January 31, 2023

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

Attention: Jim Orr

2022 Annual Monitoring Report
Former Mt. Hood Solutions Warehouse Site
4444 NW Yeon Avenue
Portland, Oregon
Project: MtHoodChem-4-002

INTRODUCTION AND BACKGROUND

On behalf of the former Mt. Hood Solutions, Inc., NV5 is pleased to submit this annual monitoring report for the Former Mt. Hood Solutions Warehouse Site located at 4444 NW Yeon Avenue in Portland, Oregon (subject property). This report summarizes the annual monitoring activities conducted in 2022 to meet the reporting requirement set forth in our Revised Vapor Mitigation System Maintenance Manual (VMSMM) and as summarized by the Oregon Department of Environmental Quality's (DEQ's) Conditional No Further Action (NFA) letter.[1,2]

As applicable to the issuance of the Conditional NFA for the subject property, this submittal provides a brief discussion and presentation of data summarizing monthly monitoring of the engineering control implemented at the subject property for the calendar year 2022.

SUB-SLAB DEPRESSURIZATION/SUB-SLAB VENTILATION SYSTEM DESCRIPTION

The engineering control established at the subject property consists of an active sub-slab depressurization/sub-slab ventilation (SSD/SSV) system driven by in-line fans connected to an array of sub-slab and subsurface ventilation pipes associated with a former soil vapor extraction

[1] GeoDesign, Inc., 2020. *Revised Vapor Mitigation System Maintenance Manual; Former Mt. Hood Solutions Warehouse Site; 4444 NW Yeon Avenue; Portland, Oregon*, dated August 6, 2020. GeoDesign Project: MtHoodChem-4-002

[2] DEQ, 2021. *Re: Conditional No Further Action Determination; Former Mt. Hood Chemical Corporation Site; 4444 NW Yeon Avenue in Portland, Oregon 97210; ECSI# 81*, dated July 7, 2021.

(SVE) system beneath the subject property floor slab as detailed in the VMSMM. The subject property layout illustrating elements of the SSD/SSV system and associated monitoring points is shown on Figure 1.

As originally constructed, fan placement in relation to the array of subsurface ventilation pipes included in the former SVE trench piping system is summarized as follows:[3]

- Fan #1: SVE line VE-4
- Fan #2: SVE lines 1n, 1s, and 2s
- Fan #3: SVE lines 3s and 5s
- Fan #4: SVE lines 6s and 7s
- Fan #5: SVE line VE-1d
- Fan #6: SVE line VE-2d
- Fan #7: SVE lines VE-3d
- Fan #8: SVE lines VE-5d, VE-6d, and VE-7d

Within each SVE trench, perforated PVC and/or HDPE extraction pipes are bedded in crushed rock. The in-line fans consist of RadonAway® Model No. HS5000 units. Each fan routes extracted vapors to exhaust stacks located on the roofline near the southern building exterior. Refer to the VMSMM for SSD/SSV system drawings.

SUMMARY OF MONITORING ACTIVITIES

NV5 performed routine (monthly) monitoring of the SSD/SSV system during calendar year 2022.[4] During each monitoring event, field personnel conducted the following activities:

- Recorded ambient atmospheric conditions, including temperature, barometric pressure, and relative humidity.
- Conducted a visual observation of the system and confirmed that all fans were operational.
- Measured and recorded vacuum levels and flow rates within each ventilation line.
- Evaluated the accumulation of moisture/condensate in each ventilation line, as indicated by vacuum and flow readings. Removed accumulated condensate within the ventilation lines as appropriate.

[3] Refer to reports on file with DEQ for a detailed description of the SVE system formerly in operation at the subject property. With the exception of SVE leg VE-4 (which is a standalone, 3-inch-diameter piping system), each SVE trench includes a deep, 4-inch-diameter extraction line and a shallow (sub-slab), 3-inch-diameter extraction/ventilation line. The "d" designation on the SVE legs denotes the deep, 4-inch-diameter extraction/ventilation line within each SVE trench. The "s" designation on the SVE legs denotes the shallow, 3-inch-diameter extraction/ventilation line within each SVE trench. The "n" designation denotes a separate ventilation line located in the former neutralization sump area.

[4] Monthly monitoring activities were formally initiated in February 2021 and included all subsequent months except June 2021.

During each monitoring event, field personnel also measured and recorded induced vacuum levels at selected monitoring points throughout the subject property warehouse structure (see Figure 1).[5]

A summary of SSD/SSV system readings is presented in Table 1, which also includes historical readings before calendar year 2022 for reference. Table 2 presents a summary of induced vacuum readings at selected monitoring points throughout the SSD/SSV operational period.

The Attachment presents summary charts depicting trends in differential pressure (vacuum), flow readings measured in each ventilation line, and selected monitoring point-induced vacuum readings throughout the monitoring period.

SUMMARY OF FAN MODIFICATION ACTIVITIES

As indicated in the attached charts and described in the 2021 Annual Monitoring Report, several of the ventilation lines periodically exhibited increased vacuum levels and decreased flow rates associated with the buildup of condensate in the respective lines. This observation was most significant during the wet season in ventilation lines VE-1d, VE-2d, and VE-3d. However, because the shallow (sub-slab) ventilation pipes are plumbed separately from the deeper lines, the impact of condensate buildup is less pronounced in the shallow array of ventilation lines. In response to the effects of condensate buildup in the deep lines, NV5 personnel completed a fan modification procedure in October 2022 (on a trial basis) to evaluate whether fan modifications could permanently rectify condensate buildup issues while maintaining the target levels of induced vacuum beneath the warehouse structure. On October 27, 2022, NV5 coordinated the following fan modification procedure:

- Removed the inline fans from ventilation lines VE-1d, VE-2d, and VE-3d. Temporarily capped each ventilation line to prevent short-circuiting.
- Transferred the three fans removed from the ventilation lines described above to other existing ventilation lines operating in series with previously installed fans to increase the ventilation as follows:
  - VE-1d fan moved to ventilation line VE-4
  - VE-2d fan moved to ventilation lines VE-1n, VE-1s, and VE-2s
  - VE-3d fan moved to ventilation lines VE-3s and VE-5s

Following the October 2022 fan modification procedure, NV5 conducted follow-up monitoring events in October and November 2022 to evaluate the efficacy of the fan modification. As summarized in Tables 1 and 2 and the Attachment, induced vacuum levels reflecting the modified fan layout were substantially less than the induced levels of vacuum observed prior to the modification. In response, NV5 coordinated the re-installation of three new fans on ventilation lines VE-1d, VE-2d, and VE-3d on December 20, 2022. The additional fan installation maintains the fans operating in series on ventilation lines VE-1n, VE-1s, VE-2s, VE-3s, VE-4, and VE-5s as noted above.

[5] Accessible observation locations include multi-depth monitoring points VO-7s, VO-7i, VO-7d, VO-8s, VO-8d, VO-9s, VO-9d, VO-10s, VO-10d, VO-11s, VO-11i, VO-11d, VO-12s, VO-12i, VO-12d, VO-13s, VO-13i, VO-13d, VO-14s, VO-14i, and VO-14d. Refer to Figure 1.

Following re-installation of new fans on ventilation lines VE-1d, VE-2d, and VE-3d, NV5 conducted a round of monitoring to document operational characteristics of the augmented layout on December 20, 2022. As summarized in Tables 1 and 2 and the Attachment, operational characteristics and induced vacuum levels beneath the warehouse structure returned to pre-modification conditions that exceed SSD/SSV system objectives.

DISCUSSION OF MONITORING RESULTS

The SSD/SSV system operated continuously throughout calendar year 2022 without disruption. A fan modification procedure was attempted in October 2022. However, based on unfavorable response, the ventilation fan layout was returned to original condition with the added benefit of fans operating in series on a subset of shallow ventilation lines detailed herein. Overall, the fan modifications described in the previous section are expected to help reduce the amount of recurring condensate buildup. However, NV5 plans to evacuate the condensate from the ventilation lines during forthcoming monitoring events to improve system efficacy.

The performance objective of the SSD/SSV system is to (1) operate continuously and (2) maintain an adequate level of induced vacuum to help prevent excessive buildup of vapors beneath the warehouse structure floor slab. Specifically, the target level of induced sub-slab vacuum throughout the warehouse area is -0.02 inches of water, consistent with the value recommended by the U.S. Environmental Protection Agency.[6] A review of the 2022 performance and monitoring data indicates that the SSD/SSV is exceeding this objective.

Based on a review of the overall 2022 monitoring data, the engineering control appears to be functioning beyond performance objectives.

PLANNED ACTIVITIES

NV5 will continue conducting monthly monitoring activities in 2023 as prescribed in the VMSMM. Induced sub-slab vacuum measurements will also be recorded.

♦ ♦ ♦

[6] U.S. Environmental Protection Agency, 2008. *Engineering Issue: Indoor Air Vapor Intrusion Mitigation Approaches*. Office of Research and Development, National Risk Management Research Laboratory, Publication 600/R-08-115, dated October 2008.

We appreciate your continued support on this project. Please call if you have questions regarding this submittal.

Sincerely,

NV5

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EAH:MFC:kt
Attachments
One copy submitted
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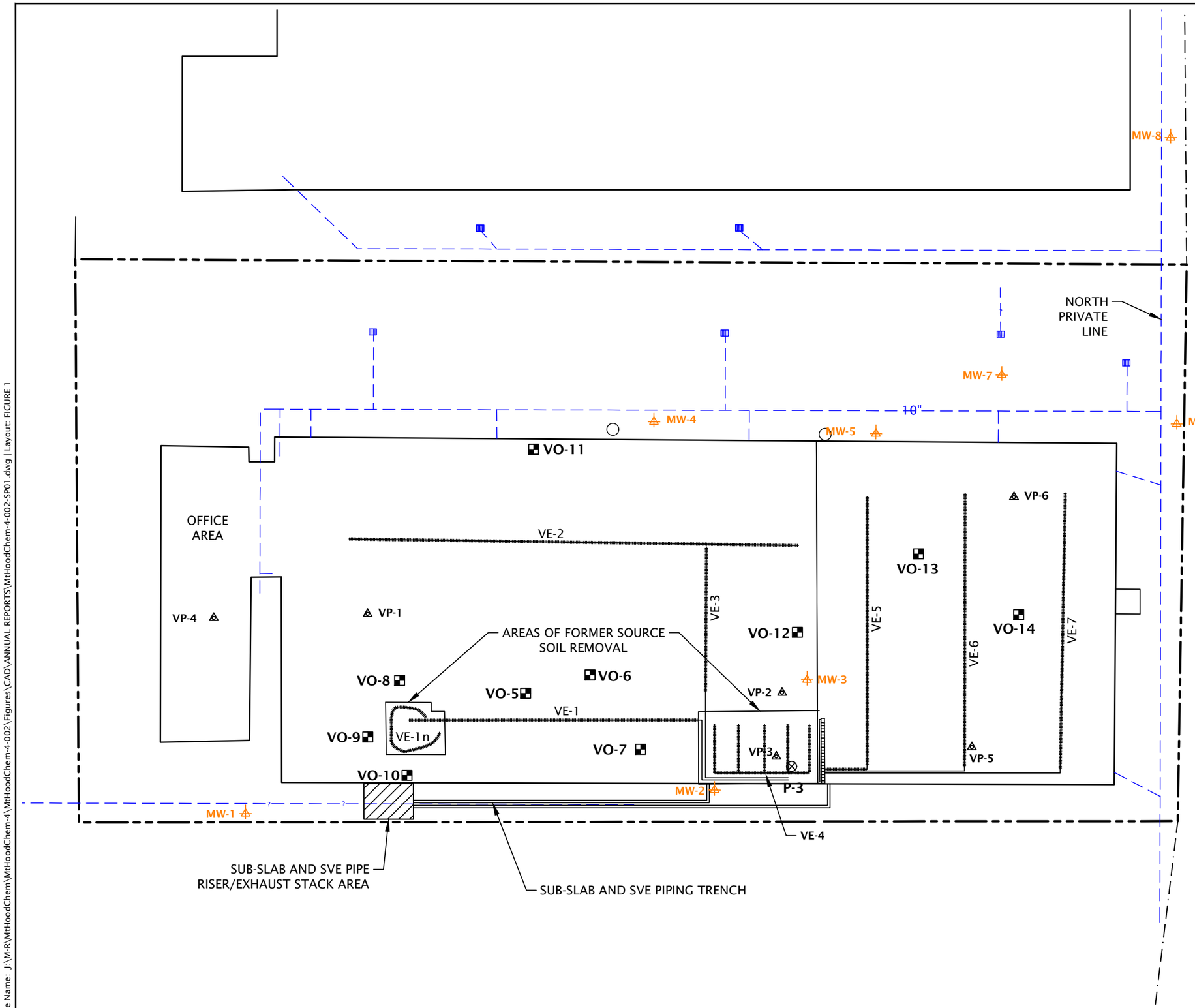
FIGURES



SITE PLAN BASED ON IMAGE OBTAINED FROM EVREN NORTHWEST, INC., SITE PLAN DATED MARCH 28, 2007

SITE PLAN

FIGURE 1

FORMER MT. HOOD SOLUTIONS WAREHOUSE SITE
PORTLAND, OR

MTHOODCHEM-4-002

JANUARY 2023

NV5

Printed By: aday | Print Date: 1/19/2023 8:50:00 AM
File Name: J:\M-R\MtHoodChem\MtHoodChem-4\MtHoodChem-4-002\Figures\CAD\ANNUAL REPORTS\MtHoodChem-4-002-SP01.dwg | Layout: FIGURE 1

TABLES

TABLE 1
SSD/SSV System Data Sheet - Compound Readings
Former Mt. Hood Solutions Warehouse Site
4444 NW Yeon Avenue
Portland, Oregon

Date	Time	Fan #1				Fan #2												Fan #3								Fan #4							
		VE-4				VE-1n				VE-1s				VE-2s				VE-3s				VE-5s				VE-6s				VE-7s			
		Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)
05/04/17	1135 - 1236	-3.5	0.4	60	2.9	-3.5	0.2	105	5.2	-3.5	2.0	105	5.2	-3.5	0.2	65	3.2	-3.4	0.2	70	3.4	-3.6	0.3	110	5.4	-2.5	0.3	2,040	100.2	-2.5	0.3	48	2.4
08/25/17	0745 - 0829	-3.8	0.7	82	4.0	-3.7	0.4	84	4.1	-3.8	0.4	84	4.1	-3.8	0.4	83	4.1	-3.8	0.3	120	5.9	-3.8	0.5	125	6.1	-2.5	0.4	890	43.7	-2.5	0.2	52	2.6
12/07/17	0947 - 1050	-4.1	0.0	101	5.0	-4.0	0.0	108	5.3	-4.0	0.0	111	5.5	-4.0	0.0	107	5.3	-2.8	0.0	78	3.8	-2.8	0.0	1,060	52.0	-2.6	0.0	1,310	64.3	-2.6	0.0	65	3.2
01/08/18	1000 - 1010	-2.4	–	1,350	66.3	-1.4	–	580	28.5	-1.3	–	690	33.9	-1.2	–	650	31.9	-1.7	–	900	44.2	-1.6	–	840	41.2	-1.8	–	940	46.2	-1.8	–	570	28.0
03/15/18	0820 - 0916	-2.4	0.7	1,150	56.5	-1.4	1.1	440	21.6	-1.3	1.3	630	30.9	-1.2	1.3	630	30.9	-1.7	1.2	860	42.2	-1.7	0.9	790	38.8	-1.8	0.8	870	42.7	-1.7	0.7	640	31.4
07/23/20	1245 - 1300	-2.3	–	1,500	73.7	-2.7	–	70	3.4	-2.7	–	68	3.3	-2.6	–	1,116	54.8	-2.0	–	1,112	54.6	-1.9	–	982	48.2	-1.9	–	827	40.6	-1.8	–	890	43.7
	1445 - 1520	-2.3	–	1,285	63.1	-1.4	–	583	28.6	-1.3	–	650	31.9	-1.3	–	625	30.7	-1.8	–	835	41.0	-1.8	–	810	39.8	-1.9	–	770	37.8	-1.8	–	725	35.6
08/23/20	–	-2.3	–	–	73.7	-2.7	–	–	3.4	-2.7	–	–	31.9	-2.6	–	–	54.8	-2.0	–	–	54.6	-1.9	–	–	48.2	-1.9	–	–	40.6	-1.8	–	–	43.7
	–	-2.3	–	–	63.1	-1.4	–	–	28.6	-1.3	–	–	46.6	-1.3	–	–	30.7	-1.8	–	–	40.9	-1.8	–	–	39.8	-1.9	–	–	37.8	-1.8	–	–	35.6
02/19/21	0800 - 0830	-3.9	–	250	12.3	-1.9	–	110	5.4	-1.7	–	890	43.7	-1.4	–	800	39.3	-1.7	–	990	48.6	-1.7	–	830	40.8	-1.8	–	910	44.7	-1.7	–	810	39.8
	1030 - 1100	-2.4	–	1,500	73.7	-1.4	–	550	27.0	-1.3	–	710	34.9	-1.2	–	690	33.9	-1.7	–	970	47.6	-1.7	–	930	45.7	-1.8	–	920	45.2	-1.8	–	700	34.4
03/26/21	1215	-2.4	0.0	–	84.5	-1.5	0.0	–	41.7	-1.4	0.0	–	46.4	-1.3	0.0	–	45.3	-1.8	0.0	–	58.8	-1.7	0.0	–	43.7	-1.9	0.0	–	54.8	-1.8	0.0	–	50.9
04/28/21	1430	-2.4	0.0	–	92.6	-1.4	0.0	–	32.7	-1.3	0.0	–	46.3	-1.2	0.0	–	45.6	-1.8	0.0	–	76.1	-1.7	0.0	–	45.7	-1.8	0.0	–	57.7	-1.8	0.0	–	49.1
05/21/21	1310	-2.3	0.1	–	74.3	-1.4	0.0	–	34.8	-1.3	0.0	–	40.1	-1.3	0.0	–	38.4	-1.8	0.0	–	54.0	-1.8	0.0	–	53.3	-1.8	0.0	–	60.8	-1.8	0.0	–	45.5
07/15/21	1420 - 1525	-2.3	0.1	1,380	67.8	-1.4	0.1	570	28.0	-1.4	0.0	710	34.9	-1.3	0.0	610	30.0	-1.8	0.0	900	44.2	-1.7	0.0	880	43.2	-1.8	0.0	840	41.2	-1.8	0.0	770	37.8
08/25/21	0930 - 1200	-2.3	0.2	1,440	70.7	-1.4	0.2	560	27.5	-1.3	0.2	700	34.4	-1.3	0.2	720	35.3	-1.7	0.1	990	48.6	-1.7	0.2	930	45.7	-1.8	0.2	920	45.2	-1.8	0.2	770	37.8
09/22/21	1200	-2.3	0.1	1,370	67.3	-1.4	0.1	570	28.0	-1.3	0.1	670	32.9	-1.2	0.1	670	32.9	-1.7	0.1	890	43.7	-1.7	0.2	850	41.7	-1.8	0.2	940	46.2	-1.8	0.2	780	38.3
10/27/21	1035	-2.3	0.2	1,260	61.9	-1.4	0.3	530	26.0	-1.3	0.3	640	31.4	-1.2	0.3	640	31.4	-1.7	0.3	920	45.2	-1.7	0.3	830	40.8	-1.8	0.3	780	38.3	-1.7	0.3	680	33.4
11/24/21	0800 - 0855	-2.4	0.0	1,250	61.4	-1.4	0.0	500	24.6	-1.3	0.0	620	30.4	-1.1	0.0	600	29.5	-1.7	0.0	870	42.7	-1.7	0.0	790	38.8	-1.8	0.0	740	36.3	-1.7	0.0	680	33.4

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		Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)
12/16/21	1115 - 1150	-2.4	0.0	590	29.0	-1.4	0.0	640	31.4	-1.4	0.0	640	31.4	-1.2	0.0	680	33.4	-1.7	0.0	830	40.8	-1.7	0.0	810	39.8	-1.7	0.0	780	38.3	-1.7	0.0	600	29.5
01/21/22	0815 - 0905	-2.4	0.0	1,400	68.7	-1.8	0.0	180	8.8	-1.7	0.0	800	39.3	-1.4	0.0	730	35.8	-1.8	0.0	860	42.2	-1.7	0.0	810	39.8	-1.8	0.0	825	40.5	-1.7	0.0	700	34.4
01/26/22	0900 - 0920	-2.4	–	–	–	-1.8	–	–	–	-1.7	–	–	–	-1.3	–	–	–	-1.7	–	–	–	-1.7	–	–	–	-1.8	–	–	–	-1.7	–	–	–
	1250 - 1320	-2.4	0.1	1,650	81.0	-1.5	0.1	780	38.3	-1.4	0.1	830	40.8	-1.2	0.1	800	39.3	-1.7	0.1	1,020	50.1	-1.7	0.1	1,130	55.5	-1.8	0.2	1,060	52.0	-1.7	0.1	940	46.2
02/24/22	0925 - 0955	-2.4	–	1,100	54.0	-1.8	–	290	14.2	-1.7	–	720	35.4	-1.0	–	530	26.0	-1.7	–	780	38.3	-1.7	–	730	35.8	-1.8	–	730	35.8	-1.7	–	630	30.9
	1235 - 1315	-2.4	0.0	1,250	61.4	-1.5	0.0	520	25.5	-1.4	0.0	660	32.4	-1.2	0.0	650	31.9	-1.7	0.0	800	39.3	-1.7	0.0	800	39.3	-1.8	0.0	810	39.8	-1.7	0.0	690	33.9
03/23/22	0950 - 1020	-2.4	–	1,350	66.3	-1.4	–	570	28.0	-1.3	–	680	33.4	-1.3	–	680	33.4	-1.8	–	910	44.7	-1.7	–	840	41.2	-1.8	–	850	41.7	-1.8	–	710	34.9
	1320 - 1350	-2.4	0.2	1,500	73.7	-1.5	0.2	620	30.4	-1.4	0.1	720	35.4	-1.3	0.1	720	35.4	-1.8	0.1	920	45.2	-1.8	0.1	910	44.7	-1.8	0.1	950	46.6	-1.8	0.1	810	39.8
04/27/22	0800 - 0830	-2.4	–	1,300	63.8	-1.4	–	510	25.0	-1.3	–	640	31.4	-1.3	–	630	30.9	-1.8	–	800	39.3	-1.8	–	730	35.8	-1.8	–	780	38.3	-1.8	–	690	33.9
	1335 - 1405	-2.4	0.1	1,370	67.3	-1.6	0.1	590	29.0	-1.4	0.0	710	34.9	-1.4	0.1	680	33.4	-1.9	0.0	980	48.1	-1.8	0.0	940	46.2	-1.9	0.1	980	48.1	-1.8	0.1	910	44.7
05/26/22	0840 - 0925	-2.4	–	1,340	65.8	-1.5	–	600	29.5	-1.4	–	680	33.4	-1.3	–	700	34.4	-1.8	–	930	45.7	-1.8	–	860	42.2	-1.9	–	890	43.7	-1.8	–	940	46.2
	1235 - 1315	-2.4	0.0	1,640	80.5	-1.5	0.0	660	32.4	-1.4	0.0	710	34.9	-1.4	0.0	740	36.3	-1.8	0.0	1,020	50.1	-1.8	0.0	980	48.1	-1.9	0.0	1,060	52.0	-1.8	0.0	890	43.7
06/27/22	0830 - 0845	-2.3	–	1,410	69.2	-1.5	–	620	30.4	-1.4	–	692	34.0	-1.4	–	675	33.1	-1.8	–	1,025	50.3	-1.8	–	880	43.2	-1.9	–	905	44.4	-1.9	–	905	44.4
	1300 - 1330	-2.1	0.9	1,654	81.2	-1.5	0.9	730	35.8	-1.4	1.0	850	41.7	-1.4	0.9	875	43.0	-1.8	1.0	1,230	60.4	-1.8	1.0	1,100	54.0	-1.9	1.2	1,300	63.8	-1.9	1.3	1215	59.7
07/22/22	0830 - 0855	-2.3	–	1,082	53.1	-1.5	–	520	25.5	-1.4	–	560	27.5	-1.4	–	545	26.8	-1.8	–	769	37.8	-1.8	–	771	37.9	-2.0	–	830	40.8	-1.9	–	678	33.3
	1105 - 1142	-2.3	0.2	1,405	69.0	-1.5	0.2	552	27.1	-1.4	0.3	638	31.3	-1.4	0.2	565	27.7	-1.9	0.2	860	42.2	-1.8	0.2	835	41.0	-1.9	0.2	885	43.5	-1.9	0.2	752	36.9
08/26/22	0815 - 0845	-2.3	–	1,060	52.0	-1.5	–	371	18.2	-1.4	–	434	21.3	-1.4	–	465	22.8	-1.8	–	680	33.4	-1.8	–	662	32.5	-1.9	–	645	31.7	-1.9	–	530	26.0
	1115 - 1145	-2.3	0.1	1,096	53.8	-1.5	0.2	405	19.9	-1.4	0.1	491	24.1	-1.4	0.2	442	21.7	-1.8	0.2	628	30.8	-1.8	0.2	620	30.4	-1.9	0.2	635	31.2	-1.9	0.2	645	31.7

TABLE 1
SSD/SSV System Data Sheet - Compound Readings
Former Mt. Hood Solutions Warehouse Site
4444 NW Yeon Avenue
Portland, Oregon

Date	Time	Fan #1				Fan #2												Fan #3								Fan #4							
		VE-4				VE-1n				VE-1s				VE-2s				VE-3s				VE-5s				VE-6s				VE-7s			
		Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)
09/26/22	0855 - 0921	-2.3	–	770	37.8	-1.5	–	414	20.3	-1.4	–	502	24.6	-1.3	–	479	23.5	-1.8	–	747	36.7	-1.7	–	681	33.4	-1.9	–	565	27.7	-1.8	–	510	25.0
	1115 - 1145	-2.3	0.5	1,128	55.4	-1.5	0.2	545	26.8	-1.4	0.1	612	30.0	-1.4	0.1	516	25.3	-1.8	0.0	725	35.6	-1.8	0.1	805	39.5	-1.9	0.1	915	44.9	-1.8	0.0	654	32.1
10/27/22	0730 - 0800	-2.3	0.1	1,005	49.3	-1.4	0.1	275	13.5	-1.3	0.1	344	16.9	-1.3	0.1	340	16.7	-1.7	0.1	625	30.7	-1.7	0.1	538	26.4	-1.8	0.1	635	31.2	-1.7	0.1	455	22.3
	1313 - 1342	-4.0	0.0	2,100	103.1	-1.8	0.1	480	23.6	-1.7	0.1	930	45.7	-1.6	0.1	530	26.0	-2.5	0.2	760	37.3	-2.4	0.2	720	35.4	-1.8	0.2	1,100	54.0	-1.8	0.2	490	24.1
11/02/22	1020 - 1130	-4.1	0.0	1,277	62.7	-1.9	0.1	329	16.2	-1.7	0.1	441	21.7	-1.6	0.1	396	19.4	-2.5	0.1	585	28.7	-2.4	0.1	583	28.6	-1.8	0.1	500	24.6	-1.8	0.1	381	18.7
11/10/22	0930 - 0948	-4.1	–	2,058	101.0	-1.9	–	385	18.9	-1.7	–	515	25.3	-1.7	–	462	22.7	-2.5	–	658	32.3	-2.4	–	616	30.2	-1.8	–	578	28.4	-1.7	–	428	21.0
	1305 - 1340	-4.1	0.1	2,025	99.4	-1.9	0.2	397	19.5	-1.7	0.2	770	37.8	-1.6	0.2	477	23.4	-2.4	0.2	722	35.5	-2.4	0.2	661	32.5	-1.8	0.3	841	41.3	-1.7	0.2	660	32.4
12/20/22	1040 - 1130	-4.2	0.0	1,510	74.1	-2.0	0.0	530	26.0	-1.9	0.0	650	31.9	-1.8	0.0	660	32.4	-2.6	0.0	840	41.2	-2.5	0.0	950	46.6	-1.9	0.0	700	34.4	-1.8	0.0	600	29.5

TABLE 1
SSD/SSV System Data Sheet - Compound Readings
Former Mt. Hood Solutions Warehouse Site
4444 NW Yeon Avenue
Portland, Oregon

Date	Time	Fan #5				Fan #6				Fan #7				Fan #8												Cumulative Flow Rate (cfm)	Remarks
		VE-1d				VE-2d				VE-3d				VE-5d				VE-6d				VE-7d					
		Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)		
05/04/17	1135 - 1236	-2.8	0.2	2,050	178.9	-3.4	4.5	105	9.2	-3.4	3.0	59	5.1	-1.6	0.3	1,480	129.2	-1.7	0.3	140	12.2	-1.7	0.2	150	13.1	481	First event following additional fan installation (8 fans online)
08/25/17	0745 - 0829	-3.7	1.9	81	7.1	-3.7	1.0	80	7.0	-3.8	0.9	80	7.0	-0.8	0.8	570	49.7	-0.8	0.6	305	26.6	-0.8	0.2	307	26.8	206	Second event following additional fan installation (8 fans online)
12/07/17	0947 - 1050	-4.1	0.0	117	10.2	-4.1	0.0	107	9.3	-4.1	0.0	112	9.8	-1.6	0.0	1,015	88.6	-1.7	0.0	46	4.0	-1.7	0.0	45	3.9	280	Third event following additional fan installation (8 fans online)
01/08/18	1000 - 1010	-2.3	–	800	69.8	-2.0	–	780	68.1	-2.0	–	790	68.9	-1.3	–	890	77.7	-1.3	–	180	15.7	-1.3	–	250	21.8	711	Follow-up measurements following removal of condensate from lines
03/15/18	0820 - 0916	-2.9	0.1	500	43.6	-2.2	0.3	660	57.6	-2.1	0.2	740	64.6	-1.5	0.5	870	75.9	-1.5	0.2	150	13.1	-1.5	0.2	160	14.0	628	Fourth event following additional fan installation (8 fans online)
07/23/20	1245 - 1300	-3.7	–	102	8.9	-3.6	–	107	9.3	-3.7	–	114	9.9	-1.3	–	872	76.1	-1.3	–	583	50.9	-1.3	–	53	4.6	492	Fifth event following additional fan installation (8 fans online), before removal of condensate from lines
	1445 - 1520	-2.1	–	540	47.1	-1.8	–	870	75.9	-1.7	–	835	72.9	-1.2	–	715	62.4	-1.2	–	521	45.5	-1.2	–	215	18.8	704	Follow-up measurements following removal of condensate from lines
08/23/20	–	-3.7	–	–	8.9	-3.6	–	–	9.3	-3.7	–	–	9.9	-1.3	–	–	76.1	-1.3	–	–	50.9	-1.3	–	–	4.6	521	Condensate removal event - pre removal
	–	-2.1	–	–	47.6	-1.8	–	–	75.9	-1.7	–	–	72.9	-1.2	–	–	62.4	-1.2	–	–	45.5	-1.2	–	–	18.8	719	Condensate removal event - post removal
02/19/21	0800 - 0830	-4.0	–	120	10.5	-4.0	–	120	10.5	-3.9	–	120	10.5	-2.3	–	890	77.7	-2.1	–	55	4.8	-2.1	–	70	6.1	405	Condensate removal event - pre removal
	1030 - 1100	-2.2	–	960	83.8	-1.9	–	910	79.4	-1.7	–	920	80.3	-1.3	–	880	76.8	-1.3	–	240	20.9	-1.3	–	290	25.3	789	Condensate removal event - post removal
03/26/21	1215	-3.3	0.0	–	36.0	-3.7	0.0	–	41.8	-3.8	0.0	–	39.1	-1.9	0.0	–	94.2	-1.9	0.0	–	14.6	-2.0	0.0	–	13.5	704	Evren
04/28/21	1430	-3.3	0.0	–	36.0	-3.5	0.0	–	36.2	-3.8	0.0	–	35.5	-1.8	0.0	–	138.1	-1.8	0.0	–	9.5	-1.8	0.0	–	9.2	746	Evren
05/21/21	1310	-3.1	1.1	–	35.0	-3.2	0.2	–	42.0	-3.3	0.3	–	13.0	-1.7	0.1	–	97.5	-1.8	0.0	–	5.8	-1.8	0.0	–	10.2	618	with Evren
07/15/21	1420 - 1525	-1.9	0.1	870	75.9	-1.5	0.0	950	82.9	-1.5	0.1	890	77.7	-1.2	0.1	820	71.6	-1.2	0.0	580	50.6	-1.2	0.0	60	5.2	769	
08/25/21	0930 - 1200	-1.8	0.1	840	73.3	-1.4	0.1	920	80.3	-1.4	0.1	910	79.4	-1.2	0.2	760	66.3	-1.2	0.2	630	55.0	-1.2	0.2	58	5.1	784	
09/22/21	1200	-1.8	0.0	890	77.7	-1.4	0.0	880	76.8	-1.4	0.0	920	80.3	-1.1	0.1	810	70.7	-1.1	0.1	590	51.5	-1.1	0.1	82	7.2	775	Also completed vacuum removal event. No considerable condensate present
10/27/21	1035	-2.8	0.2	660	57.6	-3.4	0.2	170	14.8	-3.5	0.2	170	14.8	-1.1	0.2	710	62.0	-1.1	0.2	510	44.5	-1.1	0.2	40	3.5	520	VE-1d, 2d, and 3d appear to have accumulated some condensate since last.
11/24/21	0800 - 0855	-3.7	0.0	230	20.1	-3.8	0.0	120	10.5	-3.9	0.0	110	9.6	-1.4	0.0	900	78.5	-1.5	0.0	180	15.7	-1.5	0.0	75	6.5	448	VE-1d, 2d, 3d, 6d, and 7d appear to be affected by condensate.

TABLE 1
SSD/SSV System Data Sheet - Compound Readings
Former Mt. Hood Solutions Warehouse Site
4444 NW Yeon Avenue
Portland, Oregon

Date	Time	Fan #5				Fan #6				Fan #7				Fan #8												Cumulative Flow Rate (cfm)	Remarks
		VE-1d				VE-2d				VE-3d				VE-5d				VE-6d				VE-7d					
		Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)		
12/16/21	1115 - 1150	-2.5	0.0	590	51.5	-2.1	0.0	580	50.6	-1.8	0.0	710	62.0	-1.4	0.0	880	76.8	-1.4	0.0	150	13.1	-1.4	0.0	110	9.6	599	Completed condensate removal before readings were collected.
01/21/22	0815 - 0905	-3.9	0.0	105	9.2	-3.9	0.0	110	9.6	-3.9	0.0	150	13.1	-1.7	0.0	1,040	90.8	-1.8	0.0	45	3.9	-1.8	0.0	43	3.8	453	VE-1d, 2d, 3d, 6d, and 7d appear to be affected by condensate.
01/26/22	0900 - 0920	-3.9	--	--	--	-3.9	--	--	--	-3.9	--	--	--	-1.5	--	--	--	-1.6	--	--	--	-1.6	--	--	--	--	Vacuum readings only, collected prior to condensate removal.
	1250 - 1320	-2.5	0.2	700	61.1	-1.8	0.1	850	74.2	-1.7	0.1	1,000	87.3	-1.1	0.1	960	83.8	-1.1	0.1	250	21.8	-1.1	0.1	410	35.8	854	Readings collected following condensate removal.
02/24/22	0925 - 0955	-3.8	--	180	15.7	-3.9	--	140	12.2	-3.9	--	130	11.3	-1.6	--	880	76.8	-1.6	--	55	4.8	-1.6	--	55	4.8	408	Readings collected prior to condensate removal.
	1235 - 1315	-2.3	0.0	590	51.5	-1.9	0.0	670	58.5	-1.7	0.0	740	64.6	-1.2	0.0	820	71.6	-1.3	0.0	140	12.2	-1.3	0.0	250	21.8	648	Readings collected following condensate removal.
03/23/22	0950 - 1020	-3.6	--	350	30.5	-3.6	--	190	16.6	-3.6	--	180	15.7	-1.7	--	1,070	93.4	-1.7	--	75	6.5	-1.7	--	65	5.7	508	Readings collected prior to condensate removal.
	1320 - 1350	-2.4	0.2	770	67.2	-1.9	0.2	820	71.6	-1.7	0.1	900	78.5	-1.3	0.1	970	84.7	-1.4	0.2	90	7.9	-1.4	0.1	360	31.4	771	Readings collected following condensate removal.
04/27/22	0800 - 0830	-3.4	--	350	30.5	-3.6	--	280	24.4	-3.8	--	220	19.2	-1.6	--	960	83.8	-1.7	--	130	11.3	-1.7	--	140	12.2	499	Readings collected prior to condensate removal.
	1335 - 1405	-2.3	0.1	890	77.7	-1.8	0.1	1160	101.2	-1.9	0.0	880	76.8	-1.4	0.1	980	85.5	-1.4	0.1	180	15.7	-1.4	0.1	340	29.7	815	Readings collected following condensate removal.
05/26/22	0840 - 0925	-2.9	--	600	52.4	-2.3	--	800	69.8	-3.0	--	380	33.2	-1.5	--	970	84.7	-1.5	--	120	10.5	-1.5	--	310	27.1	651	Readings collected prior to condensate removal.
	1235 - 1315	-2.3	0.0	1,050	91.6	-1.9	0.0	1,030	89.9	-1.7	0.0	1,030	89.9	-1.3	0.0	1,030	89.9	-1.3	0.0	250	21.8	-1.3	0.0	380	33.2	884	Readings collected following condensate removal.
06/27/22	0830 - 0845	-2.1	--	950	82.9	-1.6	--	1,025	89.5	-1.6	--	1,015	88.6	-1.1	--	865	75.5	-1.1	--	457	39.9	-1.1	--	482	42.1	856	Readings collected prior to condensate removal.
	1300 - 1330	-2.1	0.7	1,175	102.5	-1.6	0.8	1,257	109.7	-1.6	0.8	1,275	111.3	-1.1	0.8	865	75.5	-1.1	0.8	575	50.2	-1.1	0.8	550	48.0	1048	Readings collected following condensate removal.
07/22/22	0830 - 0855	-2.0	--	655	57.2	-1.5	--	758	66.2	-1.5	--	746	65.1	-1.1	--	596	52.0	-1.1	--	322	28.1	-1.1	--	310	27.1	643	Readings collected prior to condensate removal.
	1105 - 1142	-2.0	0.2	786	68.6	-1.5	0.2	866	75.6	-1.5	0.2	858	74.9	-1.3	0.2	780	68.1	-1.3	0.2	476	41.5	-1.3	0.2	353	30.8	753	Readings collected following condensate removal.
08/26/22	0815 - 0845	-1.9	--	580	50.6	-1.5	--	645	56.3	-1.5	--	642	56.0	-1.1	--	502	43.8	-1.1	--	290	25.3	-1.1	--	267	23.3	549	Readings collected prior to condensate removal.
	1115 - 1145	-1.9	0.3	615	53.7	-1.5	0.2	697	60.8	-1.4	0.1	707	61.7	-1.1	0.1	565	49.3	-1.1	0.1	355	31.0	-1.1	0.1	194	16.9	579	Readings collected following condensate removal.

TABLE 1
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Former Mt. Hood Solutions Warehouse Site
4444 NW Yeon Avenue
Portland, Oregon

Date	Time	Fan #5				Fan #6				Fan #7				Fan #8												Cumulative Flow Rate (cfm)	Remarks
		VE-1d				VE-2d				VE-3d				VE-5d				VE-6d				VE-7d					
		Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)	Leg Vacuum (iow)	Leg PID (ppm)	Leg Velocity (fpm)	Leg Flow (cfm)		
09/26/22	0855 - 0921	-1.9	--	493	43.0	-1.5	--	512	44.7	-1.4	--	529	46.2	-1.0	--	407	35.5	-1.0	--	258	22.5	-1.0	--	214	18.7	486	Readings collected prior to condensate removal.
	1115 - 1145	-1.9	0.7	804	70.2	-1.4	0.7	830	72.4	-1.4	0.5	660	57.6	-1.0	0.2	548	47.8	-1.0	0.2	388	33.9	-1.0	0.2	315	27.5	657	Readings collected following condensate removal.
10/27/22	0730 - 0800	-1.9	0.0	595	51.9	-1.5	0.0	548	47.8	-1.2	0.0	478	41.7	-0.8	0.1	390	34.0	-0.8	0.1	257	22.4	-0.8	0.1	130	11.3	458	Readings collected prior to fan reconfiguration. No condensate removal
	1313 - 1342	--	--	--	--	--	--	--	--	--	--	--	--	-1.0	0.1	640	55.9	-1.0	0.1	500	43.6	-1.0	0.1	170	14.8	463	Readings collected following fan reconfiguration.
11/02/22	1020 - 1130	--	--	--	--	--	--	--	--	--	--	--	--	-0.8	0.1	393	34.3	-0.9	0.1	208	18.2	-0.9	0.1	41	3.6	277	Readings collected following fan reconfiguration.
11/10/22	0930 - 0948	--	--	--	--	--	--	--	--	--	--	--	--	-1.7	--	872	76.1	-1.7	--	83	7.2	-1.7	--	132	11.5	375	Readings collected prior to condensate removal.
	1305 - 1340	--	--	--	--	--	--	--	--	--	--	--	--	-1.6	0.2	847	73.9	-1.6	0.1	84	7.3	-1.7	0.2	80	7.0	410	Readings collected following to condensate removal.
12/20/22	1040 - 1130	-2.5	0.0	785	68.5	-1.9	0.0	650	56.7	-1.9	0.0	700	61.1	-1.5	0.0	690	60.2	-1.5	0.0	120	10.5	-1.5	0.0	140	12.2	647	Readings collected following condensate removal AND addition of three new fans on VE-1d, -2d, and -3d

Notes:
cfm: cubic feet per minute
iow: inches of water
fpm: feet per minute
PID: photoionization detector
ppm: parts per million
--: not measured or recorded

TABLE 2
SSD/SSV System Induced Vacuums – Observation Points
Former Mt. Hood Solutions Warehouse Site
4444 NW Yeon Avenue
Portland, Oregon

Date	Time	VP-1 (sub-slab)		VP-2 (sub-slab)		VP-3 (sub-slab)		VO-4s (sub-slab)		VO-4i (2 – 3 feet BGS)		VO-4d (4 – 5 feet BGS)		VO-5s (sub-slab)		VO-5i (2 – 3 feet BGS)		VO-5d (4 – 5 feet BGS)		VO-6s (sub-slab)		VO-6i (2 – 3 feet BGS)		VO-6d (4 – 5 feet BGS)		VO-7s (sub-slab)		VO-7i (2 – 3 feet BGS)		VO-7d (4 – 5 feet BGS)		VO-8s (sub-slab)		VO-8d (1.5 – 2.5 feet BGS)		VO-9s (sub-slab)	
		Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)
05/04/17	0922 - 1106	-0.023	0.4	--	--	-0.023	0.7	-0.16	0.0	-0.21	0.0	-0.39	0.2	--	--	--	--	--	--	--	--	--	--	--	--	-0.286	0.1	-0.228	0.0	-0.075	0.1	-0.056	0.2	-0.082	0.3	-0.013	0.1
08/24/17	0834 - 1052	-0.002	4.3	-0.006	0.4	-0.006	7.1	-0.003	4.3	-0.004	6.2	-0.001	2.9	-0.004	4.4	-0.004	4.9	-0.013	2.7	--	--	--	--	--	--	-0.012	2.5	-0.005	2.3	-0.003	1.4	-0.006	6.6	-0.007	5.2	-0.020	1.5
12/07/17	0849 - 1245	0.000	0.3	-0.002	0.3	0.000	0.0	--	--	--	--	--	--	0.000	0.8	-0.003	0.5	-0.002	0.5	--	--	--	--	--	--	-0.004	0.0	0.002	1.2	0.000	0.0	0.000	0.6	-0.004	0.0	0.000	0.0
01/08/18	1011 - 1039	--	--	--	--	--	--	--	--	--	--	--	--	-0.092	--	-0.095	--	-0.412	--	--	--	--	--	--	--	-0.133	--	-0.291	--	-0.249	--	-0.121	--	-0.147	--	-0.022	--
03/15/18	0934 - 1208	-0.098	0.9	-0.070	0.3	-0.262	1.1	--	--	--	--	--	--	-0.121	0.9	-0.129	0.9	-0.377	1.3	--	--	--	--	--	--	-0.28	0.6	-0.26	0.7	-0.180	1.2	-0.140	1.2	-0.162	1.6	-0.030	1.7
10/27/21	1100 - 1130	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.327	0.3	-0.34	0.3	-0.248	0.3	-0.195	0.3	-0.216	0.3	-0.054	0.3
11/24/21	0910 - 0950	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.208	0.1	-0.204	0.1	-0.185	0.1	-0.136	0.1	-0.146	0.1	-0.035	0.1
12/16/21	1200 - 1250	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.408	0.1	-0.367	0.1	-0.277	0.1	-0.206	0.1	-0.233	0.1	-0.047	0.1
01/26/22	0925 - 1000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.138	--	-0.142	--	-0.159	--	-0.082	--	-0.083	--	-0.023	--
	1335 - 1405	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.448	0.1	-0.396	0.1	-0.281	0.1	-0.217	0.1	-0.242	0.1	-0.044	0.1
02/24/22	0925 - 0955	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.204	--	-0.203	--	-0.192	--	-0.114	--	-0.124	--	-0.031	--
	1325 - 1400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.437	0.0	-0.396	0.0	-0.287	0.0	-0.214	0	-0.248	0.0	-0.049	0.0
03/23/22	1030 - 1115	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.303	--	-0.303	--	-0.280	--	-0.201	--	-0.210	--	-0.056	--
	1400 - 1430	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.520	0.2	-0.477	0.2	-0.381	0.2	-0.290	0.2	-0.295	0.2	-0.068	0.2
04/27/22	0830 - 0855	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.320	--	-0.323	--	-0.301	--	-0.217	--	-0.225	--	-0.064	--
	1410 - 1440	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.546	0.1	-0.510	0.1	-0.406	0.1	-0.312	0.1	-0.338	0.1	-0.093	0.1
05/26/22	0935 - 1000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.461	--	-0.438	--	-0.377	--	-0.315	--	-0.330	--	-0.082	--
	1320 - 1350	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.551	0.0	-0.512	0.0	-0.419	0.0	-0.344	0	-0.365	0.0	-0.101	0.0
06/27/22	0845 - 0930	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.588	--	-0.543	--	-0.429	--	-0.387	--	-0.404	--	-0.134	--
	1330 - 1415	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.611	0.6	-0.567	0.8	-0.462	0.7	-0.409	0.9	-0.429	0.8	-0.147	0.7
07/22/22	0859 - 0930	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.587	--	-0.554	--	-0.438	--	-0.360	--	-0.410	--	-0.121	--
	1105 - 1142	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.591	0.5	-0.533	0.9	-0.438	0.7	-0.368	0.1	-0.407	0.1	-0.176	0.1

TABLE 2
SSD/SSV System Induced Vacuums – Observation Points
Former Mt. Hood Solutions Warehouse Site
4444 NW Yeon Avenue
Portland, Oregon

Date	Time	VP-1 (sub-slab)		VP-2 (sub-slab)		VP-3 (sub-slab)		VO-4s (sub-slab)		VO-4i (2 – 3 feet BGS)		VO-4d (4 – 5 feet BGS)		VO-5s (sub-slab)		VO-5i (2 – 3 feet BGS)		VO-5d (4 – 5 feet BGS)		VO-6s (sub-slab)		VO-6i (2 – 3 feet BGS)		VO-6d (4 – 5 feet BGS)		VO-7s (sub-slab)		VO-7i (2 – 3 feet BGS)		VO-7d (4 – 5 feet BGS)		VO-8s (sub-slab)		VO-8d (1.5 – 2.5 feet BGS)		VO-9s (sub-slab)	
		Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)
08/26/22	0850 - 0915	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	-0.600	–	-0.555	–	-0.436	–	-0.387	–	-0.404	–	-0.139	–
	1155 - 1220	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	-0.603	1.5	-0.554	1.5	-0.438	1.5	-0.388	0.5	-0.407	0.5	-0.144	0.6
09/26/22	0930 - 1000	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	-0.559	–	-0.511	–	-0.387	–	-0.336	–	-0.357	–	-0.105	–
	1235 - 1305	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	-0.548	0.0	-0.501	0.0	-0.379	0.0	-0.324	0.0	-0.348	0.0	-0.097	0.0
10/26/22	1235 - 1305	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	-0.488	0.3	-0.430	0.3	-0.300	0.3	-0.229	0.2	-0.259	0.2	-0.039	0.2
10/27/22	1355 - 1425	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	-0.195	0.2	-0.206	0.2	-0.234	0.2	-0.172	0.2	-0.174	0.2	-0.057	0.2
11/02/22	1140 - 1225	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	-0.202	0.4	-0.211	0.4	-0.237	0.4	-0.169	0.2	-0.168	0.2	-0.052	0.3
11/10/22	0905 - 0926	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	-0.179	–	-0.183	–	-0.207	–	-0.146	–	-0.149	–	-0.042	–
	1145 - 1215	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	-0.182	0.2	-0.183	0.2	-0.218	0.2	-0.158	0.1	-0.163	0.1	-0.055	0.1
12/20/22	1150 - 1240	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	-0.618	0.0	-0.565	0.0	-0.403	0.0	-0.280	0.0	-0.320	0.0	-0.070	0.0

TABLE 2
SSD/SSV System Induced Vacuums – Observation Points
Former Mt. Hood Solutions Warehouse Site
4444 NW Yeon Avenue
Portland, Oregon

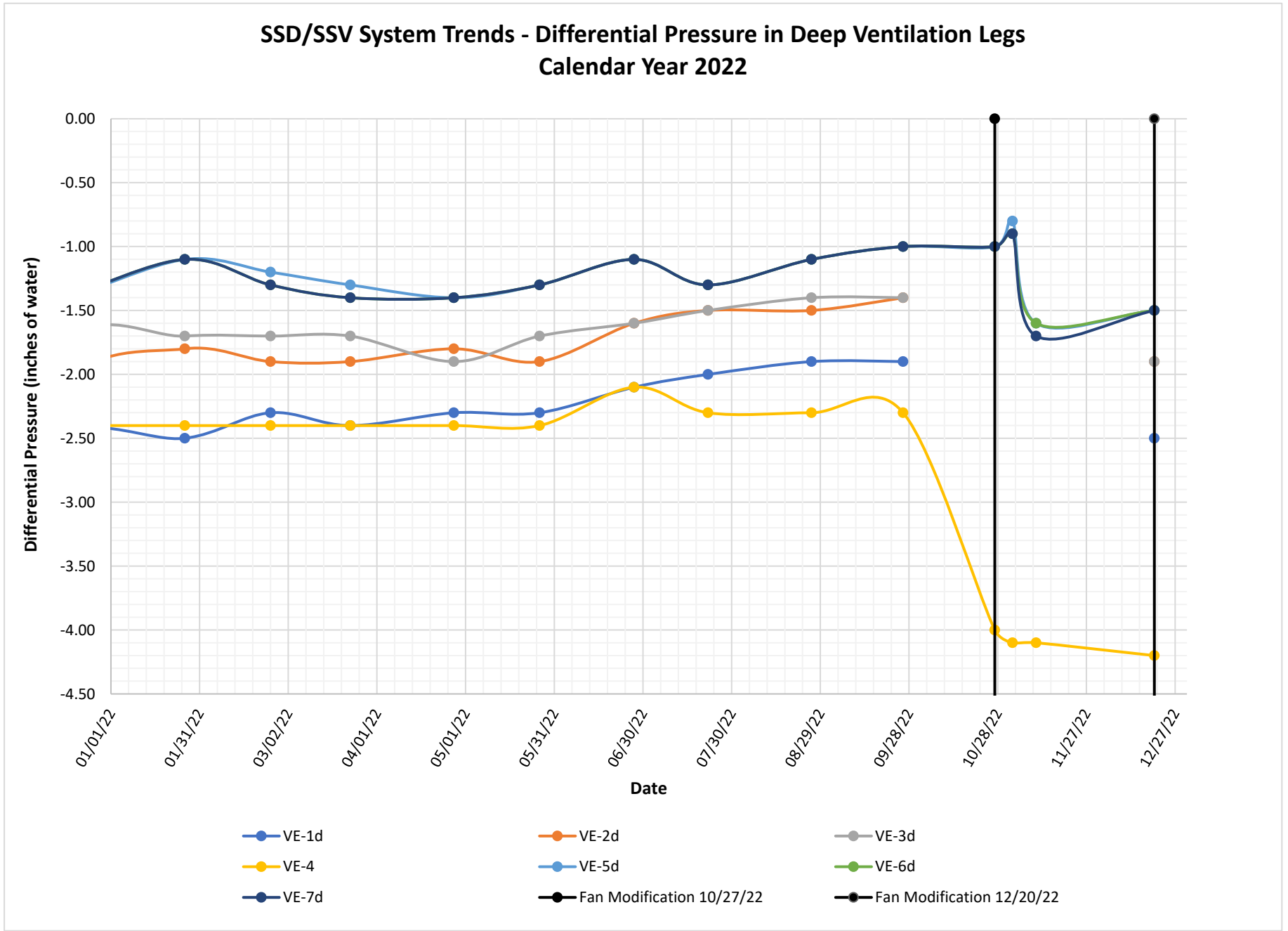
Date	Time	VO-9d (1.5 – 2.5 feet BGS)		VO-10s (sub-slab)		VO-10d (1.5 – 2.5 feet BGS)		VO-11s (sub-slab)		VO-11i (2 – 3 feet BGS)		VO-11d (4 – 5 feet BGS)		VO-12s (sub-slab)		VO-12i (2 – 3 feet BGS)		VO-12d (4 – 5 feet BGS)		VO-13s (sub-slab)		VO-13i (2 – 3 feet BGS)		VO-13d (4 – 5 feet BGS)		VO-14s (sub-slab)		VO-14i (2 – 3 feet BGS)		VO-14d (4 – 5 feet BGS)		Remarks
		Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	
05/04/17	0922 - 1106	-0.025	0.1	-0.012	0.2	-0.020	0.2	-0.005	0.1	-0.006	0.1	-0.008	0.1	-0.021	0.2	-0.045	0.2	-0.068	0.2	-0.168	0.2	-0.192	0.2	-0.202	0.2	-0.136	0.2	-0.140	0.1	-0.152	0.1	First event following additional fan installation (8 fans online)
08/24/17	0834 - 1052	-0.020	1.8	-0.020	0.6	-0.020	0.8	-0.001	0.5	-0.001	0.5	-0.002	0.5	-0.008	0.6	-0.028	0.9	-0.049	1.4	-0.177	0.7	-0.246	0.7	-0.190	0.7	-0.221	0.6	-0.240	0.6	-0.292	0.7	Second event following additional fan installation (8 fans online)
12/07/17	0849 - 1245	0.000	0.0	0.007	0.0	0.007	0.0	0.001	0.0	0.000	0.0	0.000	0.0	-0.005	0.0	-0.028	0.0	-0.055	0.0	-0.148	0.0	-0.170	0.0	-0.160	0.0	-0.038	0.0	-0.044	0.0	-0.048	0.0	Third event following additional fan installation (8 fans online)
01/08/18	1011 - 1039	-0.050	--	-0.029	--	-0.041	--	--	--	--	--	--	--	-0.096	--	-0.161	--	-0.237	--	-0.148	--	-0.170	--	-0.189	--	-0.085	--	-0.099	--	-0.14	--	Follow-up measurements following removal of condensate from lines
03/15/18	0934 - 1208	-0.062	0.7	-0.041	1.1	-0.052	0.6	-0.044	0.8	-0.048	0.6	-0.054	0.4	-0.153	1.1	-0.209	0.9	-0.264	0.7	-0.217	0.7	-0.245	0.7	-0.243	1.0	-0.13	0.7	-0.141	0.7	-0.18	0.7	Fourth event following additional fan installation (8 fans online)
10/27/21	1100 - 1130	-0.098	0.3	-0.078	0.3	-0.093	0.3	-0.042	0.3	-0.040	0.3	-0.050	0.3	-0.15	0.3	-0.162	0.3	-0.198	0.3	-0.267	0.3	-0.288	0.3	-0.325	0.3	-0.283	0.3	-0.284	0.3	-0.31	0.3	
11/24/21	0910 - 0950	-0.073	0.1	-0.053	0.1	-0.064	0.1	-0.026	0.1	-0.027	0.1	-0.027	0.1	-0.128	0.1	-0.134	0.1	-0.163	0.1	-0.188	0.1	-0.193	0.1	-0.220	0.1	-0.209	0.1	-0.229	0.1	-0.234	0.1	
12/16/21	1200 - 1250	-0.093	0.1	-0.072	0.1	-0.087	0.1	-0.06	0.2	-0.069	0.2	-0.078	0.2	-0.193	0.2	-0.21	0.2	-0.304	0.2	-0.191	0.2	-0.209	0.2	-0.224	0.2	-0.157	0.2	-0.162	0.2	-0.20	0.2	Removed condensate earlier in the day
01/26/22	0925 - 1000	-0.038	--	-0.028	--	-0.032	--	-0.026	--	-0.024	--	-0.027	--	-0.133	--	-0.140	--	-0.167	--	-0.191	--	-0.208	--	-0.210	--	-0.145	--	-0.150	--	-0.172	--	Measurements collected prior to condensate removal in late morning.
	1335 - 1405	-0.091	0.1	-0.072	0.1	-0.086	0.1	-0.064	0.1	-0.072	0.1	-0.081	0.1	-0.205	0.1	-0.222	0.1	-0.319	0.1	-0.201	0.1	-0.214	0.1	-0.238	0.1	-0.227	0.1	-0.234	0.1	-0.282	0.1	Measurements collected in early afternoon following late morning condensate removal.
02/24/22	0925 - 0955	-0.057	--	-0.040	--	-0.046	--	-0.024	--	-0.025	--	-0.026	--	-0.134	--	-0.139	--	-0.168	--	-0.184	--	-0.202	--	-0.203	--	-0.137	--	-0.141	--	-0.159	--	Measurements collected prior to condensate removal in late morning.
	1325 - 1400	-0.095	0.0	-0.072	0.0	-0.085	0.0	-0.063	0.0	-0.067	0.0	-0.076	0.0	-0.212	0.0	-0.228	0.0	-0.328	0.0	-0.192	0.0	-0.207	0.0	-0.225	0.0	-0.190	0.0	-0.198	0.0	-0.236	0.0	Measurements collected in early afternoon following late morning condensate removal.
03/23/22	1030 - 1115	-0.098	--	-0.077	--	-0.089	--	-0.063	--	-0.064	--	-0.064	--	-0.230	--	-0.235	--	-0.266	--	-0.322	--	-0.342	--	-0.319	--	-0.267	--	-0.268	--	-0.279	--	Measurements collected prior to condensate removal in late morning.
	1400 - 1430	-0.125	0.2	-0.096	0.2	-0.111	0.2	-0.107	0.2	-0.114	0.2	-0.125	0.3	-0.329	0.3	-0.344	0.2	-0.436	0.2	-0.329	0.3	-0.342	0.3	-0.324	0.3	-0.325	0.3	-0.331	0.3	-0.374	0.3	Measurements collected in early afternoon following late morning condensate removal.
04/27/22	0830 - 0855	-0.106	--	-0.081	--	-0.094	--	-0.069	--	-0.068	--	-0.067	--	-0.250	--	-0.258	--	-0.292	--	-0.342	--	-0.366	--	-0.341	--	-0.296	--	-0.302	--	-0.321	--	Measurements collected prior to condensate removal in morning.
	1410 - 1440	-0.148	0.1	-0.126	0.1	-0.114	0.1	-0.115	0.2	-0.131	0.1	-0.122	0.1	-0.350	0.1	-0.366	0.1	-0.455	0.2	-0.351	0.2	-0.378	0.2	-0.348	0.2	-0.351	0.2	-0.358	0.2	-0.395	0.2	Measurements collected in afternoon following morning condensate removal.
05/26/22	0935 - 1000	-0.142	--	-0.101	--	-0.115	--	-0.112	--	-0.114	--	-0.114	--	-0.342	--	-0.346	--	-0.399	--	-0.400	--	-0.422	--	-0.389	--	-0.431	--	-0.431	--	-0.456	--	Measurements collected prior to condensate removal in morning.
	1320 - 1350	-0.156	0.0	-0.113	0.0	-0.130	0.0	-0.142	0.0	-0.146	0.0	-0.151	0.0	-0.394	0.0	-0.411	0.0	-0.496	0.0	-0.413	0.0	-0.433	0.0	-0.413	0.0	-0.468	0.0	-0.470	0.0	-0.494	0.0	Measurements collected in afternoon following morning condensate removal.
06/27/22	0845 - 0930	-0.185	--	-0.136	--	-0.154	--	-0.157	--	-0.153	--	-0.163	--	-0.408	--	-0.423	--	0.504	--	-0.467	--	-0.483	--	-0.470	--	-0.606	--	-0.608	--	-0.633	--	Measurements collected prior to condensate removal in morning.
	1330 - 1415	-0.197	0.8	-0.147	0.8	-0.167	0.7	-0.172	0.7	-0.177	0.6	-0.167	0.7	0.419	0.7	-0.441	0.7	-0.534	0.7	-0.503	0.7	-0.483	0.7	-0.480	0.7	-0.616	0.8	-0.612	0.7	-0.644	0.7	Measurements collected in afternoon following morning condensate removal.
07/22/22	0859 - 0930	-0.178	--	-0.125	--	-0.136	--	-0.148	--	-0.150	--	-0.151	--	-0.410	--	-0.417	--	-0.519	--	-0.451	--	-0.460	--	-0.467	--	-0.543	--	-0.621	--	-0.652	--	Measurements collected prior to morning condensate removal.
	1105 - 1142	-0.124	0.1	-0.130	0.2	-0.140	0.2	-0.151	0.2	-0.155	0.2	-0.158	0.2	-0.413	0.2	-0.421	0.2	0.516	0.2	-0.468	0.2	-0.479	0.2	-0.494	0.2	-0.509	0.2	-0.481	0.2	-0.554	0.2	Measurements collected in afternoon following morning condensate removal.

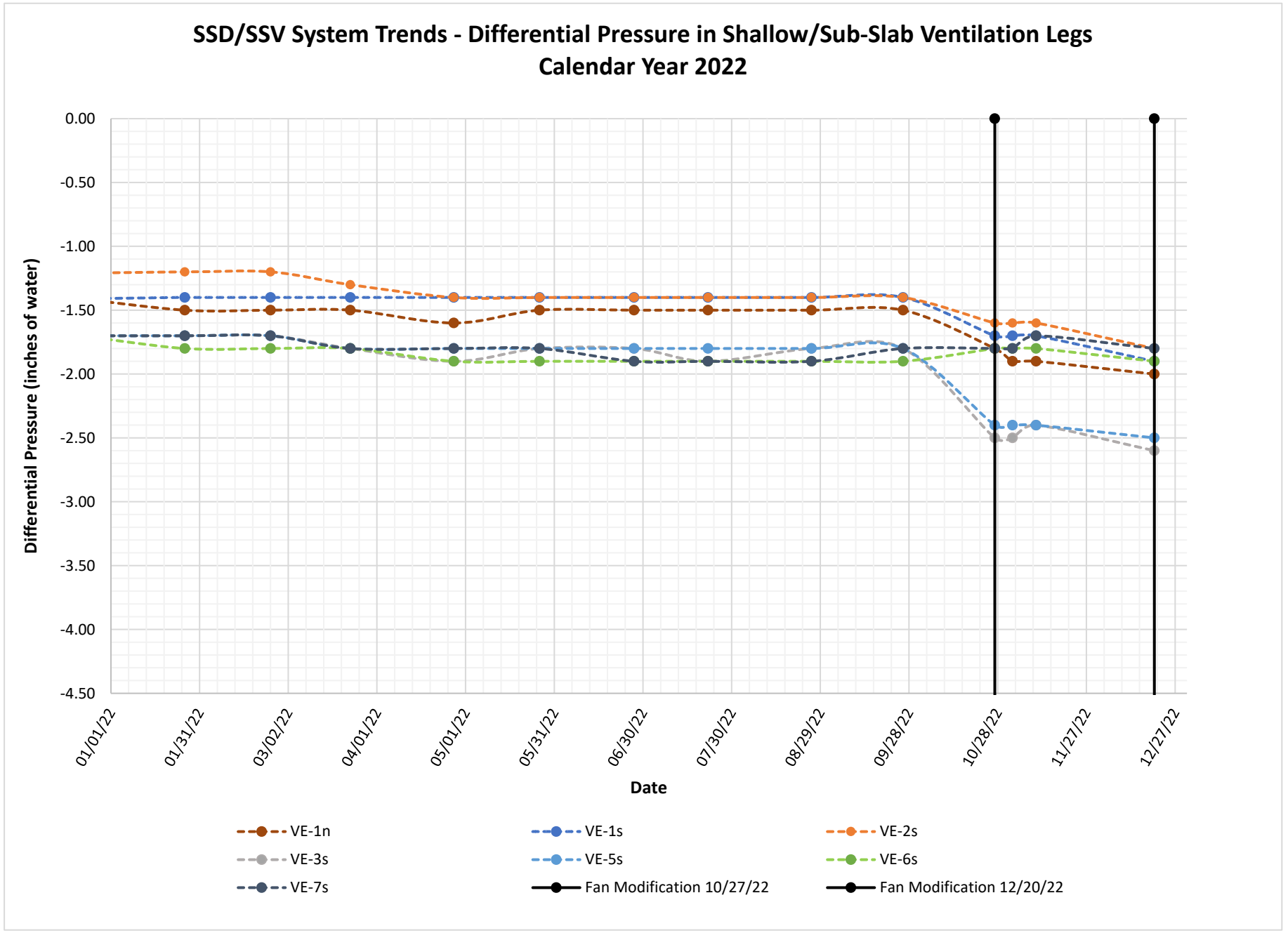
TABLE 2
SSD/SSV System Induced Vacuums – Observation Points
Former Mt. Hood Solutions Warehouse Site
4444 NW Yeon Avenue
Portland, Oregon

Date	Time	VO-9d (1.5 – 2.5 feet BGS)		VO-10s (sub-slab)		VO-10d (1.5 – 2.5 feet BGS)		VO-11s (sub-slab)		VO-11i (2 – 3 feet BGS)		VO-11d (4 – 5 feet BGS)		VO-12s (sub-slab)		VO-12i (2 – 3 feet BGS)		VO-12d (4 – 5 feet BGS)		VO-13s (sub-slab)		VO-13i (2 – 3 feet BGS)		VO-13d (4 – 5 feet BGS)		VO-14s (sub-slab)		VO-14i (2 – 3 feet BGS)		VO-14d (4 – 5 feet BGS)		Remarks
		Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	Vacuum (iow)	PID (ppm)	
08/26/22	0850 - 0915	-0.181	--	-0.127	--	-0.144	--	-0.147	--	-0.149	--	-0.152	--	-0.406	--	-0.423	--	-0.517	--	-0.463	--	-0.489	--	-0.482	--	-0.620	--	-0.623	--	-0.648	--	Measurements collected prior to morning condensate removal.
	1155 - 1220	-0.189	0.6	-0.133	0.6	-0.148	0.6	-0.148	0.8	-0.150	0.7	-0.151	0.7	-0.408	1.0	-0.425	0.9	-0.514	1.0	-0.466	0.7	-0.487	0.7	-0.478	0.7	-0.591	0.6	-0.609	0.5	-0.623	0.6	Measurements collected in afternoon following morning condensate removal.
09/26/22	0930 - 1000	-0.154	--	-0.115	--	-0.131	--	-0.117	--	-0.121	--	-0.126	--	-0.338	--	-0.353	--	-0.450	--	-0.387	--	-0.415	--	-0.408	--	-0.473	--	-0.480	--	-0.524	--	Measurements collected prior to morning condensate removal.
	1235 - 1305	-0.147	0.0	-0.109	0.0	-0.125	0.0	-0.119	0.0	-0.123	0.0	-0.129	0.0	-0.331	0.1	-0.435	0.0	-0.346	0.0	-0.384	0.0	-0.404	0.0	-0.410	0.1	-0.461	0.0	-0.469	0.0	-0.512	0.0	Measurements collected in afternoon following morning condensate removal.
10/26/22	1235 - 1305	-0.092	0.2	-0.067	0.2	-0.081	0.2	-0.053	0.3	-0.070	0.3	-0.063	0.3	-0.211	0.3	-0.225	0.3	-0.320	0.3	-0.211	0.3	-0.209	0.3	-0.259	0.3	-0.246	0.3	-0.248	0.3	-0.297	0.3	Measurements collected in morning prior to fan reconfiguration.
10/27/22	1355 - 1425	-0.091	0.2	-0.077	0.3	-0.086	0.3	-0.036	0.2	-0.032	0.2	-0.033	0.3	-0.185	0.3	-0.188	0.2	-0.206	0.2	-0.254	0.3	-0.280	0.3	-0.318	0.3	-0.284	0.3	-0.293	0.3	-0.342	0.3	Measurements collected in afternoon following fan reconfiguration.
11/02/22	1140 - 1225	-0.091	0.3	-0.074	0.4	-0.088	0.4	-0.040	0.4	-0.039	0.4	-0.042	0.4	-0.188	0.4	-0.189	0.4	0.218	0.4	-0.257	0.4	-0.278	0.4	-0.313	0.4	-0.257	0.5	-0.264	0.5	-0.301	0.5	Measurements collected in afternoon following fan reconfiguration.
11/10/22	0905 - 0926	-0.074	--	-0.064	--	-0.073	--	-0.028	--	-0.028	--	-0.027	--	-0.153	--	-0.157	--	-0.184	--	-0.197	--	-0.221	--	-0.250	--	-0.152	--	-0.156	--	-0.180	--	Measurements collected in afternoon following fan reconfiguration.
	1145 - 1215	-0.091	0.1	0.077	0.2	-0.085	0.2	-0.033	0.3	-0.032	0.3	-0.034	0.3	-0.162	0.3	-0.166	0.3	-0.191	0.3	-0.204	0.3	-0.230	0.3	-0.238	0.3	-0.153	0.3	-0.167	0.3	-0.195	0.3	Measurements collected in afternoon following fan reconfiguration.
12/20/22	1150 - 1240	-0.140	0.0	-0.108	0.0	-0.120	0.0	-0.078	0.0	-0.088	0.0	-0.090	0.0	-0.293	0.0	-0.294	0.0	-0.434	0.0	-0.265	0.0	-0.295	0.0	-0.281	0.0	-0.210	0.0	-0.213	0.0	-0.245	0.0	Measurements collected after addition of new fans on VE-1d, -2d, and -3d lines

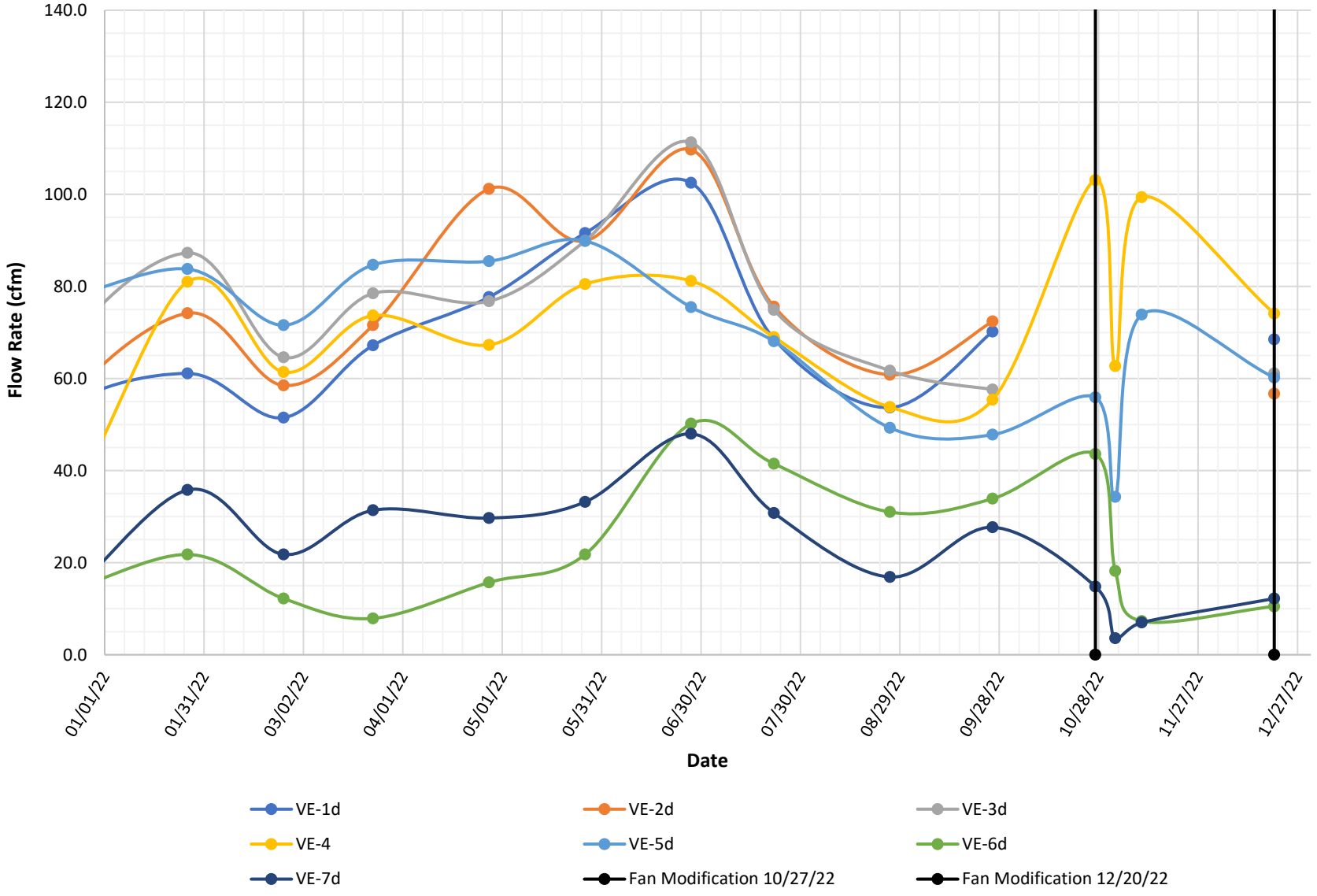
Notes:
BGS: below ground surface
cfm: cubic feet per minute
iow: inches of water
fpm: feet per minute
PID: photoionization detector
ppm: parts per million
--: not measured or recorded

ATTACHMENT

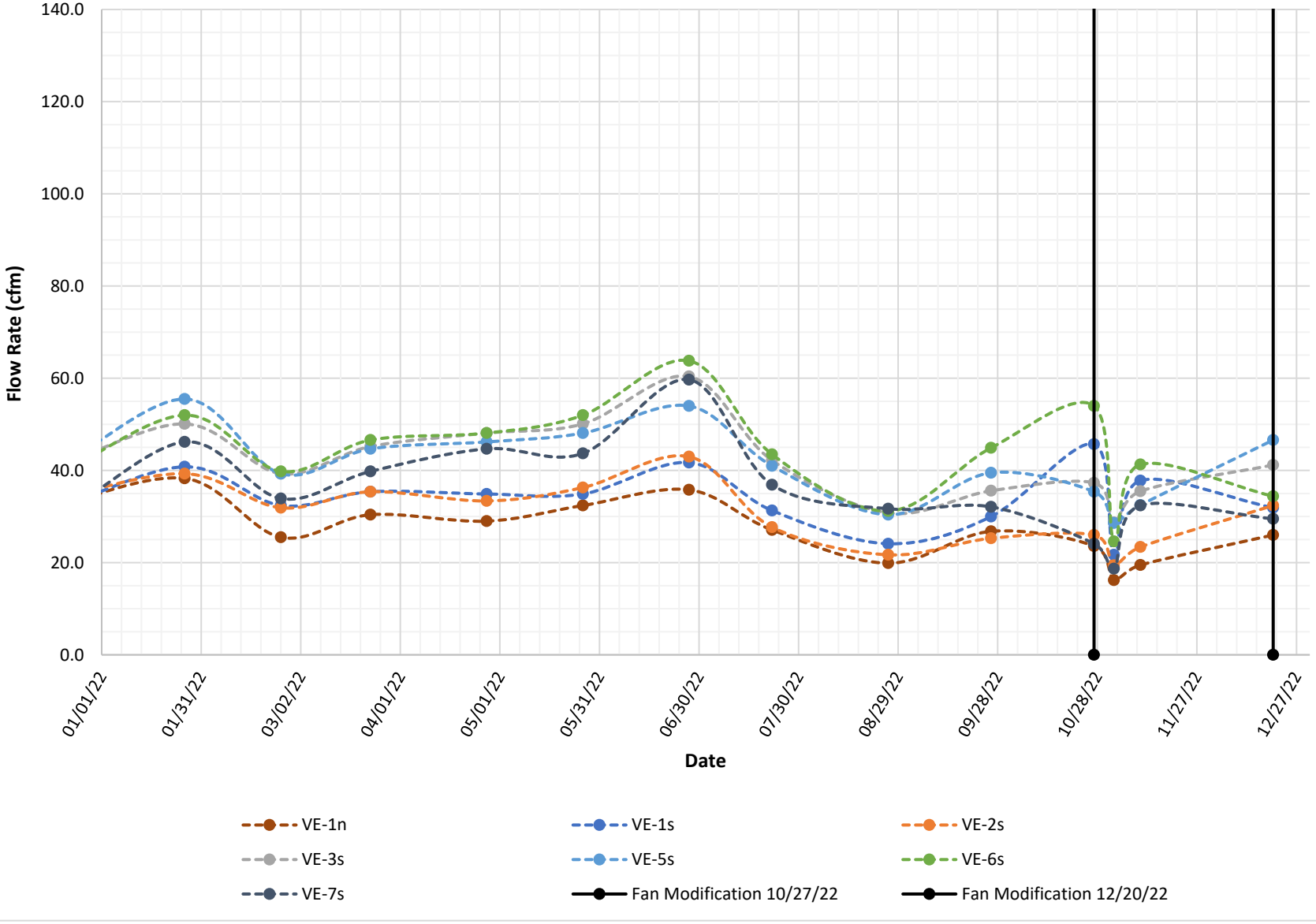

SSD/SSV System Trends - Differential Pressure in Deep Ventilation Legs
Calendar Year 2022
Differential Pressure (inches of water)
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
-3.00
-3.50
-4.00
-4.50
01/01/22
01/31/22
03/02/22
04/01/22
05/01/22
05/31/22
06/30/22
07/30/22
08/29/22
09/28/22
10/28/22
11/27/22
12/27/22
Date
VE-1d
VE-2d
VE-3d
VE-4
VE-5d
VE-6d
VE-7d
Fan Modification 10/27/22
Fan Modification 12/20/22

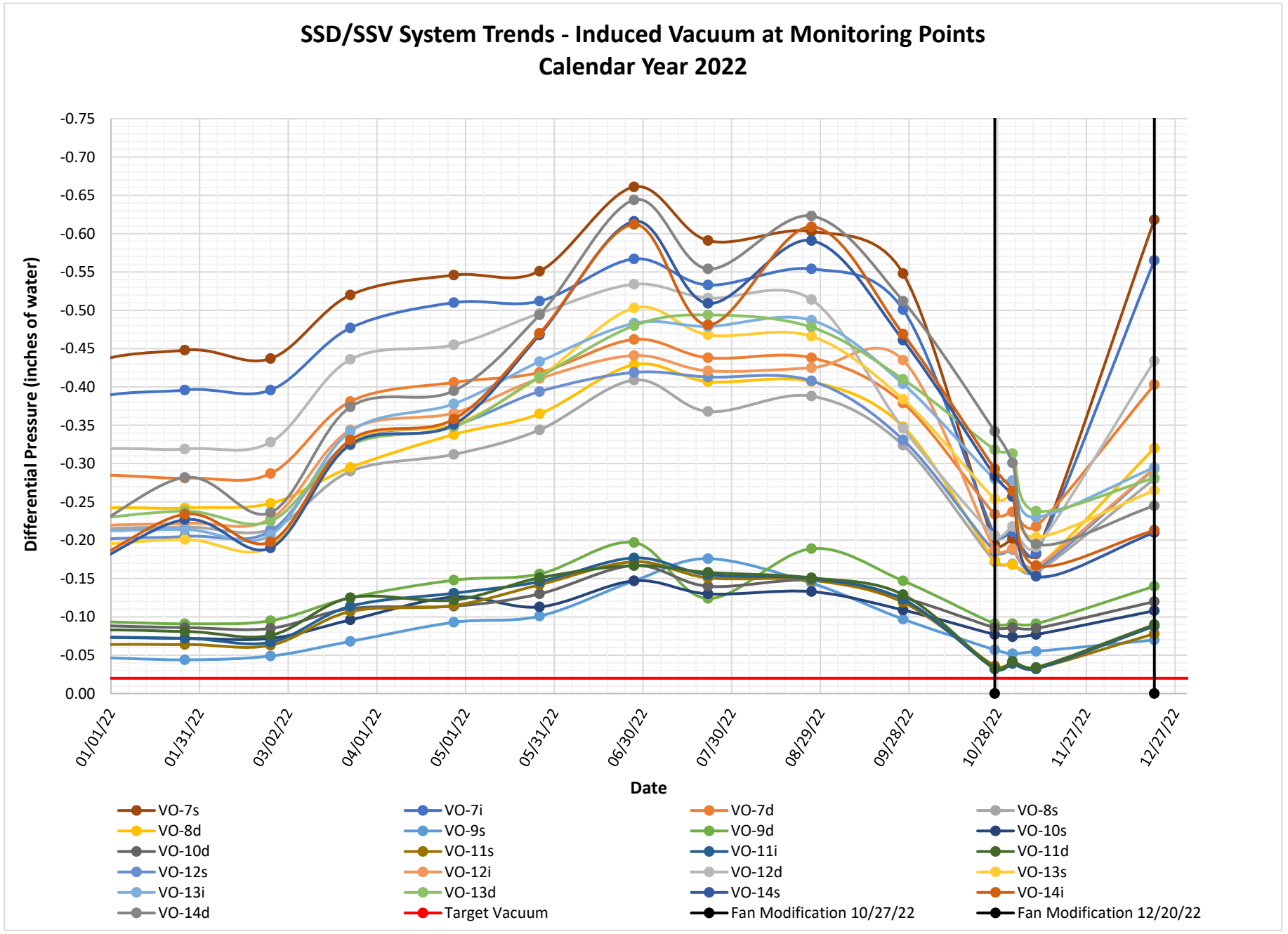

SSD/SSV System Trends - Differential Pressure in Shallow/Sub-Slab Ventilation Legs
Calendar Year 2022
Differential Pressure (inches of water)
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
-3.00
-3.50
-4.00
-4.50
01/01/22
01/31/22
03/02/22
04/01/22
05/01/22
05/31/22
06/30/22
07/30/22
08/29/22
09/28/22
10/28/22
11/27/22
12/27/22
Date
VE-1n
VE-1s
VE-2s
VE-3s
VE-5s
VE-6s
VE-7s
Fan Modification 10/27/22
Fan Modification 12/20/22

SSD/SSV System Trends - Flow Rates in Deep Ventilation Legs
Calendar Year 2022



SSD/SSV System Trends - Flow Rates in Shallow/Sub-Slab Ventilation Legs
Calendar Year 2022




SSD/SSV System Trends - Induced Vacuum at Monitoring Points
Calendar Year 2022
Differential Pressure (inches of water)
-0.75
-0.70
-0.65
-0.60
-0.55
-0.50
-0.45
-0.40
-0.35
-0.30
-0.25
-0.20
-0.15
-0.10
-0.05
0.00
01/01/22
01/31/22
03/02/22
04/01/22
05/01/22
05/31/22
06/30/22
07/30/22
08/29/22
09/28/22
10/28/22
11/27/22
12/27/22
Date
VO-7s
VO-7i
VO-7d
VO-8s
VO-8d
VO-9s
VO-9d
VO-10s
VO-10d
VO-11s
VO-11i
VO-11d
VO-12s
VO-12i
VO-12d
VO-13s
VO-13i
VO-13d
VO-14s
VO-14i
VO-14d
Target Vacuum
Fan Modification 10/27/22
Fan Modification 12/20/22