

Nowell, Keith, Env. Health

From: Nowell, Keith, Env. Health
Sent: Wednesday, December 24, 2014 1:05 PM
To: kaye.patterson@usw.salvationarmy.org
Cc: Jack Phillips (Jack.phillips@usw.salvationarmy.org); 'Jeanne Homsey'; 'Mike Sonke'; Roe, Dilan, Env. Health
Subject: Fuel leak case RO3084 - Salvation Army, 601 Webster St., Oakland

Dear Ms. Kaye Patterson

Alameda County Environmental Health (ACEH) staff has reviewed the case file including the draft *Work Plan for Continued Subsurface investigation* (Work Plan) dated August 15, 2014 and prepared by Cardno ATC (CATC) for the subject site. ACEH has reviewed the case files in conjunction with the California State Water Resources Control Board (SWRCB) Low Threat Underground Storage Tank Case Closure Policy (LTCP) and has determined the site does not meet the General or any of the Media Specific LTCP criteria. Below are technical comments pertaining to the review of existing site data against the LTCP criteria followed by a discussion of the Work Plan. Please address the technical comments prior to the finalization of the Work Plan.

TECHNICAL COMMENTS

1. Low Threat Underground Storage Tank Case Closure Policy Evaluation

General Criteria:

The site does not meet the General Criteria section d (Free Product) as

- Grab groundwater concentrations of up to 280,000 micrograms per liter ($\mu\text{g/L}$) total petroleum hydrocarbons as gasoline (TPHg) are indicative of free phase product in groundwater. It is unknown if free phase product in groundwater has been removed to the maximum extent practicable.

The site does not meet the General Criteria section e (Site Conceptual Model- SCM) as

- The SCM is inadequate as soil and groundwater and free product plume contamination are not adequately defined either vertically or laterally, and sensitive receptors have not been identified.

Media Specific Criteria - Groundwater:

The site fails the Media Specific Criteria for Groundwater as:

- Benzene concentrations in grab-groundwater samples are reported up to 35,000 $\mu\text{g/L}$
- Methyl tertiary butyl ether (MTBE) concentrations in grab-groundwater samples are reported up to 5,300 $\mu\text{g/L}$
- It is not known if the contaminant plume is stable or decreasing;
- The contaminant plume that exceeds water quality objectives has not been defined either vertically or laterally, hence:
 - The site cannot be evaluated against criteria for the distance from the leading edge of the plume to the nearest surface water body;
 - The site cannot be evaluated against criteria for the distance from the leading edge of the plume to the nearest water supply well.

Media Specific Criteria - Vapor Intrusion to Indoor Air:

The site fails the Media Specific Criteria for Vapor Intrusion to Indoor Air:

- Scenario 1 and Scenario 2 are applicable to groundwater having a 30-foot buffer between the base of the foundation and the piezometric surface. Depth to water (dtw) appears to be situated approximately 20- to 25-feet below the ground surface (bgs); hence, the site would not meet the criteria for Scenario 1 and Scenario 2. Additionally,
- Depth from the base of the foundations for on-site and off-site buildings have not been established, hence risk to both on- and off-site structures cannot be evaluated based on the following Scenario 3 Criteria:
 - Thickness of the bioattenuation zone;
 - Soil concentrations of total petroleum hydrocarbons (as gasoline and as diesel combined) beneath the buildings;
 - Benzene concentrations in groundwater beneath the buildings; additionally,
 - Oxygen content of the soil gas has not been measured to evaluate if the case would meet scenario 3;
- Direct measurement of soil gas concentrations at least 5-feet from below the bottom of on- and off-site foundations have not been made in order to evaluate the case with regard to Scenario 4.

Media Specific Criteria for Direct Contact and Outdoor Air Exposure:

The site fails the Media Specific Criteria for Direct Contact and Outdoor Air Exposure, Commercial scenario for Volatilization to Outdoor Air as:

- No soil samples collected from the 0- to 5-foot zone and no soil samples analyzed in the 5- to-10 foot zone for benzene, ethyl benzene, and naphthalene for comparison with Table 1 of the LTCP.

2. Work Plan Discussion

Sensitive Receptors:

- ACEH concurs with the scope proposed in Section 4.1 of the Work Plan for the sensitive receptor survey, which includes a database search of the Department of Water Resources (DWR) and Alameda County Public Works Agency (ACPWA) out to a distance of 2,000 feet from the site.

Borings:

- ACEH generally concurs with the placement of the three boring transects- along 7th Street; in-board but parallel to Franklin Street; and south of and parallel to 7th Street. Additionally, ACEH requests a boring transect parallel to Franklin Street just inside of the property line be evaluated as having no borings along Franklin to address data gaps associated with utility worker exposure.
- ACEH requests the contingent boring locations shown on Figure 5 be the primary boring locations for the eastern transect.
- ACEH requests a boring transect parallel to Franklin Street in the inferred down gradient direction from bore SB-4 in the parking area located across Franklin Street to aid in determining the location of monitoring wells in this area.
- As discussed in its correspondence dated July 29, 2014, ACEH stated while it is acceptable to incorporate membrane interface probe (MIP) data in the soil and groundwater investigation, MIP does not provide quantitative data. ACEH stated soil and groundwater sampling still needs to be conducted within the confines of the site. The Work Plan does not propose mixing lithologic-logged borings with associated recovery of soil and groundwater samples (sampled borings) with the MIP borings. ACEH requests advancing a sampled soil boring at the northeast corner contingent location as shown on Work Plan Figure 5, and every other boring emanating from that location

alternating between MIP and sampled soil borings, with the northwestern-most boring also be a sampled boring location. Some sampled boring location fudging is permissible to include the monitoring well boring locations in to the sampled boring locations. Eight of the 14 proposed boring locations are sampled locations.

- ACEH generally concurs with the placement of the three soil vapor sampling locations as shown on Figure 4. However, ACEH is of the opinion it is premature to collect sub-slab soil vapor samples as described in the Work Plan unless dtw data indicates the piezometric surface is less than 2 feet below the base of the of the foundations. Otherwise, ACEH requests permanent soil vapor probes be installed in the locations shown on Figure 4. Depth to groundwater measurements measured in the monitoring wells should be used to determine the thickness of the bioattenuation zone beneath the foundation slab.
 - If the bioattenuation zone is greater than 5 feet thick, ACEH requests the soil vapor probes be advanced to a depth of 5 feet below the depth of the of the base of the foundation in accordance with the LTCP Vapor Intrusion to Indoor Air Scenario 4.
 - For situations where the bioattenuation zone thickness is between 2 feet and 5 feet, select the appropriate soil vapor probe depth so the probe screen is above the saturated zone.
 - If the bioattenuation zone thickness is less than 2 feet, then install the proposed soil vapor pins. Should the results of sampling the soil probes indicate a vapor intrusion risk, installation of the proposed soil vapor pins as well as sampling water in the elevator sump, may be warranted.

Please provide ACEH with the preliminary data (including laboratory test results, boring logs and well construction details, depth to water data, and cross sections) collected from the soil and groundwater portion of the investigation for consideration prior to consulting with ACEH before to conducting the soil gas portion of the investigation.

Sampling and Analysis:

- As stated in the LTCP case evaluation above, no soil samples have been recovered from within the 0- to 5-foot and 5- to 10-foot bgs intervals to satisfy LTCP Media Specific Criteria for Direct Contact and Outdoor Air Exposure. At a minimum, each of the eight sampled soil borings should have soil samples recovered from within the 0- to 5-foot and in the 5- to 10-foot bgs intervals. Scope of analysis of all soil samples should include TPHg, B, toluene (T), E, xylenes (X) (BTEX), MTBE, and naphthalene. If a diesel release had occurred, it does not appear to have been significant. Therefore TPH as diesel may be eliminated from the analysis scope. Additionally, lead does not appear to have been a significant component of the gasoline release and may be eliminated from the analysis scope. ACEH agrees with the test methods presented in the Work Plan for the soil samples.
- Grab groundwater samples should be recovered from each of the eight sampled soil borings, with the analysis scope to include TPHg, BTEX, MTBE, and naphthalene. ACEH agrees with the test methods presented in the Work Plan for the groundwater samples.
- ACEH agrees with the scope of analysis and test methods presented in the Work Plan for the soil gas samples.

Monitoring Wells:

The Work Plan proposes the installation of two on-site and two off-site groundwater monitoring wells. At this time, ACEH requests the installation of three on-site groundwater monitoring wells. Two well locations are the western-most borings of the northern and southern transects with the third well located at the intersection of the southern transect, perpendicular to Franklin Street, and the eastern transect, perpendicular to 7th Street. ACEH is of the opinion it is premature to identify locations of groundwater monitoring wells in off-site locations. A review the findings of the soil and groundwater portion of the investigation will aid in making a determination of placement of off-site wells.

Technical Report Request

Please prepare a finalized version of the draft Work Plan incorporating the Technical Comments above and submit to the ACEH ftp site (Attention: Keith Nowell), and to the State Water Resources Control Board's Geotracker website, in accordance with the following specified file naming convention and schedule:

- **February 7, 2014 – Work Plan for Soil, Groundwater and Soil Gas Investigation** (file name: RO0003084_WP_R_yyyy-mm-dd)

Thank you for your cooperation. ACEH looks forward to working with you and your consultants to advance the case toward closure. Should you have any questions regarding this correspondence or your case, please call me at (510) 567-6764 or send an electronic mail message at keith.nowell@acgov.org.

Regards,
Keith Nowell

Keith Nowell PG, CHG
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda , CA 94502-6540
phone: 510 / 567 - 6764
fax: 510 / 337 - 9335
email: keith.nowell@acgov.org

PDF copies of case files can be reviewed/downloaded at:

<http://www.acgov.org/aceh/lop/ust.htm>