

Central Valley Regional Water Quality Control Board

14 May 2021

Aldi Ramirez
City of Fresno – PARCS Department
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ADDITIONAL INVESTIGATION & POTENTIAL VAPOR INTRUSION EVALUATION REPORT, CITY OF FRESNO – PARCS DEPARTMENT PROPERTY, FORMER IMPERIAL LAUNDRY, 2165 S. ELM AVENUE, FRESNO (GEOTRACKER GLOBAL ID T10000012980)

Central Valley Regional Water Quality Control Board (Water Board) staff have reviewed the subject *Additional Investigation and Potential Vapor Intrusion Evaluation Report* (Report) dated 23 March 2021, prepared and submitted to the Water Board by Kleinfelder on your behalf as the owner of the subject property (Site). A Report summary and staff comments follow.

REPORT SUMMARY

The Report documents the results of the additional site investigation completed in November and December of 2020, which included the following:

- Evaluation of the extent of volatile organic compound (VOC) impacted soil/soil vapor in the vicinity of the Site.
- Groundwater sampling and analysis for VOCs from the on-site well (IL-MW-1) and the monitoring well network of the adjacent Valley Gas leaking underground storage tank (UST) site.
- Indoor and outdoor ambient air monitoring and sub-slab soil vapor sampling for VOCs
- Completion of a human health hazard assessment to quantify cancer and non-cancer hazards associated with exposure to VOCs in indoor air.

Soil and Soil Vapor Results

Petroleum hydrocarbons, which appear to be Stoddard solvent (an alternative dry-cleaning solvent), were identified within hard, fine-grained stratigraphic intervals with low permeability on the eastern side of the former Imperial Laundry facility from approximately 12 to 40 feet below ground surface (bgs). The eastern extent of Stoddard solvent is not currently defined.

KARL E. LONGLEY ScD, P.E., CHAIR | PATRICK PULUPA, ESQ., EXECUTIVE OFFICER

There were a few minor detections of halogenated hydrocarbons in soil/soil gas on-site. However, halogenated hydrocarbons were primarily detected South of the Site, immediately east of the Former Elzay S Launderette and beneath South Elm Avenue.

Groundwater Results

Groundwater was encountered at depths ranging from approximately 92 to 95 feet below ground surface, with a hydraulic gradient toward the west to west-northwest. Groundwater is impacted by petroleum hydrocarbons and chlorinated solvents, with impacts centered in separate areas. Petroleum hydrocarbons (including methyl tertiary-butyl ether [MTBE]), utilized almost exclusively as an additive to gasoline over 20 years ago) are highest in MW-1R, MW-3, and MW-4 (on the Valley Gas Site) and in and IL-MW-1 at the subject Site. The highest concentrations of chlorinated solvent impacted groundwater are in wells MW-10 and MW-12, north of East California Avenue, with concentrations of tetrachloroethylene (PCE) and trichloroethylene (TCE) up to 270 ug/L and 26 ug/L, respectively. The Report concludes, based on the separation of groundwater impacts, that the petroleum hydrocarbons and chlorinated solvents are from separate sources.

Sub-slab Vapor Results

Thirty-one VOCs were detected in sub-slab soil vapor samples. However, only benzene exceeded any applicable commercial/industrial screening level, with one sample location (SS-1) exceeding the San Francisco Bay Regional Water Quality Control Board's Environmental Screening Level (ESL) of 14 ug/L, with detected benzene concentrations ranging from 0.55ug/L to 160 ug/L. In general, sub-slab VOC concentrations were slightly lower during the November 2020 sampling event than they were during the March 2020 event.

Indoor and Outdoor Air Results

Benzene and trans-1,3-dichloropropene were present in all active (short-term) samples of indoor and outdoor air at concentrations in excess of applicable commercial/industrial screening levels, while chloroform was detected in all active indoor air samples at concentrations in excess of applicable commercial/industrial screening levels. PCE was detected in one active indoor air sample (IAA-7) in excess of applicable commercial/industrial screening levels during the March 2020 sampling event. PCE was detected at trace levels or not detected in all other active indoor air samples during the March and November 2020 sampling events. Passive (long-term) indoor sampling results were generally similar to active indoor sampling results, except that trans-1,3-dichloropropene was not detected in passive samples. In general, indoor air VOCs concentrations were slightly lower during the March 2020 sampling event than they were during the November 2020 event.

The Report notes that benzene is a common indoor air contaminant that can be attributed to paints, glues, and detergents which were present in the building at the time of sampling. Also, the Site is adjacent to an active gasoline station and generally, the air around gasoline stations contains elevated benzene because gasoline contains

benzene. Chloroform detections in indoor air are consistent with the presence of chloroform in chlorinated municipal drinking water, wastewater, and cleaning products at the Site. Furthermore, trans-1,3-dichloropropene was detected at similar concentrations in indoor and outdoor air and may be present in indoor air as a result of outdoor air entering the community center. Additionally, most VOCs detected in indoor air samples can be found in products in the building during sampling.

Human Health Risk Results

Human health risks were calculated for each constituent of concern (COC) and the cumulative human health risk was calculated by summing the risks calculated from each COC. For the Spring 2020 sampling event, the cumulative cancer risk of 4×10^{-5} exceeds the one in a million standard of comparison, with the primary contributing COCs being PCE, benzene, and chloroform. The calculated Spring 2020 non-cancer hazard indices (HI) do not exceed the HI limit of one for risk management decisions.

For the Fall 2020 sampling event, the calculated cumulative cancer risk of 2×10^{-5} exceeds the one in a million standard of comparison, with the primary contributing COCs being benzene, bromodichloromethane, 1,3-butadiene, cis-1,3-dichloropropene, trans-1,3-dichloropropene, and chloroform. The calculated Fall 2020 non-cancer hazard indices do not exceed the HI limit of one for risk management decisions.

VOC concentrations during the Spring and Fall 2020 events were similar in indoor air and outdoor air, and outside ambient air concentrations can contribute to concentrations of VOCs indoors. Common indoor air sources of VOCs include cleaning products and consumer products which; due to the variety and quantity present in the community center, were not removed prior to sampling.

PCE was detected above applicable screening levels in one of eight indoor air samples during the Spring 2020 event and in no samples during the Fall 2020 event. Chlorinated VOCs can be generated when cleaners such as bleach contact organic material, and the one sample containing PCE was collected inside a cleaning supplies closet. As such, the Report considers the PCE detected at IAA-7 during Spring 2020 to be anomalous and not indicative of a vapor intrusion issue at the Site.

Conclusions

The Report comes to the following conclusions:

- Visitors to the Site are not likely to come into contact with the primary Site COC Stoddard solvent; however, direct exposure to impacted soil may occur under certain scenarios, such as excavation in the former Imperial Laundry site south of the community center.
- The Site does not appear to be a source of PCE or other chlorinated solvents detected in off-site soil/soil vapor and groundwater, as COCs in on-site soil are primarily Stoddard solvent.

- Low concentrations of chlorinated solvents appear to be present in soil above groundwater near the former Elzay S. Laundrette, which may indicate it is a source of PCE in soil, soil vapor, and groundwater in the Site vicinity.
- Groundwater samples collected on-site and at the Valley Gas site were not significantly impacted by chlorinated solvents.
- Groundwater analytical results indicate (a) source/s of chlorinated solvents in the vicinity of historical dry cleaning/laundry operations north of East California Avenue, including the Relanco Self Service Laundromat (356/358 B Street) and West Site Coin-op Dry Cleaning (324 C Street), both of which were upgradient of the highest PCE/TCE concentrations recently detected in groundwater at MW-12.
- Site impacts from the Former Imperial Laundry facility appear to be limited to petroleum-based Stoddard solvent:
 - Most of the Stoddard solvent mass is in the eastern portion of the former Imperial Laundry footprint at depths between 12 and 40 feet,
 - Stoddard solvent does not appear to reach groundwater, as soil concentrations drop below detection limits below 40 feet bgs,
 - The eastern extent of Stoddard solvent impacts in soil has not been defined.
- Benzene, PCE, bromodichloromethane, 1,3-butadiene, chloroform, cis-1,3-dichloropropene, and trans-1,3-dichloropropene contribute to an estimated cumulative cancer risk in excess of the one in a million comparison standard,
 - Outdoor and indoor air concentrations of these compounds are similar and thus suggest an external source, such as off-site outdoor air, may be responsible for the presence of these COCs in indoor air,
 - It does not appear that vapor intrusion from PCE is occurring at the Site.
 - Bromodichloromethane and chloroform appear to be associated with an internal source from within the community center, such as volatilization of chlorinated drinking water or cleaning products.
- There does not appear to be excess human health risk associated with the use of the Community Center. Concentrations of COCs in indoor air do not exceed the non-cancer hazard index limit of one.
 - Based on the above, it does not appear that remediation or mitigation of indoor air quality is necessary to protect visitors or Community Center staff.
 - Since soil exposure pathways exist for construction workers excavating soil at depths of greater than 10 feet bgs, a land-use covenant may be appropriate to restrict these types of activities.

COMMENTS

Water Board staff have the following comments:

- Given the proximity of residential structures east of the Site and the undefined easterly extent of Stoddard solvent, further evaluation of the lateral extent of COCs in soil and soil vapor off-site to the east of the former Imperial Laundry footprint is warranted.
- The Report indicates that concentrations of COCs in excess of applicable screening levels in shallow soil and soil vapor have the potential to pose a threat to human health if soil excavations were to occur on-Site. A feasibility study should be conducted to evaluate remedial alternatives to address this hazard, which may include the land-use covenant referenced in the Report conclusions.
- The Report indicates that the soil vapor extraction system (SVES) at the Valley Gas site, was operating during the indoor air sampling events. This may have influenced subsurface vapor conditions under the community center building. Please provide comment on the extent to which the conclusions of the Report may be dependent upon the operational status of the SVES system and whether the conclusions would remain valid if SVES operation at Valley Gas were to be concluded.

Water Board staff concur with the conclusions of the Report. By **14 June 2021**, please provide a response to the above comment regarding the extent to which the Report conclusions will remain valid in the absence of active soil vapor extraction at the adjacent Valley Gas site.

By **13 July 2021**, submit a workplan for assessment of the extent of soil and soil vapor impact from Stoddard solvent, and any associated excess health risk, to the east of the former Imperial Laundry location (off-site) south of the community center. Include a proposed feasibility study for evaluating appropriate mitigation of any excess risk both on-site and off-site.

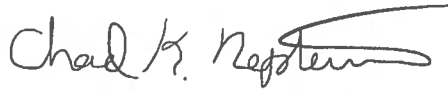
Further assessment of the extent of chlorinated solvent in groundwater in the Site vicinity, from sources other than the Site (as identified in the Report) is necessary. Water Board and Department of Toxic Substances Control staff are exploring options for identifying responsible parties and potential funding options for that effort.

Aldi Ramirez
City of Fresno – PARCS Department
RE: former Imperial Laundry Site

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If you have any questions regarding this matter, please contact Chad Neptune of this office at (559) 445-5584 or chad.neptune@waterboards.ca.gov.



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5/14/2021

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