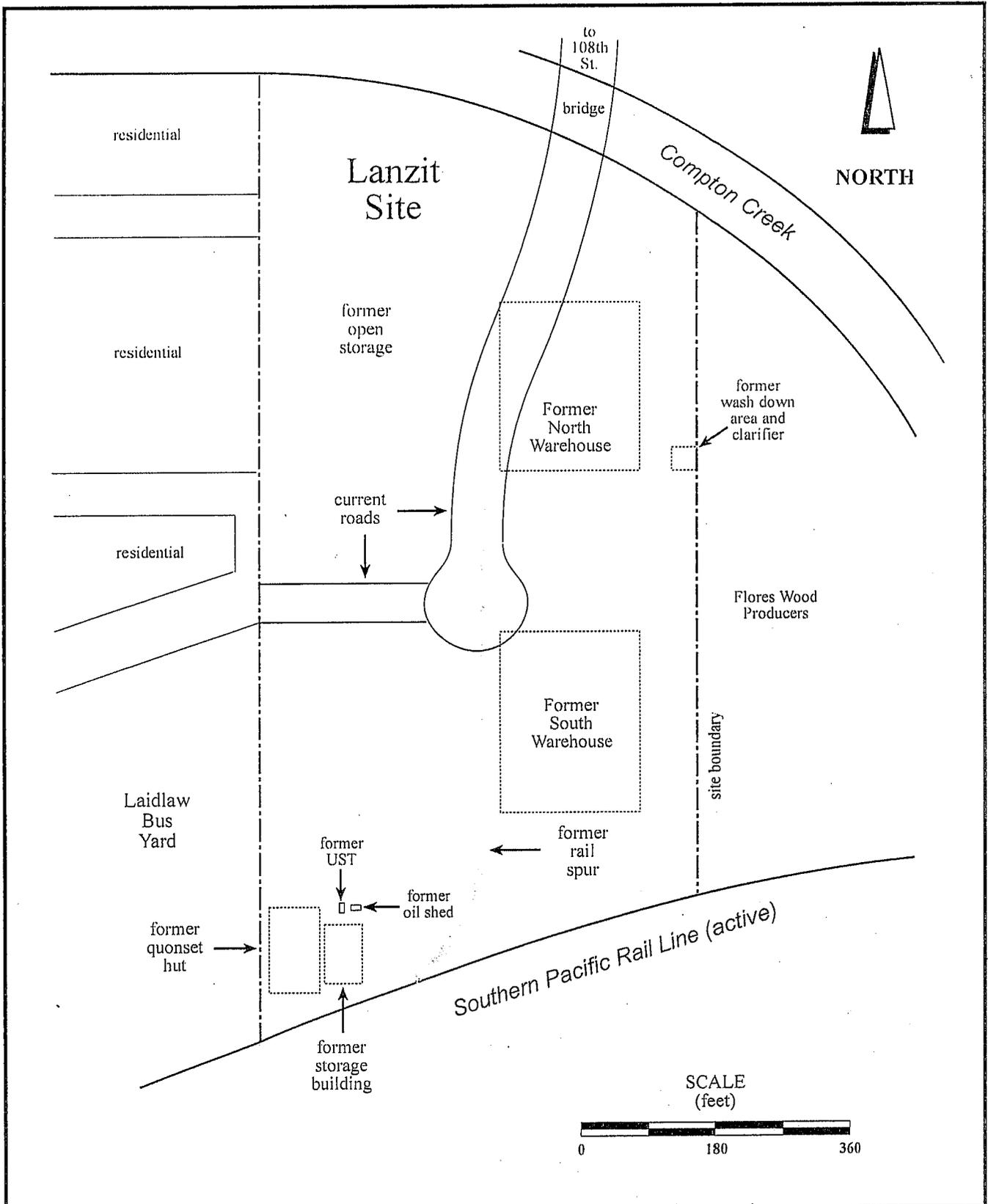


PINNACLE
ENVIRONMENTAL TECHNOLOGIES
92 Monte Vista, Foothill Ranch, CA 92610
Tel: (949) 476-3691 • Fax: (949) 595-0459

Lanzit Site
930 East 111th Place
Los Angeles, California

Site
Location
Map

Figure
1

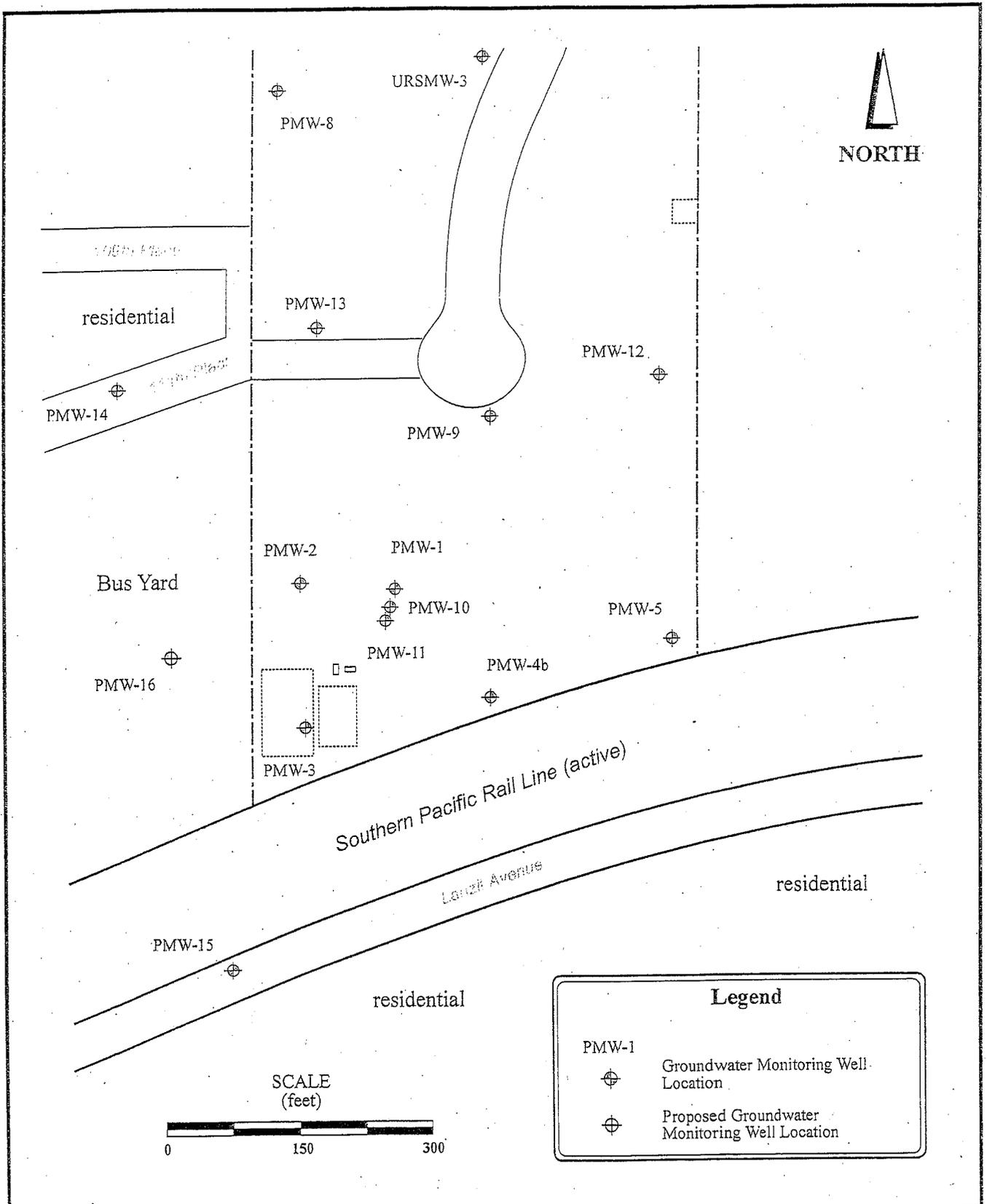


PINNACLE
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 #2 Santa Maria, Foothill Ranch, CA 92610
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Lanzit Site
 930 East 111th Place
 Los Angeles, California

Site Plan with
 Former
 Structures

Figure
 2

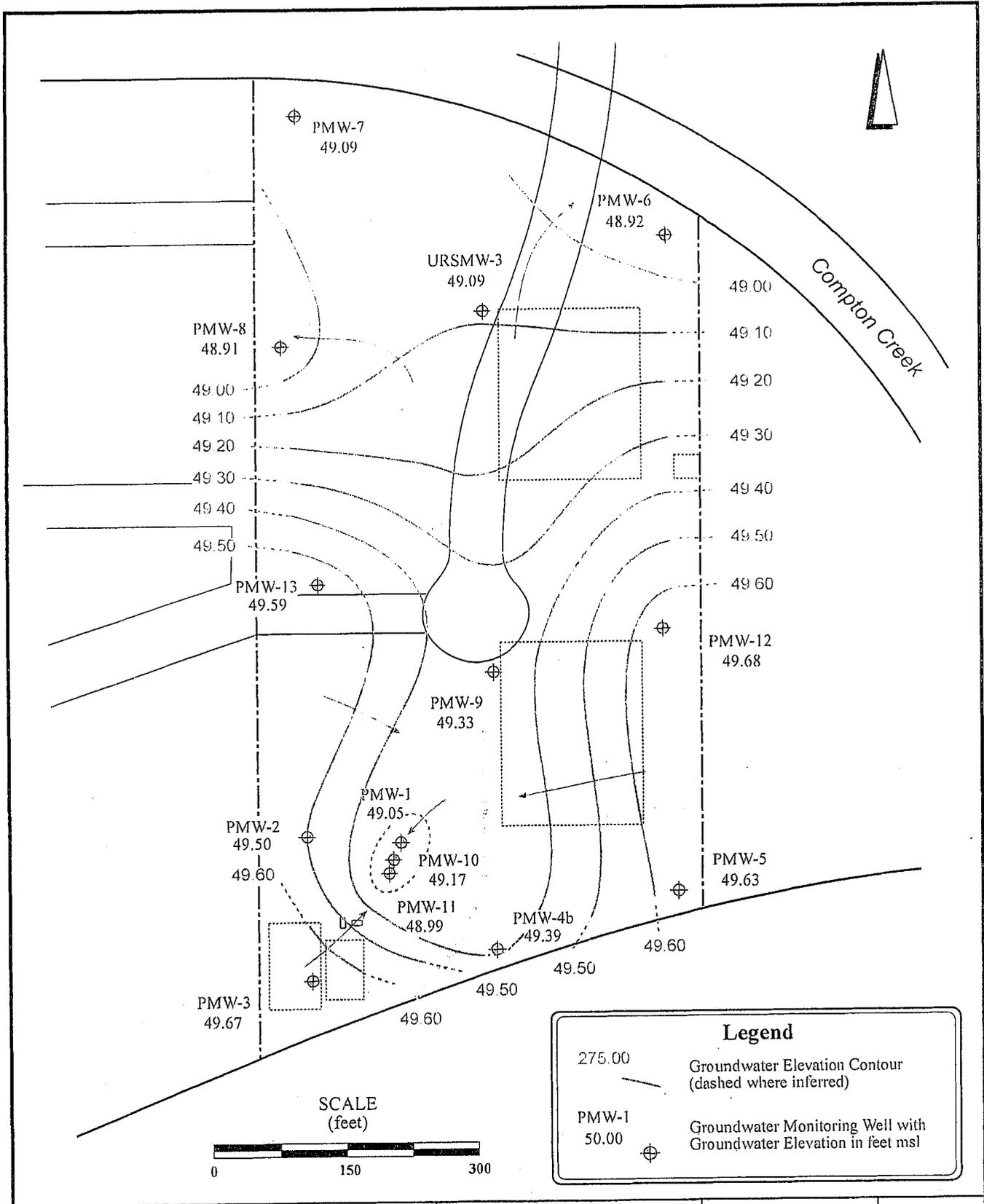


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Lanzit Site
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 Los Angeles, California

Well Locations

Figure 3

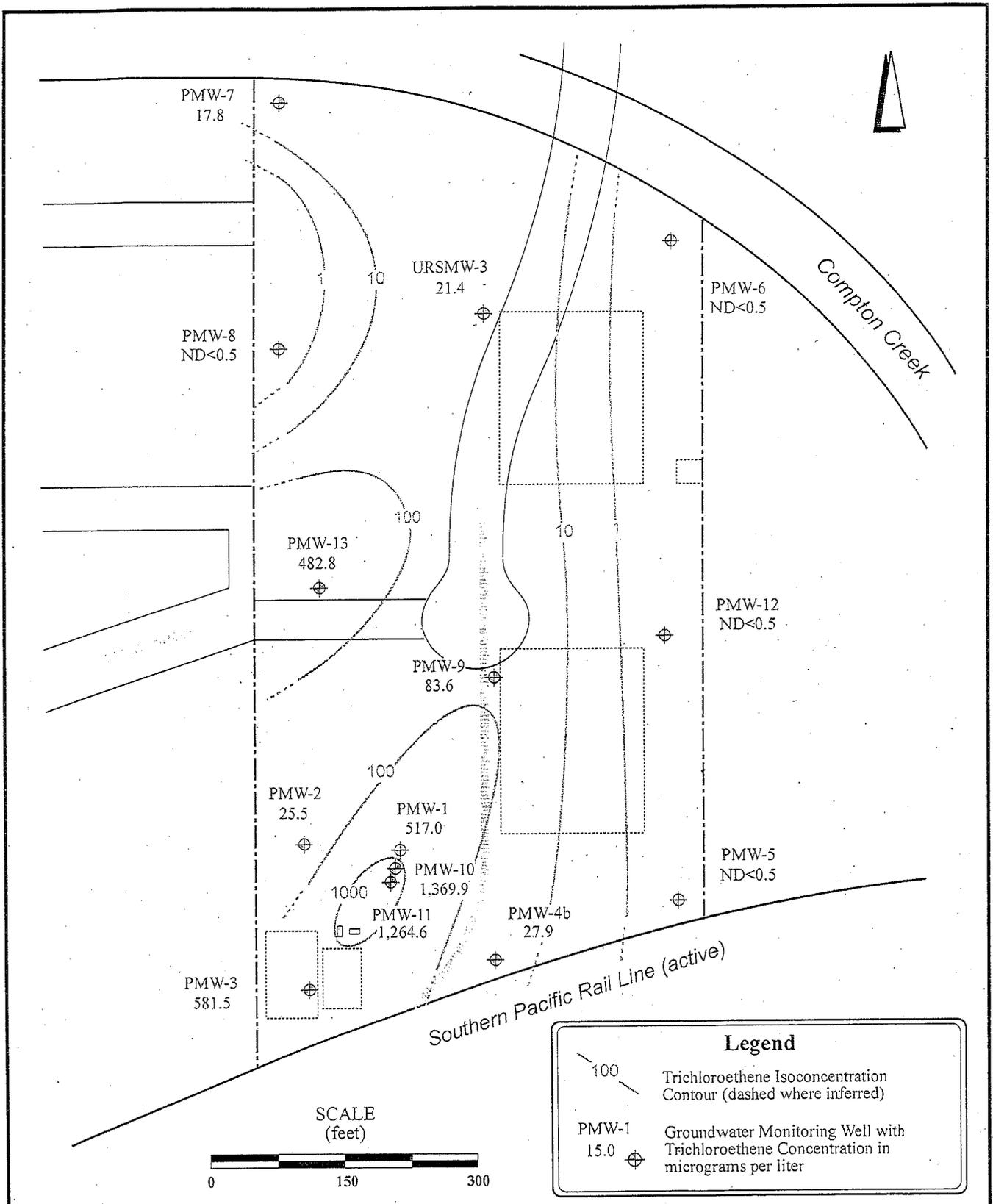


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Lanzit Site
 930 East 111th Place
 Los Angeles, California

Groundwater
Flow Map
 June 10, 2011

Figure
4

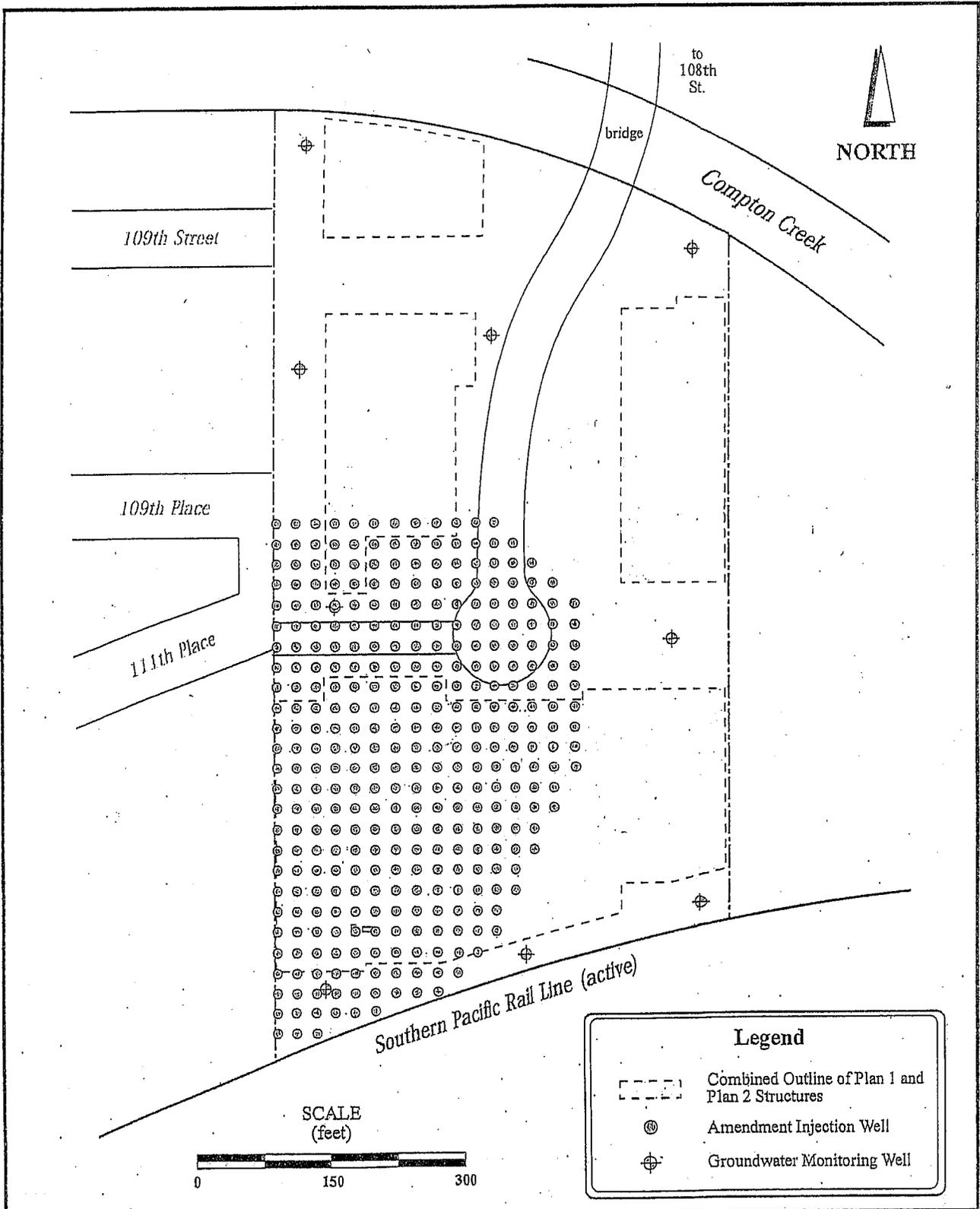


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TCE
 Isoconcentration
 Contour Map

Figure
 5



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Lanzit Site
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 Los Angeles, California

**Proposed
 Injection Point
 Locations**

**Figure
 6**

STATE OF CALIFORNIA
 CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
 LOS ANGELES REGION
 MONITORING AND REPORTING PROGRAM NO. CI-9760
 FOR
 LANZIT PROJECT
 930 EAST 111TH PLACE, LOS ANGELES, CA
 ENROLLMENT UNDER REGIONAL BOARD
 ORDER NO. R4-2007-0019
 SERIES NO. 176

I. REPORTING REQUIREMENTS

A. The City of Los Angeles (hereinafter Discharger) shall implement this monitoring program on the effective date of this enrollment (October 27, 2011) under Regional Board Order No. R4-2007-0019. The first monitoring report under this program, shall be received at the Regional Board by **January 15, 2012**. Subsequent monitoring reports shall be received at the Regional Board according to the following schedule:

<u>Reporting Period</u>	<u>Sampling Period</u>	<u>Report Due Date</u>
January - June	April - June	July 15 th
July - December	October - December	January 15 th

- 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 February 1 of each year, starting in 2012, 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 (WDR).
- D. Laboratory analyses – all chemical, bacteriological, and toxicity analyses shall be conducted at a laboratory certified for such analyses by the California Department of Public Health 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 Public Health, 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.
- L. The Discharger shall not implement any changes to the Monitoring and Reporting Program prior to receiving Executive Officer's written approval.
- M. The Discharger shall submit all reports required under this MRP, including groundwater monitoring data, to the State Water Resources Control Board GeoTracker database, in addition to submitting electronic copies to the Regional Board office.

II. DISCHARGE MONITORING REQUIREMENTS

The semi-annual reports shall contain the following information regarding the injection activities.

1. Location map showing injection points used for the injection activities.
2. Written and tabular summary defining:
 - Depth of injection points;
 - Quantity of 3D Microemulsion (3DMe) solution and Hydrogen Release Compound (HRC) Primer at each injection point;
 - Days on which the injection system was in operation; and
 - Total amount of 3DMe and HRC Primer injected at the site.
3. Semi-annual visual inspection at each injection well shall be conducted to evaluate the well casing integrity after each injection. The semi-annual report shall include a summary of the visual inspection.
4. To avoid groundwater monitoring network reduction, data bias, and well screen clogging or alteration, no groundwater monitoring wells shall be used as injection points during the proposed 3DMe and HRC Primer injection. Separate injection points/wells must be installed at the Site for the proposed 3DMe and HRC Primer injection.

III. DISCHARGE MONITORING PROGRAM

A groundwater monitoring program shall be designed to detect and evaluate impacts associated with the injection activities. The following monitoring well network shall include PMW-3, PMW-10 and PMW-13 (source wells); PMW-4b and PMW-15 (upgradient wells); PMW-5, PMW-8 and PMW-14 (crossgradient wells); and URSMW-3, PMW-6 and PMW-12 (downgradient wells) (Figure 4). A baseline monitoring and sampling program shall be conducted prior to the proposed 3DMe and HRC Primer injections for all of the existing monitoring wells. Baseline monitoring shall establish the initial conditions with respect to the contaminant levels. These sampling stations shall not be changed and any proposed change of monitoring locations shall be identified and approved by the Executive Officer. The Discharger shall conduct a baseline sampling from all existing wells one or two weeks prior to the 3DMe and HRC Primer injection and regular sampling with the required frequency from all the monitoring wells in the monitoring network for the following constituents:

CONSTITUENT	UNITS ¹	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total Daily Injection Waste Flow	gallons/day (to indicate solution concentration)	in situ	Daily during injection
Total Amount of 3DMe and HRC	pounds/day	in situ	Daily during injection
Groundwater Elevation and Depth to Groundwater	Feet, mean sea level (msl) and below ground surface (bgs)	in situ	Semi-annually
pH ²	pH units	grab	Semi-annually
Temperature ²	°F	grab	Semi-annually
Oxidation-reduction potential ²	millivolts	grab	Semi-annually
Specific conductivity ²	µmhos/cm	grab	Semi-annually
Turbidity	NTU	grab	Semi-annually
Dissolved Oxygen ²	µg/L	grab	Semi-annually
Total Petroleum Hydrocarbons (as gasoline)	µg/L	grab	Semi-annually
Benzene, Toluene, Ethylbenzene, Total xylenes (BTEX)	µg/L	grab	Semi-annually
MTBE, Tert-Butyl Alcohol (TBA), Di-isopropyl Ether (DIPE), Ethyl-tert-Butyl Ether (ETBE), Tert-Amyl-Methyl Ether (TAME)	µg/L	grab	Semi-annually
Ethanol Formaldehyde Acetone	µg/L	grab	Semi-annually
Methane Ethane Ethene	µg/L	grab	Semi-annually
Chlorinated Volatile Organic Compounds (EPA Method 8260B)	µg/L	grab	Semi-annually
Boron	mg/L	grab	Semi-annually
Carbon dioxide	mg/L	grab	Semi-annually
Total dissolved solids	mg/L	grab	Semi-annually
Total organic carbon	µg/L	grab	Semi-annually

Major Anions (bromide, chloride, sulfate, nitrate, nitrite, O-phosphate, and sulfide)	µg/L	grab	Semi-annually
Major Cations (barium, calcium, Iron, ferrous iron, magnesium, manganese, potassium and sodium)	µg/L	grab	Semi-annually
Total iron	µg/L	grab	Semi-annually
Alkalinity	µg/L	grab	Semi-annually
Total chromium ³	µg/L	grab	Semi-annually
Chromium (VI) ³	µg/L	grab	Semi-annually
Metabolic Acids	µg/L	grab	Semi-annually

¹ mg/L: milligrams per liter; µg/L: micrograms per liter; µmhos/cm: microohms per centimeter; °F: degree Fahrenheit.

² Field instrument may be used to measure this parameter.

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. Semi-annual 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)

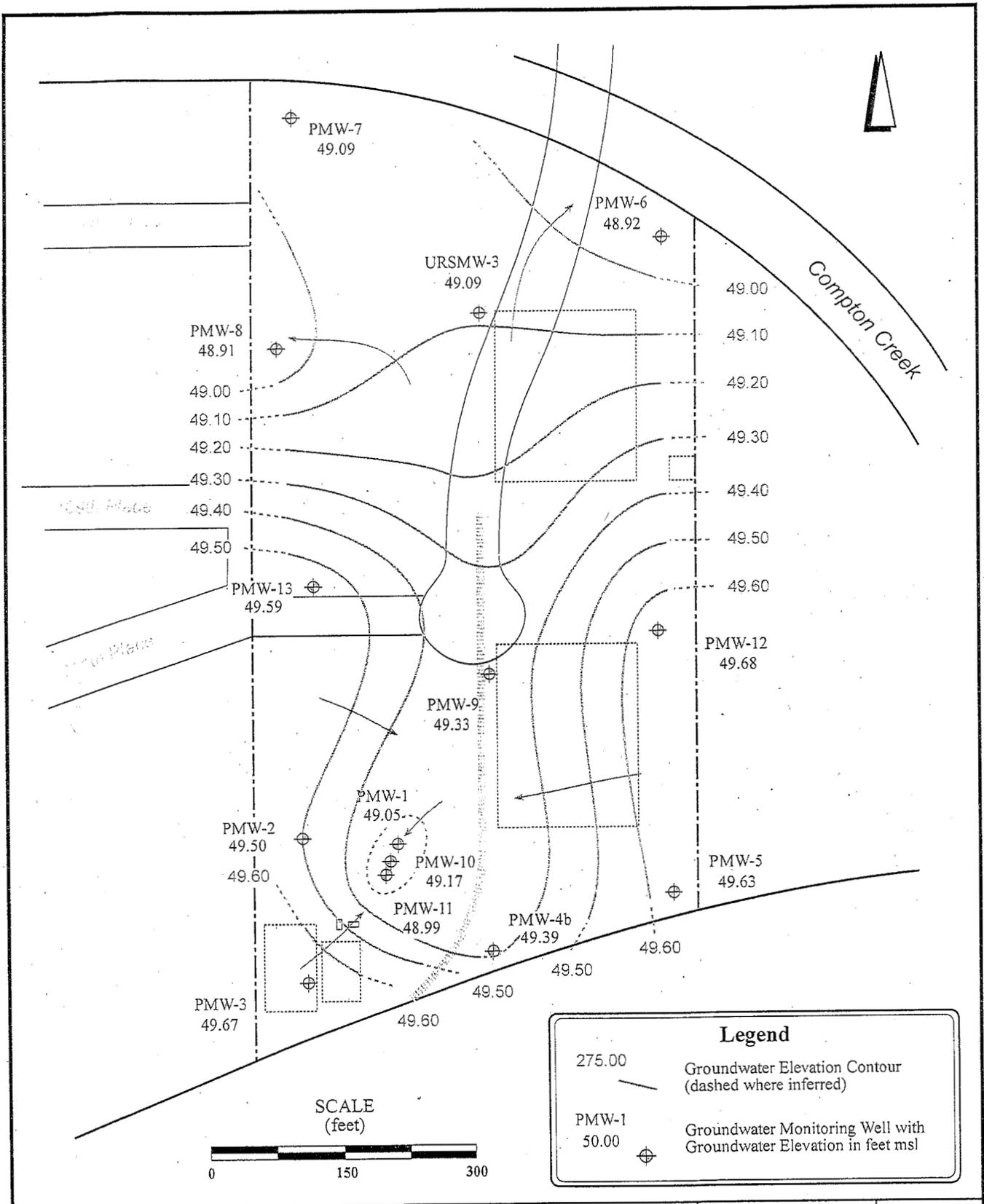
(Title)"

VI. PUBLIC DOCUMENTS

These records and reports 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 request by interested parties.

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

Date: October 27, 2011



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 ENVIRONMENTAL TECHNOLOGIES
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 Los Angeles, California

**Groundwater
 Flow Map**
 June 10, 2011

**Figure
 4**