

Lahontan Regional Water Quality Control Board

MEMORANDUM

TO: Mr. Pete Mizera
State Water Resources Control Board
1001 I Street, 16th Floor
Sacramento, CA 95814



FROM: Douglas F. Smith
Supervising Engineering Geologist
LAHONTAN REGIONAL WATER QUALITY CONTROL BOARD

DATE: May 23, 2013

**SUBJECT: COMMENTS ON HIGH DESERT UNOCAL CASE CLOSURE
SUMMARY, 18285 HIGHWAY 18, APPLE VALLEY, SAN BERNARDINO
COUNTY, UST CASE NO. 6B3600841T, UST CLEANUP FUND CLAIM
NO. 17381**

Thank you for providing the *Notice of Opportunity for Public Comment* (Notice) dated March 27, 2013 for the subject leaking underground storage tank case. Lahontan Water Board staff (Staff) have the following comments related to the proposed case closure.

General Comment

The Notice indicates the site meets Scenario 3a (Low Concentration Groundwater Scenario Without Oxygen Data Or Where Oxygen Is <4%) of the Low-threat Underground Storage Tank Case Closure Policy (Policy). Staff does not believe the site passes Scenario 3a or any of the other vapor intrusion to indoor air pathway scenarios described in the Policy.

If a site does not pass any of the first three scenarios, additional evaluation is warranted. The Policy provides three options; (1) collect direct soil gas measurement to compare to Scenario 4, (2) conduct a site specific risk assessment for the vapor intrusion pathway, or (3) control exposure through the use of mitigation measures. Staff previously recommended, and still recommends, the collection of direct soil gas measurements as a conservative and cost effective method to ensure human health is adequately protected.

Scenario Selection Comments

The Policy requires a site to satisfy all of the characteristics and criteria of a selected scenario. Selection of Scenario 3a is inappropriate for the subject case because a "high concentration" source exists between the water table, located approximately 85 feet below ground surface, and ground surface. Scenario 3a assumes residual petroleum hydrocarbons occur as a "low concentration" source such as dissolved benzene in groundwater and requires a continuous bioattenuation zone between the "low concentration" source and the foundation of existing or future buildings. The site does not satisfy these criteria, as described further below, so the selection of Scenario 3a is inappropriate.

The "high concentration" source material was identified during confirmation soil sampling conducted in 2011, following initial soil vapor extraction activities. The results indicated TPHg in soil at depths between 25 and 45 feet below ground surface (bgs) at concentrations significantly exceeding the 200 mg/kg "high concentration" source defined in the *Technical Justification for Vapor Intrusion Media-Specific Criteria* (TJ Document)¹.

Staff considered Scenario 2, a "high concentration" source in soil selection, as potentially applicable to site conditions. However, Scenario 2 requires a continuous bioattenuation zone that provides a separation of at least 30 feet laterally and vertically between the LNAPL in soil and the foundation of existing or future buildings with TPH concentrations <100 mg/kg throughout the entire lateral and vertical extent of the bioattenuation zone. Due to the above referenced detections of TPH at the 25 foot depth, the site does not meet all of the criteria for this scenario.

Summary

Although site closure may be supportable under the Policy, the rationale currently being used for the vapor intrusion to indoor air pathway does not appear justified and is inappropriate. Staff recommends direct soil gas measurements be collected and evaluated relative to Scenario 4 of the Policy prior to any closure decisions. If site closure is recommended without the collection of direct soil gas measurements, then a

¹ TPHg soil concentrations as high as 11,200 mg/kg and PID readings >1,000 were reported between 25 and 45 feet bgs. These data indicate the presence of LNAPL or a high concentration source as described in the TJ document.

site-specific risk assessment for the vapor intrusion pathway should be conducted to demonstrate that human health is protected pursuant to Criterion 2b under the Policy.

Also, note the Objections to Closure and Responses section in the Notice states, "According to the Geotracker Closure Review page, Regional Board objects to UST case closure because the extent of contamination has not been defined." This information was populated in 2009 as a result of Resolution 2009-0042 and is outdated. The text should be revised to state, "Regional Board objects to UST case closure because remaining petroleum contamination may pose a potential threat to human health via the vapor intrusion pathway."

Please contact Brian Grey directly at (530) 542-5421 or BGrey@waterboards.ca.gov with any questions or comments. Thank you for the consideration.

