

Memorandum

DATE: May 13, 2024

TO: Kevin Dana
Oregon Department of Environmental Quality – Northwest Region
700 NE Multnomah Street
Portland, Oregon 97232

FROM: Nick Thornton

PROJECT: Oregon DEQ ECSI Site 2424

REGARDING: Proposed Sub-Slab Sample Locations

This memo is to provide you with an update on the soil gas assessment results for ECSI Site 2424, as well as provide a summary of our proposed next steps for evaluation of the vapor intrusion pathway. Attached is a table of the soil gas results (including their respective screening levels), as well as a copy of our sample location figure for reference. The assessment successfully delineated soil gas to the western, northwestern and southern directions, which suggests that there is not unacceptable risk to adjacent property occupants.

Two of the soil vapor samples (SV-2 and SV-5) had detections that exceeded DEQ risk screening levels. SV-2 was placed within the highest areas of residual contamination and is located away from buildings and structures where a vapor intrusion risk could occur. A component to be included in the regulatory closure will be future restrictions recorded on the deed that require mitigation (e.g. DEQ-approved vapor barrier) should future development occur at this location.

The other sample that exceeded screening levels was SV-5, located near the southeastern end of the warehouse. The sample had a PCE detection of 13,000 $\mu\text{g}/\text{m}^3$, which exceeds the chronic exposure risk screening concentration of 1,600 $\mu\text{g}/\text{m}^3$. No other contaminants were detected in the sample above risk screening levels. Because of the exceedance and the sample's location near the warehouse, PBS plans to proceed with the collection of sub-slab samples to evaluate vapor intrusion risk for onsite receptors.

PBS completed a site walk on May 9, 2024, to evaluate interior conditions and identify suitable sub-slab sampling locations. The warehouse is constructed on an elevated slab to compensate for site grade, starting at close to site grade at the northern end of the site and approximately 5 feet above grade at the southern end of the building. The slab is estimated to be approximately 8 inches thick, presumably installed on top of compacted soil or similar material (detail was not provided in historic plans or permits). No sub-slab trenches were identified in the southern portion of the warehouse. In the northern extent of the warehouse (northwest of MW-1) a trench was observed that is situated in an east to west configuration beneath the warehouse. Because the trench is in the northern extent of the warehouse and approximately 200 feet north of the area of interest, it was not considered for the evaluation of sample locations.

Several floor drains were observed within the southern extent of the warehouse. It is not clear where they drain to. As well, two areas of reinforced concrete related to historic heavy machinery were noted in this area that were bordered by fibrous expansion joint material. Given the likely age of these reinforced areas, they could represent

minor compromised areas in the slab for sub-slab vapor to exit. The slab in the southern portion of the warehouse was observed to have several areas with minor cracks present but significant cracks or splits in the concrete slab were not observed. No interior sources of solvents were observed and material stored in the warehouse was limited to package roofing products and hard foam insulation products.

Given the above considerations PBS has identified two suitable sub-slab sample locations. Both samples will be installed approximately 20 feet from the southern end of the warehouse and south of the reinforced slabs and any floor drains. The placement of the samples biased toward the southern end of the warehouse is considered a conservative approach for assessing possible vapor intrusion, given the proximity to the residual contamination. SSV-1 will be installed directly north of SV-5 and SSV-2 will be installed directly north of SV-4. Neither sample location is adjacent to floor cracks. The attached figure indicates sample locations.

DEQ recently released a draft vapor intrusion guidance document (VI Guidance) that establishes protocols for collecting sub-slab vapor and soil gas samples.¹ As noted in that document, DEQ concluded that longer duration samples, such as those obtained from passive samplers deployed for 14 to 28 days, more reliably detect VI risk and should be used when feasible. A passive sampling approach is recommended to better understand vapor intrusion risk over a period of time (time-weighted average) and account for fluctuations in vapor transport that could be impacted by the heating, ventilation, and air conditioning, and atmospheric pressure changes. This approach is preferred compared to the limited duration Summa Canister method, which could be prone to short-term variations that could influence sample results.

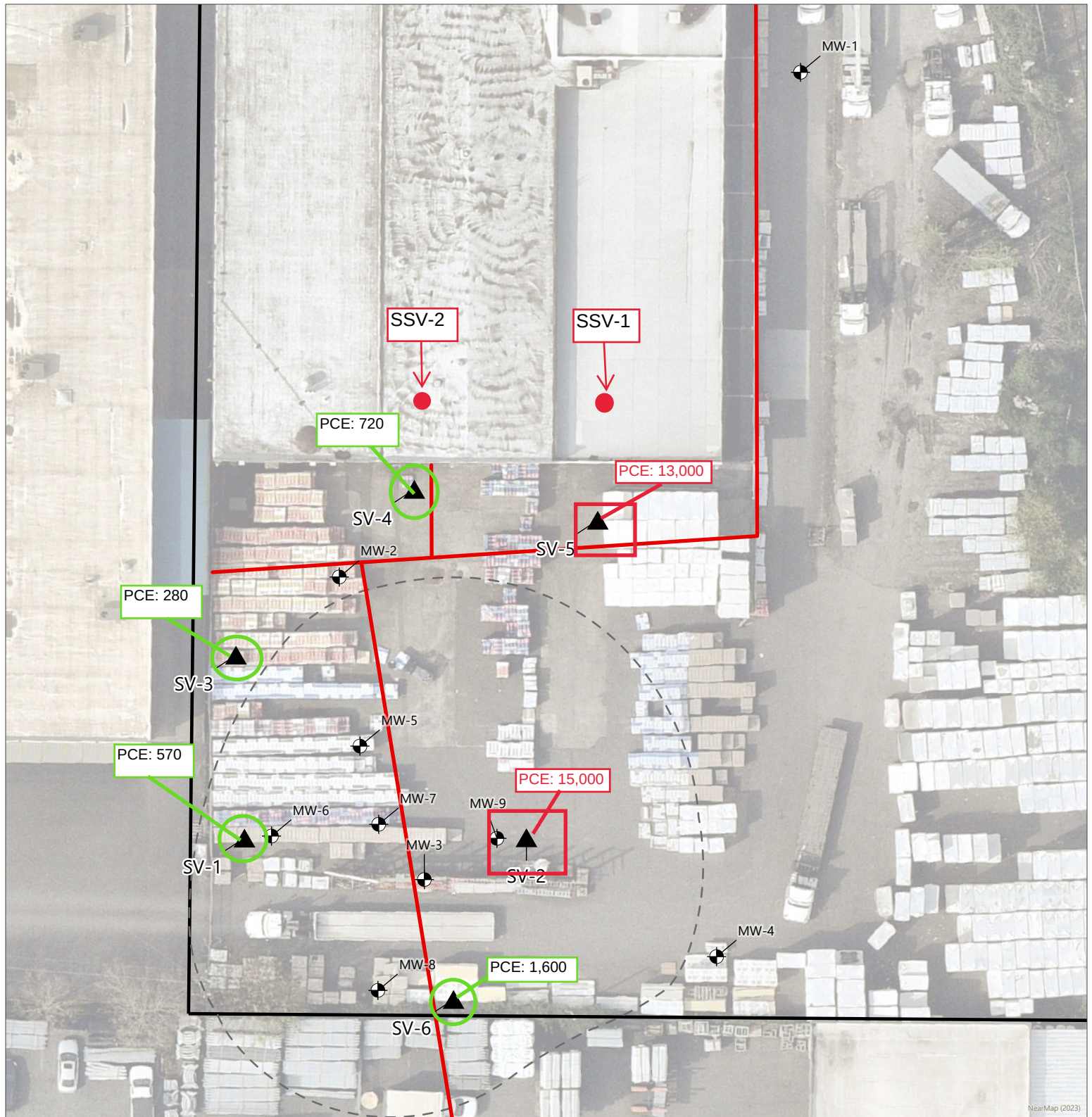
PBS will collect the two passive sub-slab samples using a reusable vapor pin sampling system with an attached capsule to contain a Waterloo Membrane Sampler. Temporary sampling points will be installed by drilling a 0.625-inch hole through 1.5-inch pre-cored holes and secured with a flush mounted stainless-steel cap. The passive samplers will remain in place for 14 days. Quality control samples will include one duplicate sample and two trip blanks.

Upon completion of testing, PBS will retrieve and label the samplers and ship them to the laboratory for analysis of tetrachloroethylene (PCE) and its six breakdown compounds (including TCE) by EPA Method TO-17.

Assuming results do not exceed applicable RBCs, we will prepare the assessment report addendum to request closure.

NT: DT

¹ DRAFT *Guidance for Assessing and Remediating Vapor Intrusion into Buildings*, Oregon Department of Environmental Quality. (March 2024).



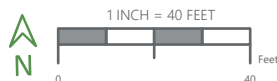
Proposed Soil Gas Sampling Locations

3720 NW Yeon Avenue, Portland, Oregon

Date: February 2024 | Project: 20125.011

Figure: 2

- ▲ Proposed Soil Gas Sampling Location
- ⊕ Monitoring Well
- Storm Sewer Utility (approximate)
- - - Locality of Facility (LOF)
- ▭ Site Boundary



This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

Table 1. Summary of Soil Gas Analytical Results
 3720 NW Yeon Avenue
 Portland, Oregon

Sample ID	Sampling Date	Chlorinated VOCs										
		Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Tetrachloroethene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl Chloride
		µg/m ³										
SV-1	3/19/2024	<16	<2.4	<0.24	<2.4	<2.4	<2.4	570	<3.3	<0.33	11	<1.5
SV-2	3/19/2024	9,500	<18	<1.8	110	5,500	26	15,000	<25	<2.5	1,900	180
SV-3	3/19/2024	<16	<2.4	<0.24	<2.3	<2.3	<2.3	280	4.2	<0.32	1.3	<1.5
SV-4	3/19/2024	<15	<2.3	<0.23	<2.3	<2.3	<2.3	720	<3.2	<0.32	12	<1.5
SV-5	3/19/2024	<120	<18	<1.8	<18	<18	<18	13,000	<25	<2.5	86	<12
SV-6	3/19/2024	<23	<3.6	<0.36	<3.5	<3.5	<3.5	1,600	<4.9	<0.49	2.3	<2.3
Oregon RBC - Vapor Intrusion into Buildings ¹	Chronic	580,000	260	16	29,000	5,800	5,800	1,600	730,000	26	100	93
	Acute	4,000,000	NS	NS	20,000	NS	80,000	4,000	1,100,000	NS	210	130,000

Notes:
 See laboratory report for full list of analytes and quality-control data.
Bold text, if present, indicates an exceedance of one or more of the cleanup levels.
 <: Not detected above the laboratory reporting limit
 µg/m³: micrograms per cubic meter
 NS: Not set for this analyte
 VOCs: Volatile organic compounds

¹Oregon Risk-Based Decision-Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Table 1. Chronic and Acute Vapor Intrusion Risk-Based Concentrations, March 2024.