

**TECHNICAL MEMORANDUM**

To: Steve Teel, Washington Department of Ecology  
From: Brad Berggren, L.G., P.E. and Paul McBeth, L.G.  
Date: June 28, 2022  
Subject: Vapor Intrusion Mitigation System Update  
U-Lock-It Self Storage Building  
Vancouver, Washington  
Facility Site ID# 19779

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PNG Environmental, Inc. (PNG) is providing a vapor intrusion mitigation system status update following completion of the sub-slab depressurization (SSD) system installation and six years of operation at the former residence portion of the U-Lock-It Self Storage (U-Lock-It) customer service building in Vancouver, Washington (Figure 1). Based upon their review of the February 2015 sampling results and the associated exceedance of Model Toxics Control Act (MTCA) cleanup levels, the Washington Department of Ecology (Ecology) required design and installation of a vapor intrusion mitigation system. The Vapor Intrusion Mitigation Design and Installation Plan (PNG 2015a) for this property was submitted to Ecology in December 2015. Ecology approved the plan on January 6, 2016.

This vapor intrusion mitigation system update summarizes the most recent pressure field testing in April 2022 and indoor air, outdoor air, and soil gas monitoring results collected since SSD system construction activities were completed on March 29, 2016. During the April 2022 monitoring event, the SSD system was inspected consistent with the Ecology-approved Sub-Slab Depressurization System Operation and Maintenance Plan and Sampling and Analysis Plan (PNG 2018a). The SSD system inspection form is included in Appendix A. Results from other monitoring events post-SSD system construction (April 2016, February 2018, August 2018, July 2019, August 2020, and February 2021) and pre-SSD system construction (February 2015 and July 2015) are presented in Table 2 and in the U-Lock-It Self Storage Vapor Intrusion Assessment Results report (PNG 2018b).

**ACTIVE SUB-SLAB DEPRESSURIZATION**

Mitigation via the installation of an SSD system, or equivalent, was directed by Ecology in an April 20, 2015 letter. Installation and startup of the mitigation system was completed on March 29, 2016. Construction and performance testing of the SSD system was completed in April 2016 consistent with the Vapor Intrusion Mitigation Design and Installation Plan (PNG 2015a).

In consideration of the building manager's preference for minimal disturbance of the living space, suction pits were installed in the master bedroom closet (SP-1) and customer lobby (SP-2) of the U-Lock-It Building to facilitate simple and non-disruptive routing of risers and piping (Figure 2). From each suction pit, a four-inch diameter Schedule 40 PVC pipe provides the conduit to the AMG Eagle exhaust fan mounted on the exterior of the building's east wall. Risers are connected to the suction pits with threaded couplings and extend from the suction pits at ground level laterally along adjacent interior walls before penetrating the east wall of the

building. The points where the piping network penetrates the east wall were sealed with flashing and waterproof sealant. Risers and piping are securely supported and fastened to the walls and labeled “depressurization system pipe for indoor air protection” in three locations: adjacent to SP-1, adjacent to SP-2, and along the lower portion of the exterior piping prior to the exhaust fan. Near the piping connection to the exhaust fan, ball valves were installed to allow air flow balancing. The exhaust stack was constructed to discharge the extracted sub-slab soil gas containing volatile organic compounds (VOCs) to ambient air approximately three feet above the building roof line, consistent with the ASTM standard and local code. An as-built schematic of risers and piping features is presented on Figure 3. Final inspection of the system construction was completed by the City of Vancouver on September 22, 2016.

Monitoring points were installed on the risers at each suction pit location to measure and confirm depressurization is being applied throughout the SSD system. Each monitoring point consists of a U-tube manometer to confirm negative pressure is maintained and a tapped one quarter inch hole with a removable brass plug where gauge vacuum and flow velocity can be measured. The SSD system was inspected consistent with the Ecology-approved Sub-Slab Depressurization System Operation and Maintenance Plan and Sampling and Analysis Plan (PNG 2018a) during the April 2022 monitoring event. The SSD system inspection form is included in Appendix A.

### **Sub-Slab Depressurization System Monitoring**

The existing sub-slab monitoring point network is used to measure cross-slab pressure gradients during operation of the SSD system. The existing network consists of VaporPin™ monitoring points that are installed through the concrete slab floor of the building. Monitoring points AU-01SS and AU-05SS through AU-08SS are located within the northern half (residential half) of the building. Monitoring points AU-02SS through AU-04SS are located in the southern half of the building. The sub-slab monitoring points have flush mounted stainless steel covers that can be closed while not being actively monitored. Monitoring is conducted consistent with the Ecology-approved Sub-Slab Depressurization System Operation and Maintenance Plan and Sampling and Analysis Plan (PNG 2018a). CLK-Zephyr II+ data logging micro-manometer differential pressure meters are used to measure the cross-slab gradient pressure data at the five monitoring points in the residential half of the U-Lock-It Building. As requested by Ecology, a goal of 0.005 inches of water was set for each sub-slab monitoring point.

Sub-slab depressurization monitoring was most recently conducted on April 4-5, 2022. The monitoring data was collected every minute from monitoring points AU-01SS, AU-05SS, AU-06SS, AU-07SS, and AU-08SS over a period of approximately 24 hours. Consistent with previous events, the greatest cross-slab pressure difference was recorded at AU-07SS (customer lobby). It was apparent during this monitoring event that the cross-slab differential pressure was affected by building use (e.g., doors opening and closing throughout the day) as shown by the widely variable pressure differentials (fluctuating between positive and negative pressure differential – positive pressure differential represents a downward pressure gradient across the floor slab) shown on Figure 4a. However, pressure differentials were less variable and more consistent during the overnight hours of midnight to 7:00 AM (Figure 4b).

Over the approximately 24-hour monitoring event, two of the five locations, AU-05SS and AU-07SS (guest bedroom closet and customer lobby, respectively), had average cross-slab positive differential pressure readings that exceeded the 0.005 inches of water differential pressure goal. In addition, between the hours of 12:00 AM and 7:00 AM, the kitchen location, AU-08SS, also

had an average cross-slab positive differential pressure reading that exceeded the 0.005 inches of water differential pressure goal.

A summary of all pre-installation and post-installation cross floor slab pressure differences at these monitoring points is shown on Table 1.

### **Indoor and Outdoor Air Sampling**

The most recent post-mitigation indoor and outdoor air samples were collected over an approximately 24-hour period on April 5-6, 2022 from five locations: four indoor locations and one outdoor location. Air samples were analyzed for VOCs and results are summarized on Table 2. The tetrachloroethene (PCE) concentrations in air at these sample locations are illustrated on Figure 5. All samples were collected consistent with the U-Lock-It Sampling and Analysis Plan (SAP) (PNG 2014) and the June 2015 SAP Addendum (PNG 2015b). Compared to data collected prior to installation and operation of the SSD system in 2016, current PCE concentrations in indoor air were reduced by at least an order of magnitude. PCE concentrations at all locations (indoor and outdoor) were not detected above laboratory method reporting limits during the April 2022 sampling event. Laboratory data for the most recent event is included in Appendix B.

For the first time since 2016, 1,2-dichloroethane (DCA) was detected in indoor air (Table 2). 1,2-DCA was detected in every indoor air sample at concentrations between 0.56 and 1.4  $\mu\text{g}/\text{m}^3$ . 1,2-DCA was not detected in any outdoor or sub-slab soil gas air samples, therefore, the detected 1,2-DCA concentrations most likely are from in an indoor source and not the result of vapor intrusion.

As shown on Table 2, all PCE concentrations reported in indoor air samples collected during the six monitoring events following installation and operation of the SSD system are well below the MTCA Method B cleanup level (9.6 micrograms per cubic meter of air [ $\mu\text{g}/\text{m}^3$ ]). In addition, PCE was not detected above laboratory reporting limits in any of the indoor air samples collected during the six most recent monitoring events, including the April 2022 monitoring event. PCE concentrations in the outdoor samples collected in 2022 are also below laboratory reporting limits and below the US EPA background levels presented in Table 2.

### **Sub-slab Soil Gas Sampling**

In conjunction with indoor and outdoor air sampling, post-mitigation sub-slab soil gas samples were also collected on April 6, 2022. Soil gas was collected from four sub-slab sample locations (AU-01SS, AU-02SS, AU-05SS, AU-06SS) in the U-Lock-It customer service building. Sub-slab sample location AU-04SS was not sampled during this event. PNG personnel were not able to access the area where AU-04SS is located; after discussion with Steve Teel at Ecology, an alternate sample location of AU-02SS was chosen for this event. Soil gas samples were analyzed for VOCs and results are summarized on Table 2. The laboratory data report is included in Appendix B. The PCE concentrations in soil gas at these sample locations are illustrated on Figure 6. All samples were collected consistent with the U-Lock-It Sampling and Analysis Plan (PNG 2014) and the June 2015 SAP Addendum (PNG 2015b). Compared to data collected prior to installation and operation of the SSD system in 2016, current PCE concentrations in soil gas were reduced by at least an order of magnitude. PCE concentrations in soil gas during the April 2022 sampling event ranged from 0.45  $\mu\text{g}/\text{m}^3$  to 1.8  $\mu\text{g}/\text{m}^3$ , well below the MTCA Method B cleanup level (321  $\mu\text{g}/\text{m}^3$ ).

## Summary and Conclusions

- In accordance with the approved work plan, construction of the SSD system was completed on March 29, 2016. Operation began immediately following completion and has continued for over four years.
- On April 5-6, 2022, the most recent pressure field extension test was conducted to measure cross-slab pressure gradients at five existing monitoring points throughout the north half of the U-Lock-It Building. It was apparent during this monitoring event that the cross-slab differential pressure was affected by building use (e.g., doors opening and closing throughout the day) as shown by the widely variable pressure differentials (fluctuating between positive and negative pressure differential – positive pressure differential represents a downward pressure gradient across the floor slab). Two of the five monitoring locations achieved the cross-slab positive pressure difference (downward gradient) goal of 0.005 inches of water on an average basis over the approximately 24-hour monitoring event.
- Indoor and outdoor air samples were most recently collected on April 5-6, 2022 and analyzed for VOCs. Although the cross-slab pressure difference goal of 0.005 inches of water was not achieved at all locations on an average basis, PCE concentrations in indoor and outdoor air samples during April 2022 were not detected above laboratory method reporting limits which were below the MTCA Method B cleanup levels. Analytical results from the April 2022 indoor and outdoor air samples are consistent with the 2018, 2019, 2020, and 2021 analytical results.
- Post-mitigation sub-slab soil gas samples were most recently collected on April 6, 2022 and analyzed for VOCs. The PCE concentrations in soil gas ranged from 0.45 ug/m<sup>3</sup> to 1.8 ug/m<sup>3</sup>, at least an order of magnitude lower than pre-mitigation concentrations and well below the MTCA Method B cleanup level.
- Based on VOC concentrations reported for indoor air samples collected in 2018 through 2022, there was no risk to occupants of the U-Lock-It Building from vapor intrusion of VOCs.

## ATTACHMENTS

Table 1 – Observed Maximum Cross Floor Slab Pressure Differences

Table 2 – Air Analytical Results – Target Volatile Organic Compounds

Figure 1 – Site Location Map

Figure 2 – Sub-Slab Depressurization System As-Built System Plan View Layout

Figure 3 – Sub-Slab Depressurization System As-Built System Components Schematic

Figure 4a – Differential Pressure Across Floor Slab Summary

Figure 4b – Differential Pressure Across Floor Slab Summary – Midnight to 7:00AM

Figure 5 – U-Lock-It Layout PCE in Indoor Air, Outdoor Air

Figure 6 – U-Lock-It Layout PCE in Soil Gas

Appendix A – SSD System Inspection Form

Appendix B – Laboratory Data

## REFERENCES

- PNG. 2014 (October 28). *U-Lock-It Customer Service Building Revised Sampling and Analysis Plan*. PNG Environmental, Inc.
- PNG. 2015a (December 4). *Vapor Intrusion Mitigation Design and Installation Plan*. PNG Environmental, Inc.
- PNG. 2015b (July 1). *U-Lock-It Customer Service Building SAP Addendum*. PNG Environmental, Inc.
- PNG. 2018a (February 6). *U-Lock-It Self Storage Building Sub Slab Depressurization System Operation and Maintenance Plan and Sampling and Analysis Plan*. PNG Environmental, Inc.
- PNG. 2018b (June 13). *U-Lock-It Self Storage Building Vapor Intrusion Assessment Results*. PNG Environmental, Inc.

## TABLES

**Table 1**  
**Observed Maximum Cross Floor Slab Pressure Differences**  
**U-Lock-It Building Pressure Field Extension Summary**  
Milton's Dry Cleaners  
Vancouver, Washington

Pre-Installation Test												
	AU-01SS		AU-03SS		AU-05SS		AU-06SS		AU-07SS		AU-08SS	
	Baseline Pre-Test	Maximum During Test	Baseline Pre-Test	Maximum During Test	Baseline Pre-Test	Maximum During Test	Baseline Pre-Test	Maximum During Test	Baseline Pre-Test	Maximum During Test	Baseline Pre-Test	Maximum During Test
7/8/2015	0.000	0.007	0.000	0.001	0.000	0.015	-	-	0.000	0.296	0.000	0.014
7/28/2015	0.000	0.007	-	-	0.000	0.010	0.000	0.014	0.000	0.435	0.000	0.016

Post-Installation Monitoring												
	AU-01SS		AU-03SS		AU-05SS		AU-06SS		AU-07SS		AU-08SS	
	Average During Monitoring	Maximum During Monitoring	Average During Monitoring	Maximum During Monitoring	Average During Monitoring	Maximum During Monitoring	Average During Monitoring	Maximum During Monitoring	Average During Monitoring	Maximum During Monitoring	Average During Monitoring	Maximum During Monitoring
4/4/2016	0.002	0.024	-	-	0.009	0.022	0.000	0.018	0.294	0.321	0.013	0.026
2/12/2018	0.000	0.001	-	-	0.005	0.023	0.000	0.005	0.210	0.216	0.007	0.009
8/6/2018	0.002	0.010	-	-	-0.008	0.007	0.000	0.052	0.235	0.241	0.009	0.011
7/24 - 7/25/18	0.002	0.013	-	-	0.009	0.015	0.000	0.005	0.267	0.272	0.011	0.012
8/19 - 8/20/20	0.001	0.006	-	-	0.010	0.021	0.000	0.007	0.234	0.240	0.009	0.011
2/8 - 2/9/21	0.000	0.002	-	-	0.008	0.013	0.000	0.005	0.209	0.219	0.007	0.009
4/4 - 4/5/22	-0.001	0.014	-	-	0.006	0.011	0.000	0.041	0.209	0.244	-0.001	0.014

**Notes:**

- = not measured

Table 2  
Air Analytical Results - Target Volatile Organic Compounds (ug/m<sup>3</sup>)  
U-Lock-It Self-Storage Building  
Milton's Dry Cleaners  
Vancouver, Washington

Sample Identification	Description	Tetrachloroethene	Trichloroethene	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride	1,1,1-Trichloroethane	1,1-Dichloroethane	1,2-Dichloroethane	Chloroethane
Outdoor Air - Pre-Mitigation System											
February 17, 2015											
AU-07	Northeast of Building	0.12 J	0.020 J	0.059 U	0.12 U	0.59 U	0.038 U	0.025 J	0.12 U	0.060 J	0.20 U
AU-08	West of Building	0.11 J	0.023 J	0.063 U	0.12 U	0.63 U	0.040 U	0.029 J	0.13 U	0.090 J	0.039 J
AU-09	South of Building	0.12 J	0.020 J	0.064 U	0.13 U	0.64 U	0.041 U	0.022 J	0.13 U	0.086 J	0.024 J
AU-10	East of Building	0.14 J	0.17	0.036 J	0.11 U	0.57 U	0.036 U	0.033 J	0.0069 J	0.11 J	0.037 J
July 10, 2015											
AU-08	West of Building	0.043 J	0.16	0.033 J	0.070 U	0.070 U	0.045 U	0.096 U	0.071 U	0.044 J	0.055
April 28, 2016											
AU-08	West of Building	0.071 J	0.034 J	0.081 U	0.081 U	0.084 J <sup>1</sup>	0.052 U	0.025 J	0.082 U	0.075 J	0.033 J
February 13, 2018											
AU-07	Northeast of Building	0.17 U	0.14 U	0.050 U	0.10 U	0.50 U	0.032 U	0.14 U	0.10 U	0.10 U	0.17 U
August 7, 2018											
AU-08	West of Building	0.26 U	0.20 U	0.075 U	0.15 U	0.75 U	0.048 U	0.21 U	0.15 U	0.15 U	0.25 U
July 26, 2019											
AU-07	Northeast of Building	0.24 U	0.19 U	0.071 U	0.14 U	0.71 U	0.046 U	0.20 U	0.14 U	0.14 U	0.24 U
August 21, 2020											
AU-08	West of Building	0.33 U	0.26 U	0.097 U	0.19 U	0.97 U	0.062 U	0.27 U	0.20 U	0.20 U	0.32 U
February 10, 2021											
AU-07	Northeast of Building	0.21 U	0.16 U	0.061 U	0.12 U	0.61 U	0.039 U	0.17 U	0.12 U	0.12 U	0.20 U
April 6, 2022											
AU-08	West of Building	0.19 U	0.15 U	0.055 U	0.11 U	0.55 U	0.036 U	0.15 U	0.11 U	0.11 U	0.18 U
Background Outdoor Air											
Portland/Vancouver PATA <sup>1</sup>	Median concentration from EPA airshed study of Portland-Vancouver urban area	0.34-2.3	-	-	-	-	-	-	-	-	-
USEPA 2006 <sup>2</sup>	Median	0.24	0.16	-	-	-	0.11	-	-	-	-
	Maximum	3.4	2.7	-	-	-	1.3	-	-	-	-



Table 2  
Air Analytical Results - Target Volatile Organic Compounds (ug/m<sup>3</sup>)  
U-Lock-It Self-Storage Building  
Milton's Dry Cleaners  
Vancouver, Washington

Sample Identification	Description	Tetrachloroethene	Trichloroethene	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride	1,1,1-Trichloroethane	1,1-Dichloroethane	1,2-Dichloroethane	Chloroethane
<b>Indoor Air - Pre-Mitigation System</b>											
<b>February 17, 2015</b>											
AU-01	Customer Lobby Closet	20	0.030 J	0.066 U	0.13 U	0.66 U	0.042 U	0.020 J	0.13 U	0.094 J	0.019 J
AU-02	Kitchen	31	0.025 J	0.036 J	0.12 U	0.63 U	0.040 U	0.036 J	0.13 U	0.25	0.044 J
AU-02D	Kitchen	31	0.025 J	0.030 J	0.14 U	0.68 U	0.044 U	0.19 U	0.14 U	0.25	0.037 J
AU-03	Master Bedroom	20	0.031 J	0.061 U	0.12 U	0.61 U	0.040 U	0.027 J	0.12 U	0.21	0.048 J
AU-04	Customer Storage Box	0.23	0.028 J	0.065 U	0.13 U	0.65 U	0.042 U	0.11 J	0.13 U	0.12 J	0.052 J
AU-05	Guest Bedroom	35	0.055 J	0.018 J	0.13 U	0.65 U	0.042 U	0.045 J	0.13 U	0.28	0.054 J
AU-06	Living Room	32	0.026 J	0.027 J	0.14 U	0.68 U	0.044 U	0.030 J	0.14 U	0.21	0.034 J
<b>July 10, 2015</b>											
AU-02	Kitchen	4.2	0.090	0.22	0.065 U	0.065 U	0.042 U	0.023 J	0.066 U	0.088	0.049
AU-03	Master Bedroom	1.7	0.062 J,J <sup>1</sup>	0.078	0.076 U	0.076 U	0.049 U	0.10 U	0.077 U	0.058 J	0.051
AU-03D	Master Bedroom	1.7	0.028 J,J <sup>1</sup>	0.080	0.075 U	0.075 U	0.048 U	0.10 U	0.076 U	0.056 J	0.048 J
AU-05	Guest Bedroom	2.4	0.028 J,J <sup>1</sup>	0.075	0.073 U	0.073 U	0.047 U	0.10 U	0.075 J	0.062 J	0.045 J
AU-06	Living Room	2.2	1.0	0.11	0.065 U	0.20	0.042 U	0.018 J	0.066 U	0.32	0.12
<b>Indoor Air - Post-Mitigation System</b>											
<b>April 28, 2016</b>											
AU-02	Kitchen	0.23	0.026 J	0.12	0.075 U	0.067 J	0.048 U	0.024 J	0.076 U	0.12	0.042 J
AU-03	Master Bedroom	0.23	0.040 J	0.10	0.070 U	0.14 J <sup>1</sup>	0.045 U	0.023 J	0.071 U	0.11	0.034 J
AU-05	Guest Bedroom	0.25 J	0.64 U	0.47 U	0.47 U	0.17 J	0.30 U	0.65 U	0.48 U	0.48 U	0.31 U
AU-06	Living Room	0.22	0.054 J	0.097	0.077 U	0.12 J <sup>1</sup>	0.049 U	0.025 J	0.050 J	0.53	0.50
AU-06D	Living Room	0.15	0.083 J	0.048 J	0.063 U	1.3 J <sup>1</sup>	0.041 U	0.023 J	0.065 U	0.11	0.026 J
<b>February 13, 2018</b>											
AU-02	Kitchen	0.40 U	0.32 U	0.12 U	0.23 U	1.2 U	0.076 U	0.32 U	0.24 U	0.24 U	0.39 U
AU-03	Master Bedroom	0.21 U	0.17 U	0.063 U	0.12 U	0.63 U	0.040 U	0.17 U	0.13 U	0.13 U	0.21 U
AU-05	Guest Bedroom	0.23 U	0.18 U	0.067 U	0.13 U	0.67 U	0.043 U	0.18 U	0.14 U	0.14 U	0.22 U
AU-06	Living Room	0.23 U	0.18 U	0.066 U	0.13 U	0.66 U	0.043 U	0.18 U	0.14 U	0.14 U	0.22 U
AU-06D	Living Room	0.23 U	0.18 U	0.067 U	0.13 U	0.67 U	0.043 U	0.18 U	0.14 U	0.14 U	0.22 U
<b>August 7, 2018</b>											
AU-02	Kitchen	0.24 U	0.19 U	0.071 U	0.14 U	0.71 U	0.046 U	0.20 U	0.14 U	0.14 U	0.24 U
AU-03	Master Bedroom	0.25 U	0.20 U	0.073 U	0.15 U	0.73 U	0.047 U	0.20 U	0.15 U	0.15 U	0.24 U
AU-05	Guest Bedroom	0.32 U	0.25 U	0.093 U	0.18 U	0.93 U	0.060 U	0.26 U	0.19 U	0.19 U	0.31 U
AU-06	Living Room	0.24 U	0.19 U	0.070 U	0.14 U	0.70 U	0.046 U	0.19 U	0.14 U	0.14 U	0.23 U
AU-06D	Living Room	0.22 U	0.17 U	0.063 U	0.13 U	0.63 U	0.041 U	0.17 U	0.13 U	0.13 U	0.21 U
<b>July 26, 2019</b>											
AU-02	Kitchen	0.25 U	0.20 U	0.072 U	0.14 U	0.72 U	0.047 U	0.20 U	0.15 U	0.15 U	0.24 U
AU-03	Master Bedroom	0.25 U	0.20 U	0.074 U	0.15 U	0.74 U	0.048 U	0.20 U	0.15 U	0.15 U	0.25 U
AU-05	Guest Bedroom	0.27 U	0.22 U	0.080 U	0.16 U	0.80 U	0.051 U	0.22 U	0.16 U	0.16 U	0.26 U
AU-06	Living Room	0.24 U	0.19 U	0.071 U	0.14 U	0.71 U	0.046 U	0.20 U	0.14 U	0.14 U	0.24 U
AU-06D	Living Room	0.24 U	0.19 U	0.071 U	0.14 U	0.71 U	0.046 U	0.20 U	0.14 U	0.14 U	0.24 U
<b>August 21, 2020</b>											
AU-02	Kitchen	0.24 U	0.19 U	0.069 U	0.14 U	0.69 U	0.045 U	0.19 U	0.14 U	0.14 U	0.23 U
AU-03	Master Bedroom	0.22 U	0.17 U	0.064 U	0.13 U	0.64 U	0.041 U	0.18 U	0.13 U	0.13 U	0.21 U
AU-05	Guest Bedroom	0.23 U	0.18 U	0.067 U	0.13 U	0.67 U	0.043 U	0.18 U	0.14 U	0.14 U	0.22 U
AU-06	Living Room	0.22 U	0.17 U	0.064 U	0.13 U	0.64 U	0.041 U	0.18 U	0.13 U	0.13 U	0.21 U
AU-06D	Living Room	0.24 U	0.19 U	0.069 U	0.14 U	0.69 U	0.045 U	0.19 U	0.14 U	0.14 U	0.23 U
<b>February 10, 2021</b>											
AU-02	Kitchen	0.22 U	0.17 U	0.064 U	0.13 U	0.64 U	0.041 U	0.18 U	0.13 U	0.13 U	0.21 U
AU-03	Master Bedroom	0.24 U	0.19 U	0.071 U	0.14 U	0.71 U	0.046 U	0.20 U	0.14 U	0.14 U	0.24 U
AU-05	Guest Bedroom	0.23 U	0.18 U	0.067 U	0.13 U	0.67 U	0.043 U	0.18 U	0.14 U	0.14 U	0.22 U
AU-06	Living Room	0.22 U	0.18 U	0.065 U	0.13 U	0.65 U	0.042 U	0.18 U	0.13 U	0.13 U	0.22 U
AU-06D	Living Room	0.24 U	0.19 U	0.069 U	0.14 U	0.69 U	0.045 U	0.19 U	0.14 U	0.14 U	0.23 U
<b>April 6, 2022</b>											
AU-02	Kitchen	0.20 U	0.16 U	0.058 U	0.12 U	0.58 U	0.038 U	0.16 U	0.12 U	0.62	0.19 U
AU-03	Master Bedroom	0.19 U	0.15 U	0.057 U	0.11 U	0.57 U	0.036 U	0.16 U	0.12 U	1.4	0.19 U
AU-05	Guest Bedroom	0.20 U	0.16 U	0.059 U	0.12 U	0.59 U	0.038 U	0.16 U	0.12 U	0.56	0.20 U
AU-06	Living Room	0.19 U	0.15 U	0.057 U	0.11 U	0.57 U	0.036 U	0.16 U	0.12 U	0.74	0.19 U
AU-06D	Living Room	0.20 U	0.16 U	0.057 U	0.11 U	0.57 U	0.037 U	0.16 U	0.12 U	0.79	0.19 U

Table 2  
Air Analytical Results - Target Volatile Organic Compounds (ug/m<sup>3</sup>)  
U-Lock-It Self-Storage Building  
Milton's Dry Cleaners  
Vancouver, Washington

Sample Identification	Description	Tetrachloroethene	Trichloroethene	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride	1,1,1-Trichloroethane	1,1-Dichloroethane	1,2-Dichloroethane	Chloroethane
<b>Regulatory Standards Indoor Air</b>											
MTCA B CUL <sup>3</sup>		9.6	0.37	91	-	-	0.28	2,290	1.6	0.10	-
MTCA C CUL <sup>3</sup>		96	6.3	200	-	-	2.8	5,000	16	0.96	-
Site-Specific MTCA B	Office Employee	51	2.7	1,752	-	526	3.0	43,800	8.2	0.51	87,688
USEPA 2012 Residential <sup>4</sup>	Residential	11	0.48	210	-	-	0.17	5,200	1.8	0.11	10,000
USEPA 2012 Industrial <sup>5</sup>	Industrial	47	3.0	880	-	-	2.8	22,000	7.7	0.47	44,000
OSHA PEL-TWA <sup>6</sup>		678,000	537,000	-	790,000	790,000	2,600	1,900,000	400,000	200,000	2,600,000
<b>Background Indoor Air</b>											
USEPA 2011 <sup>7</sup>	Range of 50th Percentile	<RL-2.2	<RL-1.1	<RL	<RL	-	<RL	<RL-5.9	<RL	<RL	-
	Range of 95th Percentile	4.1-9.5	0.56-3.3	0.7	<RL-1.2	-	<RL-0.09	3.4-28	<RL	<RL-0.2	-
<b>Interference from Dry Cleaned Clothing</b>											
New York State Department of Health <sup>8</sup>		5.0	-	-	-	-	-	-	-	-	-
	Offices Median: 1994-1996	3.0	-	-	-	-	-	-	-	-	-
Eastern Research Group <sup>9</sup>	Closet Maximum	19,671	-	-	-	-	-	-	-	-	-
	Den Maximum	563	-	-	-	-	-	-	-	-	-
Thomas, et. al. <sup>10</sup>	Maximum Home Indoor Air Levels	300	-	-	-	-	-	-	-	-	-
World Health Organization <sup>11</sup>	Maximum Private Vehicle with Clothing	2,100,000	-	-	-	-	-	-	-	-	-
U.S. Department of Health <sup>12</sup>	Residential Closet	500-2,900	-	-	-	-	-	-	-	-	-

Table 2  
Air Analytical Results - Target Volatile Organic Compounds (ug/m<sup>3</sup>)  
U-Lock-It Self-Storage Building  
Milton's Dry Cleaners  
Vancouver, Washington

Sample Identification	Description	Tetrachloroethene	Trichloroethene	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride	1,1,1-Trichloroethane	1,1-Dichloroethane	1,2-Dichloroethane	Chloroethane
<b>Sub-slab Vapor - Pre-Mitigation System</b>											
<b>December 12, 2014</b>											
AU-01SS	Closet in U-Lock-It Customer Lobby Area	2,180	14 U	11 U	11 U	11 U	6.8 U	15 U	11 U	11 U	7.1 U
AU-02SS	U-Lock-It Occupied Storage Room #2	33 J <sup>1</sup>	2.5 J	3.9 U	3.9 U	3.9 U	2.5 U	5.4 U	4.0 U	4.4	2.6 U
AU-03SS	U-Lock-It Occupied Storage Room #1	77	5.0 U	3.7 U	3.7 U	3.7 U	2.4 U	5.1 U	3.8 U	3.8 U	2.5 U
AU-04SS	Vacant Customer Storage Box	20 J <sup>1</sup>	10	4.8 U	4.8 U	4.8 U	3.1 U	6.6 U	4.9 U	131	3.2 U
AU-05SS	Closet in U-Lock-It Residence Guest Bedroom	724	4.5 U	3.4 U	3.4 U	3.4 U	2.2 U	4.6 U	3.4 U	3.4 U	2.2 U
AU-066SS (duplicate of AU-05SS)	Closet in U-Lock-It Residence Guest Bedroom	711	4.8 U	3.6 U	3.6 U	3.6 U	2.3 U	4.9 U	3.6 U	3.6 U	2.4 U
AU-06SS	U-Lock-It Customer Restroom	109 J <sup>1</sup>	4.5 U	3.4 U	3.4 U	3.4 U	2.2 U	4.6 U	3.4 U	3.4 U	2.2 U
<b>February 18, 2015</b>											
AU-01SS	Closet in U-Lock-It Customer Lobby Area	2,000	3.7 J,J <sup>1</sup>	5.1 U	5.1 U	5.1 U	3.3 U	7.0 U	5.2 U	5.2 U	14 U
AU-04SS	Vacant Customer Storage Box	28	2.5 J,J <sup>1</sup>	5.0 U	5.0 U	5.0 U	3.2 U	6.9 U	5.1 U	5.1 U	13 U
AU-05SS	Closet in U-Lock-It Residence Guest Bedroom	98	2.5 J,J <sup>1</sup>	4.6 U	4.6 U	4.6 U	3.0 U	6.4 U	4.8 U	4.8 U	12 U
AU-05SSD	Closet in U-Lock-It Residence Guest Bedroom	22	1.7 J,J <sup>1</sup>	4.5 U	4.5 U	4.5 U	2.9 U	6.2 U	4.6 U	4.6 U	12 U
AU-06SS	U-Lock-It Customer Restroom	130	2.1 J,J <sup>1</sup>	4.7 U	4.7 U	4.7 U	3.0 U	6.5 U	4.8 U	4.8 U	12 U
<b>Sub-slab Vapor - Post-Mitigation System</b>											
<b>July 26, 2019</b>											
AU-01SS	Closet in U-Lock-It Customer Lobby Area	2.7	0.19 U	0.071 U	0.14 U	0.71 U	0.046 U	0.20 U	0.14 U	0.14 U	0.24 U
AU-01SSD	Closet in U-Lock-It Customer Lobby Area	2.7	0.17 U	0.064 U	0.13 U	0.64 U	0.041 U	0.18 U	0.13 U	0.13 U	0.21 U
AU-04SS	Vacant Customer Storage Box	2.8	0.17 U	0.064 U	0.13 U	0.64 U	0.041 U	0.86	0.13 U	0.13 U	0.21 U
AU-05SS	Closet in U-Lock-It Residence Guest Bedroom	4.1	0.17 U	0.061 U	0.12 U	0.61 U	0.040 U	0.17 U	0.12 U	0.12 U	0.20 U
AU-06SS	U-Lock-It Customer Restroom	0.93	0.18 U	0.065 U	0.13 U	0.65 U	0.042 U	0.18 U	0.13 U	0.13 U	0.22 U
<b>August 21, 2020</b>											
AU-01SS	Closet in U-Lock-It Customer Lobby Area	2.8	0.18 U	0.068 U	0.14 U	0.68 U	0.044 U	0.19 U	0.14 U	0.14 U	0.22 U
AU-01SSD	Closet in U-Lock-It Customer Lobby Area	2.9	0.18 U	0.067 U	0.13 U	0.67 U	0.043 U	0.18 U	0.14 U	0.14 U	0.22 U
AU-04SS	Vacant Customer Storage Box	1.6	0.17 U	0.063 U	0.12 U	0.63 U	0.040 U	0.17 U	0.13 U	0.13 U	0.21 U
AU-05SS	Closet in U-Lock-It Residence Guest Bedroom	3.0	0.76	0.071 U	0.14 U	0.71 U	0.046 U	0.20 U	0.14 U	0.14 U	0.24 U
AU-06SS	U-Lock-It Customer Restroom	0.49	0.18 U	0.065 U	0.13 U	0.65 U	0.042 U	0.18 U	0.13 U	0.13 U	0.22 U
<b>February 10, 2021</b>											
AU-01SS	Closet in U-Lock-It Customer Lobby Area	0.84	0.18 U	0.065 U	0.13 U	0.65 U	0.042 U	0.18 U	0.13 U	0.13 U	0.22 U
AU-01SSD	Closet in U-Lock-It Customer Lobby Area	0.65	0.18 U	0.066 U	0.13 U	0.66 U	0.043 U	0.18 U	0.14 U	0.14 U	0.22 U
AU-04SS	Vacant Customer Storage Box	0.93	0.16 U	0.061 U	0.12 U	0.61 U	0.039 U	0.17 U	0.12 U	0.12 U	0.20 U
AU-05SS	Closet in U-Lock-It Residence Guest Bedroom	1.2	0.16 U	0.061 U	0.12 U	0.61 U	0.039 U	0.17 U	0.12 U	0.12 U	0.20 U
AU-06SS	U-Lock-It Customer Restroom	0.28	0.17 U	0.062 U	0.12 U	0.62 U	0.040 U	0.17 U	0.13 U	0.13 U	0.20 U
<b>April 6, 2022</b>											
AU-01SS	Closet in U-Lock-It Customer Lobby Area	0.62	0.14 U	0.053 U	0.10 U	0.53 U	0.034 U	0.14 U	0.11 U	0.11 U	0.18 U
AU-01SSD	Closet in U-Lock-It Customer Lobby Area	0.64	0.14 U	0.051 U	0.10 U	0.51 U	0.033 U	0.14 U	0.10 U	0.10 U	0.17 U
AU-02SS	U-Lock-It Occupied Storage Room #2	1.2	0.14 U	0.052 U	0.10 U	0.52 U	0.033 U	0.14 U	0.11 U	0.11 U	0.17 U
AU-05SS	Closet in U-Lock-It Residence Guest Bedroom	1.8	0.16 U	0.058 U	0.12 U	0.58 U	0.038 U	0.16 U	0.12 U	0.12 U	0.19 U
AU-06SS	U-Lock-It Customer Restroom	0.45	0.14 U	0.051 U	0.10 U	0.51 U	0.033 U	0.14 U	0.10 U	0.10 U	0.17 U
<b>Regulatory Standards Sub-slab Vapor</b>											
MTCA B SL <sup>13</sup>		321	12	3,050	-	-	9.3	76,200	52	3.2	-
MTCA C SL <sup>13</sup>		1,330	67	6,670	-	-	93	167,000	521	32	-
Site Specific MTCA B (VAF of 0.03)		1,700	90	58,400	-	17,520	100	1,460,000	274	17	2,922,920
USEPA Region III Residential Standard <sup>14</sup>		367	16	7,000	-	-	5.7	173,333	60	3.7	333,333
USEPA Region III Industrial Standard <sup>15</sup>		1,567	100	29,333	-	-	93	733,333	257	16	1,466,667

Table 2  
Air Analytical Results - Target Volatile Organic Compounds (ug/m<sup>3</sup>)  
U-Lock-It Self-Storage Building  
Milton's Dry Cleaners  
Vancouver, Washington

Notes:

- <sup>1</sup> Oregon DEQ and USEPA. Portland Air Toxics Assessment. 2006: mean values collected in 1999 and reported for five sampling locations.
- <sup>2</sup> USEPA. National-Scale Air Toxics Assessment, Table 1. 2006.
- <sup>3</sup> Model Toxics Control Act (MTCA) Default Method B and C cleanup levels for indoor air using current Ecology default toxicity values (April 6, 2015).
- <sup>4</sup> USEPA Mid-Atlantic Risk Assessment Regional Screening Level (RSL): Resident Air Supporting Table (November 2013)
- <sup>5</sup> USEPA Mid-Atlantic Risk Assessment Regional Screening Level (RSL): Industrial Air Supporting Table (November 2013)
- <sup>6</sup> USEPA. Background Indoor Air Concentrations of Volatile Organic Compounds in North American Residences (1900-2005): A Compilation of Statistics for Assessing Vapor Intrusion, Table 2. June 2011.
- <sup>7</sup> New York State Department of Health Tetrachloroethene (PERC) in Indoor and Outdoor Air Fact Sheet. October 2005.
- <sup>8</sup> Eastern Research Group, Inc. Overview of Exposure Pathways. Maximum concentrations of perchloroethylene in EPA experimental test house. May 1992.
- <sup>9</sup> Thomas KW, Pellizzari ED, Perritt RL, and Nelson WC. Effect of dry-cleaned clothes on tetrachloroethylene levels in indoor air, personal air, and breath for residents of several New Jersey homes. October 1991.
- <sup>10</sup> World Health Organization. Air Quality Guidelines - Second Edition. 2000.
- <sup>11</sup> U. S. Department of Health and Human Services. Toxicological Profile for Tetrachloroethylene. September 1997.
- <sup>12</sup> MTCA Default Method B/C soil gas screening levels for sub slab air using current Ecology default toxicity values (April 6, 2015).
- <sup>13</sup> USEPA Residential risk based screening level for subslab soil gas derived from recommended attenuation factor (USEPA April 2013)
- <sup>14</sup> USEPA Industrial risk based screening level for subslab soil gas derived from recommended attenuation factor (USEPA April 2013)
- ug/m<sup>3</sup> = micrograms per cubic meter
- = not reported
- <RL = below laboratory reporting limits.
- U = undetected above laboratory's method reporting limits (MRL) shown.
- J = estimated value. The results fell between the laboratory's practical quantification limit and the MRL.
- JB = Data Validation Qualifier. The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. The analyte was detected in the equipment blank rinsate blank.
- J<sup>1</sup> = Data Validation Qualifier. The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. See the corresponding data validation report for additional information.

## FIGURES



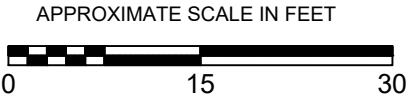


**NOTE:** USGS, Orchards Quadrangle  
Washington - Clark Co.  
7.5 Minute Series (Topographic) 1990.  
Base map provided by Map Tech.

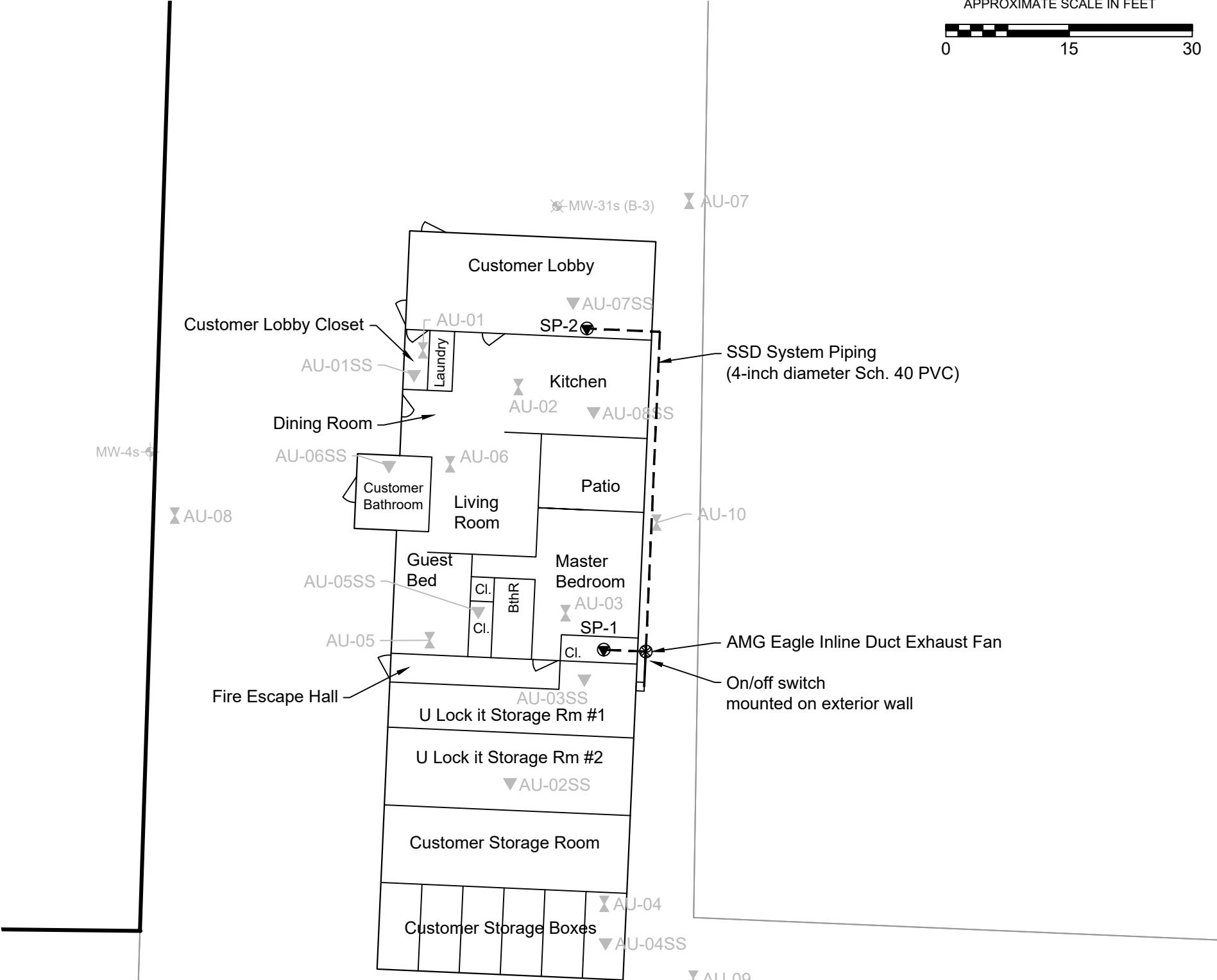


LEGEND

- Former Milton's Property Boundary
- AU-01SS ▼ Sub-Slab Monitoring Point/ Soil Gas Sample Location
- AU-01 ⚡ Air Sample Location
- SSD System Piping
- SP-1 ● Suction Pit
- ⊗ Exhaust Fan



- Notes:
- All SSD piping is Schedule 40 PVC.
  - U-tube manometer and monitoring port installed at each suction pit location.
  - All exposed pipe is permanently labeled "DEPRESSURIZATION SYSTEM PIPE FOR INDOOR AIR PROTECTION" at each suction pit location inside and two locations along piping on exterior wall as directed by engineer.
  - On/off switch for exhaust fan on exterior wall. All electrical connections and controls were installed by licensed electrician.
  - AMG Eagle Inline Duct Exhaust Fan installed on exterior wall. Fan is mounted high on exterior wall near roof line.
  - 4-Inch diameter Schedule 40 PVC vent stack extends above roof line. Vent is located at least 10 ft. from closest side of any door, window, or other opening into building interior and to HVAC/Ventilation inlet.



**PNG ENVIRONMENTAL, INC.**  
6665 SW Hampton St., Ste. 101 Tigard, OR 97223  
TEL (503) 620-2387  
FAX (503) 620-2977

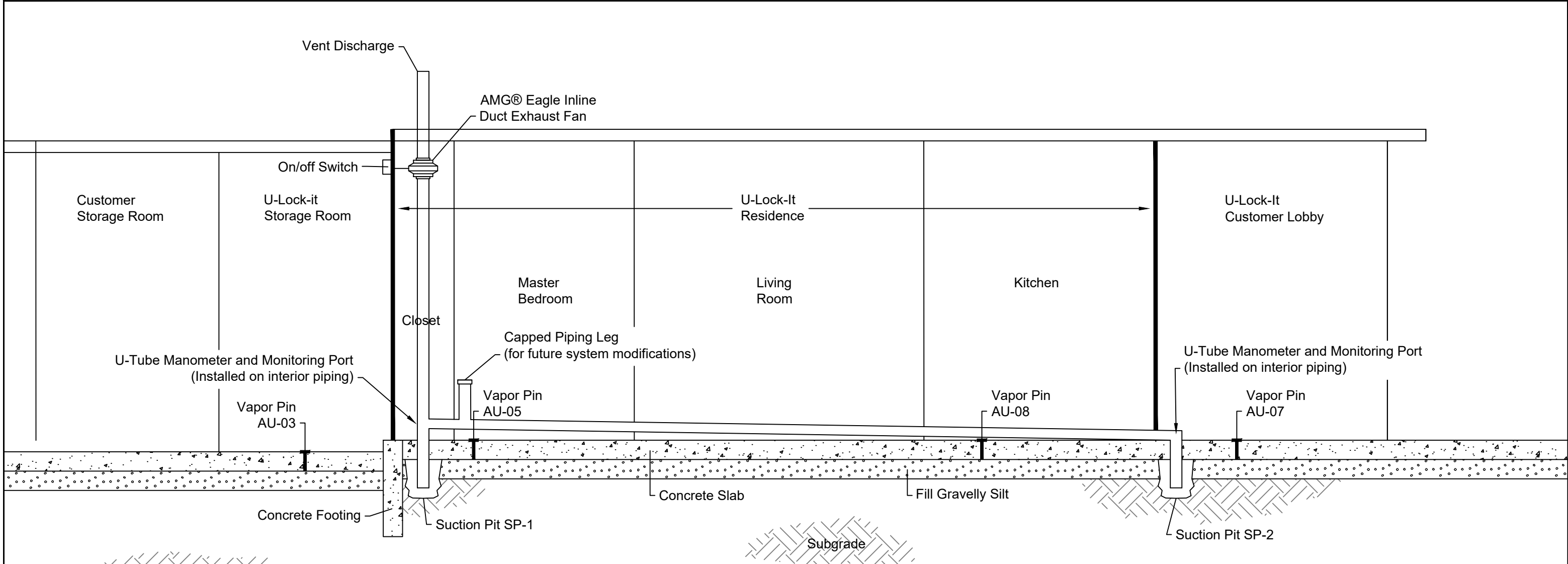
DATE: 6-5-16  
FILE NAME: 987-03  
DRAWN BY: JJT  
APPROVED BY: SV

MILTONS DRY CLEANERS  
6721 E. FOURTH PLAIN BLVD.  
VANCOUVER, WA.

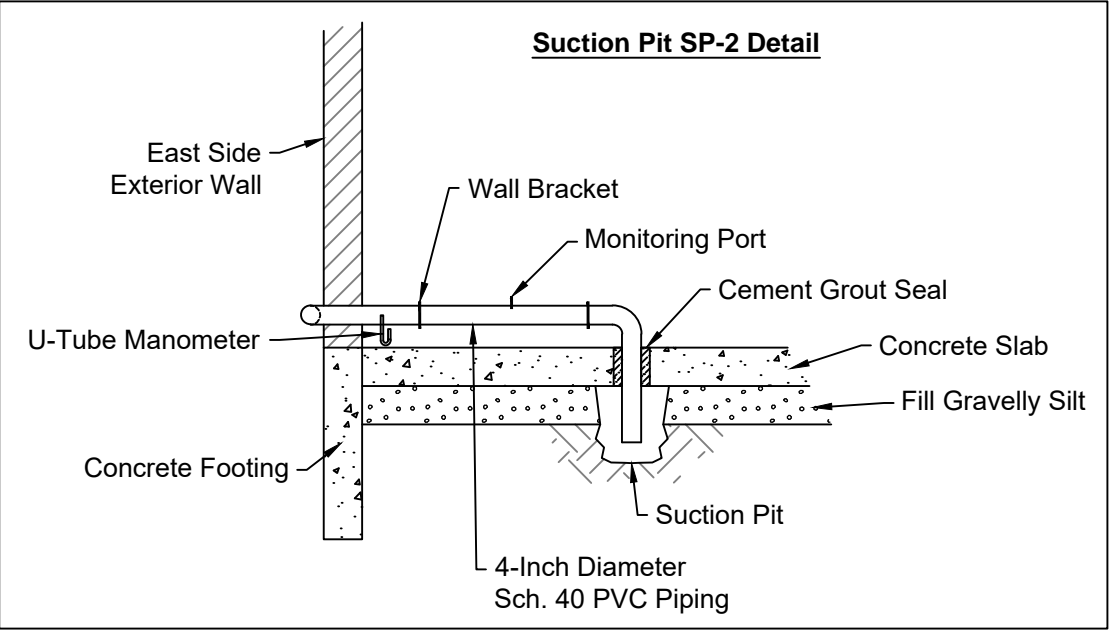
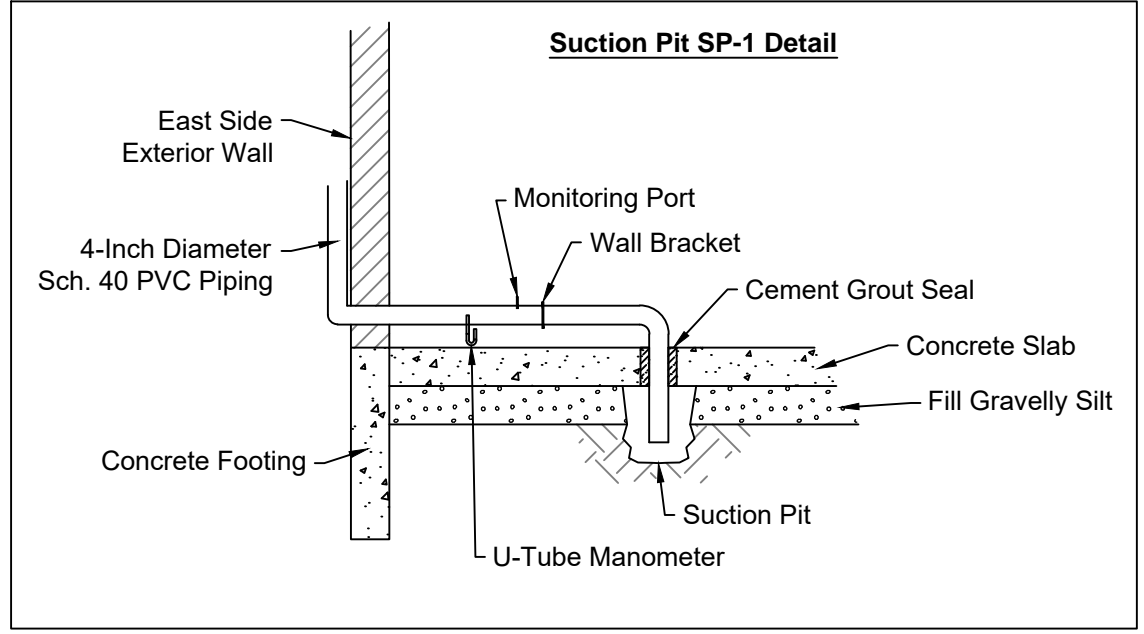
U-LOCK-IT BUILDING  
SUB-SLAB DEPRESSURIZATION AS-BUILT  
SYSTEM PLAN VIEW LAYOUT

Project No.  
987-03  
Figure No.  
**2**

C:\Users\Josh\Desktop\Autocad Files\PNG-Autocad\987-03 Milton's 2017\May 2017\987-03\_BM-022517.dwg 2.17.2014



- Notes:
1. All SSD piping is Schedule 40 PVC.
  2. U-tube manometer and monitoring port installed at each suction pit location.
  3. All exposed pipe is permanently labeled "DEPRESSURIZATION SYSTEM PIPE FOR INDOOR AIR PROTECTION" at each suction pit location inside and two locations along piping on exterior wall as directed by engineer.
  4. On/off switch for exhaust fan on exterior wall. All electrical connections and controls were installed by licensed electrician.
  5. AMG Eagle Inline Duct Exhaust Fan installed on exterior wall. Fan is mounted high on exterior wall near roof line.
  6. 4-Inch diameter Schedule 40 PVC vent stack extends above roof line. Vent is located at least 10 ft. from closest side of any door, window, or other opening into building interior and to HVAC/Ventilation inlet.

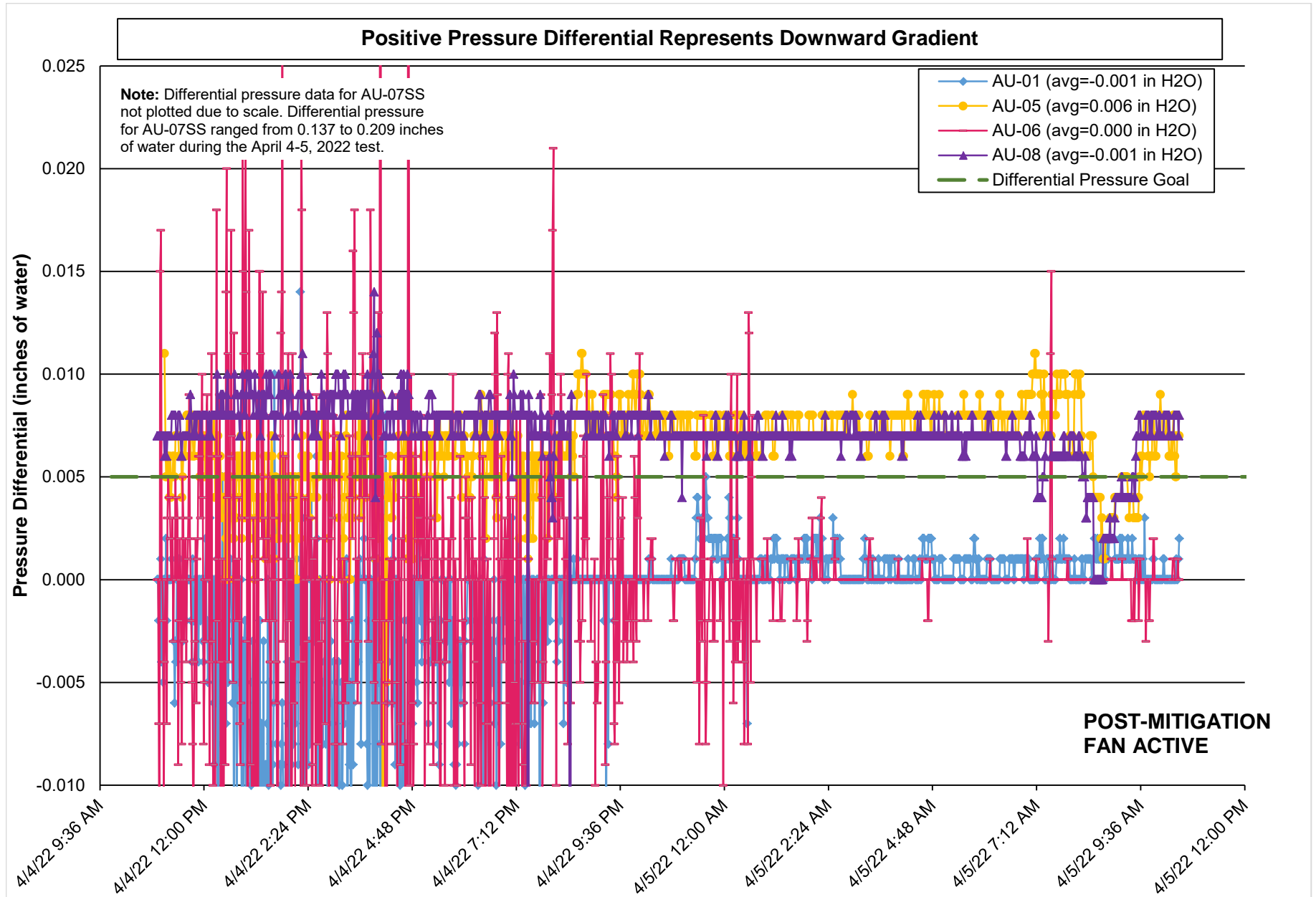


**NOT TO SCALE**

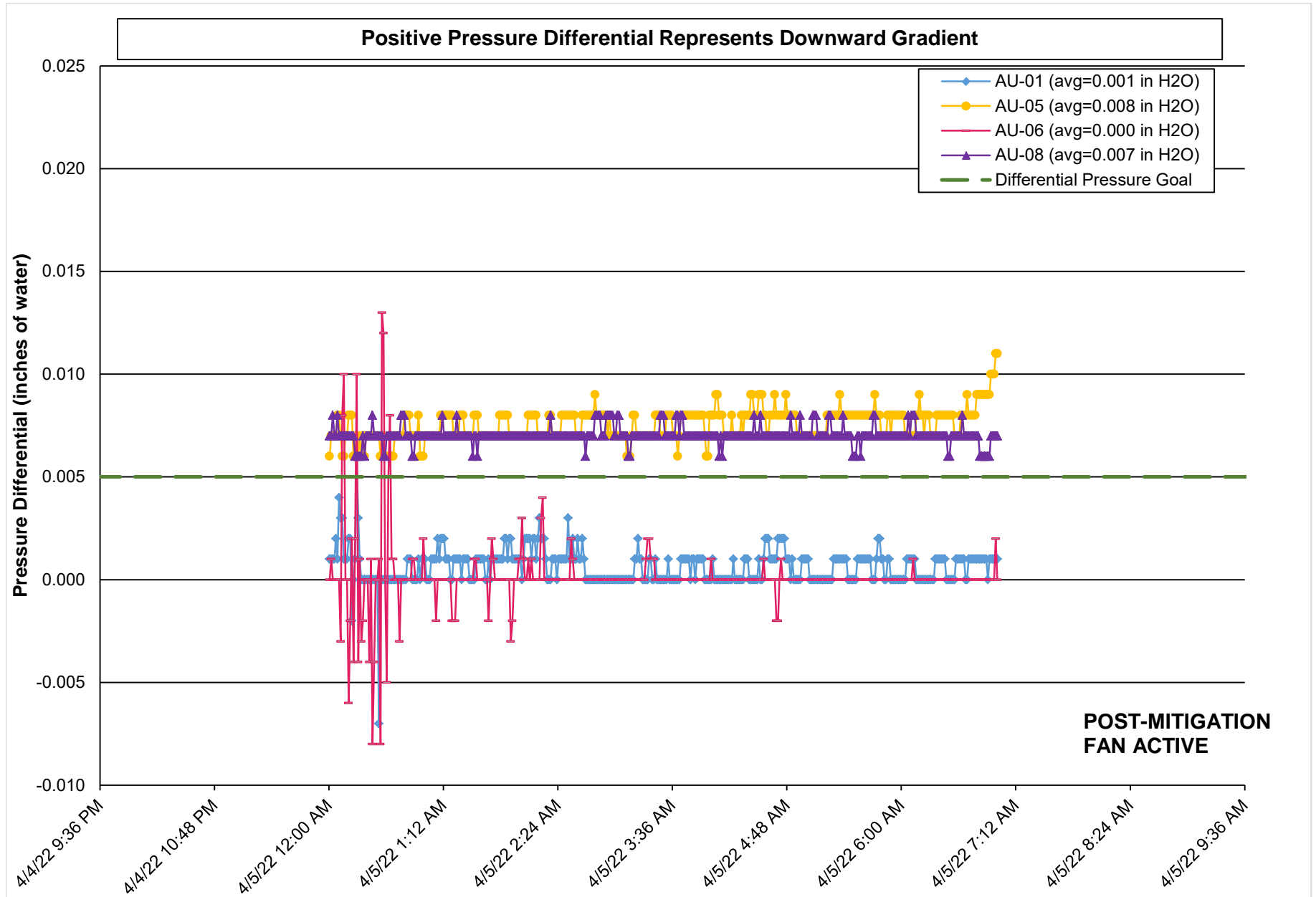
<b>PNG ENVIRONMENTAL, INC.</b>		DATE: 6-5-16	MILTONS DRY CLEANERS	U-LOCK-IT BUILDING	Project No. 987-03
6665 SW Hampton St., Ste. 101	TEL (503) 620-2387	FILE NAME: 987-03	6721 E. FOURTH PLAIN BLVD.	SUB-SLAB DEPRESSURIZATION AS-BUILT	Figure No. <b>3</b>
Tigard, OR 97223	FAX (503) 620-2977	DRAWN BY: JJT	VANCOUVER, WA.	SYSTEM COMPONENTS SCHEMATIC	
		APPROVED BY: SV			



**Figure 4a**  
**Differential Pressure Across Floor Slab Summary**  
**April 4th - 5th 2022**  
U-Lock-It Miltons



**Figure 4b**  
**Differential Pressure Across Floor Slab Summary**  
**April 4th - 5th 2022, Midnight to 7:00 AM**  
U-Lock-It Miltons



LEGEND

- Former Milton's Property Boundary
- AU-01SS ▼

Sub-Slab Monitoring Point/  
Soil Gas Sample Location
- AU-01 ⚡

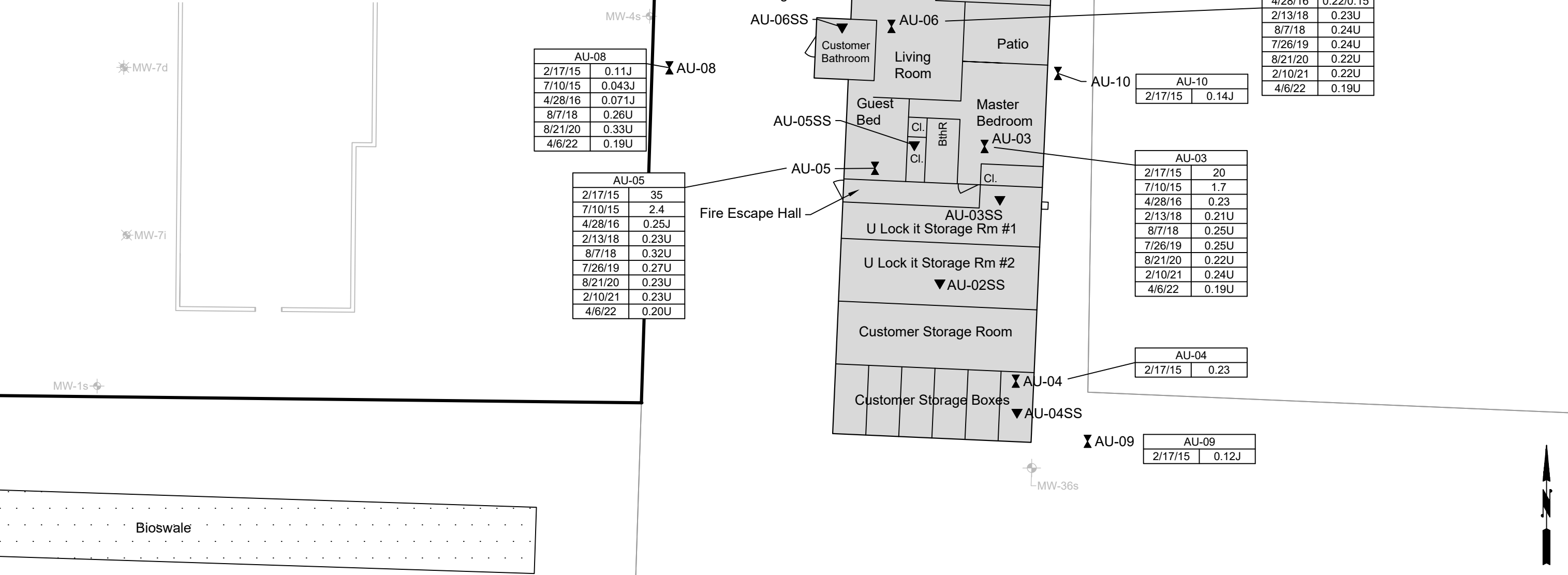
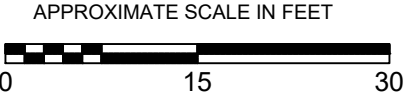
Air Sample Location
- J =

Estimated Value
- U =

Not Detected Above Reporting  
Limit Shown
- 20

PCE Concentration (ug/m³)

Note:  
Vapor Intrusion Mitigation System  
installed March 29, 2016 and operated  
since.



LEGEND

- Former Milton's Property Boundary
- AU-01SS ▼

Sub-Slab Monitoring Point/  
Soil Gas Sample Location
- AU-01 ⚡

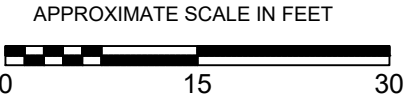
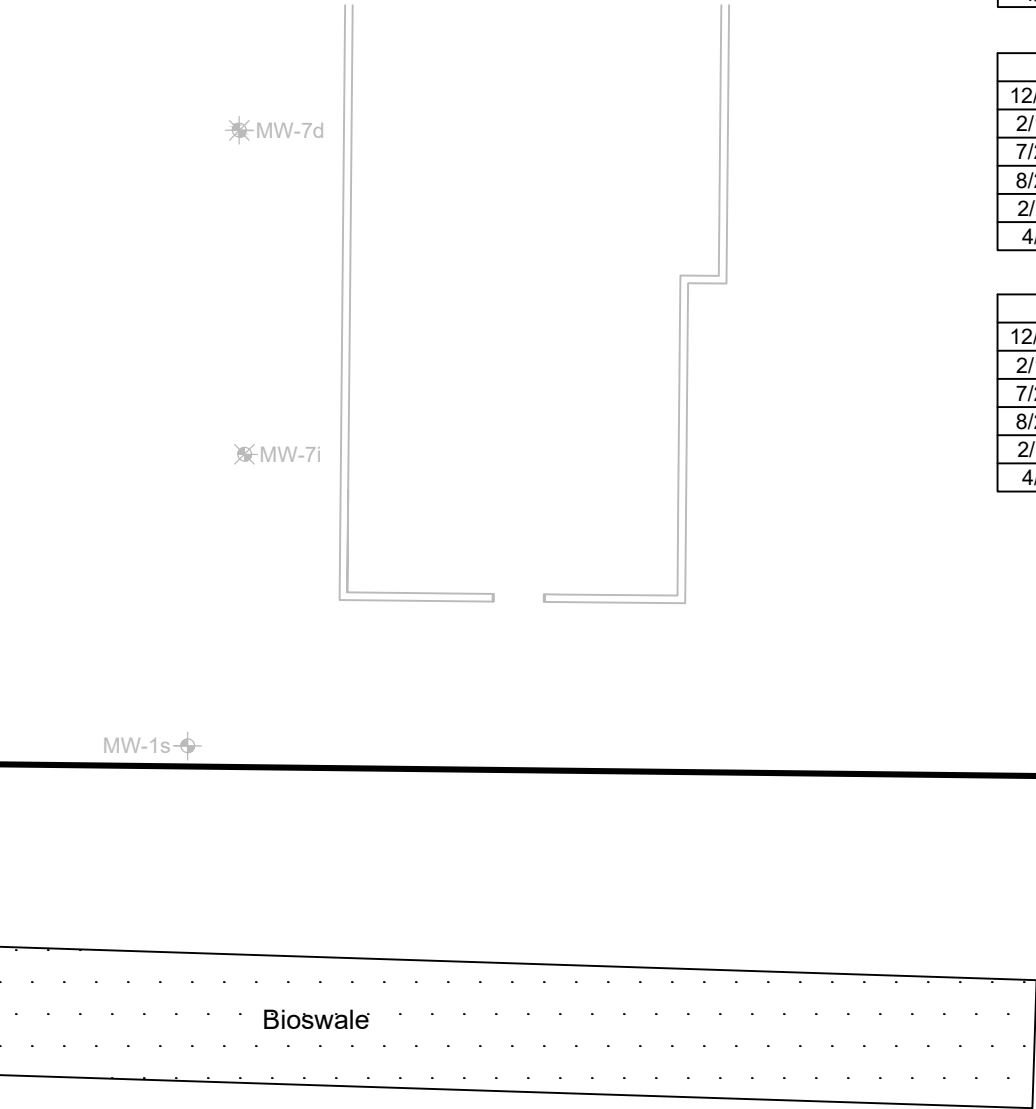
Air Sample Location
- J =

Estimated Value
- U =

Not Detected Above Reporting  
Limit Shown
- 20

PCE Concentration (ug/m³)

Note:  
Vapor Intrusion Mitigation System  
installed March 29, 2016 and operated  
since.



AU-01SS	
12/12/14	2,180
2/18/15	2,000
7/26/19	2.7
8/21/20	2.9
2/10/21	0.84
4/6/22	0.64

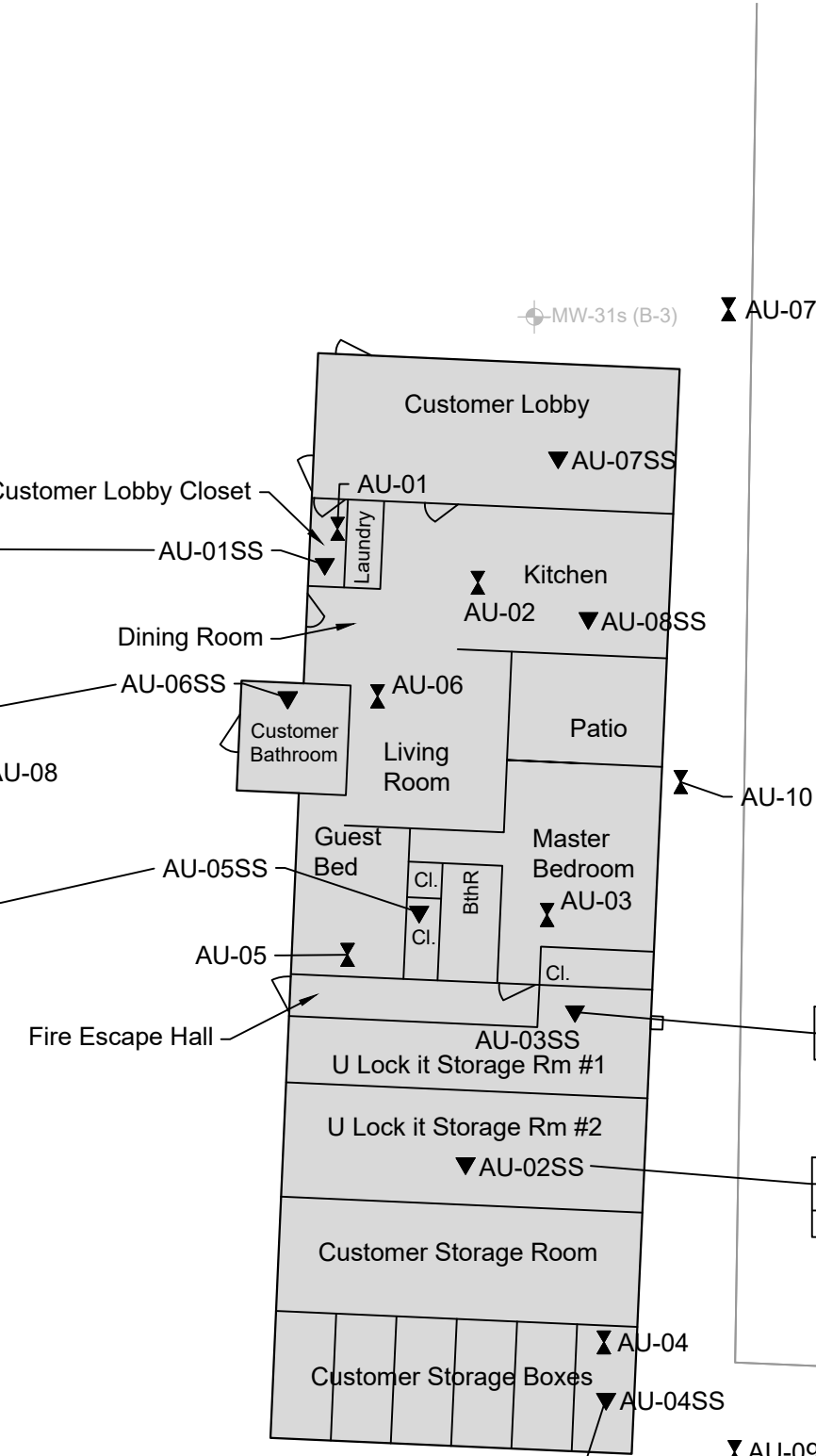
AU-06SS	
12/12/14	109J
2/18/15	130
7/26/19	0.93
8/21/20	0.49
2/10/21	0.28
4/6/22	0.45

AU-05SS	
12/12/14	724
2/18/15	98
7/26/19	4.1
8/21/20	3.0
2/10/21	1.2
4/6/22	1.8

AU-03SS	
12/12/14	77

AU-02SS	
12/12/14	33J
4/6/22	1.2

AU-04SS	
12/12/14	20J
2/18/15	28
7/26/19	2.8
8/21/20	1.6
2/10/21	0.93



**APPENDIX A**  
**SSD SYSTEM INSPECTION FORM**

<b>PNG Environmental, Inc</b>  6665 SW Hampton St., Ste. 101 Tigard, Oregon 97223  PH (503) 620-2387 FAX (503) 620-2977		<b>SSD System Inspection Form</b>		Job Number: 987
		Project: U-Lock-It Storage Miltons Site	Date: 04-04-22m	
		Client:	Page: 1 of 1	
Prepared By: <i>[Signature]</i>	Location: 6807 NE Fourth Plain Blvd Vancouver, WA 98661	Arrival:	Permit Number:	
Purpose:	Weather: Rain ~ 44°	Departure:		

	Yes	No	N/A
--	-----	----	-----

### Condition of System Components

Exterior pipe free of cracks	X		
Interior pipe free of cracks	X		
Fan running appropriately (no excess noise or vibration)	X		
Seal around floor Suction Pits in good condition	X		
Manometer in good condition	X		
Concrete slab in good condition	X		
Manometer reading consistent with previous inspections	X		
All Vapor Points effectively capped	X		
Riser valves operating properly	X		

## Structural Changes

Any significant changes to building's HVAC		X	
Any new vents or openings in the roof/walls		X	
Any changes to the use of chimneys		X	
Any new buildings near the mitigated building		X	
Has the attic been remodeled into a living space		X	
Have there been any significant earthquake events		X	

### Manometer/Pressure Gauge Readings

Suction Point #1 (Bedroom)	4-4-22	0953	2.8
Suction Point #2 (Office Lobby)	4-4-22	0932	2.1

## Other Observations/Comments

[illegible]

**APPENDIX B**  
**LABORATORY DATA**

4/21/2022

Mr. Brad Berggren  
PNG Environmental  
6665 SW Hampton St  
Suite 101  
Tigard OR 97223

Project Name: Milton-ULock  
Project #: 987  
Workorder #: 2204336

Dear Mr. Brad Berggren

The following report includes the data for the above referenced project for sample(s) received on 4/11/2022 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Modified TO-15 SIM 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



# WORK ORDER #: 2204336

## Work Order Summary

**CLIENT:** Mr. Brad Berggren  
PNG Environmental  
6665 SW Hampton St  
Suite 101  
Tigard, OR 97223

**BILL TO:** Mr. Jay Greifer  
PNG Environmental  
6665 SW Hampton St  
Suite 101  
Tigard, OR 97223

**PHONE:** 503-620-2387

**P.O. #**

**FAX:** 503-620-2977

**PROJECT #** 987 Milton-ULock

**DATE RECEIVED:** 04/11/2022

**CONTACT:** Monica Tran

**DATE COMPLETED:** 04/21/2022

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AU-02	Modified TO-15 SIM	6.9 "Hg	1.9 psi
02A	AU-03	Modified TO-15 SIM	6.5 "Hg	1.8 psi
03A	AU-05	Modified TO-15 SIM	7.3 "Hg	1.9 psi
04A	AU-06	Modified TO-15 SIM	6.5 "Hg	1.8 psi
05A	AU-06 D	Modified TO-15 SIM	6.9 "Hg	1.7 psi
06A	AU-08	Modified TO-15 SIM	5.9 "Hg	1.7 psi
07A	AU-01 SS	Modified TO-15 SIM	4.9 "Hg	1.7 psi
08A	AU-01 SS-D	Modified TO-15 SIM	4.1 "Hg	1.6 psi
09A	AU-05 SS	Modified TO-15 SIM	7.3 "Hg	1.7 psi
10A	AU-06 SS	Modified TO-15 SIM	4.3 "Hg	1.6 psi
11A	AU-02 SS	Modified TO-15 SIM	4.1 "Hg	1.9 psi
12A	Lab Blank	Modified TO-15 SIM	NA	NA
12B	Lab Blank	Modified TO-15 SIM	NA	NA
12C	Lab Blank	Modified TO-15 SIM	NA	NA
13A	CCV	Modified TO-15 SIM	NA	NA
13B	CCV	Modified TO-15 SIM	NA	NA
13C	CCV	Modified TO-15 SIM	NA	NA
14A	LCS	Modified TO-15 SIM	NA	NA
14AA	LCSD	Modified TO-15 SIM	NA	NA
14B	LCS	Modified TO-15 SIM	NA	NA
14BB	LCSD	Modified TO-15 SIM	NA	NA
14C	LCS	Modified TO-15 SIM	NA	NA
14CC	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY:



Technical Director

DATE: 04/21/22

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209221, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-21-17, UT NELAP – CA009332021-13, VA NELAP - 10615, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-015, Effective date: 10/18/2021, Expiration date: 10/17/2022.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

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**LABORATORY NARRATIVE**  
**Modified TO-15 SIM**  
**PNG Environmental**  
**Workorder# 2204336**

Five 6 Liter Summa Canister (100% SIM Ambient) and six 6 Liter Summa Canister (SIM Certified) samples were received on April 11, 2022. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
ICAL %RSD acceptance criteria	$\leq 30\%$ RSD with 2 compounds allowed out to $< 40\%$ RSD	Project specific; default criteria is $\leq 30\%$ RSD with 10% of compounds allowed out to $< 40\%$ RSD
Daily Calibration	$\pm 30\%$ Difference	Project specific; default criteria is $\leq 30\%$ Difference with 10% of compounds allowed out up to $\leq 40\%$ .; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

There were no analytical discrepancies.

**Definition of Data Qualifying Flags**

The following 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, 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.

CN- See Case Narrative.

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

a-File was requantified

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b-File was quantified by a second column and detector  
r1-File was requantified for the purpose of reissue

## Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM

**Client Sample ID: AU-02**

**Lab ID#: 2204336-01A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2-Dichloroethane	0.029	0.15	0.12	0.62

**Client Sample ID: AU-03**

**Lab ID#: 2204336-02A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2-Dichloroethane	0.029	0.36	0.12	1.4

**Client Sample ID: AU-05**

**Lab ID#: 2204336-03A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2-Dichloroethane	0.030	0.14	0.12	0.56

**Client Sample ID: AU-06**

**Lab ID#: 2204336-04A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2-Dichloroethane	0.029	0.18	0.12	0.74

**Client Sample ID: AU-06 D**

**Lab ID#: 2204336-05A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2-Dichloroethane	0.029	0.20	0.12	0.79

**Client Sample ID: AU-08**

**Lab ID#: 2204336-06A**

No Detections Were Found.

## Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM

**Client Sample ID:** AU-01 SS

**Lab ID#:** 2204336-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.027	0.091	0.18	0.62

**Client Sample ID:** AU-01 SS-D

**Lab ID#:** 2204336-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.026	0.094	0.17	0.64

**Client Sample ID:** AU-05 SS

**Lab ID#:** 2204336-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.029	0.27	0.20	1.8

**Client Sample ID:** AU-06 SS

**Lab ID#:** 2204336-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.026	0.067	0.18	0.45

**Client Sample ID:** AU-02 SS

**Lab ID#:** 2204336-11A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.026	0.18	0.18	1.2



## Air Toxics

Client Sample ID: AU-02

Lab ID#: 2204336-01A

### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: 16041907sim  
Dil. Factor: 1.47

Date of Collection: 4/6/22 9:09:00 AM  
Date of Analysis: 4/19/22 09:36 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.015	Not Detected	0.038	Not Detected
Chloroethane	0.074	Not Detected	0.19	Not Detected
1,1-Dichloroethene	0.015	Not Detected	0.058	Not Detected
trans-1,2-Dichloroethene	0.15	Not Detected	0.58	Not Detected
1,1-Dichloroethane	0.029	Not Detected	0.12	Not Detected
cis-1,2-Dichloroethene	0.029	Not Detected	0.12	Not Detected
1,1,1-Trichloroethane	0.029	Not Detected	0.16	Not Detected
1,2-Dichloroethane	0.029	0.15	0.12	0.62
Trichloroethene	0.029	Not Detected	0.16	Not Detected
Tetrachloroethene	0.029	Not Detected	0.20	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: AU-03

Lab ID#: 2204336-02A

## MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041515sim	Date of Collection:	4/6/22 9:10:00 AM
Dil. Factor:	1.43	Date of Analysis:	4/16/22 04:22 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.014	Not Detected	0.036	Not Detected
Chloroethane	0.072	Not Detected	0.19	Not Detected
1,1-Dichloroethene	0.014	Not Detected	0.057	Not Detected
trans-1,2-Dichloroethene	0.14	Not Detected	0.57	Not Detected
1,1-Dichloroethane	0.029	Not Detected	0.12	Not Detected
cis-1,2-Dichloroethene	0.029	Not Detected	0.11	Not Detected
1,1,1-Trichloroethane	0.029	Not Detected	0.16	Not Detected
1,2-Dichloroethane	0.029	0.36	0.12	1.4
Trichloroethene	0.029	Not Detected	0.15	Not Detected
Tetrachloroethene	0.029	Not Detected	0.19	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	108	70-130



Air Toxics

Client Sample ID: AU-05

Lab ID#: 2204336-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041516sim	Date of Collection:	4/6/22 9:09:00 AM
Dil. Factor:	1.49	Date of Analysis:	4/16/22 05:10 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.015	Not Detected	0.038	Not Detected
Chloroethane	0.074	Not Detected	0.20	Not Detected
1,1-Dichloroethene	0.015	Not Detected	0.059	Not Detected
trans-1,2-Dichloroethene	0.15	Not Detected	0.59	Not Detected
1,1-Dichloroethane	0.030	Not Detected	0.12	Not Detected
cis-1,2-Dichloroethene	0.030	Not Detected	0.12	Not Detected
1,1,1-Trichloroethane	0.030	Not Detected	0.16	Not Detected
1,2-Dichloroethane	0.030	0.14	0.12	0.56
Trichloroethene	0.030	Not Detected	0.16	Not Detected
Tetrachloroethene	0.030	Not Detected	0.20	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	106	70-130





## Air Toxics

Client Sample ID: AU-06

Lab ID#: 2204336-04A

### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: 16041517sim

Date of Collection: 4/6/22 9:08:00 AM

Dil. Factor: 1.43

Date of Analysis: 4/16/22 05:59 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.014	Not Detected	0.036	Not Detected
Chloroethane	0.072	Not Detected	0.19	Not Detected
1,1-Dichloroethene	0.014	Not Detected	0.057	Not Detected
trans-1,2-Dichloroethene	0.14	Not Detected	0.57	Not Detected
1,1-Dichloroethane	0.029	Not Detected	0.12	Not Detected
cis-1,2-Dichloroethene	0.029	Not Detected	0.11	Not Detected
1,1,1-Trichloroethane	0.029	Not Detected	0.16	Not Detected
1,2-Dichloroethane	0.029	0.18	0.12	0.74
Trichloroethene	0.029	Not Detected	0.15	Not Detected
Tetrachloroethene	0.029	Not Detected	0.19	Not Detected

#### Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: AU-06 D

Lab ID#: 2204336-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041518sim	Date of Collection:	4/6/22 9:09:00 AM
Dil. Factor:	1.45	Date of Analysis:	4/16/22 06:47 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.014	Not Detected	0.037	Not Detected
Chloroethane	0.072	Not Detected	0.19	Not Detected
1,1-Dichloroethene	0.014	Not Detected	0.057	Not Detected
trans-1,2-Dichloroethene	0.14	Not Detected	0.57	Not Detected
1,1-Dichloroethane	0.029	Not Detected	0.12	Not Detected
cis-1,2-Dichloroethene	0.029	Not Detected	0.11	Not Detected
1,1,1-Trichloroethane	0.029	Not Detected	0.16	Not Detected
1,2-Dichloroethane	0.029	0.20	0.12	0.79
Trichloroethene	0.029	Not Detected	0.16	Not Detected
Tetrachloroethene	0.029	Not Detected	0.20	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	105	70-130



## Air Toxics

Client Sample ID: AU-08

Lab ID#: 2204336-06A

### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: 16041809sim  
Dil. Factor: 1.39

Date of Collection: 4/6/22 9:11:00 AM  
Date of Analysis: 4/18/22 08:44 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.014	Not Detected	0.036	Not Detected
Chloroethane	0.070	Not Detected	0.18	Not Detected
1,1-Dichloroethene	0.014	Not Detected	0.055	Not Detected
trans-1,2-Dichloroethene	0.14	Not Detected	0.55	Not Detected
1,1-Dichloroethane	0.028	Not Detected	0.11	Not Detected
cis-1,2-Dichloroethene	0.028	Not Detected	0.11	Not Detected
1,1,1-Trichloroethane	0.028	Not Detected	0.15	Not Detected
1,2-Dichloroethane	0.028	Not Detected	0.11	Not Detected
Trichloroethene	0.028	Not Detected	0.15	Not Detected
Tetrachloroethene	0.028	Not Detected	0.19	Not Detected

#### Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: AU-01 SS

Lab ID#: 2204336-07A

## MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041810sim	Date of Collection:	4/6/22 10:17:00 AM
Dil. Factor:	1.33	Date of Analysis:	4/18/22 09:32 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.013	Not Detected	0.034	Not Detected
Chloroethane	0.066	Not Detected	0.18	Not Detected
1,1-Dichloroethene	0.013	Not Detected	0.053	Not Detected
trans-1,2-Dichloroethene	0.13	Not Detected	0.53	Not Detected
1,1-Dichloroethane	0.027	Not Detected	0.11	Not Detected
cis-1,2-Dichloroethene	0.027	Not Detected	0.10	Not Detected
1,1,1-Trichloroethane	0.027	Not Detected	0.14	Not Detected
1,2-Dichloroethane	0.027	Not Detected	0.11	Not Detected
Trichloroethene	0.027	Not Detected	0.14	Not Detected
Tetrachloroethene	0.027	0.091	0.18	0.62

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: AU-01 SS-D

Lab ID#: 2204336-08A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041811sim	Date of Collection:	4/6/22 10:17:00 AM
Dil. Factor:	1.28	Date of Analysis:	4/18/22 10:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.013	Not Detected	0.033	Not Detected
Chloroethane	0.064	Not Detected	0.17	Not Detected
1,1-Dichloroethene	0.013	Not Detected	0.051	Not Detected
trans-1,2-Dichloroethene	0.13	Not Detected	0.51	Not Detected
1,1-Dichloroethane	0.026	Not Detected	0.10	Not Detected
cis-1,2-Dichloroethene	0.026	Not Detected	0.10	Not Detected
1,1,1-Trichloroethane	0.026	Not Detected	0.14	Not Detected
1,2-Dichloroethane	0.026	Not Detected	0.10	Not Detected
Trichloroethene	0.026	Not Detected	0.14	Not Detected
Tetrachloroethene	0.026	0.094	0.17	0.64

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	107	70-130



## Air Toxics

Client Sample ID: AU-05 SS

Lab ID#: 2204336-09A

### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041812sim	Date of Collection:	4/6/22 11:29:00 AM
Dil. Factor:	1.47	Date of Analysis:	4/18/22 11:08 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.015	Not Detected	0.038	Not Detected
Chloroethane	0.074	Not Detected	0.19	Not Detected
1,1-Dichloroethene	0.015	Not Detected	0.058	Not Detected
trans-1,2-Dichloroethene	0.15	Not Detected	0.58	Not Detected
1,1-Dichloroethane	0.029	Not Detected	0.12	Not Detected
cis-1,2-Dichloroethene	0.029	Not Detected	0.12	Not Detected
1,1,1-Trichloroethane	0.029	Not Detected	0.16	Not Detected
1,2-Dichloroethane	0.029	Not Detected	0.12	Not Detected
Trichloroethene	0.029	Not Detected	0.16	Not Detected
Tetrachloroethene	0.029	0.27	0.20	1.8

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	106	70-130



Air Toxics

Client Sample ID: AU-06 SS

Lab ID#: 2204336-10A

## MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041814sim	Date of Collection:	4/6/22 12:26:00 PM
Dil. Factor:	1.29	Date of Analysis:	4/19/22 12:44 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.013	Not Detected	0.033	Not Detected
Chloroethane	0.064	Not Detected	0.17	Not Detected
1,1-Dichloroethene	0.013	Not Detected	0.051	Not Detected
trans-1,2-Dichloroethene	0.13	Not Detected	0.51	Not Detected
1,1-Dichloroethane	0.026	Not Detected	0.10	Not Detected
cis-1,2-Dichloroethene	0.026	Not Detected	0.10	Not Detected
1,1,1-Trichloroethane	0.026	Not Detected	0.14	Not Detected
1,2-Dichloroethane	0.026	Not Detected	0.10	Not Detected
Trichloroethene	0.026	Not Detected	0.14	Not Detected
Tetrachloroethene	0.026	0.067	0.18	0.45

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	107	70-130



## Air Toxics

Client Sample ID: AU-02 SS

Lab ID#: 2204336-11A

### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041815sim	Date of Collection:	4/6/22 1:20:00 PM
Dil. Factor:	1.31	Date of Analysis:	4/19/22 01:33 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.013	Not Detected	0.033	Not Detected
Chloroethane	0.066	Not Detected	0.17	Not Detected
1,1-Dichloroethene	0.013	Not Detected	0.052	Not Detected
trans-1,2-Dichloroethene	0.13	Not Detected	0.52	Not Detected
1,1-Dichloroethane	0.026	Not Detected	0.11	Not Detected
cis-1,2-Dichloroethene	0.026	Not Detected	0.10	Not Detected
1,1,1-Trichloroethane	0.026	Not Detected	0.14	Not Detected
1,2-Dichloroethane	0.026	Not Detected	0.11	Not Detected
Trichloroethene	0.026	Not Detected	0.14	Not Detected
Tetrachloroethene	0.026	0.18	0.18	1.2

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	110	70-130



Client Sample ID: Lab Blank

Lab ID#: 2204336-12A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041506sime	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/15/22 04:52 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
Chloroethane	0.050	Not Detected	0.13	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
1,2-Dichloroethane	0.020	Not Detected	0.081	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2204336-12B

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041807simc	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/18/22 03:43 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
Chloroethane	0.050	Not Detected	0.13	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
1,2-Dichloroethane	0.020	Not Detected	0.081	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	104	70-130

Client Sample ID: Lab Blank

Lab ID#: 2204336-12C

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041906sima	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/19/22 02:07 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
Chloroethane	0.050	Not Detected	0.13	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
1,2-Dichloroethane	0.020	Not Detected	0.081	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 2204336-13A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041502sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/15/22 01:40 PM

Compound	%Recovery
----------	-----------

Vinyl Chloride	78
Chloroethane	82
1,1-Dichloroethene	86
trans-1,2-Dichloroethene	87
1,1-Dichloroethane	88
cis-1,2-Dichloroethene	89
1,1,1-Trichloroethane	97
1,2-Dichloroethane	96
Trichloroethene	95
Tetrachloroethene	103

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	112	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 2204336-13B

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041803sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/18/22 12:32 PM

Compound	%Recovery
----------	-----------

Vinyl Chloride	79
Chloroethane	82
1,1-Dichloroethene	88
trans-1,2-Dichloroethene	90
1,1-Dichloroethane	87
cis-1,2-Dichloroethene	90
1,1,1-Trichloroethane	98
1,2-Dichloroethane	93
Trichloroethene	94
Tetrachloroethene	104

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	114	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 2204336-13C

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041902sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/19/22 10:49 AM

Compound	%Recovery
----------	-----------

Vinyl Chloride	76
Chloroethane	93
1,1-Dichloroethene	94
trans-1,2-Dichloroethene	88
1,1-Dichloroethane	83
cis-1,2-Dichloroethene	88
1,1,1-Trichloroethane	95
1,2-Dichloroethane	92
Trichloroethene	95
Tetrachloroethene	106

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	108	70-130

Client Sample ID: LCS

Lab ID#: 2204336-14A

**MODIFIED EPA METHOD TO-15 GC/MS SIM**

<b>File Name:</b>	<b>16041503sim</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 4/15/22 02:17 PM</b>

Compound	%Recovery	Method Limits
Vinyl Chloride	77	70-130
Chloroethane	81	70-130
1,1-Dichloroethene	84	70-130
trans-1,2-Dichloroethene	86	70-130
1,1-Dichloroethane	85	70-130
cis-1,2-Dichloroethene	88	70-130
1,1,1-Trichloroethane	96	70-130
1,2-Dichloroethane	93	70-130
Trichloroethene	95	70-130
Tetrachloroethene	101	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	110	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 2204336-14AA

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041504sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/15/22 02:54 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	76	70-130
Chloroethane	79	70-130
1,1-Dichloroethene	82	70-130
trans-1,2-Dichloroethene	86	70-130
1,1-Dichloroethane	83	70-130
cis-1,2-Dichloroethene	84	70-130
1,1,1-Trichloroethane	93	70-130
1,2-Dichloroethane	92	70-130
Trichloroethene	94	70-130
Tetrachloroethene	101	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	108	70-130



Client Sample ID: LCS

Lab ID#: 2204336-14B

**MODIFIED EPA METHOD TO-15 GC/MS SIM**

<b>File Name:</b>	<b>16041804sim</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 4/18/22 01:09 PM</b>

Compound	%Recovery	Method Limits
Vinyl Chloride	78	70-130
Chloroethane	83	70-130
1,1-Dichloroethene	84	70-130
trans-1,2-Dichloroethene	89	70-130
1,1-Dichloroethane	86	70-130
cis-1,2-Dichloroethene	88	70-130
1,1,1-Trichloroethane	96	70-130
1,2-Dichloroethane	91	70-130
Trichloroethene	93	70-130
Tetrachloroethene	101	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	109	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 2204336-14BB

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041805sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/18/22 01:46 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	78	70-130
Chloroethane	82	70-130
1,1-Dichloroethene	84	70-130
trans-1,2-Dichloroethene	88	70-130
1,1-Dichloroethane	86	70-130
cis-1,2-Dichloroethene	87	70-130
1,1,1-Trichloroethane	94	70-130
1,2-Dichloroethane	92	70-130
Trichloroethene	95	70-130
Tetrachloroethene	103	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	108	70-130

Client Sample ID: LCS

Lab ID#: 2204336-14C

**MODIFIED EPA METHOD TO-15 GC/MS SIM**

<b>File Name:</b>	<b>16041903sim</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 4/19/22 11:26 AM</b>

Compound	%Recovery	Method Limits
Vinyl Chloride	74	70-130
Chloroethane	95	70-130
1,1-Dichloroethene	86	70-130
trans-1,2-Dichloroethene	86	70-130
1,1-Dichloroethane	84	70-130
cis-1,2-Dichloroethene	85	70-130
1,1,1-Trichloroethane	94	70-130
1,2-Dichloroethane	90	70-130
Trichloroethene	94	70-130
Tetrachloroethene	108	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	110	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 2204336-14CC

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	16041904sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/19/22 12:03 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	82	70-130
Chloroethane	82	70-130
1,1-Dichloroethene	79	70-130
trans-1,2-Dichloroethene	83	70-130
1,1-Dichloroethane	80	70-130
cis-1,2-Dichloroethene	82	70-130
1,1,1-Trichloroethane	100	70-130
1,2-Dichloroethane	88	70-130
Trichloroethene	95	70-130
Tetrachloroethene	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	89	70-130
4-Bromofluorobenzene	108	70-130



eurofins

Air Toxics

# Analysis Request /Canister Chain of Custody

180 Blue Ravine Rd, Suite B, Folsom, CA 95630  
Phone (800) 985-5955; Fax (916) 351-8279

For Laboratory Use Only  
PID: \_\_\_\_\_  
Workorder #: \_\_\_\_\_

2204336

page 1 of 2

Client:

Pacific Environmental

Special Instructions/Notes:

Project Name:

Milpitas - Clocas

Standard X Rush \_\_\_\_\_ (specify)

Project Manager:

Bonnie Bergeron

Canister Vacuum/Pressure \_\_\_\_\_

Sampler:

CTGHEB

Lab Use Only

Site Name:

Black IT

Turnaround Time (Rush surcharges may apply)

Requested Analyses

Lab ID

Field Sample Identification (Location)

Can #

Flow Controller #

Start Sampling Information

Stop Sampling Information

Initial (in Hg)

Final (in Hg)

Receipt

Final (psig)  
Gas: N<sub>2</sub> / He

TO-15  
91256

01A 411-03

CL 24493

22849

046522

0947

046622

0909

-30

-4.5

X

02A 411-03

CL 0556

22478

046522

0949

046622

0910

-30

-8

X

03A 411-05

CL 2419

21665

046522

0948

046622

0909

-30

-10

X

04A 411-06

CL 0941

24462

046522

0945

046622

0908

-30

-7.5

X

05A 411-06D

CL 0196

24442

046522

0946

046622

0909

-29

-7.5

X

06A 411-08

CL 0863

23399

046522

0952

046622

0911

-29

-8

X

Relinquished by: (Signature/Affiliation)

[Signature]

Date

040722

Time

0750

Received by: (Signature/Affiliation)

[Signature]

Date

4/11/22

Time

1356

Relinquished by: (Signature/Affiliation)

[Signature]

Date

040722

Time

0750

Received by: (Signature/Affiliation)

[Signature]

Date

4/11/22

Time

1356

Relinquished by: (Signature/Affiliation)

[Signature]

Date

040722

Time

0750

Received by: (Signature/Affiliation)

[Signature]

Date

4/11/22

Time

1356

Shipper Name:

PEDEX

Custody Seals Intact?

Yes

No

None

Lab Use Only

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T. Hotline (800) 467-4922

# Analysis Request /Canister Chain of Custody

180 Blue Ravine Rd. Suite B, Folsom, CA 95630  
Phone (800) 985-5955; Fax (916) 351-8279

PID: \_\_\_\_\_ Workorder #: 2201336

Page 2 of 3

Client:

Public Environmental

Special Instructions/Notes:

Turnaround Time (Rush surcharges may apply)

Project Name:

Millers Creek

Standard ✓ Rush \_\_\_\_\_ (specify)

Project Manager:

Brad Berger

Project #

987

Canister Vacuum/Pressure

Requested Analyses

Sampler:

UABED

Site Name:

UABED

91150

Lab Use Only

Final (psig)  
Gas: N<sub>2</sub> / He

Lab ID

Field Sample Identification(Location)

Can #

Flow Controller #

Start Sampling Information

Stop Sampling Information

Initial (in Hg)

Final (in Hg)

Receipt

Final (psig)  
Gas: N<sub>2</sub> / He

Requested Analyses

Time

Time

Time

02A

AL-0155

CL 0343

25459

010622

0944

010622

1017

-29

-5

✓

TO-15

91A LL

✓

✓

08A

AL-0155-D

CL 0116

24583

0944

1017

-27

-5

✓

✓

✓

✓

✓

✓

✓

10A

AL-0655

CL 2105

30763

1017

-29

-6

✓

✓

✓

✓

✓

✓

✓

✓

11A

AL-0355

CL 0365

25394

1017

-27

-5

✓

✓

✓

✓

✓

✓

✓

✓

Relinquished by: (Signature/Affiliation)

[Signature]

Date

Time

Received by: (Signature/Affiliation)

[Signature]

Date

Time

Relinquished by: (Signature/Affiliation)

[Signature]

Date

Time

Received by: (Signature/Affiliation)

[Signature]

Date

Time

Relinquished by: (Signature/Affiliation)

[Signature]

Date

Time

Received by: (Signature/Affiliation)

[Signature]

Date

Time

Shipper Name: FDEX

Custody Seals Intact?

Yes

No

Lab Use Only

None

Sample Transportation Notice:

Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

**MEMORANDUM**

To: Milton's Dry Cleaners (987)  
From: Crystal Jones  
Date: April 21, 2022  
Subject: Data Quality Review (SDG Number 2204336)

---

**INTRODUCTION**

The following is a summary of a data quality review for vapor samples collected April 6<sup>th</sup>, 2022. Samples were collected as part of an investigation of the Milton's Dry Cleaner site by PNG Environmental, Inc. (PNG). Laboratory analyses were performed by Eurofins-Air Toxics (Folsom, California) in accordance with U.S. Environmental Protection Agency (USEPA) methods. A total of eleven vapor samples, including two field duplicates, were submitted for analysis as one sample delivery group (SDG 2204336). The samples were analyzed for volatile organic compounds (VOCs) by EPA Method TO-15 SIM. Analytical results reviewed were consistent with procedures presented in National Functional Guidelines for Organic Superfund Methods Data Review (USEPA 2020), in addition to appropriate laboratory and method quality control criteria.

**VOLATILE ORGANIC COMPOUNDS IN VAPOR BY TO-15 SIM**

**Completeness**

All samples were analyzed as requested.

**Holding Times**

All samples were analyzed within the method-specified holding time criteria (30 days).

**Method Blanks**

Method blank analyses were conducted at the required frequency for all analyses. No target analytes were detected in the method blanks above the method reporting limit (MRL).

**Surrogate Compounds**

Surrogate recoveries for all samples were within laboratory control limits (70-130 percent).

**Laboratory Control Samples/Laboratory Control Sample Duplicates**

Percent recoveries for all laboratory control samples were within control limits (70-130 percent).

### **Continuing Calibration Verification Samples**

Percent recoveries for all continuing calibration verification samples were within control limits.

### **Field Duplicates**

Two field duplicates were submitted with this SDG. Relative percent difference (RPD) results for all detected compounds were within control limits (50 percent).

### **Summary**

No results were qualified.

### **REFERENCES**

USEPA, 2020, *National Functional Guidelines for Organic Superfund Methods Data Review*, Office of Superfund Remediation and Technology Innovation, United States Environmental Protection Agency, EPA 540-R-22-005, November.