June 5, 2023

Oregon Department of Environmental Quality
Northwest Region
700 NE Multnomah Street, Suite 600
Portland, OR 97232

Attention: Sarah Greenfield, P.E.

Quarterly Report
Third Round Pilot Shutdown Monitoring Results
Former Astoria Warehousing Site
70 West Marine Drive
Astoria, Oregon
DEQ LUST File No. 04-18-0818
DEQ ECSI File No. 6381
Project: BigBeams-1-04-05

INTRODUCTION

NV5 is pleased to submit this quarterly report summarizing the results of the third round of pilot shutdown monitoring for the Former Astoria Warehousing Site located at 70 West Marine Drive in Astoria, Oregon (subject property). The subject property is shown relative to surrounding physical features on Figure 1. A site plan is shown on Figure 2. Acronyms and abbreviations used herein are defined at the end of this document.

BACKGROUND

NV5 prepared an SVE System Pilot Shutdown Work Plan (Work Plan) in September 2022 describing a scope of work to (1) evaluate if permanent cessation of the active SVE remediation system is feasible and (2) monitor the effects and potential rebound conditions associated with proposed permanent cessation of the SVE system that was designed and installed at the subject property in general accordance with the PPA requirements.[1] DEQ approved the Work Plan on September 21, 2022.

[1] NV5, 2022. *SVE System Pilot Shutdown Work Plan; Former Astoria Warehousing Site; 70 West Marine Drive; Astoria, Oregon; DEQ LUST File No. 04-18-0818; DEQ ECSI File No. 6381,* dated September 8, 2022. Project: BigBeams-1-04-05

A detailed discussion of background information, rationale for implementing this scope of work, and identification of baseline conditions for purposes of rebound evaluation is presented in the Work Plan.

The first round of pilot shutdown monitoring is summarized in our report dated November 21, 2022. The second round of pilot shutdown monitoring is summarized in our report dated March 16, 2023. Based on the conclusions presented in these reports, we recommended continuance of the pilot shutdown monitoring program with DEQ's concurrence.[2]

ACTIVITIES COMPLETED DURING REPORTING PERIOD

In accordance with the Work Plan, NV5 completed the third round of pilot shutdown monitoring activities between April 26 and 28, 2023. A detailed description of monitoring activities completed during this reporting period is presented in the sections below.

SUB-SLAB VAPOR MONITORING

On April 26, 2023, NV5 personnel accessed and sampled the four sampling locations previously installed in the former can manufacturing warehouse and shop (VP-1 through VP-4; Figure 2). Specifically, each Vapor Pin® was sampled as follows:

- Accessed the Vapor Pins™ and connected to a micromanometer. Recorded ambient sub-slab pressure/vacuum at each monitoring point.
- Connected each Vapor Pin™ to laboratory-provided, 6-liter Summa canisters and sampling trains using new, disposable PFA tubing.
- Installed a leak-check system at each location following DEQ-established protocol. The leak-check protocol consisted of placing cloths saturated with isopropanol around the fittings and the ground penetration. Each sub-slab vapor sample was analyzed for isopropanol to evaluate if the sampling system was sufficiently sealed.
- Purged each Vapor Pin™ of approximately three volumes of dead air space (tubing and sampling train) using a calibrated 10.6-eV PID. Recorded the PID reading before sample collection.
- Collected the sub-slab vapor sample using a 6-liter Summa canister with an in-line filter (0.7 micron) and flow controller (less than 200 mL/min). The initial and final vacuum pressures of the Summa canister were measured and recorded on the laboratory chain-of-custody form. The sub-slab vapor samples were analyzed for gasoline-range hydrocarbons and VOCs by EPA Method TO-15.

The sub-slab vapor sample collection start and end times, initial and final Summa canister vacuum pressures, barometric pressure, and ambient temperature were measured at each sub-slab vapor sample location and are presented in the table below.

[2] DEQ provided concurrence in correspondences dated December 15, 2022, and April 5, 2023.

Summary of Sub-Slab Vapor Sampling – April 2023

Sample I.D.	Date	Start/End Time	Initial/Final Vacuum (inHg)	Barometric Pressure (inHg)	Ambient Temperature (degrees Fahrenheit)
VP-1	04/26/23	1040/1046	29.8/4.0	30.18	~56
VP-2		1053/1059	29.9/4.0		
VP-3		1105/1110	29.4/4.0		
VP-4		1115/1121	29.9/4.0		

The sub-slab vapor sample chemical analytical results from the April 2023 monitoring event are discussed in the "Chemical Analytical Results" and "Data Evaluation" sections and summarized in Table 1, which also includes the results of prior sub-slab vapor sampling events for reference. Sub-slab vapor field sampling forms from the April 2023 event are presented in Attachment A.

GROUNDWATER GAUGING AND SAMPLING

NV5 personnel accessed each well (MW-1 through MW-8, OAS-1 through OAS-4, and PAS-2) for gauging and sampling purposes.[3] On April 27, 2023, NV5 gauged the aforementioned monitoring and observation wells in sequential fashion.[4] NV5 collected depth to groundwater measurements from each well using an oil/water interface probe. The depth to groundwater measurements and calculated groundwater elevations are summarized in Table 2. Free product was not observed in any of the wells during the April 2023 monitoring event. The calculated groundwater elevation data indicate that shallow groundwater beneath the subject property generally flows north, which is consistent with previous findings. However, groundwater appears to have northwestern and northeastern components toward the shoreline at times, which may be affected by tidal influences. A groundwater contour map using the elevation data collected on April 27, 2023, is shown on Figure 3.

NV5 sampled monitoring wells MW-1 through MW-8 on April 27 and 28, 2023, in general accordance with the groundwater sampling methodology previously employed at the subject property. Each well was purged in general accordance with the EPA-recommended low-flow purging and sampling procedure using a peristaltic pump connected to new, expendable HDPE and silicon tubing. Groundwater quality parameters were measured using a YSI 556 multiparameter system until the following groundwater parameters stabilized (three consecutive readings):

- pH: ±0.1 unit
- Conductivity: ±3 percent
- Temperature: ±3 percent
- Dissolved oxygen: ±10 percent (or three readings less than 0.5 mg/L)

[3] Wells OAS-1 through OAS-4 and PAS-2 are located within the shop area. Refer to Figure 3 of the Work Plan for locations.

[4] The sequence of gauging and sampling during groundwater monitoring generally progressed from least-impacted to most-impacted wells based on prior chemical analytical data.

- ORP: ±10 mV
- Turbidity: ±10 percent (or three readings less than 5 NTUs)

A summary of groundwater field parameters is presented in Table 3. Once the field parameters stabilized, NV5 collected a groundwater sample from each well into laboratory-prepared containers. Groundwater samples were immediately placed on ice. Standard chain-of-custody protocols were followed during transportation of samples to the laboratory. The groundwater sample chemical analytical results from the April 2023 monitoring event are discussed in the "Chemical Analytical Results" and "Data Evaluation" sections and summarized in Table 4, which includes the results of prior groundwater sampling for reference. Groundwater gauging and sampling field forms from the April 2023 event are presented in Attachment A.

Sampling equipment used in the collection of groundwater samples was decontaminated prior to use. Decontamination was performed on reusable sample processing equipment that came into contact with sampling media and the wells. Decontamination was performed prior to sampling each location using the following procedures:

1. Rinsed with tap water and scrubbed with a scrub brush until free of large particles
2. Washed with phosphate-free (Alconox™) detergent solution
3. Rinsed with tap water
4. Rinsed with distilled water

INDOOR AIR MONITORING

On April 26, 2023 (following sub-slab vapor sampling), NV5 deployed eight air samplers at the subject property. Each air sampler consisted of a Radiello 130 passive air sampler and was deployed for approximately 14 days. For comparison purposes, each sample was collected at the approximate same location of the previously collected indoor air samples. Seven air samples were collected from inside the subject property structure and one background air sample was collected from the exterior of the subject property structure. The sampling locations are shown on Figure 2.

Each sample was collected at approximately breathing level in areas of high occupancy and/or areas where previous vapor samples indicated elevated concentrations of COCs. The background air sample was collected from the exterior of the subject property structure at approximately 15 feet above the ground surface. The start and end times, initial and final barometric pressures, and initial and final ambient temperatures were measured at each sample location and are presented in the table below.

Summary of Indoor Air Sampling – April 2023

Sample I.D.	Location Description	Date	Start/End Time	Initial/Final Barometric Pressure (inHg)	Initial/Final Ambient Temperature (degrees Fahrenheit)
Indoor-1	Office area	04/26/23 through 05/10/23	1545/1245	30.18/30.04	60/68 (indoor) 60/61 (outdoor)
Indoor-2	Office area		1550/1247		
Indoor-3	Warehouse		1555/1251		
Indoor-4	Warehouse		1600/1253		
Indoor-5	Shop area		1605/1257		
Indoor-6	Warehouse		1610/1255		
Indoor-7	Warehouse		1615/1250		
Background	Exterior		1630/1300		

The indoor air sample chemical analytical results from the April/May 2023 monitoring event are discussed in the "Chemical Analytical Results" and "Data Evaluation" sections and summarized in Table 5. Indoor air sampling field forms from the April/May 2023 event are presented in Attachment A.

RIVERBANK OBSERVATIONS

NV5 completed a series of visual observations of the riverbank adjacent to the subject property for evidence of groundwater seeps and petroleum-like sheens between April 27 and 28, 2023. The riverbank observations were conducted from the top of the bank at relatively low tidal stages. The riverbank observations were conducted by walking the top of the shoreline along the subject property, allowing for visual observations of the slope of the riverbank, which generally consists of riprap. The pier on the northwest portion of the subject property has concrete walls along the bank of the river and the small bay located to the east has a sandy shoreline on the south end along West Marine Drive.

A summary of the riverbank observations, including previous and more frequent observations associated with apparent sheens previously originating from the storm line outfall, is presented in Table 6. Riverbank field observation forms from the April 2023 event are presented in Attachment A.

CHEMICAL ANALYTICAL RESULTS

SUB-SLAB VAPOR SAMPLES

The four sub-slab vapor samples (VP-1 through VP-4) collected in April 2023 were submitted to Eurofins Air Toxics, LLC of Folsom, California, for analysis for gasoline-range hydrocarbons and VOCs by EPA Method TO-15. A comparison of the sub-slab vapor sample chemical analytical results to applicable regulatory criteria is discussed below and shown in Table 1, which also includes previous sub-slab vapor analytical results. The chemical analytical program details, laboratory report, and chain-of-custody documentation are presented in Attachment B.

Gasoline-range hydrocarbons were detected in sub-slab vapor sample VP-3 at a concentration of 1,100 µg/m³. This detection is substantially less than the DEQ *Vapor Intrusion into Buildings* RBC for occupational receptors and generally equal to the prior (January 2023) results. Gasoline-range hydrocarbons were not detected above the laboratory method reporting limit in sub-slab vapor samples VP-1, VP-2, and VP-4.

Petroleum-related VOCs (subject property COCs) were not detected above the laboratory method reporting limits in sub-slab vapor samples VP-1 through VP-4 collected in April 2023.

Two non-COC VOCs were detected in sub-slab vapor samples VP-2 and VP-4 collected in April 2023. PCE was detected in sub-slab vapor samples VP-2 and VP-4 at concentrations of 16 µg/m³ and 900 µg/m³, respectively, and TCE was detected in sub-slab vapor sample VP-4 at a concentration of 5.2 µg/m³. The detected concentrations of PCE and TCE are substantially less than the corresponding DEQ *Vapor Intrusion into Buildings* RBCs for occupational receptors.

GROUNDWATER SAMPLES

Groundwater samples collected during the April 2023 groundwater monitoring event were submitted to Pace Analytical of Mount Juliet, Tennessee, for analysis of gasoline-range hydrocarbons by Method NWTPH-Gx and RBDM VOCs by EPA Method 8260D. A comparison of the groundwater sample chemical analytical results to applicable regulatory criteria is discussed below and shown in Table 4, which also includes previous groundwater analytical results. The chemical analytical program details, laboratory report, and chain-of-custody documentation are presented in Attachment B.

Gasoline-range hydrocarbons were detected in the groundwater samples collected from monitoring wells MW-1, MW-4, and MW-8 at concentrations of 16,600 µg/L, 21,500 µg/L, and 28,300 µg/L, respectively. These detected concentrations are greater than the corresponding DEQ *Groundwater in Excavation* RBCs for construction/excavation worker receptors, but less than the DEQ *Volatilization to Outdoor Air* and *Vapor Intrusion into Buildings* RBCs for occupational receptors. Groundwater concentrations exceeding the DEQ *Groundwater in Excavation* RBCs are being addressed by implementing the DEQ-approved CMMP prepared for the subject property.

COCs were otherwise either not detected or were detected at concentrations less than applicable DEQ RBCs in the April 2023 groundwater samples.

INDOOR AIR SAMPLES

The eight air samples were submitted to Eurofins Air Toxics, LLC of Folsom, California, for analysis of VOCs by EPA Method TO-17. Analytical results were compared to DEQ *Inhalation* RBCs for occupational receptors. A comparison of the indoor air sample chemical analytical results to applicable regulatory criteria is discussed below and shown in Table 5, which also includes previous indoor air analytical results. The chemical analytical program details, laboratory report, and chain-of-custody documentation are presented in Attachment B.

Up to eight VOCs with DEQ-established screening levels were detected in the seven indoor air samples (Indoor-1 through Indoor-7). Chloroform was detected in five of the seven indoor air samples at concentrations exceeding the DEQ *Inhalation* RBC for occupational receptors. However, chloroform is not a petroleum-related COC at the subject property and, as discussed on site with DEQ in January 2023, its detection is attributed to the use of municipal (chlorinated) water for washing operations within subject property structure. Petroleum-related VOCs were not detected in the April/May 2023 indoor air samples at concentrations greater than the DEQ *Inhalation* RBCs for occupational receptors.

Carbon tetrachloride, chloroform, toluene, and m,p-xylene were also detected in the background sample (Background) collected from the exterior of the subject property structure in April/May 2023.

DATA EVALUATION

SUB-SLAB VAPOR SAMPLES

For sub-slab vapor, the Work Plan defined rebound as those concentrations exceeding the August 2021 baseline sub-slab vapor concentrations for two consecutive quarterly monitoring events or increasing concentrations, as demonstrated by a trend evaluation, over three consecutive monitoring events. The Work Plan also stated that contingency measures will be triggered if rebound conditions are met or if sub-slab concentrations exceed the applicable DEQ RBC for occupational receptors in two consecutive quarterly monitoring events.

Relative to the prior two sub-slab vapor sampling events, laboratory method reporting limits from the April 2023 sampling event were slightly elevated for VOCs and slightly less for gasoline-range hydrocarbons. However, all laboratory method reporting limits remained substantially below DEQ RBCs and the data are not negatively affected in our professional opinion.

Based on our review of the April 2023 sub-slab vapor sample chemical analytical results, the detected concentrations of gasoline-range hydrocarbons and petroleum-related VOCs in sub-slab vapor samples VP-1 through VP-4 continue to exhibit stable or decreasing trends relative to baseline values and were below all applicable DEQ RBCs.

GROUNDWATER SAMPLES

For groundwater, the Work Plan defined rebound as those concentrations exceeding the January 2022 baseline groundwater concentrations for two consecutive quarterly monitoring events or increasing concentrations, as demonstrated by a trend evaluation, over three consecutive monitoring events. The Work Plan also stated that contingency measures will be triggered if rebound conditions are met or if groundwater concentrations exceed the applicable DEQ RBC for occupational receptors in two consecutive quarterly monitoring events.

A chart depicting the results of groundwater sampling results for all monitoring wells (for gasoline-range hydrocarbons) is presented in Attachment C. Our review of the April 2023 groundwater sample chemical analytical results indicates the following:

- The detected concentrations of gasoline-range hydrocarbons and petroleum-related VOCs in the groundwater sample collected from monitoring well MW-1 were elevated in comparison with the baseline value, but consistent with and slightly reduced relative to the October 2022 and January 2023 results. The concentrations of gasoline-range hydrocarbons and naphthalene detected in the groundwater sample collected from monitoring well MW-1 slightly exceeded the DEQ *Groundwater in Excavation* RBC for construction/excavation workers.[5] Therefore, it appears that a rebound condition has been met at monitoring well MW-1. However, we note that the detected concentrations of gasoline-range hydrocarbons over the past three monitoring events reflect an initial increase in October 2022, followed by a "leveling off" and slight reduction during the January and April 2023 monitoring events.
- The detected concentration of gasoline-range hydrocarbons and petroleum-related VOCs in the groundwater sample collected from monitoring well MW-2 were slightly elevated in comparison to the baseline value and generally consistent with the October 2022 and January 2023 values. None of the detected concentrations of COCs exceeded the respective DEQ *Groundwater in Excavation* RBCs for construction/excavation workers. Therefore, it appears that a rebound condition has been met at monitoring well MW-2. However, we consider the increases relative to the baseline value as slight given that this monitoring well previously exhibited some of the highest gasoline-range hydrocarbon concentrations prior to the implementation of SVE.
- The detected concentration of gasoline-range hydrocarbons in the groundwater sample collected from monitoring well MW-3 reflects an approximate two-fold increase relative to the January 2022 value. However, the detected concentration in April 2023 represents a sharp decrease relative to the preceding (January 2023) event. October 2022 data are not available for comparison because monitoring well MW-3 was not initially included as part of the array of monitoring wells sampled quarterly as part of the pilot shutdown monitoring program. Monitoring well MW-3 is located near the most hydraulically up-gradient portion of the subject property and the varying concentrations in gasoline-range hydrocarbons may reflect an unstable plume from the neighboring Wild Willie's site across West Marine Drive from the subject property. None of the detected concentrations of COCs in monitoring well MW-3 exceeded the respective DEQ *Groundwater in Excavation* RBCs for construction/excavation workers. While the April 2023 results technically qualify as a rebound condition, this condition should be viewed in the context of potentially dynamic up-gradient contaminant plume conditions, as this well is located at the southern extent of the inferred radius of influence for former SVE system operations.
- The detected concentration of gasoline-range hydrocarbons in the groundwater sample collected from monitoring well MW-4 were nearly identical to the January 2022 baseline value and exhibit a decrease relative to the prior (January 2023) sampling results. October 2022 data are not available for comparison because monitoring well MW-4 was not included as part of the array of monitoring wells sampled quarterly as part of the pilot shutdown monitoring program. To date, a rebound condition meeting the criteria in the Work Plan has not been met.
- The detected concentration of gasoline-range hydrocarbons and petroleum-related VOCs in the groundwater sample collected from monitoring well MW-5 were slightly elevated relative to the baseline and January 2023 value; however, the preceding (January 2023) event

[5] RBC exceedances for this exposure pathway are addressed through implementation of the DEQ-approved CMMP.

exhibited lower results relative to the baseline value. October 2022 data are not available for comparison because monitoring well MW-5 was not included as part of the array of monitoring wells sampled quarterly as part of the pilot shutdown monitoring program. None of the detected concentrations of COCs exceeded the respective DEQ *Groundwater in Excavation* RBCs for construction/excavation workers. To date, a rebound condition meeting the criteria in the Work Plan has not been met.

- The detected concentration of gasoline-range hydrocarbons and petroleum-related VOCs in the groundwater sample collected from monitoring well MW-6 were elevated in comparison to the baseline value and less than the preceding (January 2023) sampling results. None of the detected concentrations of COCs exceeded the respective DEQ *Groundwater in Excavation* RBCs for construction/excavation workers. Therefore, it appears that a rebound condition has been met at monitoring well MW-6. However, we consider the increases relative to the baseline value as slight given that this monitoring well previously exhibited some of the highest gasoline-range hydrocarbon concentrations prior to the implementation of SVE.
- The detected concentration of gasoline-range hydrocarbons and petroleum-related VOCs in the groundwater sample collected from monitoring well MW-7 were consistent with the preceding (January 2023) results and elevated in comparison to the baseline value. None of the detected concentrations of COCs exceeded the respective DEQ *Groundwater in Excavation* RBCs for construction/excavation workers. Therefore, it appears that a rebound condition has been met at monitoring well MW-7. Similar to the discussion of monitoring well MW-1 above, the April 2023 results at monitoring well MW-7 exhibit a "leveling off" following initial concentration increases relative to the baseline value.
- The detected concentration of gasoline-range hydrocarbons in the groundwater sample collected from monitoring well MW-8 was elevated in comparison to the baseline value and slightly less than the preceding (January 2023) results. Similar to prior events, the concentration of gasoline-range hydrocarbons detected in the groundwater sample collected from monitoring well MW-8 exceeded the DEQ *Groundwater in Excavation* RBC for construction/excavation workers.[5] Naphthalene was also detected in the groundwater sample collected from monitoring well MW-8 at a concentration exceeding the DEQ *Groundwater in Excavation* RBC for construction/excavation workers.[5] Therefore, it appears that a rebound condition has been met at monitoring well MW-8.

Further discussion of rebound conditions specific to groundwater samples (in accordance with the Work Plan) is presented in the "Conclusions" and "Recommendations" sections.

INDOOR AIR SAMPLES

To evaluate potential rebound conditions associated with SVE system cessation, the August 2021 sample results are used to represent baseline conditions. Irrespective of the baseline values, indoor air data are used to confirm that indoor air concentrations are protective of occupational workers. The Work Plan stated that contingency measures will be triggered if indoor air concentrations for site COCs exceed the applicable DEQ RBC for occupational receptors in any single monitoring event.

Based on our review of the April/May 2023 indoor air sample chemical analytical results, the detected concentrations of petroleum-related VOCs in indoor air samples Indoor-1 through Indoor-7 were generally equal to or less than previously detected concentrations and below applicable DEQ RBCs. As described above, sub-slab vapor samples VP-1 through VP-4 generally exhibited stable or decreasing trends relative to baseline values and were below all applicable DEQ RBCs, indicating that vapors are not accumulating below the slab at concentrations representing a vapor intrusion risk. Several of the detected VOCs in indoor air samples were also detected in the Background air sample.

Consistent with prior sampling events, chloroform was detected in several of the indoor air samples at concentrations exceeding the DEQ RBC for occupational receptors. As noted earlier, the presence of chloroform is attributed to the use of municipal (chlorinated) water for the periodic washing operations needed for the maintenance of brewing equipment used in the facility and is not a petroleum-related COC at the subject property.

CONCLUSIONS

Based on our review of the pilot shutdown monitoring results collected to date, we present the following conclusions:

- The sub-slab vapor sampling results from the third round of pilot shutdown monitoring conducted in April 2023 do not indicate a rebounding trend in sub-slab vapor, and DEQ RBCs were not exceeded in any sub-slab vapor samples collected. Contrary to some of the groundwater trends described herein, the sub-slab vapor sampling results conducted over the past three pilot shutdown monitoring events exhibit downward trends for petroleum-related site COCs.
- The groundwater sampling results from the third round of pilot shutdown monitoring conducted in April 2023 (which included sampling of all subject property monitoring wells) indicates that rebound (as defined in the Work Plan) has occurred in compliance and non-compliance monitoring wells MW-1, MW-2, MW-3, MW-6, MW-7, and MW-8. However, DEQ RBCs for occupational receptors for volatilization pathways were not exceeded in any groundwater samples collected and the results of the April 2023 sub-slab vapor sampling do not indicate a correlative increase in vapor concentrations as a result of increasing COC concentrations in groundwater. In addition, the variable results and indefinite trends observed in the groundwater samples collected from monitoring wells MW-3, MW-4, and MW-5 over the past three monitoring events are peculiar given their distance from the previously established SVE system radius of influence and the fact that these wells are located in the most hydraulically up-gradient portion of the subject property. We infer from the existing data that the conditions within the up-gradient groundwater plume originating from area(s) south of the subject property may not be fully stable.
- The indoor air sampling results from the third round of pilot shutdown monitoring conducted in April 2023 exhibit similar results relative to prior sampling events, and DEQ RBCs were not exceeded in any indoor air samples collected except for chloroform, which is unrelated to subsurface contaminants as described in the sections above.

RECOMMENDATIONS

Based on the rebound criteria established in the Work Plan, it appears rebound has occurred in several groundwater monitoring wells. However, a correlative increase in sub-slab vapor COC concentrations has not been observed. Contrarily, we continue to observe decreasing COC concentrations in sub-slab vapor during the prior three rounds of pilot shutdown monitoring. Moreover, there has been no indication of free-product buildup in any monitoring wells and sheens have not been observed in seeps located along the adjacent riverbank areas.
For this reason, we are not recommending the implementation of substantive contingencies for the groundwater condition. Rather, we propose to conduct the next (fourth) round of pilot shutdown monitoring approximately one month early (i.e., the end of June) to address the groundwater trends. This measure generally aligns with the contingency approach outlined in the Work Plan to increase the frequency of monitoring as a response to groundwater rebound.

The results of the fourth round of pilot shutdown monitoring will be further evaluated with respect to the rebound evaluation criteria and reported to DEQ. If (1) rebounding groundwater conditions appear to stabilize, (2) do not exceed applicable DEQ RBCs for vapor intrusion or result in sub-slab vapor concentrations exceeding DEQ RBCs, and (3) do not result in measurable free product or sheens in riverbank seeps, an appropriate contingency measure may involve the placement of low-energy fans on the existing SVE pipes as a conservative measure to address potential long-term concerns with vapor intrusion of COCs into occupational spaces. These details can be discussed with DEQ at the appropriate time upon review of forthcoming monitoring data.

♦ ♦ ♦

We appreciate the opportunity to provide this information. Please contact us if you have questions regarding this report.

Sincerely,

NV5

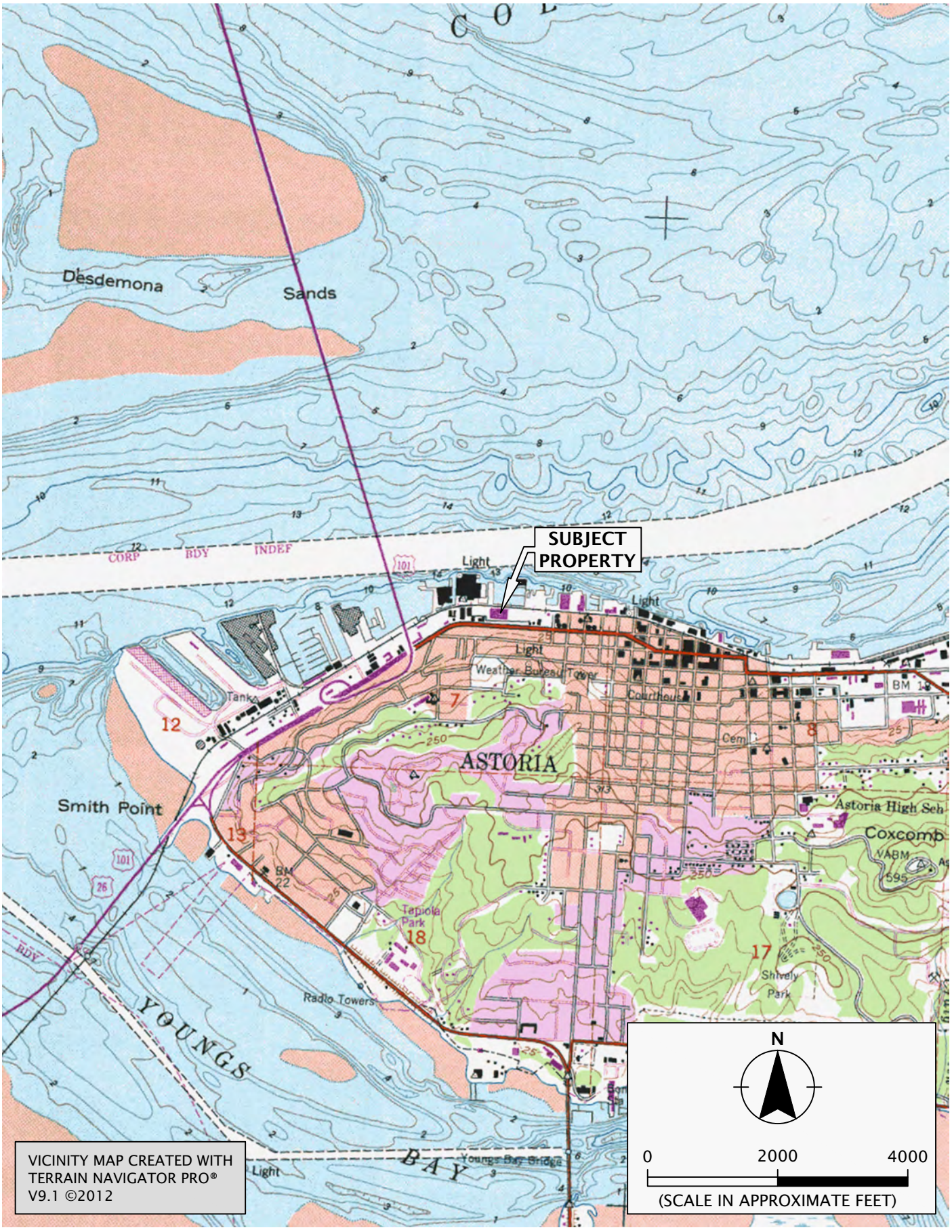
Erik A. Hedberg, P.E., C.W.R.E.
Associate Engineer

Mike F. Coenen, P.E.
Principal Engineer

cc: Jeff Schatz, Oregon Department of Environmental Quality
Rebecca Digiustino, Oregon Department of Environmental Quality
Chris Nemlowill, Blue Jump Suit LLC and AHI Cannery LLC
Al Jaques, CM Services Co.

EAH:MFC:kt
Attachments
One copy submitted
Document ID: BigBeams-1-04-05-060523-envlr.docx

FIGURES



NIV5	BIGBEAMS-1-04-05	**VICINITY MAP**
	JUNE 2023	FORMER ASTORIA WAREHOUSING SITE ASTORIA, OR
		FIGURE 1

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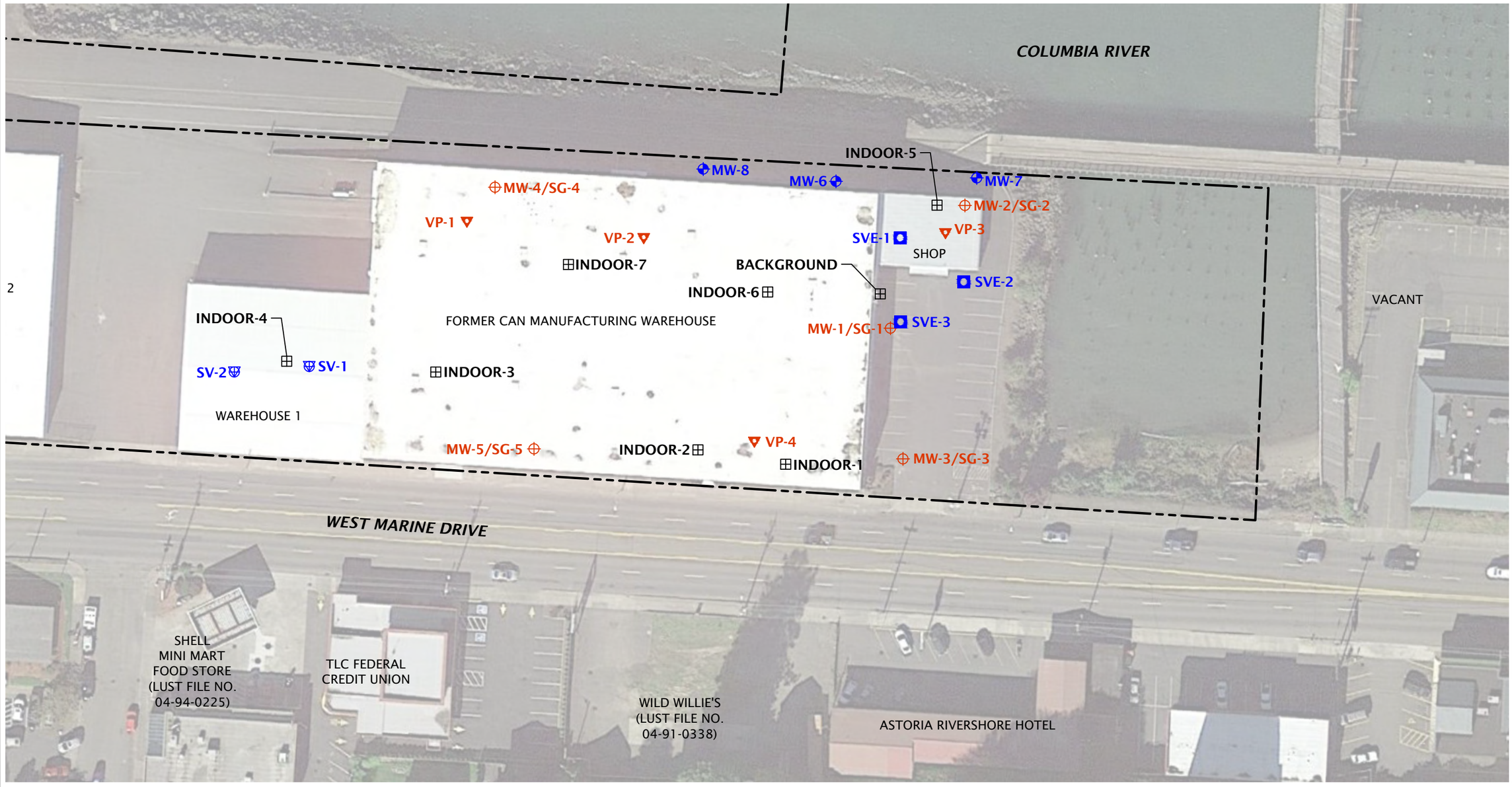

LEGEND:

———	SUBJECT PROPERTY BOUNDARY
SVE-1	SVE WELL
MW-6	MONITORING WELL (GEODESIGN, 2019)
SV-1	SUB-SLAB VAPOR SAMPLE (GEODESIGN, 2019)
VP-1	VAPOR PIN (PNG, 2018)
MW-1/SG-1	MONITORING WELL/SOIL GAS SAMPLE (PNG, 2018)
INDOOR-1	RADIELLO SAMPLE

N

0 60 120

(SCALE IN FEET)

SITE PLAN BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO JULY 16, 2019

SITE PLAN

FIGURE 2

FORMER ASTORIA WAREHOUSING SITE
ASTORIA, OR

BIGBEAMS-1-04-05

JUNE 2023

NV5

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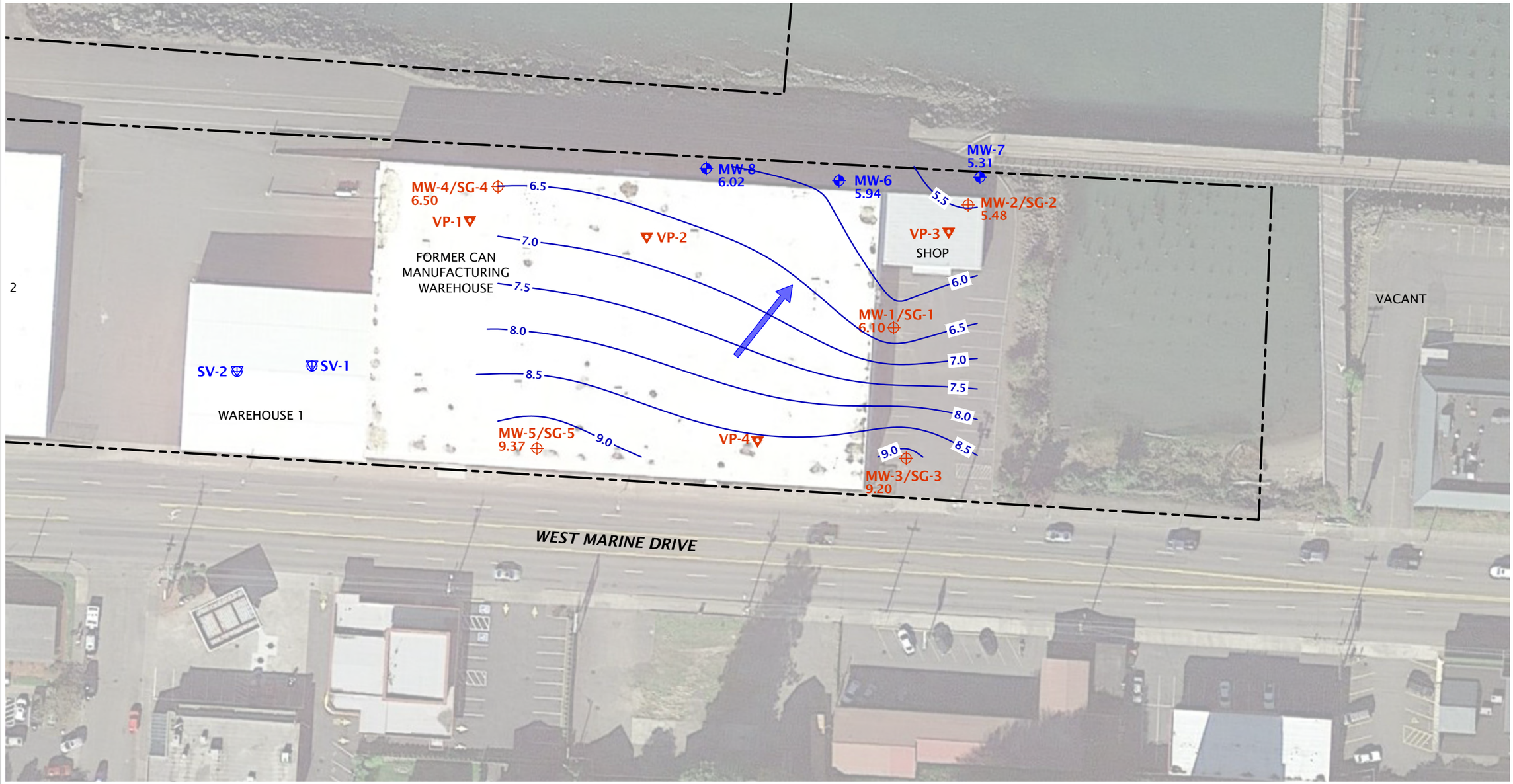

LEGEND:

- SUBJECT PROPERTY BOUNDARY
- MW-6 — MONITORING WELL (GEODESIGN, 2019)
- SV-1 — SUB-SLAB VAPOR SAMPLE (GEODESIGN, 2019)
- VP-1 — VAPOR PIN (PNG, 2018)
- MW-1/SG-1 — MONITORING WELL/SOIL GAS SAMPLE (PNG, 2018)
- 6.0 — GROUNDWATER ELEVATION CONTOUR AS MEASURED ON APRIL 27, 2023 (0.5-FOOT CONTOUR INTERVAL) NAVD88 DATUM
- GROUNDWATER FLOW DIRECTION

N

0 60 120

(SCALE IN FEET)

SITE PLAN BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO JULY 16, 2019

GROUNDWATER CONTOUR MAP - APRIL 2023

FIGURE 3

FORMER ASTORIA WAREHOUSING SITE
ASTORIA, OR

BIGBEAMS-1-04-05

JUNE 2023

NV5

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TABLES

TABLE 1
Summary of Sub-Slab Vapor Sample Chemical Analytical Results
Gasoline-Range Hydrocarbons and VOCs
Former Astoria Warehousing Site
70 West Marine Drive
Astoria, Oregon

Sample I.D.	Sample Date	PID (ppm)	Gasoline-Range Hydrocarbons EPA Method TO-03/15 (µg/m³)	VOCs[1] EPA Method TO-15 (µg/m³)													
				Benzene	Ethylbenzene	iso-Propylbenzene	MTBE	Naphthalene	2-Propanol	Styrene	PCE	Toluene	TCE	1,2,4-TMB	1,3,5-TMB	m,p-Xylene	o-Xylene
VP-1	09/24/18	6.2	**18,000**	**79**	**360**	**30**	5.4 U	**43**	17 U	6.4 U	10 U	**6.4**	8.1 U	**690**	**150**	**640**	
	06/28/19	--	32,000 U	2.3 U	2.3 U	2.3 U	2.4 U	2.3 U	9.4 U	2.4 U	2.4 U	**4.9**	2.4 U	2.4 U	2.4 U	4.9 U	2.4 U
	12/17/20	0.2	500 U	3.9 U	5.3 U	6.0 U	18 U	--	**56**	5.2 U	8.3 U	4.6 U	6.6 U	6.0 U	6.0 U	5.3 U	5.3 U
	08/11/21	1.0	**2,610**	0.639 U	0.867 U	0.983 U	0.721 U	3.30 U	**6.59**	0.851 U	1.36 U	1.88 U	1.07 U	**4.06**	**1.12**	**1.78**	0.867 U
	10/04/22[3]	0.5	826 U	0.639 U	0.867 U	0.983 U	0.721 U	3.30 U	**21.8**	0.851 U	**1.78**	**4.18**	1.07 U	0.982 U	0.982 U	**2.43**	0.867 U
	01/27/23[4]	0.6	826 U	0.639 U	0.867 U	0.983 U	0.721 U	3.30 U	**7.89**	0.851 U	1.36 U	1.88 U	**4.86**	0.982 U	0.982 U	1.73 U	0.867 U
	04/26/23[5]	0.0	260 U	2.1 U	2.8 U	3.2 U	9.3 U	--	6.3 U	2.7 U	4.4 U	4.9 U	3.5 U	3.2 U	3.2 U	5.6 U	2.8 U
VP-2	09/24/18	2.8	**27,000**	**100**	**510**	**43**	5.1 U	**130**	17 U	6.0 U	9.6 U	**6.4**	7.6 U	**1,300**	**260**	**893**	
	06/28/19	--	33,000 U	2.4 U	2.4 U	2.4 U	2.4 U	2.3 U	**14**	2.4 U	2.4 U	**3.9**	2.4 U	2.4 U	2.4 U	5.0 U	2.4 U
	12/17/20	0.2	480 U	3.7 U	5.0 U	5.7 U	17 U	--	11 U	5.0 U	7.9 U	4.4 U	6.3 U	5.7 U	5.7 U	5.0 U	5.0 U
	08/11/21	1.2	826 U	0.639 U	0.867 U	0.983 U	0.721 U	3.30 U	**5.97**	0.851 U	**2.59**	1.88 U	1.07 U	**2.80**	**1.01**	1.73 U	0.867 U
	10/04/22[3]	0.6	826 U	0.639 U	**1.96**	0.983 U	0.721 U	3.30 U	**27.5**	0.851 U	**1.53**	**5.35**	1.07 U	**4.17**	**1.05**	**9.32**	**3.31**
	01/27/23[4]	2.6	826 U	0.639 U	0.867 U	0.983 U	0.721 U	3.30 U	**9.29**	0.851 U	**2.34**	1.88 U	**4.67**	0.982 U	0.982 U	1.73 U	0.867 U
	04/26/23[5]	0.1	270 U	2.1 U	2.9 U	3.3 U	9.7 U	--	6.6 U	2.8 U	**16**	5.0 U	3.6 U	3.3 U	3.3 U	5.8 U	2.9 U
VP-3	09/24/18	--	**61,000,000**	**650,000**	**210,000**	7,500 U	5,500 U	32,000 U	3.9 U	1.3 U	10,000 U	**5,800 CN, J**	8,200 U	**20,000**	**11,000**	**267,000**	
	06/28/19	--	**58,000,000**	**530,000**	**67,000**	9,500 U	9,700 U	9,100 U	38,000 U	9,500 U	9,500 U	9,500 U	9,500 U	**13,000**	9,500 U	**120,000**	9,500 U
	12/17/20	873	**57,000,000**	**470,000**	**210,000**	**5,900**	2,300 U	--	6,400 U	2,800 U	4,400 U	**2,700**	3,500 U	**62,000**	**25,000**	**240,000**	**4,400**
	08/11/21	3.6	**24,400**	**130**	**67.6**	**10.2**	0.721 U	3.30 U	3.07 U	0.851 U	1.36 U	**3.44**	1.07 U	**395**	**154**	**156**	**6.46**
	10/04/22[3]	4.1	**8,300**	**6.13**	**5.29**	0.983 U	0.721 U	3.30 U	**11.4**	0.851 U	1.36 U	**7.31**	1.07 U	**8.00**	**4.46**	**14.4**	**2.39**
	01/27/23[4]	4.9	**1,600**	**0.760**	0.867 U	0.983 U	**1.83**	3.30 U	**69.8**	0.851 U	1.36 U	1.88 U	1.07 U	0.982 U	0.982 U	1.73 U	0.867 U
	04/26/23[5]	0.5	**1,100**	2.2 U	3.0 U	3.4 U	10 U	--	6.8 U	3.0 U	4.7 U	5.2 U	3.7 U	3.4 U	3.4 U	6.0 U	3.0 U
VP-4	09/24/18	235.0	**4,900,000**	**1,800**	**1,600**	380 U	280 U	1,600 U	750 U	320 U	520 U	290 U	410 U	**920**	**470**	**1,400**	
	06/28/19	--	**1,200,000**	130 U	130 U	130 U	130 U	130 U	520 U	130 U	130 U	130 U	130 U	130 U	130 U	270 U	130 U
	12/17/20	385.0	**6,100,000**	830 U	1,100 U	1,300 U	940 U	--	2,600 U	1,100 U	1,800 U	980 U	1,400 U	1,300 U	1,300 U	1,100 U	1,100 U
	08/11/21	3.4	**6,570**	**1.70**	0.867 U	0.983 U	**8.25**	3.30 U	**6.00**	0.851 U	**2.18**	1.88 U	1.07 U	**6.48**	**1.84**	1.73 U	0.867 U
	10/04/22[3]	1.9	826 U	0.639 U	**0.984**	0.983 U	0.721 U	3.30 U	**15.0**	0.851 U	1.36 U	**2.16**	1.07 U	**2.41**	0.98 U	**4.47**	**1.60**
	01/27/23[4]	5.9	826 U	0.639 U	0.867 U	0.983 U	**1.99**	3.30 U	**8.14**	0.851 U	**6.42**	1.88 U	1.07 U	0.982 U	0.982 U	1.73 U	0.867 U
	04/26/23[5]	9.7	280 U	2.2 U	3.0 U	3.3 U	9.8 U	--	6.7 U	2.9 U	**900**	5.1 U	**5.2**	3.3 U	3.3 U	5.9 U	3.0 U
DEQ Generic RBCs[2]																	
Vapor Intrusion into Buildings																	
Occupational			1,700,000	1,600	4,900	1,800,000	47,000	360	NE	4,400,000	47,000	21,900,000	2,900	260,000	260,000	440,000	

Notes:
1. Only VOCs detected with regulatory screening values are listed. For a complete listing of VOCs, refer to the laboratory report in Attachment B.
2. DEQ Generic RBCs dated May 2018
3. First round of pilot shutdown monitoring (October 2022)
4. Second round of pilot shutdown monitoring (January 2023)
5. Third round of pilot shutdown monitoring (April 2023)

CN: High concentration of VOCs required an off-line dilution using a Tedlar bag. Toluene is a common contaminant in Tedlar bags and a CN-flag was applied to indicate a high bias.
J: The result is an estimated quantity.
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.
Shading indicates analyte detection at a concentration greater than DEQ RBCs.
--: not analyzed

TABLE 2
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Former Astoria Warehousing Site
70 West Marine Drive
Astoria, Oregon

Monitoring Well I.D.	Top of Casing Elevation (feet MSL)	Stickup (feet)	Well Depth (feet BGS)	Screened Interval (feet BGS)	Date Measured	Depth to Water (BTOC)	Groundwater Elevation (feet MSL)	Free Product (thickness in feet)
MW-1	16.45	-0.35	19.2	4 - 19	10/03/18	10.91	5.54	NM
					06/28/19	11.31	5.14	NM
					11/15/19	10.83	5.62	No
					12/07/19	10.84	5.61	NM
					12/16/19	10.34	6.11	No
					02/19/20	10.21	6.24	No
					02/19/20	10.20	6.25	No
					04/20/20	11.04	5.41	No
					04/28/20	10.44	6.01	No
					06/10/20	10.29	6.16	No
					06/25/20	10.50	5.95	No
					08/25/20	10.81	5.64	No
					08/26/20	10.94	5.51	No
					12/17/20	9.94	6.51	No
					12/18/20	10.00	6.45	No
					12/18/20	9.86	6.59	No
					12/18/20	9.90	6.55	No
					12/18/20	9.85	6.60	No
					01/15/21	8.94	7.51	No
					02/11/21	10.05	6.40	No
					03/02/21	9.46	6.99	No
					04/01/21	8.94	7.51	No
					05/04/21	10.90	5.55	No
					08/10/21	10.95	5.50	No
					08/11/21	10.89	5.56	No
					01/04/22	9.05	7.40	No
					10/03/22	10.90	5.55	No
					01/25/23	9.85	6.60	No
					04/27/23	10.35	6.10	No
MW-2	17.78	-0.55	19	4 - 19	10/03/18	12.38	5.40	NM
					06/28/19	13.01	4.77	NM
					11/15/19	12.25	5.53	No
					12/07/19	12.41	5.37	NM
					12/16/19	12.12	5.66	No
					02/19/20	12.07	5.71	No
					02/19/20	12.06	5.72	No
					04/20/20	12.82	4.96	No
					04/28/20	12.40	5.38	No
					04/28/20	12.55	5.23	No
					06/10/20	12.15	5.63	No
					06/25/20	12.11	5.67	No
					08/25/20	12.60	5.18	No
					08/26/20	12.54	5.24	No
					12/17/20	11.21	6.57	No
					12/18/20	11.78	6.00	No
					12/18/20	11.21	6.57	No
					12/18/20	11.15	6.63	No
					12/18/20	11.11	6.67	No
					01/15/21	10.70	7.08	No
					02/11/21	11.49	6.29	No
					03/02/21	11.57	6.21	No
					04/01/21	12.45	5.33	No
					05/04/21	12.82	4.96	No
					08/10/21	12.91	4.87	No
					08/11/21	12.28	5.50	No
					01/04/22	10.75	7.03	No
					10/03/22	12.50	5.28	No

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Astoria, Oregon

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MW-2 (continued)	17.78	-0.55	19	4 - 19	01/25/23	12.00	5.78	No
					04/27/23	12.30	5.48	No
MW-3	16.70	-0.33	18.6	4 - 19	10/03/18	8.79	7.91	NM
					06/28/19	8.67	8.03	NM
					11/15/19	8.21	8.49	No
					12/07/19	8.22	8.48	NM
					12/16/19	7.87	8.83	No
					02/19/20	7.56	9.14	No
					02/19/20	7.50	9.20	No
					04/20/20	8.10	8.60	No
					04/28/20	8.14	8.56	No
					06/10/20	8.18	8.52	No
					06/25/20	8.20	8.50	No
					08/25/20	8.76	7.94	No
					08/26/20	8.78	7.92	No
					12/17/20	7.61	9.09	No
					12/18/20	7.62	9.08	No
					12/18/20	7.65	9.05	No
					12/18/20	7.60	9.10	No
					12/18/20	7.60	9.10	No
					01/15/21	7.21	9.49	No
					02/11/21	7.54	9.16	No
					03/02/21	7.49	9.21	No
					04/01/21	7.78	8.92	No
					05/04/21	8.28	8.42	No
					08/10/21	8.87	7.83	No
					08/11/21	8.85	7.85	No
					01/04/22	7.10	9.60	No
					10/03/22	8.80	7.90	No
					01/25/23	7.56	9.14	No
					04/27/23	7.50	9.20	No
MW-4	17.7	-0.35	18.8	4 - 19	10/03/18	12.08	5.62	NM
					06/28/19	12.32	5.38	NM
					11/15/19	11.84	5.86	No
					12/07/19	11.90	5.80	NM
					12/16/19	11.53	6.17	No
					02/19/20	11.00	6.70	No
					02/19/20	10.99	6.71	No
					04/20/20	11.93	5.77	No
					04/28/20	11.81	5.89	No
					06/10/20	11.44	6.26	No
					06/25/20	11.70	6.00	No
					08/25/20	11.95	5.75	No
					08/26/20	12.00	5.70	No
					12/17/20	11.11	6.59	No
					12/18/20	12.17	5.53	No
					12/18/20	11.06	6.64	No
					12/18/20	10.97	6.73	No
					12/18/20	10.90	6.80	No
					01/15/21	10.09	7.61	No
					02/11/21	10.81	6.89	No
					03/02/21	8.68	9.02	No
					04/01/21	11.45	6.25	No
					05/04/21	11.85	5.85	No
					08/10/21	12.10	5.60	No
					08/11/21	12.10	5.60	No
					01/04/22	10.10	7.60	No

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MW-4 (continued)	17.7	-0.35	18.8	4 - 19	10/03/22	12.00	5.70	No
					01/25/23	10.70	7.00	No
					04/27/23	11.20	6.50	No
MW-5	17.97	-0.35	19.2	4 - 19	10/03/18	10.24	7.73	NM
					06/28/19	9.79	8.18	NM
					11/15/19	9.54	8.43	No
					12/07/19	9.05	8.92	NM
					12/16/19	9.40	8.57	No
					02/19/20	8.50	9.47	No
					02/19/20	8.48	9.49	No
					04/20/20	9.24	8.73	No
					04/28/20	9.31	8.66	No
					06/10/20	Inaccessible		NA
					06/25/20	9.46	8.51	No
					08/25/20	10.10	7.87	No
					08/26/20	10.00	7.97	No
					12/17/20	9.10	8.87	No
					12/18/20	9.08	8.89	No
					12/18/20	9.10	8.87	No
					12/18/20	9.06	8.91	No
					12/18/20	9.04	8.93	No
					01/15/21	8.26	9.71	No
					02/11/21	8.62	9.35	No
					03/02/21	11.05	6.92	No
					04/01/21	8.26	9.71	No
					05/04/21	9.39	8.58	No
					08/10/21	10.08	7.89	No
					08/11/21	10.06	7.91	No
					01/04/22	8.40	9.57	No
					10/03/22	10.70	7.27	No
					01/25/23	8.60	9.37	No
					04/27/23	8.60	9.37	No
MW-6	17.14	-0.25	25.5	5 - 25	12/07/19	11.49	5.65	NM
					12/16/19	11.11	6.03	No
					02/19/20	11.00	6.14	No
					04/20/20	11.90	5.24	No
					04/28/20	11.60	5.54	No
					06/10/20	11.09	6.05	No
					06/25/20	11.50	5.64	No
					08/25/20	12.70	4.44	No
					08/26/20	11.70	5.44	No
					12/17/20	10.58	6.56	No
					12/18/20	10.73	6.41	No
					12/18/20	10.45	6.69	No
					12/18/20	10.45	6.69	No
					12/18/20	10.41	6.73	No
					01/15/21	9.64	7.50	No
					02/11/21	10.72	6.42	No
					03/02/21	10.91	6.23	No
					04/01/21	11.37	5.77	No
					05/04/21	11.75	5.39	No
					08/10/21	11.71	5.43	No
					08/11/21	11.65	5.49	No
					01/04/22	9.70	7.44	No
					10/03/22	11.70	5.44	No
					01/25/23	10.65	6.49	No
					04/27/23	11.20	5.94	No

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Astoria, Oregon

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MW-7	16.41	-0.25	25.3	5 - 25	12/07/19	10.20	6.21	NM
					12/16/19	10.99	5.42	No
					02/19/20	10.62	5.79	No
					02/19/20	10.60	5.81	No
					04/20/20	11.49	4.92	No
					04/28/20	11.58	4.83	No
					06/10/20	11.07	5.34	No
					06/25/20	11.59	4.82	No
					08/25/20	12.59	3.82	No
					08/26/20	11.20	5.21	No
					12/17/20	10.35	6.06	No
					12/18/20	10.61	5.80	No
					12/18/20	9.64	6.77	No
					12/18/20	9.41	7.00	No
					01/15/21	8.90	7.51	No
					02/11/21	9.89	6.52	No
					03/02/21	8.92	7.49	No
					04/01/21	11.23	5.18	No
					05/04/21	11.74	4.67	No
					08/10/21	11.28	5.13	No
					08/11/21	10.80	5.61	No
					01/04/22	9.30	7.11	No
					10/03/22	11.25	5.16	No
					01/25/23	10.86	5.55	No
					04/27/23	11.10	5.31	No
MW-8	16.62	-0.31	25.3	5 - 25	12/07/19	10.99	5.63	NM
					12/16/19	10.51	6.11	No
					02/19/20	10.25	6.37	No
					02/01/20	10.20	6.42	No
					04/20/20	11.19	5.43	No
					04/28/20	10.95	5.67	**0.02**
					04/28/20	11.03	5.59	No
					06/10/20	10.40	6.22	No
					06/25/20	10.45	6.17	No
					08/25/20	11.25	5.37	**0.20**
					08/26/20	11.15	5.47	No
					12/17/20	10.25	6.37	No
					12/18/20	10.14	6.48	No
					12/18/20	10.21	6.41	No
					12/18/20	9.88	6.74	No
					12/18/20	9.86	6.76	No
					01/15/21	8.94	7.68	No
					02/11/21	10.10	6.52	No
					03/02/21	10.31	6.31	No
					04/01/21	11.85	4.77	No
					05/04/21	11.18	5.44	No
					08/10/21	11.15	5.47	No
					01/04/22	9.10	7.52	No
					10/03/22	10.10	6.52	No
					01/25/23	9.95	6.67	No
					04/27/23	10.60	6.02	No

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PAS-2	NM	NM	18.0	16 - 17	04/20/20	12.66	NM	No
					04/28/20	12.33		No
					06/10/20	12.33		No
					06/29/20	12.51		No
					08/25/20	12.33		No
					08/26/20	12.51		No
					12/17/20	11.29		No
					12/18/20	11.50		No
					12/18/20	11.47		No
					01/15/21	10.89		No
					02/11/21	11.86		No
					03/02/21	11.65		No
					04/01/21	12.35		No
					05/04/21	12.62		No
					08/10/21	12.55		No
					01/04/22	10.56		No
					01/25/23	11.70		No
					04/27/23	12.10		No
0AS-1	NM	NM	19.3	10 - 20	12/11/19	12.35	NM	No
					04/20/20	12.68		No
					04/28/20	12.40		No
					04/28/20	12.50		No
					06/10/20	11.95		No
					06/29/20	12.57		No
					08/25/20	15.50		No
					08/26/20	12.57		No
					12/17/20	11.23		No
					12/18/20	11.71		No
					12/18/20	11.55		No
					12/18/20	11.50		No
					01/15/21	10.91		No
					02/11/21	11.87		No
					03/02/21	11.68		No
					04/01/21	12.31		No
					05/04/21	12.59		No
					08/10/21	12.55		No
					01/04/22	10.61		No
					01/25/23	11.73		No
					04/27/23	12.20		No
0AS-2	NM	NM	19.58	10 - 20	12/11/19	12.31	NM	No
					04/20/20	12.60		**0.21**
					04/28/20	12.35		No
					04/28/20	12.46		No
					06/10/20	11.94		No
					06/29/20	12.51		No
					08/25/20	12.62		No
					08/26/20	12.18		No
					12/17/20	11.14		No
					12/18/20	11.68		No
					12/18/20	11.48		No
					12/18/20	11.49		No
					01/15/21	10.89		No
					02/11/21	11.86		No
					03/02/21	11.68		No
					04/01/21	12.30		No
					05/04/21	12.59		No
					08/10/21	12.47		No

TABLE 2
Summary of Groundwater Elevation Data
Former Astoria Warehousing Site
70 West Marine Drive
Astoria, Oregon

Monitoring Well I.D.	Top of Casing Elevation (feet MSL)	Stickup (feet)	Well Depth (feet BGS)	Screened Interval (feet BGS)	Date Measured	Depth to Water (BTOC)	Groundwater Elevation (feet MSL)	Free Product (thickness in feet)
OAS-2 (continued)	NM	NM	19.58	10 - 20	01/04/22	10.53	NM	No
					01/25/23	11.73		No
					04/27/23	12.20		No
OAS-3	NM	NM	19.4	10 - 20	12/11/19	12.50	NM	No
					04/20/20	12.47		**0.71**
					04/28/20	12.46		**0.49**
					04/28/20	12.61		No
					06/10/20	12.24		No
					06/29/20	12.65		**0.21**
					08/25/20	12.62		No
					08/26/20	12.78		No
					12/17/20	11.45		**0.25**
					12/18/20	11.90		No
					12/18/20	11.76		No
					12/18/20	11.61		No
					12/18/20	11.55		No
					01/15/21	10.96		No
					02/11/21	12.00		No
					03/02/21	11.80		No
					04/01/21	12.50		No
					05/04/21	12.75		No
					08/10/21	12.63		No
					01/04/22	10.70		No
					01/25/23	11.95		No
					04/27/23	12.40		No
OAS-4	NM	NM	19.6	10 - 20	12/11/19	12.53	NM	No
					04/20/20	12.80		No
					04/28/20	12.60		No
					04/28/20	12.71		No
					06/10/20	12.03		No
					06/29/20	12.70		No
					08/25/20	12.68		No
					08/26/20	12.18		No
					12/17/20	11.28		No
					12/18/20	11.95		No
					12/18/20	11.61		No
					12/18/20	11.60		No
					01/15/21	11.00		No
					02/11/21	12.05		No
					03/02/21	11.92		No
					04/01/21	12.65		No
					05/04/21	12.89		No
					08/10/21	12.70		No
					01/04/22	10.56		No
					01/25/23	12.05		No
					04/27/23	12.50		No

Notes:
Vertical datum is NAVD88.

TABLE 3
Summary of Groundwater Parameters in Monitoring Well Samples
Former Astoria Warehousing Site
70 West Marine Drive
Astoria, Oregon

Sample I.D.	Sample Date	Temperature (°F)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Specific Conductivity (µS/cm)	Turbidity (NTU)	Ferrous Iron (mg/L)
MW-1	10/03/18	61.7	0.19	6.42	-74.9	673	0.44	--
	11/15/19	60.8	0.30	6.54	-99.9	505	4.99	28.8
	06/25/20	59.1	0.86	6.44	-55.9	628	2.22	--
	08/11/21	63.2	0.18	6.58	-145.4	1,091	3.11	--
	01/04/22[1]	60.4	2.80	5.40	-95.0	1,900	--	--
	10/03/22	61.7	3.45	6.31	-119.5	970	2.40	--
	01/25/23	58.8	0.51	6.24	-59.0	697	53.0[2]	--
	04/28/23	59.6	0.55	7.61	-105.9	513	26.2	--
MW-2	10/03/18	60.2	0.23	6.55	-124.5	791	0.51	--
	11/15/19	59.5	0.41	6.61	-118.1	670	0.10	64.6
	06/25/20	58.8	0.36	6.56	-73.1	664	2.12	--
	08/11/21	64.3	0.15	6.51	-128.4	1,208	1.98	--
	01/05/22[1]	62.2	1.68	6.14	-131.1	1,760	--	--
	10/03/22	61.8	1.42	6.50	-145.5	1,279	2.70	--
	01/26/23	58.2	0.53	6.59	-105.0	802	35.2[2]	--
	04/27/23	59.5	0.73	9.36[3]	-57.8	547	0.1	--
MW-3	10/03/18	60.7	0.29	6.75	-49.5	427	0.28	--
	11/15/19	60.5	0.90	6.76	-81.5	444	7.54	13.1
	06/25/20	58.3	0.37	6.60	-38.6	380	5.45	--
	08/11/21	62.1	0.28	6.73	-101.9	924	1.85	--
	01/04/22[1]	57.9	3.10	6.20	-75.0	1,158	--	--
	10/03/22	--	--	--	--	--	--	--
	01/25/23	57.4	0.95	6.80	-77.0	467	209[2]	--
	04/27/23	55.0	0.99	9.55[3]	-87.9	401	45.4	--
MW-4	10/03/18	57.5	0.28	7.13	-62.0	362	0.30	--
	11/15/19	57.3	0.41	6.55	-110.5	440	0.53	53.8
	06/25/20	56.9	0.62	6.47	-56.6	488	8.72	--
	08/11/21	58.7	0.21	6.48	-121.4	831	4.67	--
	01/05/22[1]	57.1	2.29	5.67	-74.4	906	--	--
	10/03/22	--	--	--	--	--	--	--
	01/26/23	55.0	0.42	6.33	-47.0	720	351[2]	--
	04/28/23	56.1	0.97	7.94	-78.0	476	15.3	--
MW-5	10/03/18	60.7	0.26	6.99	-54.1	304	0.24	--
	11/15/19	60.6	0.34	6.55	-84.7	354	0.86	26.9
	06/25/20	58.8	0.17	6.56	-58.8	268	3.50	--
	08/11/21	61.4	0.39	6.51	-95.1	548	3.02	--
	01/04/22[1]	47.0	18.60	5.30	-26.5	12	--	--
	10/03/22	--	--	--	--	--	--	--
	01/26/23	57.7	0.41	6.63	-67.0	479	40.1[2]	--
	04/27/23	56.6	1.59	9.01[3]	-106.2	293	0.1	--
MW-6	12/07/19	57.0	0.38	6.55	-87.6	607	2.71	--
	06/25/20	58.0	0.16	6.56	-82.6	652	4.72	--
	08/11/21	61.0	0.21	6.50	-119.6	1,084	2.07	--
	01/04/22[1]	58.5	2.10	5.10	-23.4	1,997	--	--
	10/03/22	59.1	1.17	6.30	-119.2	940	2.80	--
	01/26/23	55.8	0.42	6.55	-95.0	854	36.1[2]	--
	04/27/23	56.0	0.65	8.58[3]	-71.0	499	0.1	--
MW-7	12/07/19	58.6	0.24	6.72	-105.2	672	2.29	--
	06/25/20	62.5	0.13	6.59	-99.8	691	9.58	--
	08/11/21	62.1	0.28	6.53	-134.6	1,329	1.47	--
	01/04/22[1]	57.6	1.29	5.00	-57.8	4,740	--	--
	10/04/22	62.9	0.61	6.49	-119.9	1,072	3.70	--
	01/25/23	55.7	0.74	6.46	-80.0	2,070	110[2]	--
	04/28/23	58.9	0.61	8.79[3]	-77.3	647	31.7	--
MW-8	12/07/19	56.2	0.52	6.57	-86.2	587	3.67	--
	06/25/20	57.1	0.20	6.44	-72.5	535	3.79	--
	08/11/21	59.5	0.14	6.4	-123.2	926	2.52	--
	01/04/22[1]	58.0	4.00	4.80	-19.5	2,020	--	--
	10/04/22	58.4	0.68	6.39	-111.1	939	3.60	--
	01/26/23	54.0	0.53	6.32	-41.0	677	231[2]	--
	04/28/23	55.4	0.48	7.41	-105.7	443	8.16	--
PAS-2	12/07/19	59.9	0.38	6.86	-109.0	577	0.77	--

TABLE 3
Summary of Groundwater Parameters in Monitoring Well Samples
Former Astoria Warehousing Site
70 West Marine Drive
Astoria, Oregon

Notes:

1. Groundwater parameters measured during the January 2022 groundwater monitoring event indicate a possible malfunction of the YSI field meter and are therefore not necessarily considered representative of actual groundwater parameters. Parameters measured during this event were evaluated as relative values in the field to assess stabilization prior to sample collection only.

2. Turbidity observations during the January 2023 groundwater monitoring event indicate that the (rented) multi-parameter equipment retained residual solids within the flow cell from the onset of purging. Therefore, the noted turbidity values are not necessarily considered representative of actual groundwater parameters at the time of sample collection. Turbidity values measured during this event were evaluated as relative values in the field to assess stabilization prior to sample collection only.

3. pH observations during the April 2023 groundwater monitoring event indicate that the multi-parameter equipment may have been reading values higher than actual groundwater conditions. pH values measured during this event were evaluated as relative values in the field to assess stabilization prior to sample collection only.

--: not analyzed

TABLE 4
Summary of Monitoring Well Groundwater Sample Chemical Analytical Results
Gasoline-Range Hydrocarbons and RBDM VOCs
Former Astoria Warehousing Site
70 West Marine Drive
Astoria, Oregon

Monitoring Well	Sample Date	Gasoline-Range Hydrocarbons Method NWTPH-Gx (µg/L)	VOCs EPA Method 8260B/8260D (µg/L)																	
			Benzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	1,2-Dibromoethane	1,2-Dichloroethane	cis-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	P-Isopropyltoluene	MTBE	Naphthalene	n-Propylbenzene	Toluene	1,2,3-TMB	1,2,4-TMB	1,3,5-TMB	Total Xylenes
MW-1	10/03/18	19,900	1,000	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	--	1,090	98.4	7.60	11.5	397	83.1	25.1	--	54.5	40.6	196
	11/15/19	6,280	292	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	--	529	25.3	5.00 U	5.06	174	73.9	6.36	--	5.82	5.00 U	29.1
	06/25/20	12,100	854	--	--	--	1.26 U	0.819 U	--	1,720	83.8	--	9.69 J	546	203	20.1	--	6.97 J	8.90 J	64.7
	08/11/21	12,700	663	--	--	--	10.0 U	10.0 U	--	1,780	74.1	--	7.40 J	505	247	15.3	--	10.0 U	6.37 J	37.5
	01/04/22	2,710	37.4	4.39	3.49	0.567 J	1.00 U	1.00 U	1.00 U	116	20.4	1.17	3.37 C3	51.0	60.8	2.15	40.4	0.396 J	0.914 J	7.19
	10/03/22[2]	18,200	486	–	–	–	1.26 U	0.819 U	–	1,870	141	–	1.01 U	521 C3	351	24.0	–	3.22 U	7.80 J	48.2
	01/25/23[3]	16,900	458	–	–	–	10.0 U	10.0 U	–	2,460	120	–	4.58 J	431 C3	334 C3	20.6	–	10.0 U	7.25 J	64.5
	04/28/23[4]	16,600	369	31.3 J	16.3 J	100 U	100 U	100 U	100 U	2,900	112	100 U	100 U	816	379	100 U	459	100 U	10.9 J	97.7 J
MW-2	10/03/18	34,500	2,320	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	--	1,690	89.6	21.7	26.0	465	277	52.3	--	1,650	370	3,180
	11/15/19	7,000	416	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	--	290	36.3	10.0 U	14.1	80.7	72.0	11.1	--	207	49.6	335
	06/25/20	6,160	625	--	--	--	0.126 U	0.0819 U	--	375	61.5	--	13.4	70.8	103	9.56	--	72.4	51.2	347
	08/11/21	2,580	119	--	--	--	10.0 U	10.0 U	--	12.0	37.1	--	12.0	33.1 J	68.3	4.81 J	--	10.0 U	10.9	15.1 J
	01/04/22	2,720	134	4.36	3.92	1.00 U	1.00 U	1.00 U	1.00 U	53.5	32.8	0.640 J	7.53 C3	17.5	76.6	7.58	16.8	14.6	15.8	40.9
	10/03/22[2]	3,720	184	–	–	–	1.26 U	0.819 U	--	60.5	29.1	–	11.7	19.1 C3, J	–	10.3	–	59.8	30.9	44.8
	01/26/23[3]	3,810 B	129	–	–	–	10.0 U	10.0 U	--	51.6	27.0	–	9.44 J	42.0 C3, J	53.1 C3	9.63 J	–	21.3	17.3	22.0 J
	04/27/23[4]	4,420	177	5.68 J	3.81 J	10.0 U	10.0 U	10.0 U	10.0 U	41.9	25.3	10.0 U	7.99 J	27.2 J	47.0	8.69 J	29.1	6.70 J	12.4	16.3 J
MW-3	10/03/18	148 B, J	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	--	0.500 U	0.500 U	0.500 U	1.30	2.50 U	0.500 U	0.500 U		0.500 U	0.500 U	1.50 U
	11/15/19	370	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	--	1.00 U	4.19	1.00 U	6.68	5.00 U	1.23	1.00 U		1.00 U	1.00 U	3.00 U
	06/25/20	634 B	0.09 U	--	--	--	0.126 U	0.0930 J	--	13.9	21.3	--	2.47	3.10 J	25.9	0.643 J		0.742 J	1.67	2.99 J
	08/11/21	603	1.00 U	--	--	--	1.00 U	1.00 U	--	1.00 U	11.4	--	9.01	5.00 U	17.6	0.716 J		1.00 U	0.256 J	1.60 J
	01/04/22	224	0.218 J	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	0.364 J	0.311 J	0.308 J	1.00 U	1.15 C3	1.77 J, B	0.550 J	1.00 U	0.360 J	1.00 U	0.212 J	0.662 J
	10/03/22[2]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	01/25/23[3]	1,400 B	1.00 U	–	–	–	1.00 U	1.00 U	–	1.00 U	0.122 J	–	1.27	5.00 U, C3	1.00 U, C3	1.00 U	–	1.00 U	1.00 U	0.190 J
	04/27/23[4]	502	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.57	4.02	1.00 U	1.39	5.00 U	0.984 J	0.626 J	0.682 J	1.00 U	1.00 U	1.44 J
MW-4	10/03/18	6,080	133	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	--	168	18.7	3.99	6.45	33.0	65.0	82.1	--	167	56.1	757
	11/15/19	10,600	561	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	--	493	30.5	25.0 U	25.0 U	133	80.3	90.0	--	456	113	1,660
	06/25/20	17,000	1,060	--	--	--	2.52 U	1.64 U	--	1,190	44.3	--	2.66 J	247	102	138	--	660	179	3,420
	08/11/21	10,500	634	--	--	--	20.0 U	20.0 U	--	991	51.2	--	2.82 J	306	150	40.1	--	569	90.8	1,220
	01/04/22	21,200	289	4.09 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	206	27.1	11.2	3.70 C3, J	179	74.5	43.8	381	805	238	3,880
	10/03/22[2]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	01/26/23[3]	38,000	1,180	–	–	–	20.0 U	20.0 U	–	750	46.0	–	20.0 U	169 C3	115 C3	119	–	1,350	384	9,260
	04/28/23[4]	21,500	822	9.07 J	8.66 J	20.0 U	20.0 U	20.0 U	20.0 U	858	72.5	11.5 J	20.0 U	393	202	69.9	471	1,050	253	3,950
MW-5	10/03/18	6,010	167	0.500 U	14.3	0.500 U	0.500 U	0.500 U	--	88.2	49.0	2.25	0.500 U	14.9	184	9.37	--	16.0	5.84	16.0
	11/15/19	3,420	83.5	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	--	48.2	23.8	10.0 U	10.0 U	50.0 U	79.8	10.0 U	--	10.4	10.0 U	30.0 U
	06/25/20	3,150	38.3	--	--	--	0.126 U	0.0819 U	--	90.6	31.6	--	0.101 U	29.2	76.4	7.79	--	5.86	3.37	13.0
	08/11/21	4,870	55.8	--	--	--	1.00 U	1.00 U	--	170	53.0	--	1.00 U	51.5	197	9.94	--	1.15	2.13	16.5
	01/04/22	1,800	3.52	11.8	12.8	0.308 J	1.00 U	1.00 U	1.00 U	2.40	12.1	1.16	9.40 C3	1.19 J, B	52.6	0.685 J	0.873 J	1.00 U	0.615 J	2.07 J
	10/03/22[2]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	01/26/23[3]	1,580	1.70	–	–	–	1.00 U	1.00 U	–	2.53	10.6	–	9.42	5.00 U, C3	37.7 C3	1.00 U	–	1.00 U	0.511 J	1.73 J
	04/27/23[4]	2,670	2.29	19.5	14.2	0.483 J	1.00 U	1.00 U	1.00 U	17.5	16.0	1.54	5.59	7.59	76.8	1.09	4.02	0.341 J	0.538 J	2.64 J
MW-6	12/07/19	23,700	796	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	--	1,980	129	18.0	12.8	268	345	71.7	--	926	273	2,390
	06/25/20	72,200	681	--	--	--	0.6 U	0.4 U	--	459	78.8	--	16.8	102	171	37.5	--	258	94.5	582
	08/11/21	4,340	380	--	--	--	5.00 U	5.00 U	--	71.4	26.7	--	16.0	30.2	72.6	32.0	--	38.6	20.7	55.6
	01/04/22	1,670	169	1.65	1.51	1.00 U	1.00 U	1.00 U	1.00 U	26.0	11.1	0.466 J	7.85 C3	8.96 B	31.5	8.31	23.8	12.2	9.66	21.4
	10/03/22[2]	2,930	96.7	–	–	–	0.630 U	0.409 U	–	90.8	22.2	–	19.9	18.8 C3, J	41.6	7.21	–	18.1	19.7	49.5
	01/26/23[3]	4,860	363	–	–	–	5.00 U	5.00 U	–	166	32.4	–	6.60	33.0 C3	73.1 C3	15.6	–	32.7	33.9	88.4
	04/27/23[4]	3,720	276	4.15 J	3.34 J	5.00 U	5.00 U	5.00 U	5.00 U	139	22.3	0.620 J	9.60	47.5	65.9	6.44	57.1	31.3	30.0	65.1
MW-7	12/07/19	5,920	151	1.00 U	7.96	1.00 U	1.00 U	1.00 U	--	216	59.7	5.34	9.97	113	168	12.6	--	67.7	63.4	185
	06/25/20	7,610	556	--	--	--	0.630 U	0.409 U	--	586	102	--	15.2	355	217	15.4	--	11.6	96.8	207
	08/11/21	5,180	170	--	--	--	5.00 U	5.00 U	--	102	95.9	--	13.2	47.8	227	16.8	--	5.00 U	16.1	24.5
	01/04/22	3,060	178	5.43	5.71	0.552 J	1.00 U	1.00 U	1.00 U	70.3	42.8	0.755 J	2.75 C3	9.7 B	202	6.26	23.0	0.437 J	3.00	12.8
	10/04/22[2]	5,470	69.5	–	–	–	0.630 U	0.409 U	–	37.0	56.0	–	4.70 J	26.5 C3	125	6.09	–	1.61 U	4.260 J	17.6
	01/25/23[3]	10,600	887	–	–	–	5.00 U	5.00 U	–	729	124	–	6.83	63.5 C3	317 C3	30.1	–	14.1	11.1	167
	04/28/23[4]	10,600	357	19.8	14.8	1.46 J	5.00 U	5.00 U	5.00 U	227	148	1.89 J	7.07	16.3 J	465	24.5	28.9	6.36	13.4	62.0
MW-8	12/07/19	8,290	1,520	1.00 U	8.68	1.00 U	1.00 U	1.00 U	--	263	80.6	6.17	8.35	95.5	199	35.1	--	249	86.8	530
	06/25/20	2,840	2,330	--	--	--	3.15 U	2.05 U	--	1,900	131	--	6.24 J	381	297	91.4	--	1,310	441	5,020
	08/11/21	15,700	1,560	--	--	--	25.0 U	25.0 U	--	408	77.5	--	6.73 J	214	225	42.2	--	1,000	313	1,560
	01/04/22	17,200	2,750	10.5	7.92	1.00 U	1.00 U	1.00 U	1.00 U	408	64.0	15.5	7.41 C3	163	326	30.0	444	1,320	196	1,620
	10/04/22[2]	16,000	1,490	--	--	--	3.15 U	2.05 U	--	465	68.8	--	2.53 U	172 C3	197	25.40	--	989	296	1,530
	01/26/23[3]	34,500	1,250	--	--	--	25.0 U	25.0 U	--	1,020	95.1	--	4.12 J	231 C3	233 C3	45.9	--	2,210	582	4,370
	04/28/23[4]	28,300	1,770	25.2	18.5 J	25.0 U	25.0 U	25.0 U	25.0 U	961	96.6	37.3	3.67 J	504	273	41.9	695	2,570	681	3,690

TABLE 4
Summary of Monitoring Well Groundwater Sample Chemical Analytical Results
Gasoline-Range Hydrocarbons and RBDM VOCs
Former Astoria Warehousing Site
70 West Marine Drive
Astoria, Oregon

Monitoring Well	Sample Date	Gasoline-Range Hydrocarbons Method NWTPH-Gx (µg/L)	VOCs EPA Method 8260B/8260D (µg/L)																	
			Benzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	1,2-Dibromoethane	1,2-Dichloroethane	cis-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene	P-Isopropyltoluene	MTBE	Naphthalene	n-Propylbenzene	Toluene	1,2,3-TMB	1,2,4-TMB	1,3,5-TMB	Total Xylenes
PAS-2	12/07/19	**8,160**	**102**	**124**	**7.07**	**1.22**	1.00 U	1.00 U	--	**122**	**109**	1.00 U	**10.4**	**13.9**	**163**	**16.0**	--	10.0 U	**28.8**	**49.0**
DEQ Generic RBCs[1]																				
Volatilization to Outdoor Air																				
Occupational		>S	14,000	NE	NE	NE	790	9,000	>S	43,000	>S	NE	1,500,000	16,000	NE	>S	NE	>S	>S	>S
Vapor Intrusion into Buildings																				
Occupational		>S	2,800	NE	NE	NE	590	3,900	>S	8,200	>S	NE	870,000	11,000	NE	>S	NE	>S	>S	>S
Groundwater in Excavation																				
Construction/Excavation Worker		14,000	1,800	NE	NE	NE	27	630	18,000	4,500	51,000	NE	63,000	500	NE	220,000	NE	6,300	7,500	23,000

Notes:
1. DEQ Generic RBCs dated May 2018
2. First round of pilot shutdown monitoring (October 2022)
3. Second round of pilot shutdown monitoring (January 2023)
4. Third round of pilot shutdown monitoring (April 2023)
B: The same analyte is found in the associated blank.
C3: The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
J: The result is an estimated quantity.
>S: This groundwater RBC exceeds the solubility limit. Refer to Appendix D of DEQ's RBDM guidance document for the corresponding value of S. Groundwater concentrations in excess of S indicate that free product may be present.
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.
Shading indicates analyte detection at a concentration greater than DEQ RBCs.
--: not analyzed

TABLE 5
Summary of Air Sample Chemical Analytical Results
VOCs
Former Astoria Warehousing Site
70 West Marine Drive
Astoria, Oregon

Sample I.D.	Sample Exposure Dates	VOCs[1] EPA Method TO-17 (µg/m³)																
		Benzene	Bromomethane	Carbon Tetrachloride	Chloroform	1,4-Dichlorobenzene	1,2-Dichloroethane	Ethylbenzene	Freon 113	Methylene Chloride (Dichloromethane)	Styrene	PCE	Toluene	TCE	1,2,4-TMB	1,3,5-TMB	m,p-xylene	o-xylene
Indoor-1	06/29/19 to 07/13/19	0.72	0.36*	ND	ND	0.069	ND	0.91	0.3*	4.8*	0.69	0.073	0.63	0.046 U	1.5	0.38*	2.8	0.67
	11/06/19 to 11/15/19	0.90	–	0.23	0.19	0.15 U	0.10 U	1.7	–	–	0.13 U	0.13 U	2.5	0.11 U	–	–	5.7	1.6
	11/18/20 to 12/02/20	0.69	–	0.47	0.28	0.10 U	0.082	2.0	–	–	0.17	0.087 U	26	0.074 U	–	–	8.1	2.5
	08/12/21 to 08/26/21	0.37	–	0.34	0.86	0.098 U	0.065 U	0.60	–	–	0.20	0.084 U	1.2	0.072 U	–	–	2.3	0.86
	10/04/22 to 10/18/22	0.42	–	0.24	0.68	0.098 U	0.065 U	0.59	–	–	0.22	0.085 U	1.7	0.072 U	–	–	2.0	0.94
	01/27/23 to 02/10/23	0.81	–	0.37	1.3	0.098 U	0.065 U	0.42	–	–	0.18	0.084 U	1.6	0.072 U	–	–	1.3	0.61
	04/26/23 to 05/10/23	0.25 U	–	0.32	0.64	0.098 U	0.065 U	0.24	–	–	0.082 U	0.085 U	0.65	0.072 U	–	–	0.77	0.36
Indoor-2	06/29/19 to 07/13/19	0.72	ND	ND	ND	ND	ND	0.97	ND	ND	0.65	0.074	0.61	0.046 U	1.1	ND	2.4	0.64
	11/06/19 to 11/15/19	1.0	–	0.24	0.24	0.15 U	0.10 U	1.9	–	–	0.13 U	0.13 U	2.7	0.11 U	–	–	6.2	1.7
	11/18/20 to 12/02/20	0.73	–	0.51	0.27	0.10 U	0.082	1.7	–	–	0.15	0.087 U	24	0.074 U	–	–	6.8	2.1
	08/12/21 to 08/26/21	0.33 J	–	0.29 J	0.73 J	0.098 U	0.065 U	0.47 J	–	–	0.17 J	0.084 U	1.2 J	0.072 U	–	–	1.7 J	0.64 J
	10/04/22 to 10/18/22	0.46	–	0.28	0.71	0.098 U	0.065 U	0.50	–	–	0.19	0.085 U	1.5	0.072 U	–	–	1.6	0.76
	01/27/23 to 02/10/23	0.78	–	0.34	1.2	0.098 U	0.065 U	0.36	–	–	0.15	0.084 U	1.6	0.072 U	–	–	1.1	0.54
	04/26/23 to 05/10/23	0.25 U	–	0.31	0.58	0.098 U	0.065 U	0.23	–	–	0.082 U	0.085 U	0.63	0.072 U	–	–	0.77	0.36
Indoor-3	06/29/19 to 07/13/19	0.23	ND	0.4*	ND	ND	ND	0.23	ND	ND	0.17	0.063	1.2	0.046 U	0.58	ND	1.5	0.35
	11/06/19 to 11/15/19	0.42	–	0.24	0.10 U	0.15 U	0.10 U	0.80	–	–	0.13 U	0.13 U	1.3	0.11 U	–	–	2.8	0.84
	11/18/20 to 12/02/20	0.50	–	0.24	0.071 U	0.10 U	0.069 U	2.3	–	–	0.087 U	0.092	56	0.096	–	–	8.8	2.6
	08/12/21 to 08/26/21	0.32	–	0.22	0.65	0.098 U	0.064 U	0.57	–	–	0.20	0.084 U	1.2	0.072 U	–	–	2.2	0.77
	10/04/22 to 10/18/22	0.43	–	0.23	0.57	0.098 U	0.065 U	0.49	–	–	0.13	0.085 U	1.2	0.072 U	–	–	1.8	0.79
	01/27/23 to 02/10/23	0.68	–	0.23	0.78	0.098 U	0.065 U	0.34	–	–	0.12	0.084 U	1.1	0.072 U	–	–	1.2	0.49
	04/26/23 to 05/10/23	0.25	–	0.27	0.62	0.098 U	0.065 U	0.25	–	–	0.082 U	0.085 U	0.37	0.072 U	–	–	0.82	0.33
Indoor-4	06/29/19 to 07/13/19	0.21	ND	0.49*	ND	ND	ND	0.18	ND	ND	0.14	0.054	1.1	0.046 U	0.45	ND	1.3	0.28
	11/06/19 to 11/15/19	0.42	–	0.25	0.10 U	0.15 U	0.10 U	0.63	–	–	0.13 U	0.13 U	1.2	0.11 U	–	–	2.2	0.67
	11/18/20 to 12/02/20	0.52	–	0.26	0.071 U	0.10 U	0.069 U	2.1	–	–	0.087 U	0.091	67	0.11	–	–	7.6	2.3
	08/12/21 to 08/26/21	0.31	–	0.17	0.44	0.098 U	0.065 U	0.56	–	–	0.20	0.084 U	1.3	0.072 U	–	–	2.2	0.76
	10/04/22 to 10/18/22	0.41	–	0.20	0.46	0.098 U	0.065 U	0.84	–	–	0.17	0.085 U	1.8	0.072 U	–	–	3.2	1.6
	01/27/23 to 02/10/23	0.73	–	0.23	0.71	0.098 U	0.065 U	0.87	–	–	0.30	0.13	2.2	0.072 U	–	–	3.4	1.8
	04/26/23 to 05/10/23	0.27	–	0.26	0.42	0.098 U	0.065 U	0.62	–	–	0.18	0.085 U	1.0	0.072 U	–	–	2.4	1.3

TABLE 5
Summary of Air Sample Chemical Analytical Results
VOCs
Former Astoria Warehousing Site
70 West Marine Drive
Astoria, Oregon

Sample I.D.	Sample Exposure Dates	VOCs[1] EPA Method TO-17 (µg/m³)																
		Benzene	Bromomethane	Carbon Tetrachloride	Chloroform	1,4-Dichlorobenzene	1,2-Dichloroethane	Ethylbenzene	Freon 113	Methylene Chloride (Dichloromethane)	Styrene	PCE	Toluene	TCE	1,2,4-TMB	1,3,5-TMB	m,p-xylene	o-xylene
Indoor-5	06/29/19 to 07/13/19	**0.79**	ND	**0.43***	ND	ND	ND	**1.3**	**0.29***	ND	**0.23**	**0.098**	**2.5**	0.046 U	**1.4**	ND	**3.8**	**1.8**
	11/06/19 to 11/15/19	**0.46**	–	**0.20**	0.10 U	0.15 U	0.10 U	**0.65**	–	–	0.13 U	0.13 U	**1.4**	0.11 U	–	–	**2.3**	**0.69**
	11/18/20 to 12/02/20	**0.57**	–	**0.27**	0.071 U	0.10 U	0.069 U	**0.84**	–	–	0.087 U	0.090 U	**26**	0.077 U	–	–	**3.1**	**0.94**
	08/12/21 to 08/26/21	**0.32**	–	**0.27**	**0.61**	0.097 U	0.064 U	**0.64**	–	–	**0.22**	0.084 U	**1.5**	0.072 U	–	–	**2.6**	**0.88**
	10/04/22 to 10/18/22	**0.40**	–	**0.22**	**0.36**	0.098 U	0.065 U	**0.19**	–	–	0.082 U	0.085 U	**0.74**	0.072 U	–	–	**0.63**	**0.26**
	01/27/23 to 02/10/23	**0.76**	–	**0.27**	**0.72**	0.098 U	0.065 U	**0.23**	–	–	**0.14**	0.084 U	**1.1**	0.072 U	–	–	**0.74**	**0.33**
	04/26/23 to 05/10/23	**0.26**	–	**0.30**	**0.49**	0.098 U	0.065 U	**0.15**	–	–	0.082 U	0.085 U	**0.26**	0.072 U	–	–	**0.50**	**0.16**
Indoor-6	06/29/19 to 07/13/19	**0.35**	ND	**0.38***	ND	ND	ND	**0.44**	ND	ND	**0.23**	**0.11**	**1.6**	0.046 U	**1.1**	ND	**2.2**	**0.69**
	11/06/19 to 11/15/19	**0.47**	–	**0.23**	0.10 U	0.15 U	0.10 U	**0.82**	–	–	0.13 U	0.13 U	**1.5**	0.11 U	–	–	**2.9**	**0.88**
	11/18/20 to 12/02/20	**0.49**	–	**0.25**	0.071 U	0.10 U	0.069 U	**1.2**	–	–	0.087 U	0.090 U	**35**	0.077 U	–	–	**4.5**	**1.4**
	08/12/21 to 08/26/21	**0.33**	–	**0.21**	**0.63**	0.098 U	0.065 U	**0.69**	–	–	**0.22**	0.084 U	**1.3**	0.072 U	–	–	**2.8**	**1.0**
	10/04/22 to 10/18/22	**0.40**	–	**0.22**	**0.58**	0.098 U	0.065 U	**0.27**	–	–	**0.10**	0.085 U	**0.76**	0.072 U	–	–	**0.94**	**0.42**
	01/27/23 to 02/10/23	**0.65**	–	**0.22**	**0.81**	0.098 U	0.065 U	**0.27**	–	–	**0.12**	0.084 U	**1.0**	0.072 U	–	–	**0.90**	**0.39**
	04/26/23 to 05/10/23	0.25 U	–	**0.24**	**0.55**	0.098 U	0.065 U	**0.14**	–	–	0.082 U	0.085 U	**0.26**	0.072 U	–	–	**0.47**	**0.19**
Indoor-7	06/29/19 to 07/13/19	**0.24**	ND	**0.48***	ND	ND	ND	**0.22**	**0.27***	ND	**0.14**	**0.058**	**0.96**	0.046 U	**0.44**	**1***	**1.2**	**0.32**
	11/06/19 to 11/15/19	**0.46**	–	**0.26**	0.10 U	0.15 U	0.10 U	**0.87**	–	–	0.13 U	0.13 U	**1.5**	0.11 U	–	–	**3.1**	**0.92**
	11/18/20 to 12/02/20	**0.50**	–	**0.24**	0.071 U	0.10 U	0.069 U	**2.6**	–	–	**0.089**	**0.12**	**60**	0.077 U	–	–	**10**	**3.0**
	08/12/21 to 08/26/21	**0.30**	–	**0.22**	**0.62**	0.098 U	0.065 U	**0.52**	–	–	**0.16**	0.084 U	**1.1**	0.072 U	–	–	**2.0**	**0.68**
	10/04/22 to 10/18/22	**0.39**	–	**0.20**	**0.50**	0.098 U	0.065 U	**0.41**	–	–	**0.10**	0.085 U	**1.0**	0.072 U	–	–	**1.5**	**0.64**
	01/27/23 to 02/10/23	**0.68**	–	**0.21**	**0.76**	0.098 U	0.065 U	**0.31**	–	–	**0.12**	0.084 U	**1.1**	0.072 U	–	–	**1.0**	**0.46**
	04/26/23 to 05/10/23	0.25 U	–	**0.24**	**0.55**	0.098 U	0.065 U	**0.21**	–	–	0.082 U	0.085 U	**0.38**	0.072 U	–	–	**0.68**	**0.28**
Background	11/06/19 to 11/15/19	**0.40**	–	**0.26**	0.10 U	0.15 U	0.10 U	0.11 U	–	–	0.13 U	0.13 U	**0.49**	0.11 U	–	–	**0.27**	0.12 U
	11/18/20 to 12/02/20	**0.50**	–	**0.32**	0.071 U	0.10 U	0.069 U	**0.14**	–	–	0.087 U	0.090 U	**1.5**	0.077 U	–	–	**0.41**	**0.14**
	08/12/21 to 08/26/21	**0.27**	–	**0.20**	0.066 U	0.097 U	0.064 U	**0.12**	–	–	0.081 U	0.084 U	**0.45**	0.072 U	–	–	**0.45**	**0.15**
	10/04/22 to 10/18/22	**0.45**	–	**0.26**	**0.094**	0.098 U	0.065 U	**0.17**	–	–	0.082 U	0.085 U	**0.89**	0.072 U	–	–	**0.52**	**0.21**
	01/27/23 to 02/10/23	**0.67**	–	**0.29**	0.066 U	0.098 U	0.065 U	**0.11**	–	–	0.082 U	0.084 U	**0.71**	0.072 U	–	–	**0.33**	**0.13**
	04/26/23 to 05/10/23	0.25 U	–	**0.25**	**0.067**	0.098 U	0.065 U	0.074 U	–	–	0.082 U	0.085 U	**0.20**	0.073 U	–	–	**0.14**	0.077 U
DEQ Generic RBCs[2]																		
Inhalation																		
Occupational		1.6	22	2.0	0.53	1.1	0.47	4.9	130,000	1,200	4,400	47	22,000	2.9	260	260	440	

TABLE 5
Summary of Air Sample Chemical Analytical Results
VOCs
Former Astoria Warehousing Site
70 West Marine Drive
Astoria, Oregon

Sample I.D.	Sample Exposure Dates	VOCs[1] EPA Method TO-17 (µg/m³)																
		Benzene	Bromomethane	Carbon Tetrachloride	Chloroform	1,4-Dichlorobenzene	1,2-Dichloroethane	Ethylbenzene	Freon 113	Methylene Chloride (Dichloromethane)	Styrene	PCE	Toluene	TCE	1,2,4-TMB	1,3,5-TMB	m,p-xylene	o-xylene

Notes:
1. Only VOCs detected with regulatory screening values are listed. For a complete listing of VOCs, refer to the laboratory report in Attachment A.
2. DEQ Generic RBCs dated May 2018
J: The identification of the analyte is acceptable; the reported value is an estimate.
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.
Shading indicates analyte detection at a concentration greater than DEQ RBCs.
--: not analyzed
*: Laboratory reported concentration as ng/sample because they do not have an uptake rate. Values shown were calculated by assuming an uptake rate of 1 percent.

TABLE 6
Riverbank Observations
Former Astoria Warehousing Site
70 West Marine Drive
Astoria, Oregon

Date	Time	Station Water Level During Observations[1]	Weather	Groundwater Seep Evaluation		Storm Pipe Outfall		Remarks
				Seeps Present?	Sheen?	Flow Present?	Sheen?	
2019 - 2020 Observations								
12/06/19	1100	2.28	Sunny	No	No	--	--	
02/19/20	1220	3.16	Sunny	No	No	--	--	
04/20/20	1330	1.20	Sunny	No	No	--	--	
08/26/20	1000	0.38	Sunny	No	No	--	--	
12/18/20	0930	4.81	Rainy	No	No	--	--	
2021 Observations								
01/15/21	1130	8.89	Foggy/overcast	No	No	--	--	
02/17/21	1700	3.24	Partly sunny	No	No	--	--	
03/01/21	1800	1.46	Sunny	No	No	--	--	
03/02/21	1645	1.20	Sunny	No	No	--	--	
04/01/21	0930	7.89	Sunny	Yes	Yes	--	--	
04/09/21	0851	7.20	Sunny	At storm pipe	Yes	Yes	Yes	Changed sorbent pads
04/12/21	0820	7.40	Sunny	At storm pipe	Yes	Yes	Yes	Changed sorbent pads
04/13/21	0800	6.64	Sunny	At storm pipe	Yes	Yes	Yes	Increase in sheen
04/14/21	0803	6.30	Sunny	At storm pipe	Yes	Yes	Yes	Decrease in sheen
04/15/21	0805	6.08	Sunny	At storm pipe	Yes	Yes	Yes	Changed sorbent pads
04/16/21	0804	5.40	Sunny	At storm pipe	Yes	Yes	Yes	Changed sorbent pads
04/19/21	0904	4.60	Overcast	At storm pipe	Yes	Yes	Yes	
04/20/21	0953	4.29	Sunny	At storm pipe	Yes	Yes	Yes	
04/21/21	1056	3.75	Cloudy	At storm pipe	Yes	Yes	Yes	
04/22/21	1230	3.45	Overcast	At storm pipe	Yes	Yes	Yes	
04/23/21	1337	2.75	Overcast	At storm pipe	Yes	Yes	Yes	Changed sorbent pads
04/24/21	1230	1.38	Rainy	At storm pipe	Yes	Yes	Yes	High flow from pipe
04/25/21	1330	1.03	Overcast	At storm pipe	Yes	Yes	Yes	Changed sorbent pads
04/26/21	1450	0.10	Cloudy	At storm pipe	Yes	Yes	Yes	
04/27/21	1146	5.25	Cloudy	At storm pipe	Yes	Yes	Yes	
04/28/21	1515	-0.30	Cloudy	At storm pipe	Yes	Yes	Yes	Changed sorbent pads
04/29/21	0914	9.64	Sunny	At storm pipe	Yes	Yes	Yes	High flow from pipe
04/30/21	0820	6.99	Rainy	At storm pipe	Yes	Yes	Yes	Changed sorbent pads
05/03/21	1256	7.49	Rainy	Yes	Yes	Yes	Yes	Changed sorbent pads
05/04/21	1154	4.81	Cloudy	--	--	Yes	Yes	
05/04/21	1500	6.93	Partly sunny	Yes	Yes	No	--	
05/05/21	0800	4.42		No	--	No	--	
05/06/21	1515	5.50	Rainy	At storm pipe	Yes	Yes	Yes	
05/07/21	1657	5.87	Cloudy	At storm pipe	Yes	Yes	Yes	
05/10/21	1251	1.54	Sunny	At storm pipe	Yes	Yes	Yes	Dye visible. Changed sorbent pads
05/11/21	1430	-0.06	Sunny	No	--	No	--	
05/12/21	1425	0.46	Sunny	No	--	No	--	
05/13/21	1522	-0.18	Sunny	No	--	No	--	
05/14/21	1000	8.40	Cloudy	No	--	No	--	
05/17/21	1300	7.06	Cloudy	No	--	No	--	
05/18/21	1225	7.39	Cloudy	No	--	No	--	
05/19/21	1120	5.68	Cloudy	No	--	No	--	
05/20/21	1145	4.46	Cloudy	No	--	No	--	
05/21/21	1210	2.97	Cloudy	No	--	No	--	
05/24/21	1610	2.76	Cloudy	Yes	Yes	Yes	Yes	Changed sorbent pads
05/25/21	1605	0.45	Cloudy	No	--	No	--	
05/26/21	1630	-0.68	Cloudy	No	--	No	--	
05/27/21	1550	-0.76	Cloudy	At storm pipe	Yes	Yes	Yes	
05/28/21	1500	0.99	Sunny	At storm pipe	Yes	Yes	Yes	Changed sorbent pads
05/31/21	1000	6.36	Cloudy	No	--	No	--	
08/11/21	0728	4.98	Sunny	No	--	No	--	
08/11/21	1030	8.63	Sunny	Yes	Yes	--	--	
08/12/21	0930	7.14	Sunny	Yes	Yes	No	--	
08/17/21	0729	3.17	Cloudy	No	--	No	--	
08/24/21	0729	6.31	Cloudy	No	--	No	--	
08/26/21	1000	7.20	Partly sunny	Yes	Yes	No	--	
08/31/21	0728	2.46	Cloudy	--	--	Yes	Yes	
09/07/21	0729	7.79	Sunny	No	--	No	--	
09/14/21	0730	0.37	Sunny	No	--	No	--	
09/21/21	0729	7.28	Sunny	No	--	No	--	
09/28/21	0728	1.40	Rainy	At storm pipe	Yes	Yes	Yes	High flow from pipe
10/05/21	0728	8.62	Rainy	At storm pipe	Yes	Yes	Yes	High flow from pipe
10/12/21	0728	-0.82	Cloudy	No	--	No	--	
10/19/21	0728	7.97	Partly sunny	No	--	No	--	
10/26/21	0729	2.07	Rainy	At storm pipe	Yes	Yes	Yes	High flow from pipe
11/02/21	0730	7.68	Cloudy	No	--	No	--	Outlet plugged
11/09/21	0729	0.43	Rainy	No	--	Yes	No	
11/16/21	0729	7.80	Partly sunny	At storm pipe	Yes	No	--	
11/23/21	0730	2.02	Rainy	No	--	Yes	No	High flow from pipe
11/30/21	0730	5.11	Rainy	No	--	Yes	No	
12/07/21	0730	1.55	Rainy	No	--	Yes	No	
12/14/21	0730	7.02	Cloudy	No	--	No	--	
12/21/21	0730	3.68	Cloudy	Yes	No	Yes	No	
12/28/21	0731	3.36	Cloudy	No	--	No	--	

TABLE 6
Riverbank Observations
Former Astoria Warehousing Site
70 West Marine Drive
Astoria, Oregon

Date	Time	Station Water Level During Observations[1]	Weather	Groundwater Seep Evaluation		Storm Pipe Outfall		Remarks
				Seeps Present?	Sheen?	Flow Present?	Sheen?	
2022 Observations								
01/04/22	0733	3.60	Cloudy	No	--	No	--	
01/11/22	0733	8.20	Rainy	No	--	Yes	No	
01/18/22	0729	3.80	Cloudy	No	--	No	--	
01/25/22	0729	7.50	Sunny	No	--	No	--	
10/04/22	0930	-0.07	Sunny	No	--	No	--	
2023 Observations								
01/25/23	1015	6.50	Cloudy	No	No	--	--	
01/25/23	1200	8.40	Partly sunny	No	No	--	--	
01/25/23	1430	5.71	Sunny	No	No	--	--	
01/26/23	1000	4.76	Cloudy	No	No	--	--	
01/26/23	1630	3.42	Cloudy	No	No	--	--	
01/27/23	1000	4.11	Sunny	No	No	--	--	
01/27/23	1230	8.28	Sunny	No	No	--	--	
04/27/23	1010	4.97	Partly sunny	No	No	--	--	
04/28/23	1710	4.93	Partly sunny	No	No	--	--	

Notes:
1. Water levels obtained from NOAA observatoin station 9439040 in Astoria, Oregon, using NAVD88 Datum (feet).
Storm pipe outfall observations conducted by For George staff.
DEQ's contractor assumed responsibility of maintaining the sorbet boom at the storm pipe outfall in September 2021.

ATTACHMENT A

ATTACHMENT A

FIELD DOCUMENTATION

Groundwater Monitoring Data Sheet - Summary Information

NV5

Project No. BigBeams 101

Site Name Former Astoria Warehousing

NV5 Personnel

Well I.D.	Well Diameter (inches)	Water Level Gauging						Groundwater Sampling							Other Notes
		Gauging Date	Gauging Time	Total Well Depth (feet BTOC)	Depth to Water (feet BTOC)	Free Product?	NAPL Thickness (feet)	Sampling Date	Sampling Time	Purge Volume (gallons)	Sheen	Odor?	Number of Containers	Analysis Required	
MW-1	2	42723	1024	19.2	10.35	No	-	42823	1230	3.6	NS	NO	6	See COC	
MW-2	2	"	1035	19.0	12.3	"	-	42723	1550	3.2	NS	NO	6	"	
MW-3	2	"	1020	18.6	7.5	"	-	42723	1245	4.8	NS	NO	6	"	
MW-4	2	"	1037	18.8	11.2	"	-	42823	1440	3.75	NS	NO	6	"	
MW-5	2	"	1040	19.2	8.6	"	-	42723	1405	3.6	NS	SO	6	"	
MW-6	2	"	1030	25.5	11.2	"	-	42723	1730	3.2	NS	NO	6	"	
MW-7	2	"	1027	25.3	11.1	"	-	42823	1050	4.5	NS	NO	6	"	
MW-8	2	"	1032	25.3	10.6	"	-	42823	1630	3.2	SS	NO	6	"	SOPPENT ROCK CONDITION (NOTE REPLACEMENT IF SATURATED) - Replaced
DAS-1	3/4	"	1044	19.3	12.2	"	-								
DAS-2	3/4	"	1046	19.6	12.2	"	-								
DAS-3	3/4	"	1051	19.4	12.4	"	-								
DAS-4	3/4	"	1055	19.6	12.5	"	-								
MW-12	2	"	1100	18.0	12.1	"	-								

Notes

Equipment Used: Solinst Interface Probe

Purging Method: Peristaltic Pump

Sampling Order: "closest to least" MW-3, MW-5, MW-2, MW-6, MW-7, MW-1, MW-4, MW-8

NV5

Low-Flow Groundwater Sampling Data Sheet

Project No. BigBeams-1 04 (Task 05 & Task 08)
Site Name Former Astoria Warehousing
NV5 Personnel ADD
Date April 23th, 2023
Well I.D. MW-1
Well Depth (ft BGS) 19.2

Time	Purge Volume (gallons)	Purge Rate (mL/min)	Depth to Water (feet BTOC)	Drawdown (feet)	Temp. (oC)	D.O. (mg/L)	pH	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)	Other Notes
1125	-	-	11.45	-	-	-	-	-	-	-	Initial Reading.
1135	-	-	11.55	.1	-	-	-	-	-	-	YSI Filled.
1150	1.	300	11.55	-	15.53	1.49	7.72	127.7	507	34.4	
1155	1.5	300	11.55	-	15.35	1.09	7.73	121.9	504	33.5	
1200	1.75	300	11.55	-	15.41	0.94	7.70	118.2	504	27.36	1
1205	2	300	11.55	-	15.58	0.35	7.73	114.7	506	27.63	2
1210	2.3	300	11.55	-	15.59	0.72 *	7.69	112.6	508	29.1	3
1215	2.6	300	11.55	-	15.41	0.67	7.63	110.5	507	32.23	1
1220	3	300	11.55	-	15.35	0.61	7.63	108.6	511	29.49	2
1225	3.3	300	11.55	-	15.30	0.59	7.62	106.3	513	27.97	3
1230	3.6	300	11.55	-	15.31	0.55	7.67	105.9	513	26.19	
											Sample collected.
Stabilization Parameters (3 consecutive readings)				+/- 0.3 feet (not mandatory)	3%	10% or 3 consecutive <0.5 mg/L	+0.1 units	+10 mV	3%	10% or 3 consecutive <5 NTU	

Equipment Used:
459, Peristaltic pump. Approx 13' tubing.
Purging Method

Notes:
Complete separate sheet for each sampled well
Purge rate should be maintained below 200 mL/minute

Sample MW-1 @ 1230

NV5

Low Flow Groundwater Sampling Data Sheet

Project No. BigBeams I-04 (Task 05 & Task 08)
Site Name Former Astoria Warehousing
NV5 Personnel ADD
Date April 27th 2023
Well I.D. MW-2
Well Depth (ft BGS) 19.0

Approx

Time	Purge Volume (gallons)	Purge Rate (mL/min)	Depth to Water (feet BTOC)	Drawdown (feet)	Temp. (oC)	D.O. (mg/L)	pH	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)	Other Notes
1500	—	—	12.63	.33 from s.m.	—	—	—	—	—	—	Initial Reading
1515	—	—	12.8	.17	—	—	—	—	—	—	YSI filled.
1520	.5	350	12.8	—	15.22	2.15	9.56	77.4	553	1.1	1
1525	.75	350	12.8	—	15.24	1.37	9.4	73.4	551	5.0	1 (Turbidity Cal)
1530	1.25	350	12.8	—	15.26	1.00	9.45	65.5	548	0.1	1
1535	1.75	350	12.8	—	15.28	.88	9.44	61.8	547	0.1	2
1540	2.25	350	12.8	—	15.28	.81	9.39	59.8	547	0.1	3
1545	2.75	350	12.8	—	15.30	.73	9.36	57.8	547	0.1	.
1550	3.25	—	—	—	—	—	—	—	—	0.1	Sample Collected
Stabilization Parameters (3 Consecutive Readings)				<0.3 feet (not mandatory)	3%	10% or 3 consecutive <0.3 mg/L	±0.1 units	±10 mV	3%	10% or 3 consecutive <5 NTU	

Equipment Used:
YSI, Peristaltic Pump. Approx 15ft tubing, 13ft in well
Purging Method

Notes
Complete separate sheet for each sampled well
Purge rate should be maintained below 200 mL/minute

Sample MW-2 @ 1550

NV5

Low-Flow Groundwater Sampling Data Sheet

Project No. BigBeams 1-04 (Task 05 & Task 08)
Site Name Former Astoria Warehousing
NV5 Personnel ADD
Date April 27th, 2023
Well I.D. MW-3
Well Depth (ft BGS) 18.6

Time	Purge Volume (gallons)	Purge Rate (mL/min)	Depth to Water (Feet BTOC)	Drawdown (feet)	Temp. (oC)	D.O. (mg/L)	pH	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)	Other Notes
1200	—	—	7.55'	—	—	—	—	—	—	—	Initial Reading
1205	—	450	7.67	0.12	12.81	7.66	10.82	105.6	406	59	YSI 7.11.d.
1210	.6	450	7.67	—	12.70	2.77	10.34	111.2	403	44.2	1
1215	1.2	450	7.67	—	12.68	2.0	10.08	103.8	402	30.3	1
1220	1.8	450	7.67	—	12.68	1.70	9.97	95.9	400	42.2	1
1225	2.4	450	7.67	—	12.67	1.56	9.82	95.2	401	40.5	2
1230	3.0	450	7.67	—	12.72	1.21	9.62	94.7	402	22.8*	1
1235	3.6	450	7.67	—	12.75	1.23	9.61	89.5	401	44.9*	1
1240	4.2	450	7.67	—	12.75	1.03	9.56	86.6	401	46.3	2
1245	4.8	450	7.67	—	12.78	0.99	9.55	87.9	401	45.4	3 - Sample
Stabilization Parameters (3 consecutive readings)				~0.3 feet (not mandatory)	3%	10% of 3 consecutive <0.5 mg/L	±0.1 units	~10 mV	3%	10% of 3 consecutive <5 NTU	

Equipment Used:
YSI. Peristaltic Pump. Approx 12' of tubing.

Purging Method
3+ gallons / See turbidity.

Notes
Complete separate sheet for each sampled well
Purge rate should be maintained below 200 mL/minute

Sample MW-3 collected @ 1245.

NV5

Low-Flow Groundwater Sampling Data Sheet

Project No. BigBeams-I-04 (Task 05 & Task 08)
Site Name Former Astoria Warehousing
NV5 Personnel ADD
Date April 28th, 2023
Well I.D. MW-4
Well Depth (ft BGS) 18.8

Time	Purge Volume (gallons)	Purge Rate (mL/min)	Depth to Water (feet BTOC)	Drawdown (feet)	Temp. (oC)	D.O. (mg/L)	pH	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)	Other Notes
1310	–	–	11.3	–	–	–	–	–	–	–	Initial Reading.
1325	–	200	12.0	.7	–	–	–	–	–	–	YSI Filed
1330	.25	200	12.1	.1	–	–	–	–	–	–	Equilibrium recharge.
1345	1	200	12.1	–	13.39	2.52	8.09	98.3	589	17.07	
1350	1.25	200	12.1	–	13.38	1.94 *	8.09	92.4	579	17.6	1
1355	1.5	200	12.05	.05	13.39	1.92	8.1	89.4	572	18.9	2
1400	1.75	200	12.05	–	13.38	1.59 *	8.07	87.4	560	17.6	1
1405	2.0	200	12.05	–	13.4	1.41	8.1	81.5	544	17.2	1
1410	2.25	200	12.05	–	13.39	1.32	8.06	81.4	537	17.4	2
1415	2.5	200	12.05	–	13.4	1.17 *	8.07	78.6	520*	16.8	3
1420	2.75	200	12.05	–	13.4	1.00	8.05	78.1	511	20.5	
1425	3	200	12.05	–	13.38	.92	8.05	76.5	504	19.1	
1430	3.25	200	12.05	–	13.39	.97	7.99	78.5	488	16.5	YSI Restart
1435	3.5	200	12.05	–	13.38	.99	7.98	76.9	482	16.3	
1440	3.75	200	12.05	–	13.38	.97	7.94	78.0	476	15.35	Sample Collected.
Stabilization Parameters (3 consecutive readings)				<0.3 feet (not mandatory)	±1	10% or 3 consecutive <0.5 mg/L	±0.1 units	±10 mV	3%	10% or 3 consecutive <5 NTU	

Equipment Used:
YSI, Peristaltic Pump, Approx 13' tubing.
Purging Method

Notes:
Complete separate sheet for each sampled well
Purge rate should be maintained below 200 mL/minute

Sample MW-4 @ 1440

NV5

Low-Flow Groundwater Sampling Data Sheet

Project No.	BigBeams 1-04 (Task 05 & Task 08)
Site Name	Former Astoria Warehousing
NV5 Personnel	ADD
Date	April 27th, 2023
Well I.D.	MW-5
Well Depth (ft BGS)	19.2

Time	Purge Volume (gallons)	Purge Rate (mL/min)	Depth to Water (feet BTOC)	Drawdown (feet)	Temp. (oC)	D.O. (mg/L)	pH	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)	Other Notes
1315	—	—	8.65	—	—	—	—	—	—	—	Initial Reading
1335	—	475	8.8	0.15	—	—	—	—	—	—	339 filled.
1340	0.6	475	8.8	—	13.82	3.75	9.55	125.2	298	0.5	1
1345	1.2	475	8.8	—	13.69	2.85	9.39	120.4	294	0.2	2
1350	1.8	475	8.8	—	13.69	1.69 *	9.21	111.2	293	0.1	1
1355	2.4	475	8.8	—	13.66	1.59	9.11	109.7	292	0.1	2
1400	3.0	475	8.8	—	13.67	1.60	9.04	106.9	292	0.1	3
1405	3.6	475	8.8	—	13.67	1.59	9.01	106.2	293	0.1	Sample Collected.
Stabilization Parameters (3 consecutive readings)				<0.3 feet (not mandatory)	3%	10% or 3 consecutive <0.5 mg/L	±0.1 units	±10 mV	3%	10% or 3 consecutive <5 NTU	

Equipment Used: 339, Peristaltic Pump, ... 12 ft tubing

Purging Method

Notes:
Complete separate sheet for each sampled well
Purge rate should be maintained below 200 mL/minute

Sample MW-5 @ 1405

NV5

Low-Flow Groundwater Sampling Data Sheet

Project No. BigBeams-1-04 (Task 05 & Task 08)
Site Name Former Astoria Warehousing
NV5 Personnel ADD
Date April 27th, 2023
Well I.D MW-6
Well Depth (ft BGS) 25.5

Approx.

Time	Purge Volume (gallons)	Purge Rate (mL/min)	Depth to Water (feet BTOC)	Drawdown (feet)	Temp. (oC)	D.O (mg/L)	pH	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)	Other Notes
1635	—	—	11.42	—	—	—	—	—	—	—	Initial Reading.
1645	—	—	11.65	.23	—	—	—	—	—	—	YSI 9 Filled
1650	.5	350	11.65	—	13.44	4.0	8.50	106.9	517	0.2	
1655	1	350	11.65	—	13.37	1.88	8.61	95.6	512	0.1	1
1700	1.25	350	11.65	—	13.35	1.32*	8.68	86.5*	508	0.1	1
1705	1.5	350	11.65	—	13.36	1.15	8.72	81.1	506	0.1	2
1710	1.75	350	11.65	—	13.33	0.95*	8.65	79.6	504	0.1	1
1715	2.2	350	11.65	—	13.33	0.94	8.58	79.5	504	0.1	2
1720	2.7	350	11.65	—	13.30	0.74*	8.56	76.6	502	0.1	1
1725	3	350	11.65	—	13.32	0.70	8.59	72.0	500	0.1	2
1730	3.25	350	11.65	—	13.32	0.65	8.58	71.0	499	0.1	Sample Collected.
Stabilization Parameters (3 consecutive readings)				<0.1 feet (not mandatory)	3%	10% or 3 consecutive <0.5 mg/L	+0.1 units	+10 mV	3%	10% or 3 consecutive <5 NTU	

Equipment Used:
YSI, Peristaltic Pump, Approx 15' of tubing.

Purging Method

Notes
Complete separate sheet for each sampled well
Purge rate should be maintained below 200 mL/minute

Sample MW-6 @ 1730

NV5

Low-Flow Groundwater Sampling Data Sheet

Project No. BigBeams-1-04 (Task 05 & Task 08)
Site Name Former Astoria Warehousing
NV5 Personnel ADD
Date April 28th, 2023
Well I.D. MW-7
Well Depth (ft BGS) 25.3

Time	Purge Volume (gallons)	Purge Rate (mL/min)	Depth to Water (feet BTOC)	Drawdown (feet)	Temp. (oC)	D.O. (mg/L)	pH	ORP (mV)	Specific Conductance (uS/cm)	Turbidity (NTU)	Other Notes
0945	-	-	10.9'	-	-	-	-	-	-	-	Initial Reading
1000	-	450	11.75	0.85	-	-	-	-	-	53	YSI Filled
1005	0.6	450	11.85	0.1	14.65	2.05	9.13	135.1	842	20.6	Drawdown Equalized.
1010	1.2	450	11.85	-	14.66	1.71	9.20	123.4	772	22.06	1
1015	1.8	450	11.85	-	14.74 *	1.31 *	9.23	108.5 *	730	21.45	1
1020	2.4	450	11.85	-	14.77	1.04 *	9.17	99.8	692	22.74	-
1025	3.0	300	11.65	+.2	14.90	0.87	9.14	88.1	679	36.1	1
1030	3.3	300	11.65	-	14.96	0.81	9.10	85.8	671	26.4 *	1
1035	3.6	300	11.65	-	14.99	0.71	8.92	83.2	658	39.36	1
1040	3.9	300	11.65	-	14.98	0.69	8.87	81.1	654	36.3	2
1045	4.2	300	11.65	-	15.00	0.64	8.83	80.6	650	34.1	3
1050	4.5	300	11.65	-	14.94	0.61	8.79	77.3	647	37.7	Sample Collected
Stabilization Parameters (3 consecutive readings)				+/- 1 foot (not mandatory)	3%	10% or 3 consecutive <0.5 mg/L	+/- 0.1 units	+10 mV	3%	10% or 3 consecutive <5 NTU	

Equipment Used:
YSI, Peristaltic pump, Approx 14' Tubing
Purging Method

Notes:
Complete separate sheet for each sampled well
Purge rate should be maintained below 200 mL/minute

Sample MW-7 @ 1050

NV5

Low-Flow Groundwater Sampling Data Sheet

Project No. BigBeams 1-04 (Task 05 & Task 08)
Site Name Former Astoria Warehousing
NV5 Personnel ADD
Date Jan. 12th, 2023
Well I.D. MW-8
Well Depth (ft BGS) 25.3

Time	Purge Volume (gallons)	Purge Rate (mL/min)	Depth to Water (feet BTOC)	Drawdown (feet)	Temp. (oC)	D.O. (mg/L)	pH	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)	Other Notes
1520	—	—	10.8	—	—	—	—	—	—	—	Initial.
1530	—	200	10.8	—	—	—	—	—	—	—	YSI Filled
1545	1.0	200	10.81	-0.01	12.95	1.21	7.25	136.0	413	14.0	1
1550	1.25	200	10.81	—	12.89	1.02	7.27	132.7	420	13.67	-
1600	1.75	200	10.81	—	12.81	.77	7.36	124.5	427	12.38	1
1605	2	200	10.81	—	12.80	.67	7.38	120.5	428	10.6	2
1610	2.25	200	10.81	—	12.92	.66	7.43	115.6	432	10.2	3
1615	2.5	200	10.81	—	13.03	.61	7.45	111.7	436	10.3	1
1620	2.75	200	10.81	-	13.05	.49	7.44	107.2	442	8.65	1
1625	3.	200	10.81	-	13.00	.49	7.44	105.4	441	8.9	2
1630	3.25	200	10.81	-	13.00	.48	7.41	105.7	443	8.16	3 Sample Collected.
Stabilization Parameters (3 consecutive readings)				+0.3 feet (not mandatory)	3%	10% or 3 consecutive <0.5 mg/L	+0.1 units	+10 mV	3%	10% or 3 consecutive <5 NTU	

Equipment Used:
YSI, Peristaltic Pump, Approx 1/4" tubing.
Purging Method

Notes
Complete separate sheet for each sampled well
Purge rate should be maintained below 200 mL/minute

Sample MW-8 @ 1630 / Sock changed.

NV5

SUB-SLAB VAPOR SAMPLING DATA COLLECTION

April 26th, 2023

Project No. BigBeams-1-04-05 (also see T08)

Site Name Former Astoria Warehousing

Site Address 70 W Marine Drive, Astoria, Oregon

NV5 Personnel · Andre D. DeJonge

Weather · Ext - Clear/Sunny/56°

Barometric Pressure (inHg): 30.18 Hg

PID Reading=Leak check

Probe I.D.	Canister I.D.	Manifold I.D.	PID Reading (ppm)	Purge Rate (mL/min)	Purge* Volume (mL)	Start Vacuum (inHg)	End Vacuum (inHg)	Start Time	End Time	Notes/Leak Check Used
VP-3	6L1208	24321	0.5	100	300	29.4	4	1200	1235	Isopropyl Alcohol-70%
VP-2	6L0779	23786	0.1	100	300	29.9	4	1245	1320	"
VP-1	6L2950	24146	0.0	100	300	29.8	4	1330	1410	"
VP-4	6L2308	23477	9.7	100	300	29.9	4	1425	1505	"

*(SEE SEPARATE PURGE CALCS W/ PID.)

NV5

REFERENCES / NOTES

SUB-SLAB VAPOR SAMPLING

PFA TUBING - ¼" NOMINAL (O.D.)
0.1875" I.D → (DIA = 0.0296 in²)
LENGTH ~ 24" (typical)
∴ TUBING VOL. = 0.663 in³

MANIFOLD - ¼" STAINLESS SWAGELOK
0.152" I.D. → DIA = 0.0181 in²
LENGTH ~ 18" (w/ PURGE TEE)
ADD 10% FOR FITTINGS
∴ MANIFOLD VOL = 0.362 in³

TOTAL DEAD VOLUME = (0.663 + 0.362) in³ = 1.025 in³
= 16.8 mL

∴ 3 DEAD VOLUMES ≈ 50 mL

FOR PID PUMP Q 100 mL/min → 50/100 = 0.5 min
= 30 sec.

EACH PID READING COLLECTED AT ≥ 30 SECONDS PURGE TIME OR UNTIL READINGS STABILIZED, ACHIEVING REQUIRED ~ 3 DEAD VOLUMES

DATE CHECKED	CHECKED BY	JOB NUMBER	BY	DATE	CALC. NO.	SHEET NO.
		BIG BEAMS-1-04	EAH/ADD	APR. 2023	—	1 / 1

PROJECT	SUBJECT
ASTORIA WAREHOUSING	VAPOR PURGE CALC.

INDOOR AIR SAMPLING DATA COLLECTION

NV5

Project No. BigBeams-1-04-05 (also see T08)

Site Name Former Astoria Warehousing

Site Address 70 W Marine Drive, Astoria, Oregon

NV5 Personnel A.D.D

Weather Clear - Sunny 60°

Start and End Barometric Pressure (inHg): 30.18 Hg /

Sample I.D.	Radeillo I.D.	Start Date	Start Time	Starting Temperature (°F)	End Date	End Time	End Temperature (°F)	Notes
Indoor-1	QX993	042623	1545		051023	1245		
Indoor-2	RG957	"	1550		"	1247	Interior Temp = 68°	
Indoor-3	RG958	"	1555		"	1251		
Indoor-4	RG959	"	1600		"	1253		Cold Room.
Indoor-5	RG960	"	1605		"	1257		
Indoor-6	RG961	"	1610		"	1255		
Indoor-7	RG962	"	1615		"	1250		
Background	RG963	"	1630	60°	"	1300	61°	

Riverbank Observations
Former Astoria Warehousing Site
70 West Marine Drive
Astoria, Oregon

Date	Time	Weather	Columbia River Water Level During Inspection*	Time from Low Tide	Seep? (slight, moderate, heavy)	Petroleum like sheen? (slight, moderate, or heavy)	Notes (boom, absorbent pad, etc.)
4/27/23	10:00 to 10:20	P. CLOUDY	4.97	~2 HRS (RISING)	NONE	NONE	N/A
4/28/23	1700 to 1720	CLOUDY	4.93	~5 HRS (FALLING)	NONE	NONE	N/A @ DEPARTURE

Notes:
1. Water levels obtained from NOAA observation station 9439040 in Astoria, Oregon using NAVD88 Datum.

(COMPLETED BY EAH PER CONVO W/ ADD.)

ATTACHMENT B

ATTACHMENT B

CHEMICAL ANALYTICAL PROGRAM

GENERAL

Chain-of-custody procedures were followed during handling and transport of the sub-slab vapor, groundwater, and air samples to the analytical laboratories. The laboratories hold the samples in cold storage pending extraction and/or analysis. The analytical results, analytical methods reference, and laboratory QC records are included in this attachment. The analytical results are also summarized in the tables of this report.

REVIEW OF ANALYTICAL DATA

The analytical laboratories used for this project maintain internal quality assurance programs consisting of a combination of the following:

Blanks: Blanks are laboratory-prepared water samples that are free of contaminants. The blanks are carried through the analysis procedure along with the field samples to document that contaminants were not introduced to the samples during sample handling and analysis.

Surrogate Recoveries: Surrogates are organic compounds that are similar in nature to the analytes of concern but are not normally found in nature. The surrogates are added to QC and field samples prior to analysis. The percent recovery of the surrogate is calculated to demonstrate acceptable method performance.

Duplicates: Duplicates are obtained by splitting a sample into two parts. The two separate parts are carried through the analyses. The analytical results are then compared by calculating the RPD between the samples.

MS/MSD Recoveries: An MS sample is a sample that has been split into a second portion. The MSD is obtained by further splitting the MS sample. A known concentration of the analyte of interest is added to the MS and MSD samples. The analytical results for both samples are then compared for RPD and percent recovery to demonstrate acceptable method performance.

BS/BSD Recoveries: BS and BSD samples are obtained and analyzed in the same procedure as the MS/MSD samples; however, the laboratory blank sample is used to obtain the BS/BSD samples. The percent recovery and RPD of the known concentration of analyte of interest added to the BS/BSD sample is calculated after chemical analyses to demonstrate acceptable method performance.

SUMMARY OF ANALYTICAL DATA REVIEW

NV5 reviewed the attached analytical data reports for data quality exceptions and deviations from acceptable method performance criteria. Based on our review of the analytical reports, the analytical data appear acceptable for their intended use.

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Analytical Report

5/11/2023
Mr. Erik Hedberg
NV5, Inc. Company
9450 SW Commerce Circle
Suite 300
Wilsonville OR 97070

Project Name: Former Astoria Warehousing
Project #: BigBeams-1-04
Workorder #: 2305094

Dear Mr. Erik Hedberg

The following report includes the data for the above referenced project for sample(s) received on 5/2/2023 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Monica Tran at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Monica Tran

Project Manager

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WORK ORDER #: 2305094

Work Order Summary

CLIENT:	Mr. Erik Hedberg NV5, Inc. Company 9450 SW Commerce Circle Suite 300 Wilsonville, OR 97070	**BILL TO:**	Mr. Erik Hedberg NV5, Inc. Company 9450 SW Commerce Circle Suite 300 Wilsonville, OR 97070
PHONE:	503-968-8787	**P.O. #**	BigBeams-1-04
FAX:		**PROJECT #**	BigBeams-1-04 Former Astoria Warehousing
DATE RECEIVED:	05/02/2023	**CONTACT:**	Monica Tran
DATE COMPLETED:	05/11/2023		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	VP-3	TO-15	5.5 "Hg	2 psi
02A	VP-2	TO-15	4.5 "Hg	2 psi
03A	VP-1	TO-15	3.5 "Hg	2 psi
04A	VP-4	TO-15	5.0 "Hg	2 psi
05A	Lab Blank	TO-15	NA	NA
06A	CCV	TO-15	NA	NA
07A	LCS	TO-15	NA	NA
07AA	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 05/11/23

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA ELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program) CA300005-017
Eurofins Environment Testing Northern California, LLC certifies that the test results contained in this report meet all requirements of the 2016 TNI Standard.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
NV5, Inc. Company
Workorder# 2305094

Four 6 Liter Summa Canister samples were received on May 02, 2023. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

A single point calibration for TPH referenced to Gasoline was performed for each daily analytical batch. Recovery is reported as 100% in the associated results for each CCV.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: VP-3

Lab ID#: 2305094-01A

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	0.0070	0.021	13	39
Cyclohexane	0.00070	0.00089	2.4	3.1
2,2,4-Trimethylpentane	0.00070	0.022	3.2	100
TPH ref. to Gasoline (MW=100)	0.070	0.27	280	1100

Client Sample ID: VP-2

Lab ID#: 2305094-02A

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	0.0067	0.027	13	51
Tetrachloroethene	0.00067	0.0024	4.5	16

Client Sample ID: VP-1

Lab ID#: 2305094-03A

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	0.0064	0.013	12	25

Client Sample ID: VP-4

Lab ID#: 2305094-04A

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	0.00068	0.00096	3.6	5.2
Tetrachloroethene	0.00068	0.13	4.6	900

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Client Sample ID: VP-3

Lab ID#: 2305094-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051009**	**Date of Collection:**	**4/26/23 12:35:00 PM**
Dil. Factor:	**1.39**	**Date of Analysis:**	**5/10/23 03:15 PM**

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.00070	Not Detected	3.4	Not Detected
Freon 114	0.00070	Not Detected	4.8	Not Detected
Chloromethane	0.0070	Not Detected	14	Not Detected
Vinyl Chloride	0.00070	Not Detected	1.8	Not Detected
1,3-Butadiene	0.00070	Not Detected	1.5	Not Detected
Bromomethane	0.0070	Not Detected	27	Not Detected
Chloroethane	0.0028	Not Detected	7.3	Not Detected
Freon 11	0.00070	Not Detected	3.9	Not Detected
Ethanol	0.0070	0.021	13	39
Freon 113	0.00070	Not Detected	5.3	Not Detected
1,1-Dichloroethene	0.00070	Not Detected	2.8	Not Detected
Acetone	0.0070	Not Detected	16	Not Detected
2-Propanol	0.0028	Not Detected	6.8	Not Detected
Carbon Disulfide	0.0028	Not Detected	8.6	Not Detected
3-Chloropropene	0.0028	Not Detected	8.7	Not Detected
Methylene Chloride	0.0070	Not Detected	24	Not Detected
Methyl tert-butyl ether	0.0028	Not Detected	10	Not Detected
trans-1,2-Dichloroethene	0.00070	Not Detected	2.8	Not Detected
Hexane	0.00070	Not Detected	2.4	Not Detected
1,1-Dichloroethane	0.00070	Not Detected	2.8	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.0028	Not Detected	8.2	Not Detected
cis-1,2-Dichloroethene	0.00070	Not Detected	2.8	Not Detected
Tetrahydrofuran	0.00070	Not Detected	2.0	Not Detected
Chloroform	0.00070	Not Detected	3.4	Not Detected
1,1,1-Trichloroethane	0.00070	Not Detected	3.8	Not Detected
Cyclohexane	0.00070	0.00089	2.4	3.1
Carbon Tetrachloride	0.00070	Not Detected	4.4	Not Detected
2,2,4-Trimethylpentane	0.00070	0.022	3.2	100
Benzene	0.00070	Not Detected	2.2	Not Detected
1,2-Dichloroethane	0.00070	Not Detected	2.8	Not Detected
Heptane	0.00070	Not Detected	2.8	Not Detected
Trichloroethene	0.00070	Not Detected	3.7	Not Detected
1,2-Dichloropropane	0.00070	Not Detected	3.2	Not Detected
1,4-Dioxane	0.0028	Not Detected	10	Not Detected
Bromodichloromethane	0.00070	Not Detected	4.6	Not Detected
cis-1,3-Dichloropropene	0.00070	Not Detected	3.2	Not Detected
4-Methyl-2-pentanone	0.00070	Not Detected	2.8	Not Detected
Toluene	0.0014	Not Detected	5.2	Not Detected
trans-1,3-Dichloropropene	0.00070	Not Detected	3.2	Not Detected
1,1,2-Trichloroethane	0.00070	Not Detected	3.8	Not Detected
Tetrachloroethene	0.00070	Not Detected	4.7	Not Detected
2-Hexanone	0.0028	Not Detected	11	Not Detected

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Client Sample ID: VP-3

Lab ID#: 2305094-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051009**	**Date of Collection: 4/26/23 12:35:00 PM**	
Dil. Factor:	**1.39**	**Date of Analysis: 5/10/23 03:15 PM**	

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.00070	Not Detected	5.9	Not Detected
1,2-Dibromoethane (EDB)	0.00070	Not Detected	5.3	Not Detected
Chlorobenzene	0.00070	Not Detected	3.2	Not Detected
Ethyl Benzene	0.00070	Not Detected	3.0	Not Detected
m,p-Xylene	0.0014	Not Detected	6.0	Not Detected
o-Xylene	0.00070	Not Detected	3.0	Not Detected
Styrene	0.00070	Not Detected	3.0	Not Detected
Bromoform	0.00070	Not Detected	7.2	Not Detected
Cumene	0.00070	Not Detected	3.4	Not Detected
1,1,2,2-Tetrachloroethane	0.00070	Not Detected	4.8	Not Detected
Propylbenzene	0.00070	Not Detected	3.4	Not Detected
4-Ethyltoluene	0.00070	Not Detected	3.4	Not Detected
1,3,5-Trimethylbenzene	0.00070	Not Detected	3.4	Not Detected
1,2,4-Trimethylbenzene	0.00070	Not Detected	3.4	Not Detected
1,3-Dichlorobenzene	0.00070	Not Detected	4.2	Not Detected
1,4-Dichlorobenzene	0.00070	Not Detected	4.2	Not Detected
alpha-Chlorotoluene	0.00070	Not Detected	3.6	Not Detected
1,2-Dichlorobenzene	0.00070	Not Detected	4.2	Not Detected
1,2,4-Trichlorobenzene	0.0028	Not Detected	21	Not Detected
Hexachlorobutadiene	0.0028	Not Detected	30	Not Detected
TPH ref. to Gasoline (MW=100)	0.070	0.27	280	1100

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	110	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: VP-2

Lab ID#: 2305094-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051010**	**Date of Collection:**	**4/26/23 1:20:00 PM**
Dil. Factor:	**1.34**	**Date of Analysis:**	**5/10/23 03:43 PM**

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.00067	Not Detected	3.3	Not Detected
Freon 114	0.00067	Not Detected	4.7	Not Detected
Chloromethane	0.0067	Not Detected	14	Not Detected
Vinyl Chloride	0.00067	Not Detected	1.7	Not Detected
1,3-Butadiene	0.00067	Not Detected	1.5	Not Detected
Bromomethane	0.0067	Not Detected	26	Not Detected
Chloroethane	0.0027	Not Detected	7.1	Not Detected
Freon 11	0.00067	Not Detected	3.8	Not Detected
Ethanol	0.0067	0.027	13	51
Freon 113	0.00067	Not Detected	5.1	Not Detected
1,1-Dichloroethene	0.00067	Not Detected	2.6	Not Detected
Acetone	0.0067	Not Detected	16	Not Detected
2-Propanol	0.0027	Not Detected	6.6	Not Detected
Carbon Disulfide	0.0027	Not Detected	8.3	Not Detected
3-Chloropropene	0.0027	Not Detected	8.4	Not Detected
Methylene Chloride	0.0067	Not Detected	23	Not Detected
Methyl tert-butyl ether	0.0027	Not Detected	9.7	Not Detected
trans-1,2-Dichloroethene	0.00067	Not Detected	2.6	Not Detected
Hexane	0.00067	Not Detected	2.4	Not Detected
1,1-Dichloroethane	0.00067	Not Detected	2.7	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.0027	Not Detected	7.9	Not Detected
cis-1,2-Dichloroethene	0.00067	Not Detected	2.6	Not Detected
Tetrahydrofuran	0.00067	Not Detected	2.0	Not Detected
Chloroform	0.00067	Not Detected	3.3	Not Detected
1,1,1-Trichloroethane	0.00067	Not Detected	3.6	Not Detected
Cyclohexane	0.00067	Not Detected	2.3	Not Detected
Carbon Tetrachloride	0.00067	Not Detected	4.2	Not Detected
2,2,4-Trimethylpentane	0.00067	Not Detected	3.1	Not Detected
Benzene	0.00067	Not Detected	2.1	Not Detected
1,2-Dichloroethane	0.00067	Not Detected	2.7	Not Detected
Heptane	0.00067	Not Detected	2.7	Not Detected
Trichloroethene	0.00067	Not Detected	3.6	Not Detected
1,2-Dichloropropane	0.00067	Not Detected	3.1	Not Detected
1,4-Dioxane	0.0027	Not Detected	9.6	Not Detected
Bromodichloromethane	0.00067	Not Detected	4.5	Not Detected
cis-1,3-Dichloropropene	0.00067	Not Detected	3.0	Not Detected
4-Methyl-2-pentanone	0.00067	Not Detected	2.7	Not Detected
Toluene	0.0013	Not Detected	5.0	Not Detected
trans-1,3-Dichloropropene	0.00067	Not Detected	3.0	Not Detected
1,1,2-Trichloroethane	0.00067	Not Detected	3.6	Not Detected
Tetrachloroethene	0.00067	0.0024	4.5	16
2-Hexanone	0.0027	Not Detected	11	Not Detected

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Client Sample ID: VP-2

Lab ID#: 2305094-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051010**	**Date of Collection:**	**4/26/23 1:20:00 PM**
Dil. Factor:	**1.34**	**Date of Analysis:**	**5/10/23 03:43 PM**

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.00067	Not Detected	5.7	Not Detected
1,2-Dibromoethane (EDB)	0.00067	Not Detected	5.1	Not Detected
Chlorobenzene	0.00067	Not Detected	3.1	Not Detected
Ethyl Benzene	0.00067	Not Detected	2.9	Not Detected
m,p-Xylene	0.0013	Not Detected	5.8	Not Detected
o-Xylene	0.00067	Not Detected	2.9	Not Detected
Styrene	0.00067	Not Detected	2.8	Not Detected
Bromoform	0.00067	Not Detected	6.9	Not Detected
Cumene	0.00067	Not Detected	3.3	Not Detected
1,1,2,2-Tetrachloroethane	0.00067	Not Detected	4.6	Not Detected
Propylbenzene	0.00067	Not Detected	3.3	Not Detected
4-Ethyltoluene	0.00067	Not Detected	3.3	Not Detected
1,3,5-Trimethylbenzene	0.00067	Not Detected	3.3	Not Detected
1,2,4-Trimethylbenzene	0.00067	Not Detected	3.3	Not Detected
1,3-Dichlorobenzene	0.00067	Not Detected	4.0	Not Detected
1,4-Dichlorobenzene	0.00067	Not Detected	4.0	Not Detected
alpha-Chlorotoluene	0.00067	Not Detected	3.5	Not Detected
1,2-Dichlorobenzene	0.00067	Not Detected	4.0	Not Detected
1,2,4-Trichlorobenzene	0.0027	Not Detected	20	Not Detected
Hexachlorobutadiene	0.0027	Not Detected	28	Not Detected
TPH ref. to Gasoline (MW=100)	0.067	Not Detected	270	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: VP-1

Lab ID#: 2305094-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051011**	**Date of Collection:**	**4/26/23 2:10:00 PM**
Dil. Factor:	**1.29**	**Date of Analysis:**	**5/10/23 04:12 PM**

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.00064	Not Detected	3.2	Not Detected
Freon 114	0.00064	Not Detected	4.5	Not Detected
Chloromethane	0.0064	Not Detected	13	Not Detected
Vinyl Chloride	0.00064	Not Detected	1.6	Not Detected
1,3-Butadiene	0.00064	Not Detected	1.4	Not Detected
Bromomethane	0.0064	Not Detected	25	Not Detected
Chloroethane	0.0026	Not Detected	6.8	Not Detected
Freon 11	0.00064	Not Detected	3.6	Not Detected
Ethanol	0.0064	0.013	12	25
Freon 113	0.00064	Not Detected	4.9	Not Detected
1,1-Dichloroethene	0.00064	Not Detected	2.6	Not Detected
Acetone	0.0064	Not Detected	15	Not Detected
2-Propanol	0.0026	Not Detected	6.3	Not Detected
Carbon Disulfide	0.0026	Not Detected	8.0	Not Detected
3-Chloropropene	0.0026	Not Detected	8.1	Not Detected
Methylene Chloride	0.0064	Not Detected	22	Not Detected
Methyl tert-butyl ether	0.0026	Not Detected	9.3	Not Detected
trans-1,2-Dichloroethene	0.00064	Not Detected	2.6	Not Detected
Hexane	0.00064	Not Detected	2.3	Not Detected
1,1-Dichloroethane	0.00064	Not Detected	2.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.0026	Not Detected	7.6	Not Detected
cis-1,2-Dichloroethene	0.00064	Not Detected	2.6	Not Detected
Tetrahydrofuran	0.00064	Not Detected	1.9	Not Detected
Chloroform	0.00064	Not Detected	3.1	Not Detected
1,1,1-Trichloroethane	0.00064	Not Detected	3.5	Not Detected
Cyclohexane	0.00064	Not Detected	2.2	Not Detected
Carbon Tetrachloride	0.00064	Not Detected	4.0	Not Detected
2,2,4-Trimethylpentane	0.00064	Not Detected	3.0	Not Detected
Benzene	0.00064	Not Detected	2.1	Not Detected
1,2-Dichloroethane	0.00064	Not Detected	2.6	Not Detected
Heptane	0.00064	Not Detected	2.6	Not Detected
Trichloroethene	0.00064	Not Detected	3.5	Not Detected
1,2-Dichloropropane	0.00064	Not Detected	3.0	Not Detected
1,4-Dioxane	0.0026	Not Detected	9.3	Not Detected
Bromodichloromethane	0.00064	Not Detected	4.3	Not Detected
cis-1,3-Dichloropropene	0.00064	Not Detected	2.9	Not Detected
4-Methyl-2-pentanone	0.00064	Not Detected	2.6	Not Detected
Toluene	0.0013	Not Detected	4.9	Not Detected
trans-1,3-Dichloropropene	0.00064	Not Detected	2.9	Not Detected
1,1,2-Trichloroethane	0.00064	Not Detected	3.5	Not Detected
Tetrachloroethene	0.00064	Not Detected	4.4	Not Detected
2-Hexanone	0.0026	Not Detected	10	Not Detected

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Client Sample ID: VP-1

Lab ID#: 2305094-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051011**	**Date of Collection:**	**4/26/23 2:10:00 PM**
Dil. Factor:	**1.29**	**Date of Analysis:**	**5/10/23 04:12 PM**

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.00064	Not Detected	5.5	Not Detected
1,2-Dibromoethane (EDB)	0.00064	Not Detected	5.0	Not Detected
Chlorobenzene	0.00064	Not Detected	3.0	Not Detected
Ethyl Benzene	0.00064	Not Detected	2.8	Not Detected
m,p-Xylene	0.0013	Not Detected	5.6	Not Detected
o-Xylene	0.00064	Not Detected	2.8	Not Detected
Styrene	0.00064	Not Detected	2.7	Not Detected
Bromoform	0.00064	Not Detected	6.7	Not Detected
Cumene	0.00064	Not Detected	3.2	Not Detected
1,1,2,2-Tetrachloroethane	0.00064	Not Detected	4.4	Not Detected
Propylbenzene	0.00064	Not Detected	3.2	Not Detected
4-Ethyltoluene	0.00064	Not Detected	3.2	Not Detected
1,3,5-Trimethylbenzene	0.00064	Not Detected	3.2	Not Detected
1,2,4-Trimethylbenzene	0.00064	Not Detected	3.2	Not Detected
1,3-Dichlorobenzene	0.00064	Not Detected	3.9	Not Detected
1,4-Dichlorobenzene	0.00064	Not Detected	3.9	Not Detected
alpha-Chlorotoluene	0.00064	Not Detected	3.3	Not Detected
1,2-Dichlorobenzene	0.00064	Not Detected	3.9	Not Detected
1,2,4-Trichlorobenzene	0.0026	Not Detected	19	Not Detected
Hexachlorobutadiene	0.0026	Not Detected	28	Not Detected
TPH ref. to Gasoline (MW=100)	0.064	Not Detected	260	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	93	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: VP-4

Lab ID#: 2305094-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051021**	**Date of Collection:**	**4/26/23 3:05:00 PM**
Dil. Factor:	**1.36**	**Date of Analysis:**	**5/10/23 10:59 PM**

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.00068	Not Detected	3.4	Not Detected
Freon 114	0.00068	Not Detected	4.8	Not Detected
Chloromethane	0.0068	Not Detected	14	Not Detected
Vinyl Chloride	0.00068	Not Detected	1.7	Not Detected
1,3-Butadiene	0.00068	Not Detected	1.5	Not Detected
Bromomethane	0.0068	Not Detected	26	Not Detected
Chloroethane	0.0027	Not Detected	7.2	Not Detected
Freon 11	0.00068	Not Detected	3.8	Not Detected
Ethanol	0.0068	Not Detected	13	Not Detected
Freon 113	0.00068	Not Detected	5.2	Not Detected
1,1-Dichloroethene	0.00068	Not Detected	2.7	Not Detected
Acetone	0.0068	Not Detected	16	Not Detected
2-Propanol	0.0027	Not Detected	6.7	Not Detected
Carbon Disulfide	0.0027	Not Detected	8.5	Not Detected
3-Chloropropene	0.0027	Not Detected	8.5	Not Detected
Methylene Chloride	0.0068	Not Detected	24	Not Detected
Methyl tert-butyl ether	0.0027	Not Detected	9.8	Not Detected
trans-1,2-Dichloroethene	0.00068	Not Detected	2.7	Not Detected
Hexane	0.00068	Not Detected	2.4	Not Detected
1,1-Dichloroethane	0.00068	Not Detected	2.8	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.0027	Not Detected	8.0	Not Detected
cis-1,2-Dichloroethene	0.00068	Not Detected	2.7	Not Detected
Tetrahydrofuran	0.00068	Not Detected	2.0	Not Detected
Chloroform	0.00068	Not Detected	3.3	Not Detected
1,1,1-Trichloroethane	0.00068	Not Detected	3.7	Not Detected
Cyclohexane	0.00068	Not Detected	2.3	Not Detected
Carbon Tetrachloride	0.00068	Not Detected	4.3	Not Detected
2,2,4-Trimethylpentane	0.00068	Not Detected	3.2	Not Detected
Benzene	0.00068	Not Detected	2.2	Not Detected
1,2-Dichloroethane	0.00068	Not Detected	2.8	Not Detected
Heptane	0.00068	Not Detected	2.8	Not Detected
Trichloroethene	0.00068	0.00096	3.6	5.2
1,2-Dichloropropane	0.00068	Not Detected	3.1	Not Detected
1,4-Dioxane	0.0027	Not Detected	9.8	Not Detected
Bromodichloromethane	0.00068	Not Detected	4.6	Not Detected
cis-1,3-Dichloropropene	0.00068	Not Detected	3.1	Not Detected
4-Methyl-2-pentanone	0.00068	Not Detected	2.8	Not Detected
Toluene	0.0014	Not Detected	5.1	Not Detected
trans-1,3-Dichloropropene	0.00068	Not Detected	3.1	Not Detected
1,1,2-Trichloroethane	0.00068	Not Detected	3.7	Not Detected
Tetrachloroethene	0.00068	0.13	4.6	900
2-Hexanone	0.0027	Not Detected	11	Not Detected

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Client Sample ID: VP-4

Lab ID#: 2305094-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051021**	**Date of Collection:**	**4/26/23 3:05:00 PM**
Dil. Factor:	**1.36**	**Date of Analysis:**	**5/10/23 10:59 PM**

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.00068	Not Detected	5.8	Not Detected
1,2-Dibromoethane (EDB)	0.00068	Not Detected	5.2	Not Detected
Chlorobenzene	0.00068	Not Detected	3.1	Not Detected
Ethyl Benzene	0.00068	Not Detected	3.0	Not Detected
m,p-Xylene	0.0014	Not Detected	5.9	Not Detected
o-Xylene	0.00068	Not Detected	3.0	Not Detected
Styrene	0.00068	Not Detected	2.9	Not Detected
Bromoform	0.00068	Not Detected	7.0	Not Detected
Cumene	0.00068	Not Detected	3.3	Not Detected
1,1,2,2-Tetrachloroethane	0.00068	Not Detected	4.7	Not Detected
Propylbenzene	0.00068	Not Detected	3.3	Not Detected
4-Ethyltoluene	0.00068	Not Detected	3.3	Not Detected
1,3,5-Trimethylbenzene	0.00068	Not Detected	3.3	Not Detected
1,2,4-Trimethylbenzene	0.00068	Not Detected	3.3	Not Detected
1,3-Dichlorobenzene	0.00068	Not Detected	4.1	Not Detected
1,4-Dichlorobenzene	0.00068	Not Detected	4.1	Not Detected
alpha-Chlorotoluene	0.00068	Not Detected	3.5	Not Detected
1,2-Dichlorobenzene	0.00068	Not Detected	4.1	Not Detected
1,2,4-Trichlorobenzene	0.0027	Not Detected	20	Not Detected
Hexachlorobutadiene	0.0027	Not Detected	29	Not Detected
TPH ref. to Gasoline (MW=100)	0.068	Not Detected	280	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	112	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: Lab Blank

Lab ID#: 2305094-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051006**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/10/23 12:53 PM**	

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.00050	Not Detected	2.5	Not Detected
Freon 114	0.00050	Not Detected	3.5	Not Detected
Chloromethane	0.0050	Not Detected	10	Not Detected
Vinyl Chloride	0.00050	Not Detected	1.3	Not Detected
1,3-Butadiene	0.00050	Not Detected	1.1	Not Detected
Bromomethane	0.0050	Not Detected	19	Not Detected
Chloroethane	0.0020	Not Detected	5.3	Not Detected
Freon 11	0.00050	Not Detected	2.8	Not Detected
Ethanol	0.0050	Not Detected	9.4	Not Detected
Freon 113	0.00050	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.00050	Not Detected	2.0	Not Detected
Acetone	0.0050	Not Detected	12	Not Detected
2-Propanol	0.0020	Not Detected	4.9	Not Detected
Carbon Disulfide	0.0020	Not Detected	6.2	Not Detected
3-Chloropropene	0.0020	Not Detected	6.3	Not Detected
Methylene Chloride	0.0050	Not Detected	17	Not Detected
Methyl tert-butyl ether	0.0020	Not Detected	7.2	Not Detected
trans-1,2-Dichloroethene	0.00050	Not Detected	2.0	Not Detected
Hexane	0.00050	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.00050	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.0020	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.00050	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.00050	Not Detected	1.5	Not Detected
Chloroform	0.00050	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.00050	Not Detected	2.7	Not Detected
Cyclohexane	0.00050	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.00050	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.00050	Not Detected	2.3	Not Detected
Benzene	0.00050	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.00050	Not Detected	2.0	Not Detected
Heptane	0.00050	Not Detected	2.0	Not Detected
Trichloroethene	0.00050	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.00050	Not Detected	2.3	Not Detected
1,4-Dioxane	0.0020	Not Detected	7.2	Not Detected
Bromodichloromethane	0.00050	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.00050	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.00050	Not Detected	2.0	Not Detected
Toluene	0.0010	Not Detected	3.8	Not Detected
trans-1,3-Dichloropropene	0.00050	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.00050	Not Detected	2.7	Not Detected
Tetrachloroethene	0.00050	Not Detected	3.4	Not Detected
2-Hexanone	0.0020	Not Detected	8.2	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 2305094-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051006**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/10/23 12:53 PM**	

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.00050	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.00050	Not Detected	3.8	Not Detected
Chlorobenzene	0.00050	Not Detected	2.3	Not Detected
Ethyl Benzene	0.00050	Not Detected	2.2	Not Detected
m,p-Xylene	0.0010	Not Detected	4.3	Not Detected
o-Xylene	0.00050	Not Detected	2.2	Not Detected
Styrene	0.00050	Not Detected	2.1	Not Detected
Bromoform	0.00050	Not Detected	5.2	Not Detected
Cumene	0.00050	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.00050	Not Detected	3.4	Not Detected
Propylbenzene	0.00050	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.00050	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.00050	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.00050	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.00050	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.00050	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.00050	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.00050	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	0.0020	Not Detected	15	Not Detected
Hexachlorobutadiene	0.0020	Not Detected	21	Not Detected
TPH ref. to Gasoline (MW=100)	0.050	Not Detected	200	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: CCV

Lab ID#: 2305094-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051002**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 5/10/23 09:37 AM**

Compound	%Recovery
Freon 12	104
Freon 114	102
Chloromethane	125
Vinyl Chloride	104
1,3-Butadiene	103
Bromomethane	108
Chloroethane	108
Freon 11	108
Ethanol	94
Freon 113	98
1,1-Dichloroethene	92
Acetone	102
2-Propanol	107
Carbon Disulfide	97
3-Chloropropene	94
Methylene Chloride	119
Methyl tert-butyl ether	89
trans-1,2-Dichloroethene	90
Hexane	103
1,1-Dichloroethane	98
2-Butanone (Methyl Ethyl Ketone)	99
cis-1,2-Dichloroethene	88
Tetrahydrofuran	111
Chloroform	97
1,1,1-Trichloroethane	94
Cyclohexane	88
Carbon Tetrachloride	95
2,2,4-Trimethylpentane	107
Benzene	99
1,2-Dichloroethane	101
Heptane	90
Trichloroethene	95
1,2-Dichloropropane	96
1,4-Dioxane	95
Bromodichloromethane	96
cis-1,3-Dichloropropene	91
4-Methyl-2-pentanone	93
Toluene	98
trans-1,3-Dichloropropene	93
1,1,2-Trichloroethane	94
Tetrachloroethene	100
2-Hexanone	105

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Client Sample ID: CCV

Lab ID#: 2305094-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051002**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/10/23 09:37 AM**	

Compound	%Recovery
Dibromochloromethane	101
1,2-Dibromoethane (EDB)	98
Chlorobenzene	97
Ethyl Benzene	98
m,p-Xylene	96
o-Xylene	96
Styrene	95
Bromoform	110
Cumene	106
1,1,2,2-Tetrachloroethane	100
Propylbenzene	106
4-Ethyltoluene	106
1,3,5-Trimethylbenzene	99
1,2,4-Trimethylbenzene	95
1,3-Dichlorobenzene	102
1,4-Dichlorobenzene	98
alpha-Chlorotoluene	91
1,2-Dichlorobenzene	99
1,2,4-Trichlorobenzene	96
Hexachlorobutadiene	100
TPH ref. to Gasoline (MW=100)	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	118	70-130

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Client Sample ID: LCS

Lab ID#: 2305094-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051003**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/10/23 10:03 AM**	

Compound	%Recovery	Method Limits
Freon 12	98	70-130
Freon 114	99	70-130
Chloromethane	110	70-130
Vinyl Chloride	97	70-130
1,3-Butadiene	95	70-130
Bromomethane	101	70-130
Chloroethane	106	70-130
Freon 11	104	70-130
Ethanol	115	70-130
Freon 113	93	70-130
1,1-Dichloroethene	86	70-130
Acetone	101	70-130
2-Propanol	107	70-130
Carbon Disulfide	96	70-130
3-Chloropropene	90	70-130
Methylene Chloride	106	70-130
Methyl tert-butyl ether	83	70-130
trans-1,2-Dichloroethene	85	70-130
Hexane	97	70-130
1,1-Dichloroethane	91	70-130
2-Butanone (Methyl Ethyl Ketone)	94	70-130
cis-1,2-Dichloroethene	82	70-130
Tetrahydrofuran	116	70-130
Chloroform	93	70-130
1,1,1-Trichloroethane	93	70-130
Cyclohexane	87	70-130
Carbon Tetrachloride	96	70-130
2,2,4-Trimethylpentane	104	70-130
Benzene	94	70-130
1,2-Dichloroethane	96	70-130
Heptane	86	70-130
Trichloroethene	88	70-130
1,2-Dichloropropane	87	70-130
1,4-Dioxane	91	70-130
Bromodichloromethane	91	70-130
cis-1,3-Dichloropropene	86	70-130
4-Methyl-2-pentanone	89	70-130
Toluene	90	70-130
trans-1,3-Dichloropropene	93	70-130
1,1,2-Trichloroethane	95	70-130
Tetrachloroethene	99	70-130
2-Hexanone	104	70-130

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Client Sample ID: LCS

Lab ID#: 2305094-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051003**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/10/23 10:03 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	100	70-130
1,2-Dibromoethane (EDB)	97	70-130
Chlorobenzene	96	70-130
Ethyl Benzene	98	70-130
m,p-Xylene	94	70-130
o-Xylene	96	70-130
Styrene	95	70-130
Bromoform	97	70-130
Cumene	96	70-130
1,1,2,2-Tetrachloroethane	96	70-130
Propylbenzene	98	70-130
4-Ethyltoluene	96	70-130
1,3,5-Trimethylbenzene	97	70-130
1,2,4-Trimethylbenzene	96	70-130
1,3-Dichlorobenzene	100	70-130
1,4-Dichlorobenzene	97	70-130
alpha-Chlorotoluene	89	70-130
1,2-Dichlorobenzene	107	70-130
1,2,4-Trichlorobenzene	93	70-130
Hexachlorobutadiene	96	70-130
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	92	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	106	70-130

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Client Sample ID: LCSD

Lab ID#: 2305094-07AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051004**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/10/23 10:28 AM**	

Compound	%Recovery	Method Limits
Freon 12	98	70-130
Freon 114	100	70-130
Chloromethane	108	70-130
Vinyl Chloride	84	70-130
1,3-Butadiene	82	70-130
Bromomethane	101	70-130
Chloroethane	107	70-130
Freon 11	104	70-130
Ethanol	113	70-130
Freon 113	93	70-130
1,1-Dichloroethene	86	70-130
Acetone	101	70-130
2-Propanol	110	70-130
Carbon Disulfide	96	70-130
3-Chloropropene	92	70-130
Methylene Chloride	112	70-130
Methyl tert-butyl ether	90	70-130
trans-1,2-Dichloroethene	90	70-130
Hexane	102	70-130
1,1-Dichloroethane	97	70-130
2-Butanone (Methyl Ethyl Ketone)	95	70-130
cis-1,2-Dichloroethene	86	70-130
Tetrahydrofuran	113	70-130
Chloroform	89	70-130
1,1,1-Trichloroethane	92	70-130
Cyclohexane	87	70-130
Carbon Tetrachloride	95	70-130
2,2,4-Trimethylpentane	100	70-130
Benzene	84	70-130
1,2-Dichloroethane	86	70-130
Heptane	82	70-130
Trichloroethene	87	70-130
1,2-Dichloropropane	85	70-130
1,4-Dioxane	92	70-130
Bromodichloromethane	89	70-130
cis-1,3-Dichloropropene	84	70-130
4-Methyl-2-pentanone	88	70-130
Toluene	89	70-130
trans-1,3-Dichloropropene	94	70-130
1,1,2-Trichloroethane	94	70-130
Tetrachloroethene	99	70-130
2-Hexanone	105	70-130

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Client Sample ID: LCSD

Lab ID#: 2305094-07AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3051004**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/10/23 10:28 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	100	70-130
1,2-Dibromoethane (EDB)	97	70-130
Chlorobenzene	97	70-130
Ethyl Benzene	99	70-130
m,p-Xylene	94	70-130
o-Xylene	96	70-130
Styrene	95	70-130
Bromoform	96	70-130
Cumene	96	70-130
1,1,2,2-Tetrachloroethane	96	70-130
Propylbenzene	97	70-130
4-Ethyltoluene	96	70-130
1,3,5-Trimethylbenzene	96	70-130
1,2,4-Trimethylbenzene	95	70-130
1,3-Dichlorobenzene	100	70-130
1,4-Dichlorobenzene	96	70-130
alpha-Chlorotoluene	89	70-130
1,2-Dichlorobenzene	98	70-130
1,2,4-Trichlorobenzene	97	70-130
Hexachlorobutadiene	98	70-130
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	91	70-130
1,2-Dichloroethane-d4	86	70-130
4-Bromofluorobenzene	104	70-130

ANALYTICAL REPORT

May 10, 2023

Cp
Tc
Ss
Cn
Sr
Qc
Gl
Al
Sc

NV5 - Wilsonville, OR

Sample Delivery Group:	L1611334
Samples Received:	05/02/2023
Project Number:	BigBeams-1-04
Description:	Former Astonia Warehousing

Report To:

Andre DeJonge
9450 SW Commerce Circle
Ste. 300
Wilsonville, OR 97070

Entire Report Reviewed By: Brian Ford

Brian Ford
Project Manager

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

MW-8 L1611334-01 GW

Collected by: AD | Collected date/time: 04/28/23 16:30 | Received date/time: 05/02/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2054907	25	05/06/23 03:14	05/06/23 03:14	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2054552	25	05/05/23 09:11	05/05/23 09:11	ACG	Mt. Juliet, TN

MW-4 L1611334-02 GW

Collected by: AD | Collected date/time: 04/28/23 14:40 | Received date/time: 05/02/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2054907	10	05/06/23 03:36	05/06/23 03:36	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2054552	20	05/05/23 09:33	05/05/23 09:33	ACG	Mt. Juliet, TN

MW-1 L1611334-03 GW

Collected by: AD | Collected date/time: 04/28/23 12:30 | Received date/time: 05/02/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2054907	5	05/06/23 03:58	05/06/23 03:58	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2054552	100	05/05/23 09:54	05/05/23 09:54	ACG	Mt. Juliet, TN

MW-7 L1611334-04 GW

Collected by: AD | Collected date/time: 04/28/23 10:50 | Received date/time: 05/02/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2054907	5	05/06/23 04:20	05/06/23 04:20	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2054552	5	05/05/23 10:16	05/05/23 10:16	ACG	Mt. Juliet, TN

MW-6 L1611334-05 GW

Collected by: AD | Collected date/time: 04/27/23 17:30 | Received date/time: 05/02/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2054907	10	05/06/23 04:42	05/06/23 04:42	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2054552	5	05/05/23 10:38	05/05/23 10:38	ACG	Mt. Juliet, TN

MW-2 L1611334-06 GW

Collected by: AD | Collected date/time: 04/27/23 15:50 | Received date/time: 05/02/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2056611	1	05/09/23 16:05	05/09/23 16:05	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2054552	10	05/05/23 10:59	05/05/23 10:59	ACG	Mt. Juliet, TN

MW-5 L1611334-07 GW

Collected by: AD | Collected date/time: 04/27/23 14:05 | Received date/time: 05/02/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2054907	1	05/06/23 02:30	05/06/23 02:30	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2054552	1	05/05/23 05:56	05/05/23 05:56	ACG	Mt. Juliet, TN

SAMPLE SUMMARY

MW-3 L1611334-08 GW

Collected by	Collected date/time	Received date/time
AD	04/27/23 12:45	05/02/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2056611	1	05/09/23 16:27	05/09/23 16:27	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2054552	1	05/05/23 06:18	05/05/23 06:18	ACG	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford

Brian Ford
Project Manager

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	28300		790	2500	25	05/06/2023 03:14	WG2054907
(S) a,a,a-Trifluorotoluene(FID)	*83.6*			*78.0-120*		*05/06/2023 03:14*	WG2054907

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		282	1250	25	05/05/2023 09:11	WG2054552
Acrolein	U		63.5	1250	25	05/05/2023 09:11	WG2054552
Acrylonitrile	U		16.8	250	25	05/05/2023 09:11	WG2054552
Benzene	1770		2.35	25.0	25	05/05/2023 09:11	WG2054552
Bromobenzene	U		2.95	25.0	25	05/05/2023 09:11	WG2054552
Bromodichloromethane	U		3.40	25.0	25	05/05/2023 09:11	WG2054552
Bromoform	U		3.22	25.0	25	05/05/2023 09:11	WG2054552
Bromomethane	U		15.1	125	25	05/05/2023 09:11	WG2054552
n-Butylbenzene	25.2		3.93	25.0	25	05/05/2023 09:11	WG2054552
sec-Butylbenzene	18.5	J	3.13	25.0	25	05/05/2023 09:11	WG2054552
tert-Butylbenzene	U		3.18	25.0	25	05/05/2023 09:11	WG2054552
Carbon tetrachloride	U		3.20	25.0	25	05/05/2023 09:11	WG2054552
Chlorobenzene	U		2.90	25.0	25	05/05/2023 09:11	WG2054552
Chlorodibromomethane	U		3.50	25.0	25	05/05/2023 09:11	WG2054552
Chloroethane	U		4.80	125	25	05/05/2023 09:11	WG2054552
Chloroform	U		2.78	125	25	05/05/2023 09:11	WG2054552
Chloromethane	U		24.0	62.5	25	05/05/2023 09:11	WG2054552
2-Chlorotoluene	U		2.65	25.0	25	05/05/2023 09:11	WG2054552
4-Chlorotoluene	U		2.85	25.0	25	05/05/2023 09:11	WG2054552
1,2-Dibromo-3-Chloropropane	U		6.90	125	25	05/05/2023 09:11	WG2054552
1,2-Dibromoethane	U		3.15	25.0	25	05/05/2023 09:11	WG2054552
Dibromomethane	U		3.05	25.0	25	05/05/2023 09:11	WG2054552
1,2-Dichlorobenzene	U		2.68	25.0	25	05/05/2023 09:11	WG2054552
1,3-Dichlorobenzene	U		2.75	25.0	25	05/05/2023 09:11	WG2054552
1,4-Dichlorobenzene	U		3.00	25.0	25	05/05/2023 09:11	WG2054552
Dichlorodifluoromethane	U	J4	9.35	125	25	05/05/2023 09:11	WG2054552
1,1-Dichloroethane	U		2.50	25.0	25	05/05/2023 09:11	WG2054552
1,2-Dichloroethane	U		2.05	25.0	25	05/05/2023 09:11	WG2054552
1,1-Dichloroethene	U		4.70	25.0	25	05/05/2023 09:11	WG2054552
cis-1,2-Dichloroethene	U		3.15	25.0	25	05/05/2023 09:11	WG2054552
trans-1,2-Dichloroethene	U		3.73	25.0	25	05/05/2023 09:11	WG2054552
1,2-Dichloropropane	U		3.73	25.0	25	05/05/2023 09:11	WG2054552
1,1-Dichloropropene	U		3.55	25.0	25	05/05/2023 09:11	WG2054552
1,3-Dichloropropane	U		2.75	25.0	25	05/05/2023 09:11	WG2054552
cis-1,3-Dichloropropene	U		2.78	25.0	25	05/05/2023 09:11	WG2054552
trans-1,3-Dichloropropene	U		2.95	25.0	25	05/05/2023 09:11	WG2054552
2,2-Dichloropropane	U		4.03	25.0	25	05/05/2023 09:11	WG2054552
Di-isopropyl ether	U		2.63	25.0	25	05/05/2023 09:11	WG2054552
Ethylbenzene	961		3.43	25.0	25	05/05/2023 09:11	WG2054552
Hexachloro-1,3-butadiene	U		8.43	25.0	25	05/05/2023 09:11	WG2054552
Isopropylbenzene	96.6		2.63	25.0	25	05/05/2023 09:11	WG2054552
p-Isopropyltoluene	37.3		3.00	25.0	25	05/05/2023 09:11	WG2054552
2-Butanone (MEK)	61.4	C3 J	29.8	250	25	05/05/2023 09:11	WG2054552
Methylene Chloride	U		10.7	125	25	05/05/2023 09:11	WG2054552
4-Methyl-2-pentanone (MIBK)	U		12.0	250	25	05/05/2023 09:11	WG2054552
Methyl tert-butyl ether	3.67	J	2.53	25.0	25	05/05/2023 09:11	WG2054552
Naphthalene	504		25.0	125	25	05/05/2023 09:11	WG2054552
n-Propylbenzene	273		2.48	25.0	25	05/05/2023 09:11	WG2054552

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Styrene	U		2.95	25.0	25	05/05/2023 09:11	WG2054552
1,1,1,2-Tetrachloroethane	U		3.68	25.0	25	05/05/2023 09:11	WG2054552
1,1,2,2-Tetrachloroethane	U		3.33	25.0	25	05/05/2023 09:11	WG2054552
1,1,2-Trichlorotrifluoroethane	U		4.50	25.0	25	05/05/2023 09:11	WG2054552
Tetrachloroethene	U		7.50	25.0	25	05/05/2023 09:11	WG2054552
Toluene	41.9		6.95	25.0	25	05/05/2023 09:11	WG2054552
1,2,3-Trichlorobenzene	U		5.75	25.0	25	05/05/2023 09:11	WG2054552
1,2,4-Trichlorobenzene	U		12.0	25.0	25	05/05/2023 09:11	WG2054552
1,1,1-Trichloroethane	U		3.73	25.0	25	05/05/2023 09:11	WG2054552
1,1,2-Trichloroethane	U		3.95	25.0	25	05/05/2023 09:11	WG2054552
Trichloroethene	U		4.75	25.0	25	05/05/2023 09:11	WG2054552
Trichlorofluoromethane	U		4.00	125	25	05/05/2023 09:11	WG2054552
1,2,3-Trichloropropane	U		5.93	62.5	25	05/05/2023 09:11	WG2054552
1,2,4-Trimethylbenzene	2570		8.05	25.0	25	05/05/2023 09:11	WG2054552
1,2,3-Trimethylbenzene	695		2.60	25.0	25	05/05/2023 09:11	WG2054552
1,3,5-Trimethylbenzene	681		2.60	25.0	25	05/05/2023 09:11	WG2054552
Vinyl chloride	U		5.85	25.0	25	05/05/2023 09:11	WG2054552
Xylenes, Total	3690		4.35	75.0	25	05/05/2023 09:11	WG2054552
(S) Toluene-d8	*109*			*80.0-120*		*05/05/2023 09:11*	WG2054552
(S) 4-Bromofluorobenzene	*96.8*			*77.0-126*		*05/05/2023 09:11*	WG2054552
(S) 1,2-Dichloroethane-d4	*99.6*			*70.0-130*		*05/05/2023 09:11*	WG2054552

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	21500		316	1000	10	05/06/2023 03:36	WG2054907
(S) a,a,a-Trifluorotoluene(FID)	*80.7*			*78.0-120*		*05/06/2023 03:36*	WG2054907

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		226	1000	20	05/05/2023 09:33	WG2054552
Acrolein	U		50.8	1000	20	05/05/2023 09:33	WG2054552
Acrylonitrile	U		13.4	200	20	05/05/2023 09:33	WG2054552
Benzene	822		1.88	20.0	20	05/05/2023 09:33	WG2054552
Bromobenzene	U		2.36	20.0	20	05/05/2023 09:33	WG2054552
Bromodichloromethane	U		2.72	20.0	20	05/05/2023 09:33	WG2054552
Bromoform	U		2.58	20.0	20	05/05/2023 09:33	WG2054552
Bromomethane	U		12.1	100	20	05/05/2023 09:33	WG2054552
n-Butylbenzene	9.07	J	3.14	20.0	20	05/05/2023 09:33	WG2054552
sec-Butylbenzene	8.66	J	2.50	20.0	20	05/05/2023 09:33	WG2054552
tert-Butylbenzene	U		2.54	20.0	20	05/05/2023 09:33	WG2054552
Carbon tetrachloride	U		2.56	20.0	20	05/05/2023 09:33	WG2054552
Chlorobenzene	U		2.32	20.0	20	05/05/2023 09:33	WG2054552
Chlorodibromomethane	U		2.80	20.0	20	05/05/2023 09:33	WG2054552
Chloroethane	U		3.84	100	20	05/05/2023 09:33	WG2054552
Chloroform	U		2.22	100	20	05/05/2023 09:33	WG2054552
Chloromethane	U		19.2	50.0	20	05/05/2023 09:33	WG2054552
2-Chlorotoluene	U		2.12	20.0	20	05/05/2023 09:33	WG2054552
4-Chlorotoluene	U		2.28	20.0	20	05/05/2023 09:33	WG2054552
1,2-Dibromo-3-Chloropropane	U		5.52	100	20	05/05/2023 09:33	WG2054552
1,2-Dibromoethane	U		2.52	20.0	20	05/05/2023 09:33	WG2054552
Dibromomethane	U		2.44	20.0	20	05/05/2023 09:33	WG2054552
1,2-Dichlorobenzene	U		2.14	20.0	20	05/05/2023 09:33	WG2054552
1,3-Dichlorobenzene	U		2.20	20.0	20	05/05/2023 09:33	WG2054552
1,4-Dichlorobenzene	U		2.40	20.0	20	05/05/2023 09:33	WG2054552
Dichlorodifluoromethane	U	J4	7.48	100	20	05/05/2023 09:33	WG2054552
1,1-Dichloroethane	U		2.00	20.0	20	05/05/2023 09:33	WG2054552
1,2-Dichloroethane	U		1.64	20.0	20	05/05/2023 09:33	WG2054552
1,1-Dichloroethene	U		3.76	20.0	20	05/05/2023 09:33	WG2054552
cis-1,2-Dichloroethene	U		2.52	20.0	20	05/05/2023 09:33	WG2054552
trans-1,2-Dichloroethene	U		2.98	20.0	20	05/05/2023 09:33	WG2054552
1,2-Dichloropropane	U		2.98	20.0	20	05/05/2023 09:33	WG2054552
1,1-Dichloropropene	U		2.84	20.0	20	05/05/2023 09:33	WG2054552
1,3-Dichloropropane	U		2.20	20.0	20	05/05/2023 09:33	WG2054552
cis-1,3-Dichloropropene	U		2.22	20.0	20	05/05/2023 09:33	WG2054552
trans-1,3-Dichloropropene	U		2.36	20.0	20	05/05/2023 09:33	WG2054552
2,2-Dichloropropane	U		3.22	20.0	20	05/05/2023 09:33	WG2054552
Di-isopropyl ether	U		2.10	20.0	20	05/05/2023 09:33	WG2054552
Ethylbenzene	858		2.74	20.0	20	05/05/2023 09:33	WG2054552
Hexachloro-1,3-butadiene	U		6.74	20.0	20	05/05/2023 09:33	WG2054552
Isopropylbenzene	72.5		2.10	20.0	20	05/05/2023 09:33	WG2054552
p-Isopropyltoluene	11.5	J	2.40	20.0	20	05/05/2023 09:33	WG2054552
2-Butanone (MEK)	U	C3	23.8	200	20	05/05/2023 09:33	WG2054552
Methylene Chloride	U		8.60	100	20	05/05/2023 09:33	WG2054552
4-Methyl-2-pentanone (MIBK)	U		9.56	200	20	05/05/2023 09:33	WG2054552
Methyl tert-butyl ether	U		2.02	20.0	20	05/05/2023 09:33	WG2054552
Naphthalene	393		20.0	100	20	05/05/2023 09:33	WG2054552
n-Propylbenzene	202		1.99	20.0	20	05/05/2023 09:33	WG2054552

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Styrene	U		2.36	20.0	20	05/05/2023 09:33	WG2054552
1,1,1,2-Tetrachloroethane	U		2.94	20.0	20	05/05/2023 09:33	WG2054552
1,1,2,2-Tetrachloroethane	U		2.66	20.0	20	05/05/2023 09:33	WG2054552
1,1,2-Trichlorotrifluoroethane	U		3.60	20.0	20	05/05/2023 09:33	WG2054552
Tetrachloroethene	U		6.00	20.0	20	05/05/2023 09:33	WG2054552
Toluene	69.9		5.56	20.0	20	05/05/2023 09:33	WG2054552
1,2,3-Trichlorobenzene	U		4.60	20.0	20	05/05/2023 09:33	WG2054552
1,2,4-Trichlorobenzene	U		9.62	20.0	20	05/05/2023 09:33	WG2054552
1,1,1-Trichloroethane	U		2.98	20.0	20	05/05/2023 09:33	WG2054552
1,1,2-Trichloroethane	U		3.16	20.0	20	05/05/2023 09:33	WG2054552
Trichloroethene	U		3.80	20.0	20	05/05/2023 09:33	WG2054552
Trichlorofluoromethane	U		3.20	100	20	05/05/2023 09:33	WG2054552
1,2,3-Trichloropropane	U		4.74	50.0	20	05/05/2023 09:33	WG2054552
1,2,4-Trimethylbenzene	1050		6.44	20.0	20	05/05/2023 09:33	WG2054552
1,2,3-Trimethylbenzene	471		2.08	20.0	20	05/05/2023 09:33	WG2054552
1,3,5-Trimethylbenzene	253		2.08	20.0	20	05/05/2023 09:33	WG2054552
Vinyl chloride	U		4.68	20.0	20	05/05/2023 09:33	WG2054552
Xylenes, Total	3950		3.48	60.0	20	05/05/2023 09:33	WG2054552
(S) Toluene-d8	*111*			*80.0-120*		*05/05/2023 09:33*	WG2054552
(S) 4-Bromofluorobenzene	*102*			*77.0-126*		*05/05/2023 09:33*	WG2054552
(S) 1,2-Dichloroethane-d4	*103*			*70.0-130*		*05/05/2023 09:33*	WG2054552

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	16600		158	500	5	05/06/2023 03:58	WG2054907
(S) a,a,a-Trifluorotoluene(FID)	*80.7*			*78.0-120*		*05/06/2023 03:58*	WG2054907

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		1130	5000	100	05/05/2023 09:54	WG2054552
Acrolein	U		254	5000	100	05/05/2023 09:54	WG2054552
Acrylonitrile	U		67.1	1000	100	05/05/2023 09:54	WG2054552
Benzene	369		9.41	100	100	05/05/2023 09:54	WG2054552
Bromobenzene	U		11.8	100	100	05/05/2023 09:54	WG2054552
Bromodichloromethane	U		13.6	100	100	05/05/2023 09:54	WG2054552
Bromoform	U		12.9	100	100	05/05/2023 09:54	WG2054552
Bromomethane	U		60.5	500	100	05/05/2023 09:54	WG2054552
n-Butylbenzene	31.3	J	15.7	100	100	05/05/2023 09:54	WG2054552
sec-Butylbenzene	16.3	J	12.5	100	100	05/05/2023 09:54	WG2054552
tert-Butylbenzene	U		12.7	100	100	05/05/2023 09:54	WG2054552
Carbon tetrachloride	U		12.8	100	100	05/05/2023 09:54	WG2054552
Chlorobenzene	U		11.6	100	100	05/05/2023 09:54	WG2054552
Chlorodibromomethane	U		14.0	100	100	05/05/2023 09:54	WG2054552
Chloroethane	U		19.2	500	100	05/05/2023 09:54	WG2054552
Chloroform	U		11.1	500	100	05/05/2023 09:54	WG2054552
Chloromethane	U		96.0	250	100	05/05/2023 09:54	WG2054552
2-Chlorotoluene	U		10.6	100	100	05/05/2023 09:54	WG2054552
4-Chlorotoluene	U		11.4	100	100	05/05/2023 09:54	WG2054552
1,2-Dibromo-3-Chloropropane	U		27.6	500	100	05/05/2023 09:54	WG2054552
1,2-Dibromoethane	U		12.6	100	100	05/05/2023 09:54	WG2054552
Dibromomethane	U		12.2	100	100	05/05/2023 09:54	WG2054552
1,2-Dichlorobenzene	U		10.7	100	100	05/05/2023 09:54	WG2054552
1,3-Dichlorobenzene	U		11.0	100	100	05/05/2023 09:54	WG2054552
1,4-Dichlorobenzene	U		12.0	100	100	05/05/2023 09:54	WG2054552
Dichlorodifluoromethane	U	J4	37.4	500	100	05/05/2023 09:54	WG2054552
1,1-Dichloroethane	U		10.0	100	100	05/05/2023 09:54	WG2054552
1,2-Dichloroethane	U		8.19	100	100	05/05/2023 09:54	WG2054552
1,1-Dichloroethene	U		18.8	100	100	05/05/2023 09:54	WG2054552
cis-1,2-Dichloroethene	U		12.6	100	100	05/05/2023 09:54	WG2054552
trans-1,2-Dichloroethene	U		14.9	100	100	05/05/2023 09:54	WG2054552
1,2-Dichloropropane	U		14.9	100	100	05/05/2023 09:54	WG2054552
1,1-Dichloropropene	U		14.2	100	100	05/05/2023 09:54	WG2054552
1,3-Dichloropropane	U		11.0	100	100	05/05/2023 09:54	WG2054552
cis-1,3-Dichloropropene	U		11.1	100	100	05/05/2023 09:54	WG2054552
trans-1,3-Dichloropropene	U		11.8	100	100	05/05/2023 09:54	WG2054552
2,2-Dichloropropane	U		16.1	100	100	05/05/2023 09:54	WG2054552
Di-isopropyl ether	U		10.5	100	100	05/05/2023 09:54	WG2054552
Ethylbenzene	2900		13.7	100	100	05/05/2023 09:54	WG2054552
Hexachloro-1,3-butadiene	U		33.7	100	100	05/05/2023 09:54	WG2054552
Isopropylbenzene	112		10.5	100	100	05/05/2023 09:54	WG2054552
p-Isopropyltoluene	U		12.0	100	100	05/05/2023 09:54	WG2054552
2-Butanone (MEK)	U	C3	119	1000	100	05/05/2023 09:54	WG2054552
Methylene Chloride	U		43.0	500	100	05/05/2023 09:54	WG2054552
4-Methyl-2-pentanone (MIBK)	U		47.8	1000	100	05/05/2023 09:54	WG2054552
Methyl tert-butyl ether	U		10.1	100	100	05/05/2023 09:54	WG2054552
Naphthalene	816		100	500	100	05/05/2023 09:54	WG2054552
n-Propylbenzene	379		9.93	100	100	05/05/2023 09:54	WG2054552

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Styrene	U		11.8	100	100	05/05/2023 09:54	WG2054552
1,1,1,2-Tetrachloroethane	U		14.7	100	100	05/05/2023 09:54	WG2054552
1,1,2,2-Tetrachloroethane	U		13.3	100	100	05/05/2023 09:54	WG2054552
1,1,2-Trichlorotrifluoroethane	U		18.0	100	100	05/05/2023 09:54	WG2054552
Tetrachloroethene	U		30.0	100	100	05/05/2023 09:54	WG2054552
Toluene	U		27.8	100	100	05/05/2023 09:54	WG2054552
1,2,3-Trichlorobenzene	U		23.0	100	100	05/05/2023 09:54	WG2054552
1,2,4-Trichlorobenzene	U		48.1	100	100	05/05/2023 09:54	WG2054552
1,1,1-Trichloroethane	U		14.9	100	100	05/05/2023 09:54	WG2054552
1,1,2-Trichloroethane	U		15.8	100	100	05/05/2023 09:54	WG2054552
Trichloroethene	U		19.0	100	100	05/05/2023 09:54	WG2054552
Trichlorofluoromethane	U		16.0	500	100	05/05/2023 09:54	WG2054552
1,2,3-Trichloropropane	U		23.7	250	100	05/05/2023 09:54	WG2054552
1,2,4-Trimethylbenzene	U		32.2	100	100	05/05/2023 09:54	WG2054552
1,2,3-Trimethylbenzene	459		10.4	100	100	05/05/2023 09:54	WG2054552
1,3,5-Trimethylbenzene	10.9	J	10.4	100	100	05/05/2023 09:54	WG2054552
Vinyl chloride	U		23.4	100	100	05/05/2023 09:54	WG2054552
Xylenes, Total	97.7	J	17.4	300	100	05/05/2023 09:54	WG2054552
(S) Toluene-d8	*110*			*80.0-120*		*05/05/2023 09:54*	WG2054552
(S) 4-Bromofluorobenzene	*102*			*77.0-126*		*05/05/2023 09:54*	WG2054552
(S) 1,2-Dichloroethane-d4	*97.6*			*70.0-130*		*05/05/2023 09:54*	WG2054552

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	10600		158	500	5	05/06/2023 04:20	WG2054907
(S) a,a,a-Trifluorotoluene(FID)	*91.8*			*78.0-120*		*05/06/2023 04:20*	WG2054907

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		56.5	250	5	05/05/2023 10:16	WG2054552
Acrolein	U		12.7	250	5	05/05/2023 10:16	WG2054552
Acrylonitrile	U		3.36	50.0	5	05/05/2023 10:16	WG2054552
Benzene	357		0.471	5.00	5	05/05/2023 10:16	WG2054552
Bromobenzene	U		0.590	5.00	5	05/05/2023 10:16	WG2054552
Bromodichloromethane	U		0.680	5.00	5	05/05/2023 10:16	WG2054552
Bromoform	U		0.645	5.00	5	05/05/2023 10:16	WG2054552
Bromomethane	U		3.03	25.0	5	05/05/2023 10:16	WG2054552
n-Butylbenzene	19.8		0.785	5.00	5	05/05/2023 10:16	WG2054552
sec-Butylbenzene	14.8		0.625	5.00	5	05/05/2023 10:16	WG2054552
tert-Butylbenzene	1.46	J	0.635	5.00	5	05/05/2023 10:16	WG2054552
Carbon tetrachloride	U		0.640	5.00	5	05/05/2023 10:16	WG2054552
Chlorobenzene	U		0.580	5.00	5	05/05/2023 10:16	WG2054552
Chlorodibromomethane	U		0.700	5.00	5	05/05/2023 10:16	WG2054552
Chloroethane	U		0.960	25.0	5	05/05/2023 10:16	WG2054552
Chloroform	U		0.555	25.0	5	05/05/2023 10:16	WG2054552
Chloromethane	U		4.80	12.5	5	05/05/2023 10:16	WG2054552
2-Chlorotoluene	U		0.530	5.00	5	05/05/2023 10:16	WG2054552
4-Chlorotoluene	U		0.570	5.00	5	05/05/2023 10:16	WG2054552
1,2-Dibromo-3-Chloropropane	U		1.38	25.0	5	05/05/2023 10:16	WG2054552
1,2-Dibromoethane	U		0.630	5.00	5	05/05/2023 10:16	WG2054552
Dibromomethane	U		0.610	5.00	5	05/05/2023 10:16	WG2054552
1,2-Dichlorobenzene	U		0.535	5.00	5	05/05/2023 10:16	WG2054552
1,3-Dichlorobenzene	U		0.550	5.00	5	05/05/2023 10:16	WG2054552
1,4-Dichlorobenzene	U		0.600	5.00	5	05/05/2023 10:16	WG2054552
Dichlorodifluoromethane	U	J4	1.87	25.0	5	05/05/2023 10:16	WG2054552
1,1-Dichloroethane	U		0.500	5.00	5	05/05/2023 10:16	WG2054552
1,2-Dichloroethane	U		0.409	5.00	5	05/05/2023 10:16	WG2054552
1,1-Dichloroethene	U		0.940	5.00	5	05/05/2023 10:16	WG2054552
cis-1,2-Dichloroethene	U		0.630	5.00	5	05/05/2023 10:16	WG2054552
trans-1,2-Dichloroethene	U		0.745	5.00	5	05/05/2023 10:16	WG2054552
1,2-Dichloropropane	U		0.745	5.00	5	05/05/2023 10:16	WG2054552
1,1-Dichloropropene	U		0.710	5.00	5	05/05/2023 10:16	WG2054552
1,3-Dichloropropane	U		0.550	5.00	5	05/05/2023 10:16	WG2054552
cis-1,3-Dichloropropene	U		0.555	5.00	5	05/05/2023 10:16	WG2054552
trans-1,3-Dichloropropene	U		0.590	5.00	5	05/05/2023 10:16	WG2054552
2,2-Dichloropropane	U		0.805	5.00	5	05/05/2023 10:16	WG2054552
Di-isopropyl ether	U		0.525	5.00	5	05/05/2023 10:16	WG2054552
Ethylbenzene	227		0.685	5.00	5	05/05/2023 10:16	WG2054552
Hexachloro-1,3-butadiene	U		1.69	5.00	5	05/05/2023 10:16	WG2054552
Isopropylbenzene	148		0.525	5.00	5	05/05/2023 10:16	WG2054552
p-Isopropyltoluene	1.89	J	0.600	5.00	5	05/05/2023 10:16	WG2054552
2-Butanone (MEK)	U	C3	5.95	50.0	5	05/05/2023 10:16	WG2054552
Methylene Chloride	U		2.15	25.0	5	05/05/2023 10:16	WG2054552
4-Methyl-2-pentanone (MIBK)	U		2.39	50.0	5	05/05/2023 10:16	WG2054552
Methyl tert-butyl ether	7.07		0.505	5.00	5	05/05/2023 10:16	WG2054552
Naphthalene	16.3	J	5.00	25.0	5	05/05/2023 10:16	WG2054552
n-Propylbenzene	465		0.497	5.00	5	05/05/2023 10:16	WG2054552

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Styrene	U		0.590	5.00	5	05/05/2023 10:16	WG2054552
1,1,1,2-Tetrachloroethane	U		0.735	5.00	5	05/05/2023 10:16	WG2054552
1,1,2,2-Tetrachloroethane	U		0.665	5.00	5	05/05/2023 10:16	WG2054552
1,1,2-Trichlorotrifluoroethane	U		0.900	5.00	5	05/05/2023 10:16	WG2054552
Tetrachloroethene	U		1.50	5.00	5	05/05/2023 10:16	WG2054552
Toluene	24.5		1.39	5.00	5	05/05/2023 10:16	WG2054552
1,2,3-Trichlorobenzene	U		1.15	5.00	5	05/05/2023 10:16	WG2054552
1,2,4-Trichlorobenzene	U		2.41	5.00	5	05/05/2023 10:16	WG2054552
1,1,1-Trichloroethane	U		0.745	5.00	5	05/05/2023 10:16	WG2054552
1,1,2-Trichloroethane	U		0.790	5.00	5	05/05/2023 10:16	WG2054552
Trichloroethene	U		0.950	5.00	5	05/05/2023 10:16	WG2054552
Trichlorofluoromethane	U		0.800	25.0	5	05/05/2023 10:16	WG2054552
1,2,3-Trichloropropane	U		1.19	12.5	5	05/05/2023 10:16	WG2054552
1,2,4-Trimethylbenzene	6.36		1.61	5.00	5	05/05/2023 10:16	WG2054552
1,2,3-Trimethylbenzene	28.9		0.520	5.00	5	05/05/2023 10:16	WG2054552
1,3,5-Trimethylbenzene	13.4		0.520	5.00	5	05/05/2023 10:16	WG2054552
Vinyl chloride	U		1.17	5.00	5	05/05/2023 10:16	WG2054552
Xylenes, Total	62.0		0.870	15.0	5	05/05/2023 10:16	WG2054552
(S) Toluene-d8	*108*			*80.0-120*		*05/05/2023 10:16*	WG2054552
(S) 4-Bromofluorobenzene	*98.6*			*77.0-126*		*05/05/2023 10:16*	WG2054552
(S) 1,2-Dichloroethane-d4	*104*			*70.0-130*		*05/05/2023 10:16*	WG2054552

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	3720	B	316	1000	10	05/06/2023 04:42	WG2054907
(S) a,a,a-Trifluorotoluene(FID)	*83.6*			*78.0-120*		*05/06/2023 04:42*	WG2054907

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		56.5	250	5	05/05/2023 10:38	WG2054552
Acrolein	U		12.7	250	5	05/05/2023 10:38	WG2054552
Acrylonitrile	U		3.36	50.0	5	05/05/2023 10:38	WG2054552
Benzene	276		0.471	5.00	5	05/05/2023 10:38	WG2054552
Bromobenzene	U		0.590	5.00	5	05/05/2023 10:38	WG2054552
Bromodichloromethane	U		0.680	5.00	5	05/05/2023 10:38	WG2054552
Bromoform	U		0.645	5.00	5	05/05/2023 10:38	WG2054552
Bromomethane	U		3.03	25.0	5	05/05/2023 10:38	WG2054552
n-Butylbenzene	4.15	J	0.785	5.00	5	05/05/2023 10:38	WG2054552
sec-Butylbenzene	3.34	J	0.625	5.00	5	05/05/2023 10:38	WG2054552
tert-Butylbenzene	U		0.635	5.00	5	05/05/2023 10:38	WG2054552
Carbon tetrachloride	U		0.640	5.00	5	05/05/2023 10:38	WG2054552
Chlorobenzene	U		0.580	5.00	5	05/05/2023 10:38	WG2054552
Chlorodibromomethane	U		0.700	5.00	5	05/05/2023 10:38	WG2054552
Chloroethane	U		0.960	25.0	5	05/05/2023 10:38	WG2054552
Chloroform	U		0.555	25.0	5	05/05/2023 10:38	WG2054552
Chloromethane	U		4.80	12.5	5	05/05/2023 10:38	WG2054552
2-Chlorotoluene	U		0.530	5.00	5	05/05/2023 10:38	WG2054552
4-Chlorotoluene	U		0.570	5.00	5	05/05/2023 10:38	WG2054552
1,2-Dibromo-3-Chloropropane	U		1.38	25.0	5	05/05/2023 10:38	WG2054552
1,2-Dibromoethane	U		0.630	5.00	5	05/05/2023 10:38	WG2054552
Dibromomethane	U		0.610	5.00	5	05/05/2023 10:38	WG2054552
1,2-Dichlorobenzene	U		0.535	5.00	5	05/05/2023 10:38	WG2054552
1,3-Dichlorobenzene	U		0.550	5.00	5	05/05/2023 10:38	WG2054552
1,4-Dichlorobenzene	U		0.600	5.00	5	05/05/2023 10:38	WG2054552
Dichlorodifluoromethane	U	J4	1.87	25.0	5	05/05/2023 10:38	WG2054552
1,1-Dichloroethane	U		0.500	5.00	5	05/05/2023 10:38	WG2054552
1,2-Dichloroethane	U		0.409	5.00	5	05/05/2023 10:38	WG2054552
1,1-Dichloroethene	U		0.940	5.00	5	05/05/2023 10:38	WG2054552
cis-1,2-Dichloroethene	U		0.630	5.00	5	05/05/2023 10:38	WG2054552
trans-1,2-Dichloroethene	U		0.745	5.00	5	05/05/2023 10:38	WG2054552
1,2-Dichloropropane	U		0.745	5.00	5	05/05/2023 10:38	WG2054552
1,1-Dichloropropene	U		0.710	5.00	5	05/05/2023 10:38	WG2054552
1,3-Dichloropropane	U		0.550	5.00	5	05/05/2023 10:38	WG2054552
cis-1,3-Dichloropropene	U		0.555	5.00	5	05/05/2023 10:38	WG2054552
trans-1,3-Dichloropropene	U		0.590	5.00	5	05/05/2023 10:38	WG2054552
2,2-Dichloropropane	U		0.805	5.00	5	05/05/2023 10:38	WG2054552
Di-isopropyl ether	U		0.525	5.00	5	05/05/2023 10:38	WG2054552
Ethylbenzene	139		0.685	5.00	5	05/05/2023 10:38	WG2054552
Hexachloro-1,3-butadiene	U		1.69	5.00	5	05/05/2023 10:38	WG2054552
Isopropylbenzene	22.3		0.525	5.00	5	05/05/2023 10:38	WG2054552
p-Isopropyltoluene	0.620	J	0.600	5.00	5	05/05/2023 10:38	WG2054552
2-Butanone (MEK)	U	C3	5.95	50.0	5	05/05/2023 10:38	WG2054552
Methylene Chloride	U		2.15	25.0	5	05/05/2023 10:38	WG2054552
4-Methyl-2-pentanone (MIBK)	U		2.39	50.0	5	05/05/2023 10:38	WG2054552
Methyl tert-butyl ether	9.60		0.505	5.00	5	05/05/2023 10:38	WG2054552
Naphthalene	47.5		5.00	25.0	5	05/05/2023 10:38	WG2054552
n-Propylbenzene	65.9		0.497	5.00	5	05/05/2023 10:38	WG2054552

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Styrene	U		0.590	5.00	5	05/05/2023 10:38	WG2054552
1,1,1,2-Tetrachloroethane	U		0.735	5.00	5	05/05/2023 10:38	WG2054552
1,1,2,2-Tetrachloroethane	U		0.665	5.00	5	05/05/2023 10:38	WG2054552
1,1,2-Trichlorotrifluoroethane	U		0.900	5.00	5	05/05/2023 10:38	WG2054552
Tetrachloroethene	U		1.50	5.00	5	05/05/2023 10:38	WG2054552
Toluene	6.44		1.39	5.00	5	05/05/2023 10:38	WG2054552
1,2,3-Trichlorobenzene	U		1.15	5.00	5	05/05/2023 10:38	WG2054552
1,2,4-Trichlorobenzene	U		2.41	5.00	5	05/05/2023 10:38	WG2054552
1,1,1-Trichloroethane	U		0.745	5.00	5	05/05/2023 10:38	WG2054552
1,1,2-Trichloroethane	U		0.790	5.00	5	05/05/2023 10:38	WG2054552
Trichloroethene	U		0.950	5.00	5	05/05/2023 10:38	WG2054552
Trichlorofluoromethane	U		0.800	25.0	5	05/05/2023 10:38	WG2054552
1,2,3-Trichloropropane	U		1.19	12.5	5	05/05/2023 10:38	WG2054552
1,2,4-Trimethylbenzene	31.3		1.61	5.00	5	05/05/2023 10:38	WG2054552
1,2,3-Trimethylbenzene	57.1		0.520	5.00	5	05/05/2023 10:38	WG2054552
1,3,5-Trimethylbenzene	30.0		0.520	5.00	5	05/05/2023 10:38	WG2054552
Vinyl chloride	U		1.17	5.00	5	05/05/2023 10:38	WG2054552
Xylenes, Total	65.1		0.870	15.0	5	05/05/2023 10:38	WG2054552
(S) Toluene-d8	*110*			*80.0-120*		*05/05/2023 10:38*	WG2054552
(S) 4-Bromofluorobenzene	*98.9*			*77.0-126*		*05/05/2023 10:38*	WG2054552
(S) 1,2-Dichloroethane-d4	*98.4*			*70.0-130*		*05/05/2023 10:38*	WG2054552

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	4420		31.6	100	1	05/09/2023 16:05	WG2056611
(S) a,a,a-Trifluorotoluene(FID)	*113*			*78.0-120*		*05/09/2023 16:05*	WG2056611

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		113	500	10	05/05/2023 10:59	WG2054552
Acrolein	U		25.4	500	10	05/05/2023 10:59	WG2054552
Acrylonitrile	U		6.71	100	10	05/05/2023 10:59	WG2054552
Benzene	177		0.941	10.0	10	05/05/2023 10:59	WG2054552
Bromobenzene	U		1.18	10.0	10	05/05/2023 10:59	WG2054552
Bromodichloromethane	U		1.36	10.0	10	05/05/2023 10:59	WG2054552
Bromoform	U		1.29	10.0	10	05/05/2023 10:59	WG2054552
Bromomethane	U		6.05	50.0	10	05/05/2023 10:59	WG2054552
n-Butylbenzene	5.68	J	1.57	10.0	10	05/05/2023 10:59	WG2054552
sec-Butylbenzene	3.81	J	1.25	10.0	10	05/05/2023 10:59	WG2054552
tert-Butylbenzene	U		1.27	10.0	10	05/05/2023 10:59	WG2054552
Carbon tetrachloride	U		1.28	10.0	10	05/05/2023 10:59	WG2054552
Chlorobenzene	U		1.16	10.0	10	05/05/2023 10:59	WG2054552
Chlorodibromomethane	U		1.40	10.0	10	05/05/2023 10:59	WG2054552
Chloroethane	U		1.92	50.0	10	05/05/2023 10:59	WG2054552
Chloroform	4.62	J	1.11	50.0	10	05/05/2023 10:59	WG2054552
Chloromethane	U		9.60	25.0	10	05/05/2023 10:59	WG2054552
2-Chlorotoluene	U		1.06	10.0	10	05/05/2023 10:59	WG2054552
4-Chlorotoluene	U		1.14	10.0	10	05/05/2023 10:59	WG2054552
1,2-Dibromo-3-Chloropropane	U		2.76	50.0	10	05/05/2023 10:59	WG2054552
1,2-Dibromoethane	U		1.26	10.0	10	05/05/2023 10:59	WG2054552
Dibromomethane	U		1.22	10.0	10	05/05/2023 10:59	WG2054552
1,2-Dichlorobenzene	U		1.07	10.0	10	05/05/2023 10:59	WG2054552
1,3-Dichlorobenzene	U		1.10	10.0	10	05/05/2023 10:59	WG2054552
1,4-Dichlorobenzene	U		1.20	10.0	10	05/05/2023 10:59	WG2054552
Dichlorodifluoromethane	U	J4	3.74	50.0	10	05/05/2023 10:59	WG2054552
1,1-Dichloroethane	U		1.00	10.0	10	05/05/2023 10:59	WG2054552
1,2-Dichloroethane	U		0.819	10.0	10	05/05/2023 10:59	WG2054552
1,1-Dichloroethene	U		1.88	10.0	10	05/05/2023 10:59	WG2054552
cis-1,2-Dichloroethene	U		1.26	10.0	10	05/05/2023 10:59	WG2054552
trans-1,2-Dichloroethene	U		1.49	10.0	10	05/05/2023 10:59	WG2054552
1,2-Dichloropropane	U		1.49	10.0	10	05/05/2023 10:59	WG2054552
1,1-Dichloropropene	U		1.42	10.0	10	05/05/2023 10:59	WG2054552
1,3-Dichloropropane	U		1.10	10.0	10	05/05/2023 10:59	WG2054552
cis-1,3-Dichloropropene	U		1.11	10.0	10	05/05/2023 10:59	WG2054552
trans-1,3-Dichloropropene	U		1.18	10.0	10	05/05/2023 10:59	WG2054552
2,2-Dichloropropane	U		1.61	10.0	10	05/05/2023 10:59	WG2054552
Di-isopropyl ether	U		1.05	10.0	10	05/05/2023 10:59	WG2054552
Ethylbenzene	41.9		1.37	10.0	10	05/05/2023 10:59	WG2054552
Hexachloro-1,3-butadiene	U		3.37	10.0	10	05/05/2023 10:59	WG2054552
Isopropylbenzene	25.3		1.05	10.0	10	05/05/2023 10:59	WG2054552
p-Isopropyltoluene	U		1.20	10.0	10	05/05/2023 10:59	WG2054552
2-Butanone (MEK)	U	C3	11.9	100	10	05/05/2023 10:59	WG2054552
Methylene Chloride	U		4.30	50.0	10	05/05/2023 10:59	WG2054552
4-Methyl-2-pentanone (MIBK)	U		4.78	100	10	05/05/2023 10:59	WG2054552
Methyl tert-butyl ether	7.99	J	1.01	10.0	10	05/05/2023 10:59	WG2054552
Naphthalene	27.2	J	10.0	50.0	10	05/05/2023 10:59	WG2054552
n-Propylbenzene	47.0		0.993	10.0	10	05/05/2023 10:59	WG2054552

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Styrene	U		1.18	10.0	10	05/05/2023 10:59	WG2054552
1,1,1,2-Tetrachloroethane	U		1.47	10.0	10	05/05/2023 10:59	WG2054552
1,1,2,2-Tetrachloroethane	U		1.33	10.0	10	05/05/2023 10:59	WG2054552
1,1,2-Trichlorotrifluoroethane	U		1.80	10.0	10	05/05/2023 10:59	WG2054552
Tetrachloroethene	U		3.00	10.0	10	05/05/2023 10:59	WG2054552
Toluene	8.69	J	2.78	10.0	10	05/05/2023 10:59	WG2054552
1,2,3-Trichlorobenzene	U		2.30	10.0	10	05/05/2023 10:59	WG2054552
1,2,4-Trichlorobenzene	U		4.81	10.0	10	05/05/2023 10:59	WG2054552
1,1,1-Trichloroethane	U		1.49	10.0	10	05/05/2023 10:59	WG2054552
1,1,2-Trichloroethane	U		1.58	10.0	10	05/05/2023 10:59	WG2054552
Trichloroethene	U		1.90	10.0	10	05/05/2023 10:59	WG2054552
Trichlorofluoromethane	U		1.60	50.0	10	05/05/2023 10:59	WG2054552
1,2,3-Trichloropropane	U		2.37	25.0	10	05/05/2023 10:59	WG2054552
1,2,4-Trimethylbenzene	6.70	J	3.22	10.0	10	05/05/2023 10:59	WG2054552
1,2,3-Trimethylbenzene	29.1		1.04	10.0	10	05/05/2023 10:59	WG2054552
1,3,5-Trimethylbenzene	12.4		1.04	10.0	10	05/05/2023 10:59	WG2054552
Vinyl chloride	U		2.34	10.0	10	05/05/2023 10:59	WG2054552
Xylenes, Total	16.3	J	1.74	30.0	10	05/05/2023 10:59	WG2054552
(S) Toluene-d8	*112*			*80.0-120*		*05/05/2023 10:59*	WG2054552
(S) 4-Bromofluorobenzene	*98.1*			*77.0-126*		*05/05/2023 10:59*	WG2054552
(S) 1,2-Dichloroethane-d4	*100*			*70.0-130*		*05/05/2023 10:59*	WG2054552

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	2670		31.6	100	1	05/06/2023 02:30	WG2054907
(S) a,a,a-Trifluorotoluene(FID)	*90.9*			*78.0-120*		*05/06/2023 02:30*	WG2054907

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		11.3	50.0	1	05/05/2023 05:56	WG2054552
Acrolein	U		2.54	50.0	1	05/05/2023 05:56	WG2054552
Acrylonitrile	U		0.671	10.0	1	05/05/2023 05:56	WG2054552
Benzene	2.29		0.0941	1.00	1	05/05/2023 05:56	WG2054552
Bromobenzene	U		0.118	1.00	1	05/05/2023 05:56	WG2054552
Bromodichloromethane	U		0.136	1.00	1	05/05/2023 05:56	WG2054552
Bromoform	U		0.129	1.00	1	05/05/2023 05:56	WG2054552
Bromomethane	U		0.605	5.00	1	05/05/2023 05:56	WG2054552
n-Butylbenzene	19.5		0.157	1.00	1	05/05/2023 05:56	WG2054552
sec-Butylbenzene	14.2		0.125	1.00	1	05/05/2023 05:56	WG2054552
tert-Butylbenzene	0.483	J	0.127	1.00	1	05/05/2023 05:56	WG2054552
Carbon tetrachloride	U		0.128	1.00	1	05/05/2023 05:56	WG2054552
Chlorobenzene	U		0.116	1.00	1	05/05/2023 05:56	WG2054552
Chlorodibromomethane	U		0.140	1.00	1	05/05/2023 05:56	WG2054552
Chloroethane	U		0.192	5.00	1	05/05/2023 05:56	WG2054552
Chloroform	U		0.111	5.00	1	05/05/2023 05:56	WG2054552
Chloromethane	U		0.960	2.50	1	05/05/2023 05:56	WG2054552
2-Chlorotoluene	U		0.106	1.00	1	05/05/2023 05:56	WG2054552
4-Chlorotoluene	U		0.114	1.00	1	05/05/2023 05:56	WG2054552
1,2-Dibromo-3-Chloropropane	U		0.276	5.00	1	05/05/2023 05:56	WG2054552
1,2-Dibromoethane	U		0.126	1.00	1	05/05/2023 05:56	WG2054552
Dibromomethane	U		0.122	1.00	1	05/05/2023 05:56	WG2054552
1,2-Dichlorobenzene	U		0.107	1.00	1	05/05/2023 05:56	WG2054552
1,3-Dichlorobenzene	U		0.110	1.00	1	05/05/2023 05:56	WG2054552
1,4-Dichlorobenzene	U		0.120	1.00	1	05/05/2023 05:56	WG2054552
Dichlorodifluoromethane	U	J4	0.374	5.00	1	05/05/2023 05:56	WG2054552
1,1-Dichloroethane	U		0.100	1.00	1	05/05/2023 05:56	WG2054552
1,2-Dichloroethane	U		0.0819	1.00	1	05/05/2023 05:56	WG2054552
1,1-Dichloroethene	U		0.188	1.00	1	05/05/2023 05:56	WG2054552
cis-1,2-Dichloroethene	U		0.126	1.00	1	05/05/2023 05:56	WG2054552
trans-1,2-Dichloroethene	U		0.149	1.00	1	05/05/2023 05:56	WG2054552
1,2-Dichloropropane	U		0.149	1.00	1	05/05/2023 05:56	WG2054552
1,1-Dichloropropene	U		0.142	1.00	1	05/05/2023 05:56	WG2054552
1,3-Dichloropropane	U		0.110	1.00	1	05/05/2023 05:56	WG2054552
cis-1,3-Dichloropropene	U		0.111	1.00	1	05/05/2023 05:56	WG2054552
trans-1,3-Dichloropropene	U		0.118	1.00	1	05/05/2023 05:56	WG2054552
2,2-Dichloropropane	U		0.161	1.00	1	05/05/2023 05:56	WG2054552
Di-isopropyl ether	U		0.105	1.00	1	05/05/2023 05:56	WG2054552
Ethylbenzene	17.5		0.137	1.00	1	05/05/2023 05:56	WG2054552
Hexachloro-1,3-butadiene	U		0.337	1.00	1	05/05/2023 05:56	WG2054552
Isopropylbenzene	16.0		0.105	1.00	1	05/05/2023 05:56	WG2054552
p-Isopropyltoluene	1.54		0.120	1.00	1	05/05/2023 05:56	WG2054552
2-Butanone (MEK)	U	C3	1.19	10.0	1	05/05/2023 05:56	WG2054552
Methylene Chloride	U		0.430	5.00	1	05/05/2023 05:56	WG2054552
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	05/05/2023 05:56	WG2054552
Methyl tert-butyl ether	5.59		0.101	1.00	1	05/05/2023 05:56	WG2054552
Naphthalene	7.59		1.00	5.00	1	05/05/2023 05:56	WG2054552
n-Propylbenzene	76.8		0.0993	1.00	1	05/05/2023 05:56	WG2054552

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Styrene	U		0.118	1.00	1	05/05/2023 05:56	WG2054552
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	05/05/2023 05:56	WG2054552
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	05/05/2023 05:56	WG2054552
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00	1	05/05/2023 05:56	WG2054552
Tetrachloroethene	U		0.300	1.00	1	05/05/2023 05:56	WG2054552
Toluene	1.09		0.278	1.00	1	05/05/2023 05:56	WG2054552
1,2,3-Trichlorobenzene	U		0.230	1.00	1	05/05/2023 05:56	WG2054552
1,2,4-Trichlorobenzene	U		0.481	1.00	1	05/05/2023 05:56	WG2054552
1,1,1-Trichloroethane	U		0.149	1.00	1	05/05/2023 05:56	WG2054552
1,1,2-Trichloroethane	U		0.158	1.00	1	05/05/2023 05:56	WG2054552
Trichloroethene	U		0.190	1.00	1	05/05/2023 05:56	WG2054552
Trichlorofluoromethane	U		0.160	5.00	1	05/05/2023 05:56	WG2054552
1,2,3-Trichloropropane	U		0.237	2.50	1	05/05/2023 05:56	WG2054552
1,2,4-Trimethylbenzene	0.341	J	0.322	1.00	1	05/05/2023 05:56	WG2054552
1,2,3-Trimethylbenzene	4.02		0.104	1.00	1	05/05/2023 05:56	WG2054552
1,3,5-Trimethylbenzene	0.538	J	0.104	1.00	1	05/05/2023 05:56	WG2054552
Vinyl chloride	U		0.234	1.00	1	05/05/2023 05:56	WG2054552
Xylenes, Total	2.64	J	0.174	3.00	1	05/05/2023 05:56	WG2054552
(S) Toluene-d8	*97.5*			*80.0-120*		*05/05/2023 05:56*	WG2054552
(S) 4-Bromofluorobenzene	*94.3*			*77.0-126*		*05/05/2023 05:56*	WG2054552
(S) 1,2-Dichloroethane-d4	*108*			*70.0-130*		*05/05/2023 05:56*	WG2054552

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	502		31.6	100	1	05/09/2023 16:27	WG2056611
(S) a,a,a-Trifluorotoluene(FID)	*99.6*			*78.0-120*		*05/09/2023 16:27*	WG2056611

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		11.3	50.0	1	05/05/2023 06:18	WG2054552
Acrolein	U		2.54	50.0	1	05/05/2023 06:18	WG2054552
Acrylonitrile	U		0.671	10.0	1	05/05/2023 06:18	WG2054552
Benzene	U		0.0941	1.00	1	05/05/2023 06:18	WG2054552
Bromobenzene	U		0.118	1.00	1	05/05/2023 06:18	WG2054552
Bromodichloromethane	U		0.136	1.00	1	05/05/2023 06:18	WG2054552
Bromoform	U		0.129	1.00	1	05/05/2023 06:18	WG2054552
Bromomethane	U		0.605	5.00	1	05/05/2023 06:18	WG2054552
n-Butylbenzene	U		0.157	1.00	1	05/05/2023 06:18	WG2054552
sec-Butylbenzene	U		0.125	1.00	1	05/05/2023 06:18	WG2054552
tert-Butylbenzene	U		0.127	1.00	1	05/05/2023 06:18	WG2054552
Carbon tetrachloride	U		0.128	1.00	1	05/05/2023 06:18	WG2054552
Chlorobenzene	U		0.116	1.00	1	05/05/2023 06:18	WG2054552
Chlorodibromomethane	U		0.140	1.00	1	05/05/2023 06:18	WG2054552
Chloroethane	U		0.192	5.00	1	05/05/2023 06:18	WG2054552
Chloroform	U		0.111	5.00	1	05/05/2023 06:18	WG2054552
Chloromethane	U		0.960	2.50	1	05/05/2023 06:18	WG2054552
2-Chlorotoluene	U		0.106	1.00	1	05/05/2023 06:18	WG2054552
4-Chlorotoluene	U		0.114	1.00	1	05/05/2023 06:18	WG2054552
1,2-Dibromo-3-Chloropropane	U		0.276	5.00	1	05/05/2023 06:18	WG2054552
1,2-Dibromoethane	U		0.126	1.00	1	05/05/2023 06:18	WG2054552
Dibromomethane	U		0.122	1.00	1	05/05/2023 06:18	WG2054552
1,2-Dichlorobenzene	U		0.107	1.00	1	05/05/2023 06:18	WG2054552
1,3-Dichlorobenzene	U		0.110	1.00	1	05/05/2023 06:18	WG2054552
1,4-Dichlorobenzene	U		0.120	1.00	1	05/05/2023 06:18	WG2054552
Dichlorodifluoromethane	U	J4	0.374	5.00	1	05/05/2023 06:18	WG2054552
1,1-Dichloroethane	U		0.100	1.00	1	05/05/2023 06:18	WG2054552
1,2-Dichloroethane	U		0.0819	1.00	1	05/05/2023 06:18	WG2054552
1,1-Dichloroethene	U		0.188	1.00	1	05/05/2023 06:18	WG2054552
cis-1,2-Dichloroethene	U		0.126	1.00	1	05/05/2023 06:18	WG2054552
trans-1,2-Dichloroethene	U		0.149	1.00	1	05/05/2023 06:18	WG2054552
1,2-Dichloropropane	U		0.149	1.00	1	05/05/2023 06:18	WG2054552
1,1-Dichloropropene	U		0.142	1.00	1	05/05/2023 06:18	WG2054552
1,3-Dichloropropane	U		0.110	1.00	1	05/05/2023 06:18	WG2054552
cis-1,3-Dichloropropene	U		0.111	1.00	1	05/05/2023 06:18	WG2054552
trans-1,3-Dichloropropene	U		0.118	1.00	1	05/05/2023 06:18	WG2054552
2,2-Dichloropropane	U		0.161	1.00	1	05/05/2023 06:18	WG2054552
Di-isopropyl ether	U		0.105	1.00	1	05/05/2023 06:18	WG2054552
Ethylbenzene	2.57		0.137	1.00	1	05/05/2023 06:18	WG2054552
Hexachloro-1,3-butadiene	U		0.337	1.00	1	05/05/2023 06:18	WG2054552
Isopropylbenzene	4.02		0.105	1.00	1	05/05/2023 06:18	WG2054552
p-Isopropyltoluene	U		0.120	1.00	1	05/05/2023 06:18	WG2054552
2-Butanone (MEK)	U	C3	1.19	10.0	1	05/05/2023 06:18	WG2054552
Methylene Chloride	U		0.430	5.00	1	05/05/2023 06:18	WG2054552
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	05/05/2023 06:18	WG2054552
Methyl tert-butyl ether	1.39		0.101	1.00	1	05/05/2023 06:18	WG2054552
Naphthalene	U		1.00	5.00	1	05/05/2023 06:18	WG2054552
n-Propylbenzene	0.984	J	0.0993	1.00	1	05/05/2023 06:18	WG2054552

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Styrene	U		0.118	1.00	1	05/05/2023 06:18	WG2054552
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	05/05/2023 06:18	WG2054552
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	05/05/2023 06:18	WG2054552
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00	1	05/05/2023 06:18	WG2054552
Tetrachloroethene	U		0.300	1.00	1	05/05/2023 06:18	WG2054552
Toluene	0.626	J	0.278	1.00	1	05/05/2023 06:18	WG2054552
1,2,3-Trichlorobenzene	U		0.230	1.00	1	05/05/2023 06:18	WG2054552
1,2,4-Trichlorobenzene	U		0.481	1.00	1	05/05/2023 06:18	WG2054552
1,1,1-Trichloroethane	U		0.149	1.00	1	05/05/2023 06:18	WG2054552
1,1,2-Trichloroethane	U		0.158	1.00	1	05/05/2023 06:18	WG2054552
Trichloroethene	U		0.190	1.00	1	05/05/2023 06:18	WG2054552
Trichlorofluoromethane	U		0.160	5.00	1	05/05/2023 06:18	WG2054552
1,2,3-Trichloropropane	U		0.237	2.50	1	05/05/2023 06:18	WG2054552
1,2,4-Trimethylbenzene	U		0.322	1.00	1	05/05/2023 06:18	WG2054552
1,2,3-Trimethylbenzene	0.682	J	0.104	1.00	1	05/05/2023 06:18	WG2054552
1,3,5-Trimethylbenzene	U		0.104	1.00	1	05/05/2023 06:18	WG2054552
Vinyl chloride	U		0.234	1.00	1	05/05/2023 06:18	WG2054552
Xylenes, Total	1.44	J	0.174	3.00	1	05/05/2023 06:18	WG2054552
(S) Toluene-d8	*111*			*80.0-120*		*05/05/2023 06:18*	WG2054552
(S) 4-Bromofluorobenzene	*95.8*			*77.0-126*		*05/05/2023 06:18*	WG2054552
(S) 1,2-Dichloroethane-d4	*95.9*			*70.0-130*		*05/05/2023 06:18*	WG2054552

Method Blank (MB)

(MB) R3922454-2 05/05/23 22:28

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	38.0	J	31.6	100
(S) α,α,α-Trifluorotoluene(FID)	*85.0*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3922454-1 05/05/23 21:22

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5260	95.6	70.0-124	
(S) α,α,α-Trifluorotoluene(FID)			*90.9*	*78.0-120*	

Method Blank (MB)

(MB) R3923037-3 05/09/23 12:46

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	50.2	J	31.6	100
(S) α,α,α-Trifluorotoluene(FID)	*101*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3923037-2 05/09/23 11:36

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5250	95.5	70.0-124	
(S) α,α,α-Trifluorotoluene(FID)			*106*	*78.0-120*	

Method Blank (MB)

(MB) R3922108-3 05/05/23 04:09

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		11.3	50.0
Acrolein	U		2.54	50.0
Acrylonitrile	U		0.671	10.0
Benzene	U		0.0941	1.00
Bromobenzene	U		0.118	1.00
Bromodichloromethane	U		0.136	1.00
Bromoform	U		0.129	1.00
Bromomethane	U		0.605	5.00
n-Butylbenzene	U		0.157	1.00
sec-Butylbenzene	U		0.125	1.00
tert-Butylbenzene	U		0.127	1.00
Carbon tetrachloride	U		0.128	1.00
Chlorobenzene	U		0.116	1.00
Chlorodibromomethane	U		0.140	1.00
Chloroethane	U		0.192	5.00
Chloroform	U		0.111	5.00
Chloromethane	U		0.960	2.50
2-Chlorotoluene	U		0.106	1.00
4-Chlorotoluene	U		0.114	1.00
1,2-Dibromo-3-Chloropropane	U		0.276	5.00
1,2-Dibromoethane	U		0.126	1.00
Dibromomethane	U		0.122	1.00
1,2-Dichlorobenzene	U		0.107	1.00
1,3-Dichlorobenzene	U		0.110	1.00
1,4-Dichlorobenzene	U		0.120	1.00
Dichlorodifluoromethane	U		0.374	5.00
1,1-Dichloroethane	U		0.100	1.00
1,2-Dichloroethane	U		0.0819	1.00
1,1-Dichloroethene	U		0.188	1.00
cis-1,2-Dichloroethene	U		0.126	1.00
trans-1,2-Dichloroethene	U		0.149	1.00
1,2-Dichloropropane	U		0.149	1.00
1,1-Dichloropropene	U		0.142	1.00
1,3-Dichloropropane	U		0.110	1.00
cis-1,3-Dichloropropene	U		0.111	1.00
trans-1,3-Dichloropropene	U		0.118	1.00
2,2-Dichloropropane	U		0.161	1.00
Di-isopropyl ether	U		0.105	1.00
Ethylbenzene	U		0.137	1.00
Hexachloro-1,3-butadiene	U		0.337	1.00

Method Blank (MB)

(MB) R3922108-3 05/05/23 04:09

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Isopropylbenzene	U		0.105	1.00
p-Isopropyltoluene	U		0.120	1.00
2-Butanone (MEK)	U		1.19	10.0
Methylene Chloride	U		0.430	5.00
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0
Methyl tert-butyl ether	U		0.101	1.00
Naphthalene	U		1.00	5.00
n-Propylbenzene	U		0.0993	1.00
Styrene	U		0.118	1.00
1,1,1,2-Tetrachloroethane	U		0.147	1.00
1,1,2,2-Tetrachloroethane	U		0.133	1.00
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00
Tetrachloroethene	U		0.300	1.00
Toluene	U		0.278	1.00
1,2,3-Trichlorobenzene	U		0.230	1.00
1,2,4-Trichlorobenzene	U		0.481	1.00
1,1,1-Trichloroethane	U		0.149	1.00
1,1,2-Trichloroethane	U		0.158	1.00
Trichloroethene	U		0.190	1.00
Trichlorofluoromethane	U		0.160	5.00
1,2,3-Trichloropropane	U		0.237	2.50
1,2,4-Trimethylbenzene	U		0.322	1.00
1,2,3-Trimethylbenzene	U		0.104	1.00
1,3,5-Trimethylbenzene	U		0.104	1.00
Vinyl chloride	U		0.234	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	*114*			*80.0-120*
(S) 4-Bromofluorobenzene	*102*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*99.1*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3922108-1 05/05/23 03:05 • (LCSD) R3922108-2 05/05/23 03:26

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	25.0	28.4	28.6	114	114	19.0-160			0.702	27
Acrolein	25.0	22.5	22.4	90.0	89.6	10.0-160			0.445	26
Acrylonitrile	25.0	24.2	23.6	96.8	94.4	55.0-149			2.51	20
Benzene	5.00	4.47	4.51	89.4	90.2	70.0-123			0.891	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3922108-1 05/05/23 03:05 • (LCSD) R3922108-2 05/05/23 03:26

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromobenzene	5.00	4.27	4.36	85.4	87.2	73.0-121			2.09	20
Bromodichloromethane	5.00	4.48	4.55	89.6	91.0	75.0-120			1.55	20
Bromoform	5.00	4.25	4.27	85.0	85.4	68.0-132			0.469	20
Bromomethane	5.00	4.69	5.60	93.8	112	10.0-160			17.7	25
n-Butylbenzene	5.00	4.15	4.68	83.0	93.6	73.0-125			12.0	20
sec-Butylbenzene	5.00	4.12	4.36	82.4	87.2	75.0-125			5.66	20
tert-Butylbenzene	5.00	4.07	4.21	81.4	84.2	76.0-124			3.38	20
Carbon tetrachloride	5.00	5.00	4.96	100	99.2	68.0-126			0.803	20
Chlorobenzene	5.00	4.26	4.36	85.2	87.2	80.0-121			2.32	20
Chlorodibromomethane	5.00	4.50	4.41	90.0	88.2	77.0-125			2.02	20
Chloroethane	5.00	5.25	5.86	105	117	47.0-150			11.0	20
Chloroform	5.00	4.84	4.87	96.8	97.4	73.0-120			0.618	20
Chloromethane	5.00	6.11	6.71	122	134	41.0-142			9.36	20
2-Chlorotoluene	5.00	4.18	4.53	83.6	90.6	76.0-123			8.04	20
4-Chlorotoluene	5.00	4.23	4.32	84.6	86.4	75.0-122			2.11	20
1,2-Dibromo-3-Chloropropane	5.00	4.68	4.53	93.6	90.6	58.0-134			3.26	20
1,2-Dibromoethane	5.00	4.29	4.17	85.8	83.4	80.0-122			2.84	20
Dibromomethane	5.00	4.87	4.69	97.4	93.8	80.0-120			3.77	20
1,2-Dichlorobenzene	5.00	4.48	4.90	89.6	98.0	79.0-121			8.96	20
1,3-Dichlorobenzene	5.00	4.25	4.54	85.0	90.8	79.0-120			6.60	20
1,4-Dichlorobenzene	5.00	4.29	4.32	85.8	86.4	79.0-120			0.697	20
Dichlorodifluoromethane	5.00	7.93	8.43	159	169	51.0-149	L6	L6	6.11	20
1,1-Dichloroethane	5.00	4.98	5.01	99.6	100	70.0-126			0.601	20
1,2-Dichloroethane	5.00	4.56	4.62	91.2	92.4	70.0-128			1.31	20
1,1-Dichloroethene	5.00	4.87	5.21	97.4	104	71.0-124			6.75	20
cis-1,2-Dichloroethene	5.00	4.82	4.78	96.4	95.6	73.0-120			0.833	20
trans-1,2-Dichloroethene	5.00	4.63	4.81	92.6	96.2	73.0-120			3.81	20
1,2-Dichloropropane	5.00	4.31	4.45	86.2	89.0	77.0-125			3.20	20
1,1-Dichloropropene	5.00	4.36	4.43	87.2	88.6	74.0-126			1.59	20
1,3-Dichloropropane	5.00	4.39	4.32	87.8	86.4	80.0-120			1.61	20
cis-1,3-Dichloropropene	5.00	4.11	4.16	82.2	83.2	80.0-123			1.21	20
trans-1,3-Dichloropropene	5.00	4.22	4.14	84.4	82.8	78.0-124			1.91	20
2,2-Dichloropropane	5.00	4.84	4.86	96.8	97.2	58.0-130			0.412	20
Di-isopropyl ether	5.00	4.69	4.52	93.8	90.4	58.0-138			3.69	20
Ethylbenzene	5.00	4.03	4.49	80.6	89.8	79.0-123			10.8	20
Hexachloro-1,3-butadiene	5.00	4.63	5.35	92.6	107	54.0-138			14.4	20
Isopropylbenzene	5.00	4.35	4.48	87.0	89.6	76.0-127			2.94	20
p-Isopropyltoluene	5.00	4.13	4.31	82.6	86.2	76.0-125			4.27	20
2-Butanone (MEK)	25.0	19.7	20.4	78.8	81.6	44.0-160			3.49	20
Methylene Chloride	5.00	4.95	4.83	99.0	96.6	67.0-120			2.45	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3922108-1 05/05/23 03:05 • (LCSD) R3922108-2 05/05/23 03:26

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Methyl-2-pentanone (MIBK)	25.0	22.3	22.3	89.2	89.2	68.0-142			0.000	20
Methyl tert-butyl ether	5.00	4.96	4.92	99.2	98.4	68.0-125			0.810	20
Naphthalene	5.00	4.38	4.61	87.6	92.2	54.0-135			5.12	20
n-Propylbenzene	5.00	4.22	4.45	84.4	89.0	77.0-124			5.31	20
Styrene	5.00	4.19	4.13	83.8	82.6	73.0-130			1.44	20
1,1,1,2-Tetrachloroethane	5.00	4.79	4.88	95.8	97.6	75.0-125			1.86	20
1,1,2,2-Tetrachloroethane	5.00	4.47	4.67	89.4	93.4	65.0-130			4.38	20
1,1,2-Trichlorotrifluoroethane	5.00	4.80	4.95	96.0	99.0	69.0-132			3.08	20
Tetrachloroethene	5.00	4.31	4.30	86.2	86.0	72.0-132			0.232	20
Toluene	5.00	4.31	4.57	86.2	91.4	79.0-120			5.86	20
1,2,3-Trichlorobenzene	5.00	4.78	5.00	95.6	100	50.0-138			4.50	20
1,2,4-Trichlorobenzene	5.00	4.96	5.04	99.2	101	57.0-137			1.60	20
1,1,1-Trichloroethane	5.00	4.69	4.87	93.8	97.4	73.0-124			3.77	20
1,1,2-Trichloroethane	5.00	4.86	4.05	97.2	81.0	80.0-120			18.2	20
Trichloroethene	5.00	4.43	4.44	88.6	88.8	78.0-124			0.225	20
Trichlorofluoromethane	5.00	5.87	6.35	117	127	59.0-147			7.86	20
1,2,3-Trichloropropane	5.00	4.60	4.26	92.0	85.2	73.0-130			7.67	20
1,2,4-Trimethylbenzene	5.00	4.26	4.38	85.2	87.6	76.0-121			2.78	20
1,2,3-Trimethylbenzene	5.00	4.39	4.44	87.8	88.8	77.0-120			1.13	20
1,3,5-Trimethylbenzene	5.00	4.23	4.53	84.6	90.6	76.0-122			6.85	20
Vinyl chloride	5.00	5.71	6.09	114	122	67.0-131			6.44	20
Xylenes, Total	15.0	13.2	13.3	88.0	88.7	79.0-123			0.755	20
(S) Toluene-d8				*110*	*112*	*80.0-120*				
(S) 4-Bromofluorobenzene				*99.9*	*99.0*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*101*	*103*	*70.0-130*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec	Recovery
RPD	Relative Percent Difference
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable)
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J4	The associated batch QC was outside the established quality control range for accuracy.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1,6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1,4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
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Ste. 300
Wilsonville. OR 97070

Billing Information:
Accounts Payable
9450 SW Commerce Circle
Ste. 300
Wilsonville, OR 97070

Pres Chk

Report to:
Andre DeJonge

Email To:
Andre.DeJonge@nv5.com;Erik.Hedberg@nv5.co

Project Description: Former Astoria Warehousing

City/State Collected:

Please Circle: (PT) MT CT ET

Phone: **503-968-8787**

Client Project #: **BigBeams-1-04**

Lab Project #: **GEODESPOR-BIGB104**

Collected by (print): Andre' D. DeJonge

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L611334
H026

Acctnum: **GEODESPOR**
Template: **T228693**
Prelogin: **P993826**
PM: **110 - Brian Ford**
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	NWTPHGX 40mlAmb HCl	VOCs 8260 40mlAmb-HCl	Remarks	Sample # (lab only)
MW-8	Grab	GW	—	04/28/23	1630	6	X	X		-01
MW-4	"	GW	—	04/28/23	1440	6	X	X		-02
MW-1	"	GW	—	04/28/23	1230	6	X	X		-03
MW-7	"	GW	—	04/28/23	1050	6	X	X		-04
MW-6	"	GW	—	04/27/23	1730	6	X	X		-05
MW-2	"	GW	—	04/27/23	1550	6	X	X		-06
MW-5	"	GW	—	04/27/23	1405	6	X	X		-07
MW-3	"	GW	—	04/27/23	1245	6	X	X		-08
		GW								

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6295 1089 8917

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCl / MeoH TBR	If preservation required by Login: Date/Time
	05/01/23			2	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.7 °C Bottles Received: 48	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Eli 17	Date: 5-2-23 Time: 900	Hold: Condition: NCF / OK

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5/25/2023
Mr. Erik Hedberg
NV5, Inc. Company
9450 SW Commerce Circle
Suite 300
Wilsonville OR 97070

Project Name: Former Astoria Warehousing
Project #: Bigbeams-1-04-05
Workorder #: 2305307

Dear Mr. Erik Hedberg

The following report includes the data for the above referenced project for sample(s) received on 5/12/2023 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Passive S.E. RAD130/SKC are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Monica Tran at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Monica Tran

Project Manager

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WORK ORDER #: 2305307

Work Order Summary

CLIENT:	Mr. Erik Hedberg NV5, Inc. Company 9450 SW Commerce Circle Suite 300 Wilsonville, OR 97070	**BILL TO:**	Mr. Erik Hedberg NV5, Inc. Company 9450 SW Commerce Circle Suite 300 Wilsonville, OR 97070
PHONE:	503-968-8787	**P.O. #**	BigBeams-1-04
FAX:		**PROJECT #**	Bigbeams-1-04-05 Former Astoria Warehousing
DATE RECEIVED:	05/12/2023	**CONTACT:**	Monica Tran
DATE COMPLETED:	05/25/2023		

FRACTION #	NAME	TEST
01A	QX993 (Indoor 1)	Passive S.E. RAD130/SKC
02A	RG957 (Indoor 2)	Passive S.E. RAD130/SKC
03A	RG958 (Indoor 3)	Passive S.E. RAD130/SKC
04A	RG959 (Indoor 4)	Passive S.E. RAD130/SKC
05A	RG960 (Indoor 5)	Passive S.E. RAD130/SKC
06A	RG961 (Indoor 6)	Passive S.E. RAD130/SKC
07A	RG962 (Indoor 7)	Passive S.E. RAD130/SKC
08A	RG963 (Background)	Passive S.E. RAD130/SKC
09A	Lab Blank	Passive S.E. RAD130/SKC
10A	CCV	Passive S.E. RAD130/SKC
11A	LCS	Passive S.E. RAD130/SKC
11AA	LCSD	Passive S.E. RAD130/SKC

CERTIFIED BY: Heidi Hayes DATE: 05/25/23

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA ELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program) CA300005-017
Eurofins Environment Testing Northern California, LLC certifies that the test results contained in this report meet all requirements of the 2016 TNI Standard.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
RAD130 Passive SE by Mod EPA TO-17
NV5, Inc. Company
Workorder# 2305307

Eight Radiello 130 (Solvent) samples were received on May 12, 2023. The laboratory analyzed the charcoal sorbent bed of the passive sampler following modified method EPA TO-17. The VOCs were chemically extracted using carbon disulfide and an aliquot of the extract was injected into a GC/MS for identification and quantification of volatile organic compounds (VOCs).

The mass of each target compound adsorbed by the sampler was converted to units of concentration using the sample deployment time and the sampling rate for each VOC. If sampling rates were calculated by the lab or the manufacturer, the concentration result has been flagged as an estimated value. Results are not corrected for desorption efficiency.

The reference method used for this procedure is EPA TO-17, which describes the collection of VOCs in ambient air using sorbents and analysis by GC/MS. Because TO-17 describes active sample collection using a pump and thermal desorption as the preparation step, several modifications are required. Modifications to TO-17 are listed in the table below:

Requirement	***TO-17***	***ATL Modifications***
Sample Collection	Pump pulls measured air volume through sorbent tube	VOCs in air adsorbed onto sorbent bed passively through diffusion
Sample Preparation	Thermal extraction	Solvent extraction
Sorbent tube conditioning	Condition newly packed tubes prior to use	Charcoal-based sorbent is a single use media and conditioning is conducted by vendor.
Instrumentation	Thermal desorption introduction system	Liquid injection introduction system
Internal Standard	Gas-phase internal standard introduced on the tube or focusing trap during analysis	Liquid-phase internal standard introduced on the tube at the time of extraction
Media and sample storage	<4 deg C, 30 days	Media shelf life is determined by vendor; sample hold-time is 6 months for the RAD130 and WMS. Sample preservation requirements are storage in a cool, solvent-free refrigerator and optional use of ice during shipping.
Internal Standard Recovery	+/-40% of daily CCV area	-50% to +100% of daily CCV area

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

The uptake rates were corrected based on average field temperatures if provided. In the absence of field temperatures, the uptake rates determined at 25 deg C were used.

To calculate ug/m3 concentrations in the Lab Blank, a sampling duration of 19980 minutes was applied. The assumed temperature used for the uptake rate is listed on the data page. If the field temperatures were provided, the rate was adjusted in the same manner as the field samples.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

C - Estimated concentration due to calculated sampling rate

CN - See case narrative explanation.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
VOCS BY PASSIVE SAMPLER - GC/MS

Client Sample ID: QX993 (Indoor 1)

Lab ID#: 2305307-01A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	390	190
Hexane	0.10	0.076	0.29	0.22
Ethyl Acetate	0.40	0.26	58	38
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	9.6	6.1
Chloroform	0.10	0.067	0.96	0.64
Cyclohexane	0.10	0.093	0.14	0.13
Carbon Tetrachloride	0.10	0.075	0.43	0.32
Heptane	0.10	0.086	0.13	0.11
Toluene	0.10	0.068	0.96	0.65
Ethyl Benzene	0.10	0.074	0.32	0.24
m,p-Xylene	0.10	0.072	1.1	0.77
o-Xylene	0.10	0.077	0.47	0.36

Client Sample ID: RG957 (Indoor 2)

Lab ID#: 2305307-02A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	280	140
Hexane	0.10	0.076	0.28	0.21
Ethyl Acetate	0.40	0.26	52	34
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	7.8	4.9
Chloroform	0.10	0.067	0.87	0.58
Cyclohexane	0.10	0.093	0.14	0.12
Carbon Tetrachloride	0.10	0.075	0.42	0.31
Heptane	0.10	0.086	0.13	0.11
Toluene	0.10	0.068	0.93	0.63
Ethyl Benzene	0.10	0.074	0.32	0.23
m,p-Xylene	0.10	0.072	1.1	0.77
o-Xylene	0.10	0.077	0.46	0.36

Client Sample ID: RG958 (Indoor 3)

Lab ID#: 2305307-03A

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Summary of Detected Compounds
VOCS BY PASSIVE SAMPLER - GC/MS

Client Sample ID: RG958 (Indoor 3)

Lab ID#: 2305307-03A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	220	110
Hexane	0.10	0.076	0.69	0.53
Ethyl Acetate	0.40	0.26	70	45
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	6.4	4.0
Chloroform	0.10	0.067	0.92	0.62
Cyclohexane	0.10	0.093	0.25	0.24
Carbon Tetrachloride	0.10	0.075	0.36	0.27
Benzene	0.40	0.25	0.40	0.25
Heptane	0.10	0.086	0.18	0.16
Toluene	0.10	0.068	0.55	0.37
Ethyl Benzene	0.10	0.074	0.34	0.25
m,p-Xylene	0.10	0.072	1.1	0.82
o-Xylene	0.10	0.077	0.43	0.33

Client Sample ID: RG959 (Indoor 4)

Lab ID#: 2305307-04A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	200	99
Hexane	0.10	0.076	0.71	0.54
Ethyl Acetate	0.40	0.26	31	20
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	17	11
Chloroform	0.10	0.067	0.63	0.42
Cyclohexane	0.10	0.093	0.43	0.40
Carbon Tetrachloride	0.10	0.075	0.35	0.26
Benzene	0.40	0.25	0.44	0.27
Heptane	0.10	0.086	0.44	0.38
4-Methyl-2-pentanone	0.20	0.15	0.31	0.23
Toluene	0.10	0.068	1.5	1.0
Ethyl Benzene	0.10	0.074	0.84	0.62
m,p-Xylene	0.10	0.072	3.3	2.4
o-Xylene	0.10	0.077	1.7	1.3
Styrene	0.10	0.082	0.22	0.18

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Summary of Detected Compounds
VOCS BY PASSIVE SAMPLER - GC/MS

Client Sample ID: RG960 (Indoor 5)

Lab ID#: 2305307-05A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	240	120
Hexane	0.10	0.076	0.67	0.51
Ethyl Acetate	0.40	0.26	79	51
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	4.8	3.0
Chloroform	0.10	0.067	0.73	0.49
Cyclohexane	0.10	0.093	0.32	0.30
Carbon Tetrachloride	0.10	0.075	0.40	0.30
Benzene	0.40	0.25	0.42	0.26
Heptane	0.10	0.086	0.28	0.24
Toluene	0.10	0.068	0.38	0.26
Ethyl Benzene	0.10	0.074	0.20	0.15
m,p-Xylene	0.10	0.072	0.70	0.50
o-Xylene	0.10	0.077	0.21	0.16

Client Sample ID: RG961 (Indoor 6)

Lab ID#: 2305307-06A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	220	110
Hexane	0.10	0.076	0.48	0.36
Ethyl Acetate	0.40	0.26	82	53
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	7.0	4.4
Chloroform	0.10	0.067	0.82	0.55
Cyclohexane	0.10	0.093	0.19	0.18
Carbon Tetrachloride	0.10	0.075	0.32	0.24
Heptane	0.10	0.086	0.13	0.11
Toluene	0.10	0.068	0.39	0.26
Ethyl Benzene	0.10	0.074	0.20	0.14
m,p-Xylene	0.10	0.072	0.66	0.47
o-Xylene	0.10	0.077	0.25	0.19

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Summary of Detected Compounds
VOCS BY PASSIVE SAMPLER - GC/MS

Client Sample ID: RG962 (Indoor 7)

Lab ID#: 2305307-07A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	210	100
Hexane	0.10	0.076	0.61	0.46
Ethyl Acetate	0.40	0.26	64	41
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	5.1	3.2
Chloroform	0.10	0.067	0.82	0.55
Cyclohexane	0.10	0.093	0.24	0.22
Carbon Tetrachloride	0.10	0.075	0.33	0.24
Heptane	0.10	0.086	0.17	0.15
Toluene	0.10	0.068	0.56	0.38
Ethyl Benzene	0.10	0.074	0.28	0.21
m,p-Xylene	0.10	0.072	0.95	0.68
o-Xylene	0.10	0.077	0.36	0.28

Client Sample ID: RG963 (Background)

Lab ID#: 2305307-08A

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	18	8.7
Hexane	0.10	0.076	0.12	0.095
Ethyl Acetate	0.40	0.26	4.9	3.2
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	0.88	0.56
Chloroform	0.10	0.067	0.10	0.067
Carbon Tetrachloride	0.10	0.075	0.33	0.25
Toluene	0.10	0.068	0.30	0.20
m,p-Xylene	0.10	0.072	0.20	0.14

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Client Sample ID: QX993 (Indoor 1)

Lab ID#: 2305307-01A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**18052215sim**	**Date of Collection: 5/10/23 12:45:00 PM**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/22/23 02:09 PM**	
		Date of Extraction: 5/22/23	

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	390	190
Methyl tert-butyl ether	0.10	0.077	Not Detected	Not Detected
Hexane	0.10	0.076	0.29	0.22
Ethyl Acetate	0.40	0.26	58	38
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	9.6	6.1
Chloroform	0.10	0.067	0.96	0.64
1,1,1-Trichloroethane	0.10	0.081	Not Detected	Not Detected
Cyclohexane	0.10	0.093	0.14	0.13
Carbon Tetrachloride	0.10	0.075	0.43	0.32
Benzene	0.40	0.25	Not Detected	Not Detected
1,2-Dichloroethane	0.10	0.065	Not Detected	Not Detected
Heptane	0.10	0.086	0.13	0.11
Trichloroethene	0.10	0.072	Not Detected	Not Detected
4-Methyl-2-pentanone	0.20	0.15	Not Detected	Not Detected
Toluene	0.10	0.068	0.96	0.65
Tetrachloroethene	0.10	0.085	Not Detected	Not Detected
Chlorobenzene	0.10	0.074	Not Detected	Not Detected
Ethyl Benzene	0.10	0.074	0.32	0.24
m,p-Xylene	0.10	0.072	1.1	0.77
o-Xylene	0.10	0.077	0.47	0.36
Styrene	0.10	0.082	Not Detected	Not Detected
Propylbenzene	0.10	0.088	Not Detected	Not Detected
1,4-Dichlorobenzene	0.10	0.098	Not Detected	Not Detected
Naphthalene	0.10	0.20	Not Detected	Not Detected

Temperature = 77.0F , duration time = 19980 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130

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Client Sample ID: RG957 (Indoor 2)

Lab ID#: 2305307-02A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**18052216sim**	**Date of Collection: 5/10/23 12:42:00 PM**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/22/23 02:35 PM**	
		Date of Extraction: 5/22/23	

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	280	140
Methyl tert-butyl ether	0.10	0.077	Not Detected	Not Detected
Hexane	0.10	0.076	0.28	0.21
Ethyl Acetate	0.40	0.26	52	34
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	7.8	4.9
Chloroform	0.10	0.067	0.87	0.58
1,1,1-Trichloroethane	0.10	0.081	Not Detected	Not Detected
Cyclohexane	0.10	0.093	0.14	0.12
Carbon Tetrachloride	0.10	0.075	0.42	0.31
Benzene	0.40	0.25	Not Detected	Not Detected
1,2-Dichloroethane	0.10	0.065	Not Detected	Not Detected
Heptane	0.10	0.086	0.13	0.11
Trichloroethene	0.10	0.072	Not Detected	Not Detected
4-Methyl-2-pentanone	0.20	0.15	Not Detected	Not Detected
Toluene	0.10	0.068	0.93	0.63
Tetrachloroethene	0.10	0.085	Not Detected	Not Detected
Chlorobenzene	0.10	0.074	Not Detected	Not Detected
Ethyl Benzene	0.10	0.074	0.32	0.23
m,p-Xylene	0.10	0.072	1.1	0.77
o-Xylene	0.10	0.077	0.46	0.36
Styrene	0.10	0.082	Not Detected	Not Detected
Propylbenzene	0.10	0.088	Not Detected	Not Detected
1,4-Dichlorobenzene	0.10	0.098	Not Detected	Not Detected
Naphthalene	0.10	0.20	Not Detected	Not Detected

Temperature = 77.0F , duration time = 19972 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	93	70-130

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Client Sample ID: RG958 (Indoor 3)

Lab ID#: 2305307-03A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**18052217sim**	**Date of Collection: 5/10/23 12:51:00 PM**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/22/23 03:02 PM**	
		Date of Extraction: 5/22/23	

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	220	110
Methyl tert-butyl ether	0.10	0.077	Not Detected	Not Detected
Hexane	0.10	0.076	0.69	0.53
Ethyl Acetate	0.40	0.26	70	45
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	6.4	4.0
Chloroform	0.10	0.067	0.92	0.62
1,1,1-Trichloroethane	0.10	0.081	Not Detected	Not Detected
Cyclohexane	0.10	0.093	0.25	0.24
Carbon Tetrachloride	0.10	0.075	0.36	0.27
Benzene	0.40	0.25	0.40	0.25
1,2-Dichloroethane	0.10	0.065	Not Detected	Not Detected
Heptane	0.10	0.086	0.18	0.16
Trichloroethene	0.10	0.072	Not Detected	Not Detected
4-Methyl-2-pentanone	0.20	0.15	Not Detected	Not Detected
Toluene	0.10	0.068	0.55	0.37
Tetrachloroethene	0.10	0.085	Not Detected	Not Detected
Chlorobenzene	0.10	0.074	Not Detected	Not Detected
Ethyl Benzene	0.10	0.074	0.34	0.25
m,p-Xylene	0.10	0.072	1.1	0.82
o-Xylene	0.10	0.077	0.43	0.33
Styrene	0.10	0.082	Not Detected	Not Detected
Propylbenzene	0.10	0.088	Not Detected	Not Detected
1,4-Dichlorobenzene	0.10	0.098	Not Detected	Not Detected
Naphthalene	0.10	0.20	Not Detected	Not Detected

Temperature = 77.0F , duration time = 19976 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	95	70-130

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Client Sample ID: RG959 (Indoor 4)

Lab ID#: 2305307-04A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**18052218sim**	**Date of Collection: 5/10/23 12:53:00 PM**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/22/23 03:29 PM**	
		Date of Extraction: 5/22/23	

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	200	99
Methyl tert-butyl ether	0.10	0.077	Not Detected	Not Detected
Hexane	0.10	0.076	0.71	0.54
Ethyl Acetate	0.40	0.26	31	20
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	17	11
Chloroform	0.10	0.067	0.63	0.42
1,1,1-Trichloroethane	0.10	0.081	Not Detected	Not Detected
Cyclohexane	0.10	0.093	0.43	0.40
Carbon Tetrachloride	0.10	0.075	0.35	0.26
Benzene	0.40	0.25	0.44	0.27
1,2-Dichloroethane	0.10	0.065	Not Detected	Not Detected
Heptane	0.10	0.086	0.44	0.38
Trichloroethene	0.10	0.072	Not Detected	Not Detected
4-Methyl-2-pentanone	0.20	0.15	0.31	0.23
Toluene	0.10	0.068	1.5	1.0
Tetrachloroethene	0.10	0.085	Not Detected	Not Detected
Chlorobenzene	0.10	0.074	Not Detected	Not Detected
Ethyl Benzene	0.10	0.074	0.84	0.62
m,p-Xylene	0.10	0.072	3.3	2.4
o-Xylene	0.10	0.077	1.7	1.3
Styrene	0.10	0.082	0.22	0.18
Propylbenzene	0.10	0.088	Not Detected	Not Detected
1,4-Dichlorobenzene	0.10	0.098	Not Detected	Not Detected
Naphthalene	0.10	0.20	Not Detected	Not Detected

Temperature = 77.0F , duration time = 19973 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	96	70-130

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Client Sample ID: RG960 (Indoor 5)

Lab ID#: 2305307-05A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**18052219sim**	**Date of Collection: 5/10/23 12:57:00 PM**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/22/23 03:55 PM**	
		Date of Extraction: 5/22/23	

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	240	120
Methyl tert-butyl ether	0.10	0.077	Not Detected	Not Detected
Hexane	0.10	0.076	0.67	0.51
Ethyl Acetate	0.40	0.26	79	51
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	4.8	3.0
Chloroform	0.10	0.067	0.73	0.49
1,1,1-Trichloroethane	0.10	0.081	Not Detected	Not Detected
Cyclohexane	0.10	0.093	0.32	0.30
Carbon Tetrachloride	0.10	0.075	0.40	0.30
Benzene	0.40	0.25	0.42	0.26
1,2-Dichloroethane	0.10	0.065	Not Detected	Not Detected
Heptane	0.10	0.086	0.28	0.24
Trichloroethene	0.10	0.072	Not Detected	Not Detected
4-Methyl-2-pentanone	0.20	0.15	Not Detected	Not Detected
Toluene	0.10	0.068	0.38	0.26
Tetrachloroethene	0.10	0.085	Not Detected	Not Detected
Chlorobenzene	0.10	0.074	Not Detected	Not Detected
Ethyl Benzene	0.10	0.074	0.20	0.15
m,p-Xylene	0.10	0.072	0.70	0.50
o-Xylene	0.10	0.077	0.21	0.16
Styrene	0.10	0.082	Not Detected	Not Detected
Propylbenzene	0.10	0.088	Not Detected	Not Detected
1,4-Dichlorobenzene	0.10	0.098	Not Detected	Not Detected
Naphthalene	0.10	0.20	Not Detected	Not Detected

Temperature = 77.0F , duration time = 19972 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	95	70-130

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Client Sample ID: RG961 (Indoor 6)

Lab ID#: 2305307-06A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**18052220sim**	**Date of Collection: 5/10/23 12:55:00 PM**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/22/23 04:22 PM**	
		Date of Extraction: 5/22/23	

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	220	110
Methyl tert-butyl ether	0.10	0.077	Not Detected	Not Detected
Hexane	0.10	0.076	0.48	0.36
Ethyl Acetate	0.40	0.26	82	53
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	7.0	4.4
Chloroform	0.10	0.067	0.82	0.55
1,1,1-Trichloroethane	0.10	0.081	Not Detected	Not Detected
Cyclohexane	0.10	0.093	0.19	0.18
Carbon Tetrachloride	0.10	0.075	0.32	0.24
Benzene	0.40	0.25	Not Detected	Not Detected
1,2-Dichloroethane	0.10	0.065	Not Detected	Not Detected
Heptane	0.10	0.086	0.13	0.11
Trichloroethene	0.10	0.072	Not Detected	Not Detected
4-Methyl-2-pentanone	0.20	0.15	Not Detected	Not Detected
Toluene	0.10	0.068	0.39	0.26
Tetrachloroethene	0.10	0.085	Not Detected	Not Detected
Chlorobenzene	0.10	0.074	Not Detected	Not Detected
Ethyl Benzene	0.10	0.074	0.20	0.14
m,p-Xylene	0.10	0.072	0.66	0.47
o-Xylene	0.10	0.077	0.25	0.19
Styrene	0.10	0.082	Not Detected	Not Detected
Propylbenzene	0.10	0.088	Not Detected	Not Detected
1,4-Dichlorobenzene	0.10	0.098	Not Detected	Not Detected
Naphthalene	0.10	0.20	Not Detected	Not Detected

Temperature = 77.0F , duration time = 19965 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	93	70-130

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Client Sample ID: RG962 (Indoor 7)

Lab ID#: 2305307-07A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**18052221sim**	**Date of Collection: 5/10/23 12:50:00 PM**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/22/23 04:49 PM**	
		Date of Extraction: 5/22/23	

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	210	100
Methyl tert-butyl ether	0.10	0.077	Not Detected	Not Detected
Hexane	0.10	0.076	0.61	0.46
Ethyl Acetate	0.40	0.26	64	41
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	5.1	3.2
Chloroform	0.10	0.067	0.82	0.55
1,1,1-Trichloroethane	0.10	0.081	Not Detected	Not Detected
Cyclohexane	0.10	0.093	0.24	0.22
Carbon Tetrachloride	0.10	0.075	0.33	0.24
Benzene	0.40	0.25	Not Detected	Not Detected
1,2-Dichloroethane	0.10	0.065	Not Detected	Not Detected
Heptane	0.10	0.086	0.17	0.15
Trichloroethene	0.10	0.073	Not Detected	Not Detected
4-Methyl-2-pentanone	0.20	0.15	Not Detected	Not Detected
Toluene	0.10	0.068	0.56	0.38
Tetrachloroethene	0.10	0.085	Not Detected	Not Detected
Chlorobenzene	0.10	0.074	Not Detected	Not Detected
Ethyl Benzene	0.10	0.074	0.28	0.21
m,p-Xylene	0.10	0.072	0.95	0.68
o-Xylene	0.10	0.077	0.36	0.28
Styrene	0.10	0.082	Not Detected	Not Detected
Propylbenzene	0.10	0.088	Not Detected	Not Detected
1,4-Dichlorobenzene	0.10	0.098	Not Detected	Not Detected
Naphthalene	0.10	0.20	Not Detected	Not Detected

Temperature = 77.0F , duration time = 19955 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130

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Client Sample ID: RG963 (Background)

Lab ID#: 2305307-08A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**18052222sim**	**Date of Collection: 5/10/23 1:00:00 PM**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/22/23 05:15 PM**	
		Date of Extraction: 5/22/23	

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	18	8.7
Methyl tert-butyl ether	0.10	0.077	Not Detected	Not Detected
Hexane	0.10	0.076	0.12	0.095
Ethyl Acetate	0.40	0.26	4.9	3.2
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	0.88	0.56
Chloroform	0.10	0.067	0.10	0.067
1,1,1-Trichloroethane	0.10	0.081	Not Detected	Not Detected
Cyclohexane	0.10	0.093	Not Detected	Not Detected
Carbon Tetrachloride	0.10	0.075	0.33	0.25
Benzene	0.40	0.25	Not Detected	Not Detected
1,2-Dichloroethane	0.10	0.065	Not Detected	Not Detected
Heptane	0.10	0.086	Not Detected	Not Detected
Trichloroethene	0.10	0.073	Not Detected	Not Detected
4-Methyl-2-pentanone	0.20	0.15	Not Detected	Not Detected
Toluene	0.10	0.068	0.30	0.20
Tetrachloroethene	0.10	0.085	Not Detected	Not Detected
Chlorobenzene	0.10	0.074	Not Detected	Not Detected
Ethyl Benzene	0.10	0.074	Not Detected	Not Detected
m,p-Xylene	0.10	0.072	0.20	0.14
o-Xylene	0.10	0.077	Not Detected	Not Detected
Styrene	0.10	0.082	Not Detected	Not Detected
Propylbenzene	0.10	0.088	Not Detected	Not Detected
1,4-Dichlorobenzene	0.10	0.098	Not Detected	Not Detected
Naphthalene	0.10	0.20	Not Detected	Not Detected

Temperature = 77.0F , duration time = 19950 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	93	70-130

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Client Sample ID: Lab Blank

Lab ID#: 2305307-09A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**18052207sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/22/23 10:10 AM**	
		Date of Extraction: 5/22/23	

Compound	Rpt. Limit (ug)	Rpt. Limit (ug/m3)	Amount (ug)	Amount (ug/m3)
Ethanol	1.0	0.49	Not Detected	Not Detected
Methyl tert-butyl ether	0.10	0.077	Not Detected	Not Detected
Hexane	0.10	0.076	Not Detected	Not Detected
Ethyl Acetate	0.40	0.26	Not Detected	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.20	0.13	Not Detected	Not Detected
Chloroform	0.10	0.067	Not Detected	Not Detected
1,1,1-Trichloroethane	0.10	0.081	Not Detected	Not Detected
Cyclohexane	0.10	0.093	Not Detected	Not Detected
Carbon Tetrachloride	0.10	0.075	Not Detected	Not Detected
Benzene	0.40	0.25	Not Detected	Not Detected
1,2-Dichloroethane	0.10	0.065	Not Detected	Not Detected
Heptane	0.10	0.086	Not Detected	Not Detected
Trichloroethene	0.10	0.072	Not Detected	Not Detected
4-Methyl-2-pentanone	0.20	0.15	Not Detected	Not Detected
Toluene	0.10	0.068	Not Detected	Not Detected
Tetrachloroethene	0.10	0.085	Not Detected	Not Detected
Chlorobenzene	0.10	0.074	Not Detected	Not Detected
Ethyl Benzene	0.10	0.074	Not Detected	Not Detected
m,p-Xylene	0.10	0.072	Not Detected	Not Detected
o-Xylene	0.10	0.077	Not Detected	Not Detected
Styrene	0.10	0.082	Not Detected	Not Detected
Propylbenzene	0.10	0.088	Not Detected	Not Detected
1,4-Dichlorobenzene	0.10	0.098	Not Detected	Not Detected
Naphthalene	0.10	0.20	Not Detected	Not Detected

Temperature = 77.0F , duration time = 19980 minutes.

Container Type: Radiello 130 (Solvent)

Surrogates	%Recovery	Method Limits
Toluene-d8	93	70-130

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Client Sample ID: CCV

Lab ID#: 2305307-10A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**18052203sim**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 5/22/23 08:15 AM**
		Date of Extraction: NA

Compound	%Recovery
Ethanol	86
Methyl tert-butyl ether	107
Hexane	85
Ethyl Acetate	97
2-Butanone (Methyl Ethyl Ketone)	87
Chloroform	102
1,1,1-Trichloroethane	105
Cyclohexane	83
Carbon Tetrachloride	113
Benzene	80
1,2-Dichloroethane	101
Heptane	80
Trichloroethene	104
4-Methyl-2-pentanone	84
Toluene	76
Tetrachloroethene	99
Chlorobenzene	91
Ethyl Benzene	89
m,p-Xylene	83
o-Xylene	85
Styrene	80
Propylbenzene	79
1,4-Dichlorobenzene	92
Naphthalene	76

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	95	70-130

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Client Sample ID: LCS

Lab ID#: 2305307-11A

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**18052205sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/22/23 09:09 AM**	
		Date of Extraction: 5/22/23	

Compound	%Recovery	Method Limits
Ethanol	58	50-130
Methyl tert-butyl ether	105	70-130
Hexane	83	70-130
Ethyl Acetate	93	70-130
2-Butanone (Methyl Ethyl Ketone)	81	70-130
Chloroform	97	70-130
1,1,1-Trichloroethane	103	70-130
Cyclohexane	84	70-130
Carbon Tetrachloride	110	70-130
Benzene	77	70-130
1,2-Dichloroethane	96	70-130
Heptane	81	70-130
Trichloroethene	102	70-130
4-Methyl-2-pentanone	78	70-130
Toluene	73	70-130
Tetrachloroethene	97	70-130
Chlorobenzene	85	70-130
Ethyl Benzene	90	70-130
m,p-Xylene	83	70-130
o-Xylene	82	70-130
Styrene	57	20-100
Propylbenzene	80	70-130
1,4-Dichlorobenzene	85	50-110
Naphthalene	26	5-80

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	93	70-130

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 2305307-11AA

VOCS BY PASSIVE SAMPLER - GC/MS

File Name:	**18052206sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/22/23 09:36 AM**	
		Date of Extraction: 5/22/23	

Compound	%Recovery	Method Limits
Ethanol	52	50-130
Methyl tert-butyl ether	99	70-130
Hexane	79	70-130
Ethyl Acetate	90	70-130
2-Butanone (Methyl Ethyl Ketone)	77	70-130
Chloroform	93	70-130
1,1,1-Trichloroethane	100	70-130
Cyclohexane	83	70-130
Carbon Tetrachloride	106	70-130
Benzene	75	70-130
1,2-Dichloroethane	93	70-130
Heptane	80	70-130
Trichloroethene	100	70-130
4-Methyl-2-pentanone	78	70-130
Toluene	73	70-130
Tetrachloroethene	99	70-130
Chlorobenzene	85	70-130
Ethyl Benzene	89	70-130
m,p-Xylene	82	70-130
o-Xylene	82	70-130
Styrene	56	20-100
Propylbenzene	80	70-130
1,4-Dichlorobenzene	83	50-110
Naphthalene	24	5-80

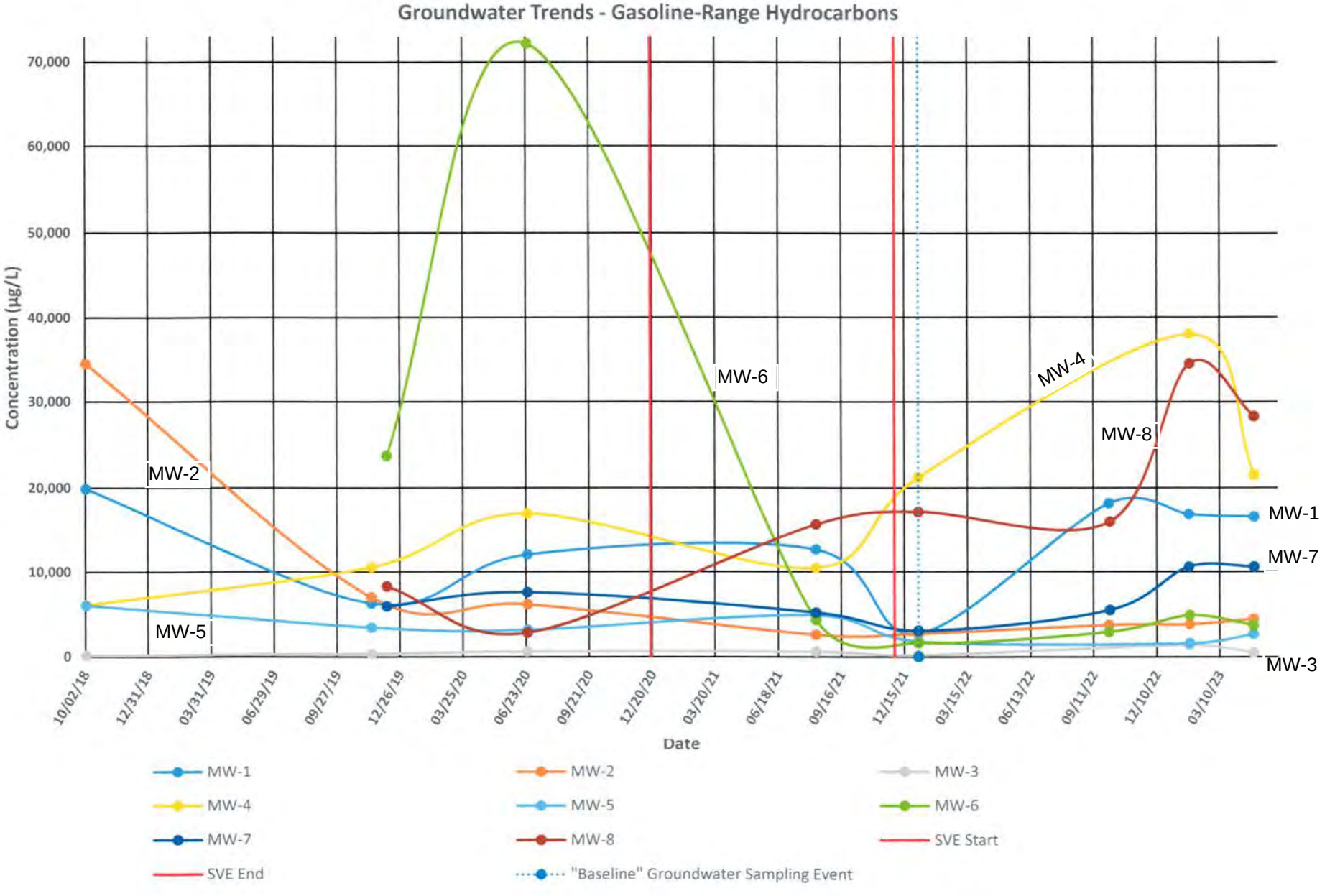
Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130

ATTACHMENT C

ATTACHMENT C

GROUNDWATER CONCENTRATION TRENDS


Groundwater Trends - Gasoline-Range Hydrocarbons
Concentration (µg/L)
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
10/02/18
12/31/18
03/31/19
06/29/19
09/27/19
12/26/19
03/25/20
06/23/20
09/21/20
12/20/20
03/20/21
06/18/21
09/16/21
12/15/21
03/15/22
06/13/22
09/11/22
12/10/22
03/10/23
Date
MW-2
MW-6
MW-4
MW-8
MW-1
MW-7
MW-5
MW-3
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-7
MW-8
SVE Start
SVE End
"Baseline" Groundwater Sampling Event

ACRONYMS AND ABBREVIATIONS

ACRONYMS AND ABBREVIATIONS

BGS	below ground surface
BS	blank spike
BSD	blank spike duplicate
BTOC	below top of casing
CMMP	Contaminated Media Management Plan
COC	chemical of concern or contaminant of concern
DEQ	Oregon Department of Environmental Quality
ECSI	Environmental Cleanup Site Information
EPA	U.S. Environmental Protection Agency
eV	electronvolt
HDPE	high-density polyethylene
I.D.	identification
inHg	inches of mercury
LUST	Leaking Underground Storage Tank
mg/L	milligrams per liter
mL/min	milliliters per minute
MS	matrix spike
MSD	matrix spike duplicate
MSL	mean sea level
MTBE	methyl tertiary butyl ether
mV	millivolts
NA	not applicable
NAVD	North American Vertical Datum
ND	not detected
NE	not established
ng/sample	nanograms per sample
NM	not measured
NOAA	National Oceanic and Atmospheric Administration
not detected	compound not detected at a concentration equal to or greater than the laboratory method reporting limit or reporting detection limit
NTU	nephelometric turbidity unit
ORP	oxidation reduction potential
PCE	tetrachloroethene
PFA	perfluoroalkoxy
PID	photoionization detector
PPA	Prospective Purchaser Agreement
ppm	parts per million
QC	quality control
RBC	risk-based concentration
RBDM	*Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites*
RPD	relative percent difference
SVE	soil vapor extraction
TCE	trichloroethene

TMB	trimethylbenzene
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
µS/cm	microSiemens per centimeter
VOC	volatile organic compound