AC

California Regional Water Quality Control Board
Los Angeles Region

Linda S. Adams
Cal/EPA Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 - FAX (213) 576-6640 - Internet Address: http://www.waterboards.ca.gov/losangeles

Arnold Schwarzenegger
Governor

November 23, 2009

Mr. Leslie Ross Ruley
1601 Mathews Avenue
Manhattan Beach, CA 90266

UNDERGROUND STORAGE TANK PROGRAM – DIRECTIVE TO TAKE CORRECTIVE ACTION IN RESPONSE TO UNAUTHORIZED UNDERGROUND STORAGE TANK RELEASE PURSUANT TO HEALTH AND SAFETY CODE SECTION 25296.10 AND TITLE 23, CHAPTER 16, CALIFORNIA CODE OF REGULATIONS, SECTIONS 2720-2727.
15407 HAWTHORNE BOULEVARD, LAWNDALE, CALIFORNIA (CASE NO. I-13868) (PRIORITY B-1 SITE)

Dear Mr. Ruley:

Pursuant to Health and Safety Code section 25296.10, you are required to take corrective action (i.e., Preliminary Site Assessment, Soil and Water Investigation, Corrective Action Plan Implementation, or Verification Monitoring) to ensure protection of human health, safety and the environment. Corrective action requirements are set forth in California Code of Regulations (CCR), title 23, Chapter 16, sections 2720 through 2727.

We are in receipt of the "Revised Interim Remedial Action Work Plan" (IRAP), dated September 23, 2009, prepared by your consultant, "CGC Environmental, Inc." (CGC) in response to our letter dated March 27, 2008. We also received a request for termination of Order No. R4-2005-0030 along with a new WDR application to inject activated persulfate (Klozur®) into the groundwater beneath the site. This letter intends to provide Regional Board staff comments upon reviewing these documents.

Preliminary Site Conceptual Model (PSCM) and Site Conceptual Model Updates (SCMUs)

The SCMU report, like the PSCM, should be a stand-alone document that provides a complete update to the PSCM and contains the results of any additional assessment, groundwater monitoring, and cleanup completed during the reporting period. Since each SCMU must contain all the components that are currently required in the Groundwater Monitoring Reports, **a separate Groundwater Monitoring Report is not required.** In order to implement the final remediation for the subject site, the SCMUs must be updated on a quarterly basis according to the following schedule, with the next SCMU due by **January 15, 2010**:

Reporting Period	Report Due Date
January – March	April 15TH
April – June	July 15TH
July – September	October 15TH
October – December	January 15TH

Site Assessment Update

There are currently nine groundwater monitoring onsite and offsite. Groundwater monitoring has been conducted since 1996. The latest monitoring event in January 2009 detected TPHg up to 135,000 µg/L, benzene up to 14,400 µg/L, and MTBE up to 3,900 µg/L. Monitoring data indicate that the contaminant plume has migrated offsite onto Hawthorne Boulevard. The depth to groundwater was 14 ft bgs and the groundwater flow direction was due northeast.

Approval of the IRAP (Per CCR Title 23, Chapter 16, §2726)

On July 31, 2006, the Executive Officer of this Regional Board issued a Waste Discharge Requirement (WDR) (Order No. R4-2005-0030) for the site to inject ozone to mitigate groundwater contamination beneath the site. The ozone injection system operated from March 2007 to March 2008.

According to the IRAP, injection of ozone in 2007 and 2008 did not have a substantial effect in reducing the concentrations of fuel constituents in groundwater partly due to lack of sufficient permeability to accept ozone into the saturated zone and partly due to the construction and operation of the ozone sparge system. To further remediate the groundwater at the site, the IRAP proposed to inject activated persulfate (Klozur®) into the groundwater beneath the site. According to the IRAP, activated persulfate injection is expected to be more efficient in reducing the contaminant concentrations because injection of activated persulfate oxidizes both naturally occurring organic carbon and contaminant hydrocarbons into non-toxic water and carbon dioxide.

To obtain necessary data for the correct amount of persulfate and to further assess the lithologic conditions below the site, the IRAP proposes to drill four additional borings to a depth of 50 feet bgs prior to initiating persulfate injection activities. The target interval for activated persulfate injection is between 15 to 30 feet bgs which is the most heavily impacted zone beneath the site.

The proposed scope of work includes three phases:

1. Drilling four direct-push borings to assess lithologic conditions in the target area

To confirm the presence of the silty sand aquifer at approximately 30 feet bgs below the site and to verify that additional saturated sand units are not present above or immediately below this aquifer, the IRAP proposes to drill three direct push borings on-site (CGC-B1 through CGCB3) and one boring off-site (CGC-B4). These borings will be sampled continuously from ground surface to a total depth of 50 feet bgs for lithologic description. Soil samples will be collected at 5-foot intervals for chemical analysis from the boring completed within the area of the former tank hold (CGC-B2) from ground surface to the water table to assess soil impacts above the saturated zone. Boring CGC-B4 will be completed off-site and outside the area of impacted soil (near well MW-13) for lithologic interpretation and to collect a soil sample for SOD analysis. Samples for SOD analysis should be collected from clean soil to avoid over-estimating the amount of persulfate needed for treatment.

2. Conducting a pilot test and performance evaluation

Activated persulfate (Klozur®) will be injected at three boring locations immediately upgradient of monitoring well MW-3. Data obtained from the soil borings completed for Phase 1 will be used to verify the persulfate treatment zone and to establish the optimal concentration of activated persulfate for injection. The pilot test will also be used to evaluate the amount of persulfate that can be effectively injected across the treatment zone.

The results of the pilot test will be evaluated by monitoring groundwater concentrations in well MW-3. Well MW-3 will be sampled approximately 1 week, 2 weeks and 4 weeks after injection to gauge the impact of the injection on groundwater concentrations over time. The sampling frequency may be modified to better assess the impact of the pilot test injection based on initial sampling results.

3. Performing full-scale injection

If the results of the pilot test indicate that activated persulfate is effective at reducing hydrocarbon concentrations in groundwater, a full-scale injection approach will be implemented. The proposed treatment area is roughly 40 feet by 80 feet and includes the approximate footprint of the former UST excavation. The number of borings required for full-scale injection will be based on the results of the pilot test. Based on prior data, a 7-foot injection spacing is currently proposed, resulting in 72 injection points across the treatment area. If pilot testing indicates a relatively large radius of influence, a wider spacing may be implemented. For The injection treatment interval is assumed to be 15 to 30 feet bgs at each boring, but this may be modified based on the results of Phase 1 and Phase 2. If lithologic data from Phase 1 and/or pilot testing from Phase 2 indicate that shallower depth intervals are unable to absorb the activated persulfate, a shorter injection zone will be utilized. Conversely, a longer or deeper injection interval may be proposed if Phase 1 and 2 data indicate this is necessary for maximum effectiveness. Performance of the full-scale injection will be assessed by sampling monitoring wells at the following intervals:

- On-site monitoring wells MW-2, MW-3 and MW-4: 2 weeks, 1 month, 2 months, quarterly
- Off-site monitoring wells MW-5, MW-12 and MW-14: 1 month, 2 months, quarterly.

Based on the results of the first full-scale injection event, additional injections may be performed. Two additional persulfate injection events are proposed at 3-month intervals, with groundwater samples collected in the monitoring wells listed above after 1-month, 2 months and quarterly to monitor performance.

Staff concurs with implementing the IRAP with the following conditions:

1. Activated Persulfate (Klozur®) is not listed on Order No. R4-2005-0030 issued to the site on July 31, 2006. The proposed persulfate injection shall not start until a valid Waste Discharge Requirements (WDR) is obtained from this Regional Board. We have received your request to modify the Order No. R4-2005-0030 for coverage under the Order No.

R4-2007-0019. As such, a separate directive containing the revised Order No. R4-2007-0019 and the associated Monitoring and Reporting Program will soon be issued to you.

2. During the entire course of remedial process, remedial progress reports must be submitted to this Regional Board as part of the corresponding SCMUs mentioned above, with the next progress report due by **January 15, 2010**.

3. Following one year operation of the persulfate injection, you must evaluate and report the effectiveness of the persulfate injection for the site. More aggressive remedial alternatives must be evaluated and implemented if persulfate is deemed ineffective for the site.

Termination of Existing Waste Discharge Requirements (WDRs)

On March 1, 2007, the Los Angeles Regional Water Quality Control Board revised and replaced Order No. R4-2005-0030 with the new Order No. R4-2007-0019. Therefore, Order No. R4-2005-0030 issued to the site on July 31, 2006 is hereby terminated.

Groundwater Monitoring Requirements (Per CCR Title 23, §2725)

The groundwater conditions have not been monitored at the site since January 2009. Previous groundwater data indicate that the fuel constituent plume beneath the site has migrated offsite. Therefore, staff has determined that the groundwater monitoring frequency at the site must remain quarterly. Staff may reduce the frequency of the groundwater monitoring at the site to semi-annually upon review of the future monitoring data.

Therefore, and to monitor groundwater conditions at the site, quarterly groundwater monitoring reports must be submitted with the following specifications:

1. All groundwater monitoring wells related to the site must be sampled. The next groundwater monitoring report must be submitted as part of the SCMU by **January 15, 2010**.

2. Groundwater samples must be analyzed by Cal-LUFT GC/FID or Cal-LUFT GC/MS Method for total petroleum hydrocarbons as gasoline (TPH_G) and diesel (TPHd), and by EPA Method 8260B for VOCs (full suite), and fuel oxygenate compounds including methyl tertiary butyl ether (MTBE), di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), and tertiary butyl alcohol (TBA). Ethanol is also required and shall be analyzed by either method above. The analytical detection limits must conform to the Regional Board General Laboratory Testing Requirements (9/06) (http://www.waterboards.ca.gov/losangeles/publications_forms/forms/ust/lab_forms/labreq 9-06.pdf). If the site has a waste oil tank, all aromatic and chlorinated volatile organic compounds must also be analyzed and reported per EPA Method 8260B. All respective analytical methods must be certified by the California Environmental Laboratory Accreditation Program (ELAP). All analytical data must be reported by a California-certified laboratory.

3. At least one round of groundwater monitoring must be conducted to include analyses of all common aromatic and chlorinated volatile organic compounds per EPA Method 8260B. If the site has a waste oil tank, the full suite of aromatic and chlorinated analytes must also be tested and reported per EPA Method 8260B.

4. In addition, each quarterly groundwater monitoring report must include the following:

- A separate summary table containing current concentrations.
- A summary table containing all historical data per each well with groundwater depth (or elevation) and well screen intervals.
- A regional map depicting site vicinity business and street, etc.
- A site plot plan depicting site location, tank and associated system locations, all well locations and groundwater elevations (contour) with flow gradient and direction.
- An isoconcentration map for TPH(g), benzene, MTBE, and TBA, respectively.
- A hydrograph superimposing on concentration over time at the most impacted well for TPH(g), benzene and MTBE, and TBA (or at any other wells as warranted).

Landowner or Impacted Site Notification Requirements

Pursuant to recent changes of the California Health and Safety Code section 25296.20(a), the Regional Board must notify all current recorded fee title holders for the site or sites (i.e., property owner(s)) impacted by releases from USTs prior to considering corrective action or case closure.

If site data indicate that release(s) from the UST systems have impacted offsite property(ies), provide the name, mailing address, and phone number for all recorded fee title holders for the site and any offsite property(ies) impacted by releases from the site, together with a copy of the county record of current ownership (grant deed or deed of trust), available from the County Recorder's Office, for each property affected, or by completing this Regional Board's "Certification Declaration for Compliance with Fee Title Holder Notification Requirements" for each site. **If this information has been provided in the past, you do not need to provide it again.** Copies of all technical reports required above and periodic updates are to be sent directly to the property owner onsite and to offsite property owner(s) impacted by UST releases from the site. The cover letter shall provide a list of all property owners sent technical reports.

Requirement for Electronic Submission of Laboratory Data to the State Geotracker

On September 30, 2004, the State Board revised regulations in Chapter 30, Division 3 of Title 23 of California Code of Regulations (CCR), which requires persons to submit electronic laboratory analytical data (i.e., soil, soil gas, or water chemical analysis) and locational data (i.e., location and elevation of groundwater monitoring wells), to the State GeoTracker database. The regulations and other background information are available at http://geotracker.waterboards.ca.gov.
Therefore, you must submit all laboratory data obtained after September 1, 2001 to GeoTracker

database. You must also submit locational data obtained after January 1, 2002 for all groundwater monitoring wells (i.e., latitude, longitude, and elevation survey data), groundwater well information (e.g., depth to free product, monitoring well status), and a site map.

E-Report Submittals

Please note that hard copy reports are no longer necessary for the Underground Storage Tanks Program. For guidelines of electronic report submittal, please go to http://www.waterboards.ca.gov/losangeles/water_issues/programs/ust/guidelines/e-qmr_guideline.pdf.

General Requirements

1. All reports must conform to the "Guidelines for Report Submittals" published by the Los Angeles County Department of Public Works.

2. Pursuant to State Water Resources Control Board Resolution No. 92-49, under Water Code Section 13304, all fieldwork related to subsurface investigation including well installation must be conducted by, or under the direct responsible supervision of, a licensed California Professional Geologist (PG) or Civil Engineer (PE). All technical documents submitted to this Regional Board must be reviewed and signed and/or stamped by a licensed California PG or PE with preferably at least five years subsurface hydrogeologic experience.

3. Regional Board staff must be notified 15 days before start of any fieldwork.

4. Before fieldwork is started, all necessary permits must be obtained from the appropriate agencies.

If you have any questions, please call Mr. Arman Toumari at (213) 576-6708.

Sincerely,

Yi Lu, Ph.D., P.G.
Chief of Los Angeles River Watershed Unit
Underground Storage Tank Section

cc: Hari Patel, SWRCB, Underground Storage Tank Cleanup Fund
Nancy Matsumoto, Water Replenishment District of Southern California
Tim Smith, Los Angeles County Department of Public Works
Norman Colby, CGC