

December 20, 2017

RECEIVED

By Alameda County Environmental Health 3:30 pm, Dec 20, 2017

Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

Re: American Reprographics, LLC (Formerly City Blue Print)
ACEH LOP RO#151
1700 Jefferson Street Oakland, CA 94612

I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the SWRCB's GeoTracker website.

Sincerely,



D. Jeffery Grimes, Vice President, Senior Corporate Counsel & Corporate Secretary
Authorized Representative

Attachment: Report



December 19, 2017

Mr. Mark Detterman
Alameda County Department of Environmental Health-LOP
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

RE: Response to Terraphase December 4, 2017 "Comments on Interim Remedial Action Plan, 1700 Jefferson Oakland, CA, October 2017, Prepared by Applied Water Resources (Fuel Leak Case No. RO0000151)"

Dear Mr. Detterman

This letter responds to the comments submitted by Terraphase Engineering Inc. to the Interim Remedial Action Plan (IRAP; AWR, October 2017) for Fuel Leak Case No. RO0000151. The IRAP was prepared on behalf of American Reprographics Company, LLC (ARC) for the Site located at 1700 Jefferson, Oakland, California. The purpose of this letter is to address Terraphase's comments regarding the IRAP scope, site conditions, and investigation procedures.

At the outset, we note that the recently submitted Comprehensive Summary of Site Conditions report (CSSC; AWR, November 2017), which necessarily provides a more robust assessment of site conditions and potential risk than the IRAP, includes data and analysis that is highly relevant to the issues discussed by Terraphase. We note that Terraphase's comments were prepared prior to issuance of the CSSC and therefore are not informed by that report. This response relies both on the IRAP itself and the CSSC.

Terraphase's comments can be grouped into three general categories: (1) the purpose and scope of the IRAP and related remedial goals, (2) the Conceptual Site Model, petroleum measured at well MW-5, and other potential sources upgradient from MW-5, and (3) the absence of free product in monitor wells at the Site (ARC property) and adjoining properties. Our responses are similarly organized below.

Purpose and Scope of the IRAP

The IRAP presented by ARC is protective of human health and the environment, in light of the Conceptual Site Model and the sub-slab vapor testing conducted to date, and it is consistent with regulatory requirements and standards. Moreover, implementation of the IRAP will allow for informed decision-making regarding a final remedy that will address any remaining unacceptable risk related to Site contamination

IRAPs are developed to address unacceptable levels of risk that require immediate attention. In this case, concentrations measured in sub-slab vapor in July and October 2017 show no significant risks are currently posed to the residents within the Jefferson Court apartment building basement at 581 18th Street. However, investigations at the Site show that volatile petroleum hydrocarbons in the vadose zone beneath the former USTs and pump island remain and likely contribute to concentrations measured in ground water and soil vapor, and therefore could create an unacceptable level of risk if not addressed.



Therefore, the IRAP is primarily designed to reduce the mass of volatile petroleum hydrocarbons within the secondary source at the Site.

Terraphase mistakenly comments that the IRAP scope is limited to only testing the three vapor extraction wells. The IRAP consists of two steps, as described in Sections 5 and 6. The first step consists of a pilot test utilizing three new vapor extraction wells completed within each of the three geologic zones. The second step consists of a full-scale soil vapor extraction system (SVE) that will be designed based on the results from the pilot test. It is anticipated that the SVE system will continuously operate 24 hours per day, 7 days per week, for one year.

The IRAP also allows for expansion, if warranted, in response to information from future site investigation and monitoring. For example, if future findings indicate unacceptable levels of risk due to vapor intrusion from the release at the ARC property, then the SVE system could be readily expanded. The flexibility of the IRAP is an acknowledgement that only two soil vapor monitoring events have been performed to date, and that the additional monitoring recommended in the CSSC will indicate if the current lack of significant risk persists throughout the year. If conditions change, implementation of the SVE system described in the IRAP will enable a faster response to mitigate these risks, as needed. Such a step wise approach to investigation, monitoring, risk assessment, and remedial response is consistent with the norms of the industry, regulation, the UST Fund, and the LTCP.

Aggressive remediation was performed at the Site in the 1990s, consisting of ground water and product extraction, which effectively reduced the LNAPL such that separate phase product thicker than a sheen has not been measured in the monitor wells since 1997. While residual petroleum remains in the subsurface, there is no measurable thickness of free product, and measurements of natural attenuation parameters indicate that natural source zone depletion (NSZD) mechanisms are operating to reduce the mass of petroleum that were not recovered by the previous remedial efforts. Accordingly, the IRAP describes focused response actions intended to address impediments to low-threat closure of the case. If additional remedial actions or comprehensive remedy is required, that design would be the domain of a remedial action plan, or corrective action plan, not the IRAP.

The CSSC recommends further study to evaluate the rate of source zone depletion and to identify potentially limiting factors. Following evaluations of the rate of NSZD, potential factors limiting the effectiveness of NSZD, anticipated future land use, and the effectiveness of the IRAP, ARC intends to work with the ACDEH to select and implement appropriate next steps, which could include enhancing NSZD, converting or expanding the IRAP into a final remedy, in situ groundwater treatment, or some combination of these remedial alternatives. At this point, selection of a final remedy is premature.

Petroleum at MW-5 and Other Potential Sources

Terraphase provides several observations regarding Site conditions, however, none of their observations explain why petroleum from the former ARC USTs would be distributed to the north and northeast when the decades of monitoring data show the dominant gradient direction is to the west and northwest. The CSSC provides considerable support demonstrating that the distribution of petroleum to the north is anomalous in light of the dominant gradient towards the west. This dominant westward flow direction is inconsistent with the petroleum encountered to the north, at MW-5, and to the northeast beneath the basement, at D8.



One possible explanation for the petroleum impacts north of the Site, is an offsite, as yet unconfirmed source. Historical land use reveals petroleum storage and distribution (retail sale) in the area, including a gas station at the current location of the ice rink located along the eastern side of San Pablo Avenue at 519 18th Street and a former bus depot was located cross-gradient to the Site at 1825 San Pablo Ave.

Although ARC has not conducted a comprehensive search for other potential sources of contamination in the Site area, the CSSC presents a robust analysis of data and a Site Conceptual Model that suggest one or more other such sources might be contributing to the distribution of petroleum. This conclusion is supported by multiple lines of evidence.

Lack of LNAPL Measured on Ground Water

The Site Conceptual Model conclusion that LNAPL is not present at the Site or at the adjoining properties is supported by the absence of free product in monitoring wells. Terraphase's expressed concerns that the lack of measured LNAPL on ground water might be due to the prior deployment of ORC socks, or due to the pre-pack well screens installed in the courtyard, are not supported by the data.

ORC socks were deployed at the Site in 1999 and removed in 2002. The 15 years since ORC sock removal provided more than ample time for equilibration of groundwater conditions at the site via advection and diffusion, especially given the sandy geologic materials and the distribution of petroleum downgradient to the west side of Jefferson Street.

AWR installed ¾-inch prepack well screens supplied by Geoprobe for monitor wells in the courtyard at 581 18th Street. The wells were designed and installed with 12 to 24 inches of screen above the ground water table, which ensures that the ground water table intersects the well screen so that LNAPL can be measured and observed during monitoring. Since installation, the well screen has not been submerged during sampling.

The "gray fabric" cited by Terraphase is not a fabric at all. The pre-pack wells use a stainless-steel mesh with a 0.28mm pore size, designed to retain the 20/40 (medium to coarse) clean sand pack around the ¾-inch PVC well screen. These materials do not absorb petroleum. We estimate that the prepack has much greater permeability and porosity than the native sand zone, which contains fine to medium sand with about 10-15% silt. The CSSC report provides all well construction logs.

The URL for the Geoprobe specification of the pre-pack well screen is here:

https://geoprobe.com/sites/default/files/storage/pdfs/0.5__0.75_pps_sop_01-2011_0_0_0.pdf

In addition, with Terraphase's concurrence, AWR utilized an oil-water interface probe during the two most recent ground water quality monitoring events. The smallest thickness of LNAPL resolved by the probe is 1 mm, and no measurable thickness was observed in any monitor well.

The methods implemented to date are adequate to evaluate if LNAPL is present. If further evaluation is desired by ACDEH, we suggest that, during the next ground water quality monitoring event, a clear bailer appropriate for assessing LNAPL be used to collect a sample of the ground water table prior to purging to further observe if LNAPL is present.



We note that Terraphase also provided comments embedded within the IRAP, which we find similar to the above discussion. Therefore, no additional responses specific to those comments are provided.

On behalf of ARC, we look forward to the review from ACDEH. We would be happy to meet with ACDEH and Terraphase to discuss these issues further, if ACDEH believes such a meeting would be helpful. In any event, ARC is ready to move forward with the IRAP upon receipt of ACDEH approval, to help ensure the continuation of no significant risk to human health and the environment and to continue on the path of site closure.

Sincerely,

APPLIED WATER RESOURCES



Steven Michelson
Principal

