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<b>Subject</b>	<b>First 2022 Semiannual Soil Vapor Monitoring Report</b>	<b>Project Name</b>	SFPP Norwalk Pump Station, Norwalk, California
<b>Attention</b>	Mr. Paul Cho/Los Angeles Regional Water Quality Control Board		
<b>Prepared by</b>	Todd Kremmin/Jacobs Trevre Andrews/Jacobs		
<b>Reviewed by</b>	Eric Davis/Jacobs		
<b>Date</b>	June 21, 2022		
<b>Copies to</b>	Court Reece/Kinder Morgan		

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## 1. Introduction

Jacobs Engineering Group Inc. (Jacobs) is pleased to submit this technical memorandum (tech memo) on behalf of Santa Fe Pacific Pipelines, L.P. (SFPP), an operating partner of Kinder Morgan, Inc. (Kinder Morgan). This tech memo presents soil vapor monitoring analytical results from the first semiannual sampling event of 2022, conducted in March and April, 2022, at the SFPP, L.P. (SFPP) Norwalk Pump Station, located within Defense Fuel Support Point (DFSP) Norwalk, at 15306 Norwalk Boulevard, Norwalk, California (the Site; Figure 1).

This tech memo is being submitted to the Los Angeles Regional Water Quality Control Board (Regional Board) in accordance with an April 11, 2022, decision by the Regional Board allowing Kinder Morgan to temporarily reduce soil vapor monitoring and reporting frequency from quarterly to semiannually due to ongoing construction and redevelopment activities at the Site (Regional Board, 2022). Therefore, this tech memo serves as the first semiannual soil vapor monitoring technical memorandum for 2022 and supersedes the prior requirement from the Regional Board requesting that Kinder Morgan conduct and submit quarterly soil vapor monitoring reports (Regional Board, 2021).

After construction and redevelopment activities at the Site are completed, Kinder Morgan will collaborate with the Regional Board to develop an updated soil vapor monitoring and sampling plan.

## 2. Background

Kinder Morgan has utilized a network of 31 dual- and triple-nested soil vapor monitoring probes (SVPs) located within and around their three areas of ongoing treatment and monitoring at the Site: the south-central area in the 36-acre parcel, the offsite/south-central area in the residential area south of the 36-acre parcel, and the southeastern area in the 15-acre parcel (Figure 2). These SVPs comprised

66 unique sample intervals from approximately 5, 10, 15, and 22 feet below ground surface (ft bgs) that were available for sampling during the first semiannual 2022 sampling event.

As part of the modified monitoring and sampling plan indicated above, several SVPs were destroyed in May 2022, after the semiannual sampling event was conducted, because they are in the way of construction and redevelopment activities, including offsite/south-central SVP "SVM-15" and southeastern area SVPs "SVM-17," "SVM-18," "SVM-19," and "SVM-20." Therefore, the SVP network was reduced to 26 dual- and triple-nested SVPs, with 55 unique sample intervals available for sampling (Table 1).

Additional Site background information and historical data from long-term soil vapor monitoring can be found in the recently submitted *Interim Remedial Action Plan (IRAP) – Implementing an NSZD Remedy* (Jacobs, 2022a), the *First Quarter 2022 Remediation Progress Report* (Jacobs, 2022b), and the previous soil vapor monitoring tech memo (Jacobs, 2022c).

### 3. Sampling

During the first 2022 semiannual sampling event, 66 native samples were collected from 31 SVPs (Table 1, Figure 2) in March using 1.4-liter Summa canisters. Three ambient air samples were also collected, along with four duplicate samples. Sampling was performed in accordance with the Department of Toxic Substances Control's (DTSC) *Advisory for Active Soil Gas Investigations* (DTSC, 2015). The samples were analyzed by the American Analytics laboratory for the following analytes:

- Volatile organic compounds (VOCs) using U.S. Environmental Protection Agency (EPA) Method TO-15
- Total petroleum hydrocarbon – gasoline (TPH-g) using EPA Method TO-3
- Fixed gases (carbon dioxide, methane, and oxygen) using EPA Method 3CM

Included in the TO-15 list of analytes were benzene, toluene, ethylbenzene, and xylene (BTEX), methyl tert-butyl ether (MTBE), naphthalene, tertiary butyl alcohol, 1,2-dichloroethane, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, n-butylbenzene, sec-butylbenzene, isopropylbenzene, n-propylbenzene, and 2-propanol (the leak test compound). These constituents were identified as contaminants of potential concern (COPCs) based on the results of the *Vapor Intrusion Sampling and Human Health Risk Assessment* (Geomatrix, 2006).

Following the March 2022 sampling event, the laboratory, American Analytics, informed Jacobs that SVP sample "SVM-13-15" had historically high concentrations of tetrachloroethylene (PCE) and was higher in PCE relative to other samples during the event. The lab investigated the result and concluded that the sample was collected using a Summa canister that had been contaminated at the lab before it was dispatched to the Site to collect the sample. The lab discovered that this particular canister had been used on another, unrelated project, then was decommissioned for maintenance before it was recommissioned and rotated back into their stock, supposedly following batch cleaning. The lab also concluded that this canister had been used for a high-PCE concentration project and likely was not adequately cleaned prior to being used at the Site. Pursuant to this finding, the lab resampled "SVM-13-15" in April 2022 and the March 2022 result from this sample interval was invalidated and removed from the laboratory report. The attached laboratory report (MB187343) includes a note to this effect on page 193 (Attachment A).

In addition to resampling SVP "SVM-13-15," the lab also resampled SVP "SVM-26-5" out of an abundance of caution, to confirm a suspected anomalous PCE result at that location during the March 2022 sampling event. The lab was unable to confirm whether the sample had been contaminated, like the March 2022 sample from SVP "SVM-13-15," so the March 2022 and April 2022 results from "SVM-26-5" are both valid and presented in this tech memo.

#### 4. Results

Table 2 presents the analytical results for samples collected during the first 2022 semiannual sampling event. Laboratory analytical reports are included in the attachment to this tech memo (Attachment A). A summary of results is as follows:

- During the first 2022 semiannual sampling event, no COPCs were detected in any SVPs.
  - Only "SVM-20-14.5" from March 2022 resulted in 0.31 microgram per liter ( $\mu\text{g/L}$ ) J 2-Propanol (leak test compound).
- As noted above, "SVM-26-5" was sampled during the March 2022 sampling event, then resampled by American Analytics in April 2022, due to suspected anomalous PCE results from the March sampling event. While the results are different, both are valid, and Jacobs will continue to monitor for changes going forward. To summarize the comparison between the March and April 2022 results:
  - March 2022 detections – chloroform (0.0094  $\mu\text{g/L}$ ), PCE (0.14  $\mu\text{g/L}$ ), and TPH-g (0.73  $\mu\text{g/L}$ ).
  - April 2022 detections – all nondetect.

It should be noted that prior to collecting the March and April 2022 samples from SVP "SVM-26-5," this SVP has only been sampled one other time (November 2021), where the result was also nondetect for all analytes.

- Other (i.e., non-COPC) compounds that were also detected during the first 2022 semiannual sampling included: 2,2,4-trimethylpentane, acetone, bromodichloromethane, chloroform, cyclohexane, ethanol, ethyl acetate, n-heptane, n-hexane, PCE, vinyl acetate, and TPH-g (C4-C12). The majority of those detections were below DTSC-modified screening levels (DTSC, 2020), and EPA regional screening levels (RSLs) (EPA, 2021), derived with an attenuation factor currently in guidance (DTSC, 2011). There are no established screening levels for some of these compounds.
  - The SVP where concentrations exceeded the current RSLs was:
    - "SVM-6-13" (bromodichloromethane and TPH-g at 13 ft bgs), in both the original and duplicate sample at this location.

#### 5. Conclusion and Recommendations

There were no detections of any COPCs during the first 2022 semiannual sampling event; therefore, no COPCs currently present unacceptable risk at the Site. Other detected compounds (non-COPCs) are detected infrequently and at relatively low concentrations, below DTSC-modified screening levels and EPA RSLs, in the shallow soil vapor (defined as the upper 10 feet of soil). Observed transitory increases of non-COPCs, such as TPH-g, are an artifact of ongoing biosparging operations and are closely monitored with field-based observations on a weekly to biweekly basis. Further details and data regarding these observations are provided in the quarterly remedial progress reports.

As concluded in the *IRAP* (Jacobs, 2022a) and other documents such as the *Review of the Offsite Soil Vapor Monitoring Probe Network* (Jacobs, 2020a) and *Updated Human Health Risk Assessment for the Offsite/South-Central and Offsite/Southeastern Areas* (Jacobs, 2020b), exposure pathways at the Site are largely incomplete and insignificant for the petroleum releases in groundwater, subsurface soil, and soil vapor.

Moreover, multiple lines of evidence point to the presence at the Site of a clean, biologically active zone in shallow soil where aerobic biodegradation controls the diffusion of petroleum VOCs to the ground surface, further mitigating potential exposure pathways. This conclusion is also consistent with the conclusions presented in the 2006 human health risk assessment (HHRA) (Geomatrix, 2006) and the HHRA supporting the closure of the DFSP 15-acre and 36-acre parcels (CH2M, 2017; Jacobs, 2019).

While the results of "SVM-26-5" from March and April 2022 are different, both are valid, and Jacobs will continue to monitor for changes going forward. It should be noted that prior to collecting the March and April 2022 samples from SVP "SVM-26-5," this SVP has only been sampled one other time (November 2021), where the result was also nondetect for all analytes.

Results from soil vapor monitoring and sampling in the second half of 2022 will be summarized in a tech memo to be submitted before the end of 2022.

## 6. References

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U.S. Environmental Protection Agency (EPA). 2021. *Regional Screening Levels*. May.  
<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>.

## Tables

## Figures

**Attachment A**  
**Laboratory Analytical Reports**