

MEMORANDUM

DATE : June 24, 2023

TO : Shane LaFave / Roers Companies, LLC

FROM : Pratap Singh, Ph.D., PE / KSingh

SUBJECT : Weekly Progress Report for Week Ending 06/24/2023
Community Within the Corridor - East Block

COPY TO : Que El-Amin / Scott Crawford, Inc., Robert Reineke, PE, Robert Fedorchak, PE
Project #40441B

The purpose of this memorandum is to summarize the work performed as a part of the emergency response for the referenced project for the week ending 06/24/2023. This document is intended to serve two purposes:

1. Summarizing the tasks performed during the past week, and
2. The action items for the following week.

The following tasks were performed this week which are summarized below:

1. Task #1 – GC Testing by KSingh

KSingh continues to work on conducting gas chromatograph (GC) testing for measurement of TCE in various units of the East Block focused on the first floor. The focus of testing for TCE is concentrated in units that have detected elevated levels of TCE. Attachment A is comprised of Figure 1 for reference of Unit locations and blowers, with the test results of TCE shown in Tables 1 to 5. A comprehensive data table of Indoor Air Monitoring Data for TCE is provided in Table 7 (Attachment C). Note that highlighted cell values in green indicate levels that are **lower** than the vapor risk screening levels for **residential** facilities. Graphs showing comprehensive data can be found in Attachment D. The findings of portable discrete testing for TCE are as follows:

- TCE detections ranged from 1.86 $\mu\text{g}/\text{m}^3$ to 3.19 $\mu\text{g}/\text{m}^3$ in Unit 1045 with an average of 2.74 $\mu\text{g}/\text{m}^3$.
- TCE detections ranged from 0.57 $\mu\text{g}/\text{m}^3$ to 1.53 $\mu\text{g}/\text{m}^3$ in Unit 1050 with an average of 1.06 $\mu\text{g}/\text{m}^3$.
- TCE was **below detection limit** in the Mechanical Room (1052) where the concrete was filled in under the water pipe going out of the wall onto 32nd Street.
- Continuous monitoring continues in Units 1045 and 1050 which are displayed in Attachment D in Figure 3. The continuous monitoring data shows a **steady decline** in the values of TCE.
- TCE detections in Unit 1045 appear to have stabilized at ~2.5 $\mu\text{g}/\text{m}^3$ which requires additional corrective action implementation. See #1 of Action Items on Page 2 for further description of actions to be taken.

- Supplementary remedial action needs to be taken to ensure that the levels do not escalate in the event the VMS shuts down.
- Overall, there was a **significant decline** in the indoor air concentrations in all the residential and utility units on the 1st floor of buildings 1B-W, 1B-SW, and 1B-S. Almost **all units comply to the Vapor Action Levels (VAL) set forth by WDNR.**

2. Task #2 – Sub-Slab TCE Concentration Distribution

Weekly readings of sub-slab vapor concentrations were recorded from the vapor pin installations to evaluate the magnitude and variation of sub-slab vapor contamination in the soil. Results include:

- Sub-slab vapor concentrations taken from various locations saw a decline in the levels after installation of the Obar Fans in the 1B-NW Garage and 1B-S.
- The majority of the areas on the first-floor exhibit lower values than the Vapor Risk Screening Level (VRSL) set forth by WDNR.
- The values of sub-slab TCE can be observed in Appendix D (Table 8). A major hotspot can be observed in the areas between Units 1043 – 1050, extending the Laundry and Storage Room (Figure 2) which will require additional response action.

3. Task #3 – VMS Operations

Three blowers continue to function properly. Fliteway Technology replaced the two temporary 7.5-HP and 10-HP blowers with two permanent 10-HP blowers. The replacement of the second temporary blower resulted in additional depressurization across the N Garage.

The presence of Blowers 5, 6, and 7 have been instrumental in overall reduction of sub-slab and indoor air TCE levels in Buildings 1B-W, 1B-SW, and 1B-S.

4. Task #4 – Depressurization

Installation of new vapor pins in the common area of the garage and the gym area resulted in evidence of depressurization along the active VMS. The results of vacuum measurements are shown in Table 6 in Attachment B. The placement of all the vapor pins (new and old) can be seen in Figure 1 in Attachment A. Please note the following:

- All the units and common areas in the East Block have demonstrated sufficient vacuum (> 0.01) except for Stairwell 4, SW Garage, and the N Mechanical Room as of June 23rd.
- Figure 8 in Attachment E shows the correlation between sub-slab vapor TCE values and the corresponding vacuum levels at all the vapor pin installations. A positive correlation coefficient indicates that presence of higher vacuum would result in lower sub-slab TCE levels giving evidence of the efficient functioning of the VMS system (vacuum readings and sub-slab TCE levels are inversely proportional).

Action Items for Week of June 25, 2023 – July 1, 2023

KSingh plans to perform the following tasks in the upcoming week:

1. Begin developing a work plan for additional remediation in Units 1043, 1044, 1045, Shared Laundry Room, Storage Room and Mechanical Room in Building 1B, and North Mechanical Room in

Building 2A. The plan will include a combination of source removal, Biochar application, and supplemental radon fan installation.

2. Continue discrete sampling in various units and common areas and add results to comprehensive data table.
3. Continue continuous sampling of Units 1045 and 1050.
4. Conduct vacuum measurements at strategic locations within the buildings daily.
5. Continue to measure sub-slab TCE concentrations on a weekly basis to evaluate the performance of the VMS.

Attachments

KSingh has included the following attachments, figures and tables for reference:

- Attachment A: Summary of Monitoring Results by Date
 - Figure 1 – CWC EB Level 1 Map with Vapor Pins and Blower Locations
 - Figure 2 – Sub-Slab Vapor TCE concentrations
 - Tables 1-5 – Indoor Air Monitoring Results by Date
- Attachment B/Table 6: Comprehensive Vacuum Measurements (inches H₂O)
- Attachment C/Table 7: Comprehensive Data Table – Indoor Air
- Attachment D/Table 8: Comprehensive Data Table – Sub-Slab Vapor TCE
- Attachment E: Figures 3-8 of TCE Levels through June 23, 2023
- Attachment F: Relevant Photos of Work Performed this Week

Attachment A
Monitoring Results by Date

East Building Level 1

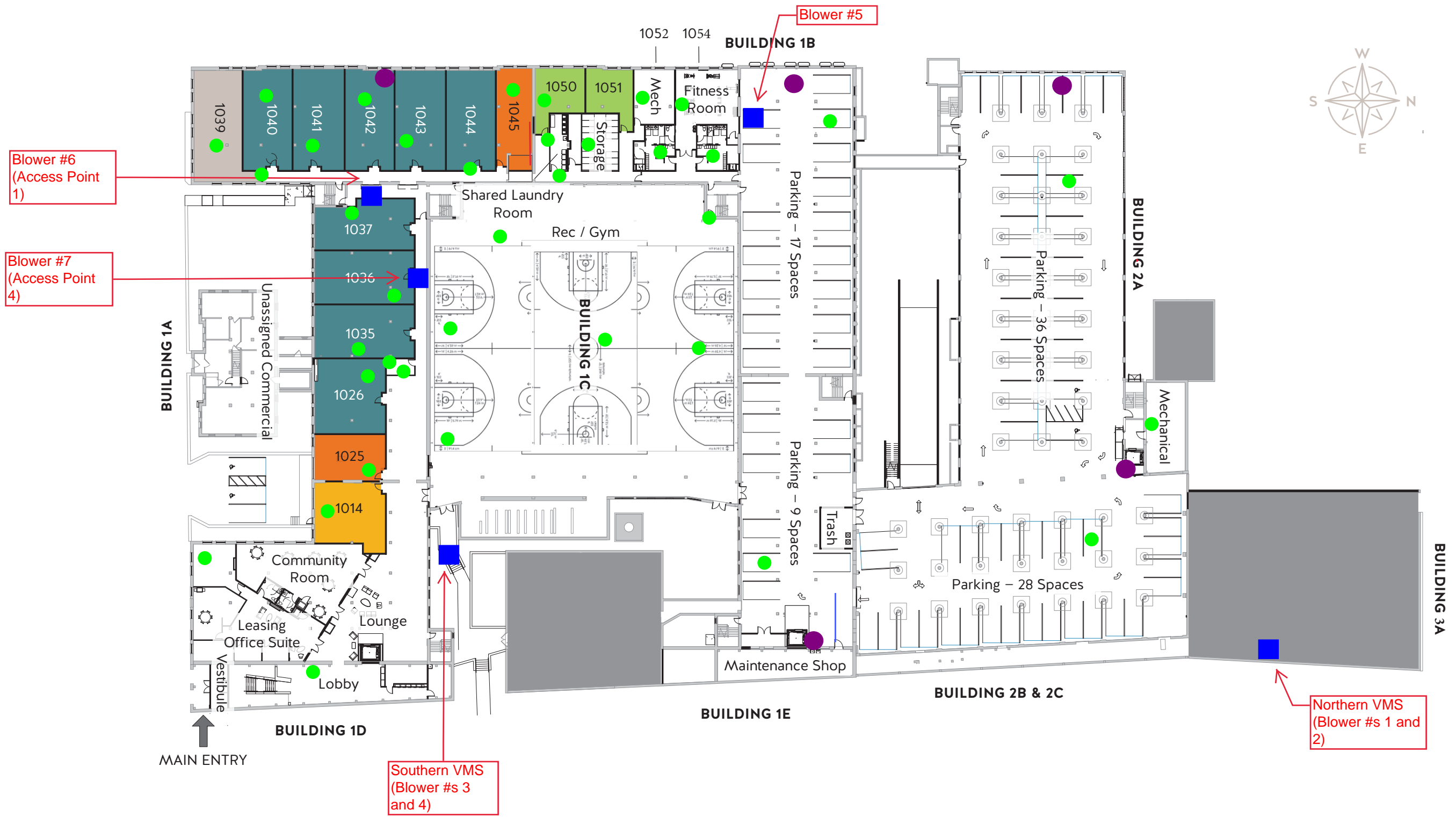
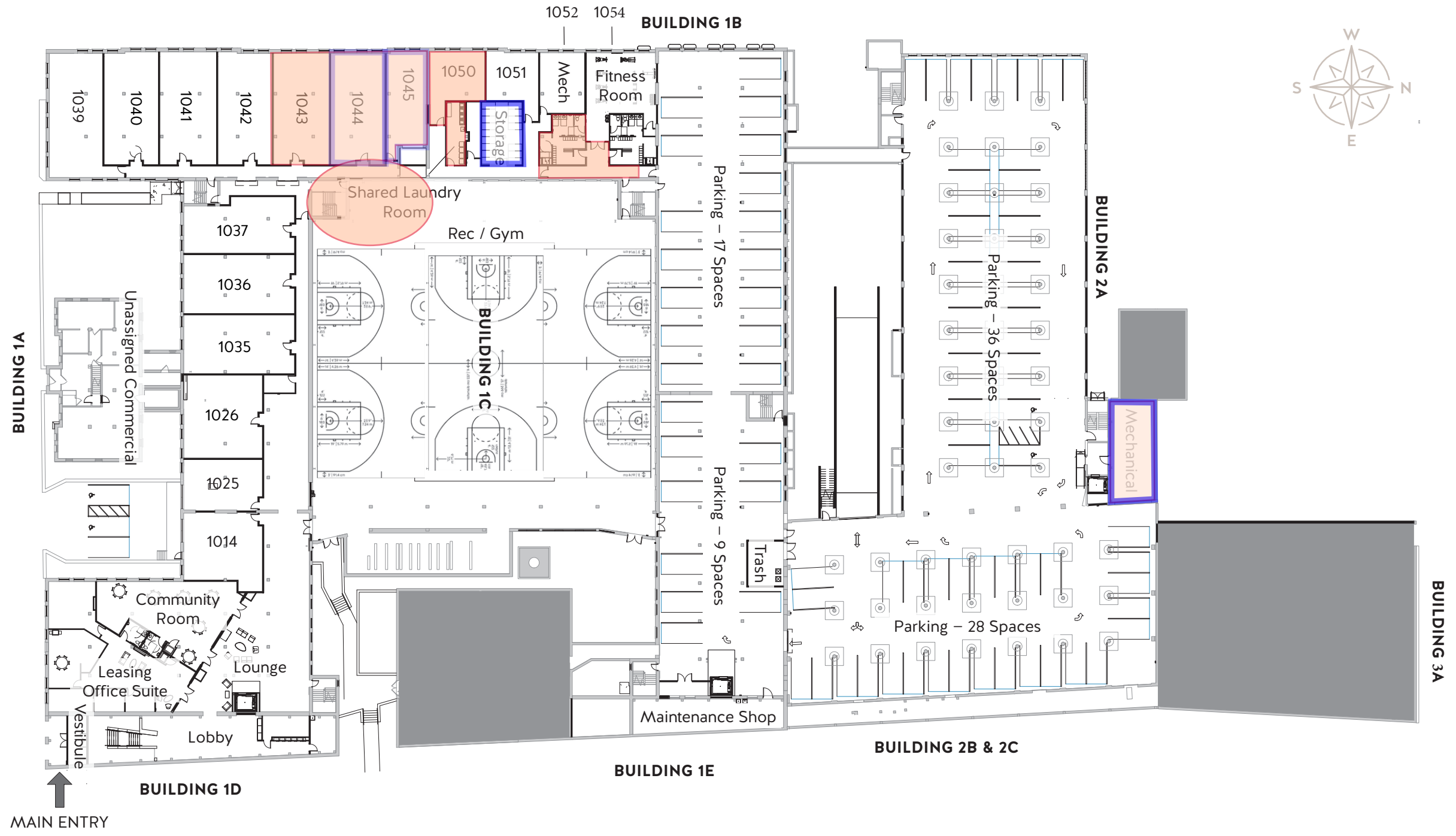


Figure 1 - CWC EB Level 1 Map with Blower, Vapor Pin and Sump Locations

East Building Level 1



- VRSL Hotspot Areas based on sub-slab TCE Levels
- Areas with Indoor air TCE levels higher than VAL (2.1 ug/m3)

Figure 2 - CWC EB Level 1 Map with VRSL TCE Exceedances

Attachment A
Monitoring Results by Date
On-site EPA Method TO-14 Data from Indoor Air Samples

Instrument: SRI 8610 Gas Chromatograph with ECD

Operator: KSingh

Table 1: Monitoring Results from 06/19/2023

All samples from sub-surface taken from the vapor pins				
Sample ID	Sample Location	Sample Time	TCE ($\mu\text{g}/\text{m}^3$)	PCE ($\mu\text{g}/\text{m}^3$)
IA - 833	NW Garage	12:58	0.8	ND
IA - 834	NE Garage	13:07	87	3.2
IA - 835	SW Garage	16:07	433.8	70.6
IA - 836	SE Lobby	16:15	73.3	6.04
IA - 837	N Mech Room	16:23	16.7	3.5
IA - 838	1053	16:31	2.2	0.4
IA - 839	1052	16:39	23.9	2.7
IA - 840	1049	16:47	17.5	0.46
IA - 841	1048	16:55	0.46	0.22
IA - 842	1050	17:03	58.9	6.34
IA - 843	1045	17:11	30.8	17.8
IA - 844	1042	17:19	2.2	2.7
IA - 845	1039	17:27	2.6	3.7
IA - 846	1036	17:38	10.3	0.56
IA - 847	1035	17:46	227.4	0.5
IA - 848	1026	17:59	24.8	0.4
IA - 849	1011	18:06	141.5	18.9
IA - 850	Basketball 1	18:14	60.2	0.9
IA - 851	Stairwell 4			
Reporting Limit ($\mu\text{g}/\text{m}^3$)			0.6	0.6
ND Indicates Not Detected at listed reporting level				

Table 2-3: Monitoring Results from 06/20/2023 and 06/21/2023

The instrument was under calibration mode and no data collection was performed on 06/20

The instrument was used for analysis of West Block samples on 06/21

Table 4: Monitoring Results from 06/22/2023

All samples from sub-surface taken from the vapor pins

Sample ID	Sample Location	Sample Time	TCE ($\mu\text{g}/\text{m}^3$)	PCE ($\mu\text{g}/\text{m}^3$)
IA - 865	1055	9:36	17.3	0.39
IA - 866	1054	9:43	4.8	ND
IA - 867	1053	9:53	71.31	ND
IA - 868	Oppo. 1054	10:01	55.6	ND
IA - 869	Stairwell 4	10:14	6.3	ND
IA - 870	1052	10:23	38.1	ND
IA - 871	1051	10:31	32.4	ND
IA - 872	1049	10:39	3.38	ND
IA - 873	1048	10:54	572	1.65
IA - 874	1050	11:01	377	0.86
IA - 875	Out 1050	11:09	10.1	ND
IA - 876	1045	11:22	206	2.13
IA - 877	Out 1044	11:30	364	34.11
IA - 878	1043	11:38	185	255
IA - 879	1042	11:47	10.4	1.3
IA - 880	1041	11:54	13.2	0.6
IA - 881	1040	12:02	16.1	0.7
IA - 882	Out 1040	12:12	21.3	0.87
IA - 883	1039	12:20	4.3	ND
IA - 884	1037	12:30	4.3	1.4
IA - 885	1036	12:38	5.5	3.7
IA - 886	1035	12:46	7	3.9
IA - 887	Out 1035	12:53	55.4	2.1
IA - 888	1058 E	13:01	1.5	ND
IA - 889	1058 W	13:09	6.99	1.9
IA - 890	1026	13:19	6.6	ND
IA - 891	1025	13:27	2.1	ND
IA - 892	1014	13:35	2.2	ND
IA - 893	1011	13:43	1.6	ND

IA - 894	SE Lobby	14:00	0.5	ND
IA - 895	BB 1	14:07	73	0.9
IA - 896	BB 2	14:15	1.5	ND
IA - 897	BB 3	14:24	1.6	1.5
IA - 898	BB 4	14:32	1.9	ND
IA - 899	BB 5	14:39	2.1	0.6
IA - 900	SW Garage	14:54	63.7	ND
IA - 901	SE Garage	15:02	1.6	ND
IA - 902	NW Garage	15:28	4.7	ND
IA - 903	NE Garage	15:37	2.8	ND
IA - 904	N Mech Room	16:00	147	18
Reporting Limit ($\mu\text{g}/\text{m}^3$)			0.6	0.6
ND Indicates Not Detected at listed reporting level				

Table 5: Monitoring Results from 06/23/2023

Sample ID	Sample Location	Sample Time	TCE ($\mu\text{g}/\text{m}^3$)	PCE ($\mu\text{g}/\text{m}^3$)
IA - 913	1053	9:48	0.56	ND
IA - 914	Stairwell 4	9:56	0.33	ND
IA - 915	1049	10:09	2.5	ND
IA - 916	1048	10:27	0.72	ND
IA - 917	1044	10:38	3.2	ND
IA - 918	1039	10:46	0.27	ND
IA - 919	1043	10:53	0.47	ND
IA - 920	1037	11:03	0.35	ND
IA - 921	1036	11:11	0.3	ND
IA - 922	1035	11:20	0.28	ND
IA - 923	1058	11:28	0.34	ND
IA - 924	1014	11:36	0	ND
IA - 925	SW Garage	11:46	0.33	ND
IA - 926	N Mech Room	11:56	2.2	ND
Reporting Limit ($\mu\text{g}/\text{m}^3$)			0.6	0.6
ND Indicates Not Detected at listed reporting level				

Attachment B
Table 6: Comprehensive Vacuum Measurements (inches H₂O)

Note	Obar @ 75%				
	Date	19-Jun	20-Jun	21-Jun	22-Jun
Time	13:00	12:00	12:00	10:00	10:00
Location					
1055	-0.354	-0.376	-0.371	-0.356	-0.373
1054	-0.74		-0.763	-0.777	-0.779
1053	-0.398	-0.42	-0.411	-0.416	-0.416
Oppo. 1054	-0.255	-0.267	-0.261	-0.257	-0.254
Stairwell 4	0	0	-0.004	-0.002	-0.003
1052	-0.738	-0.744	-0.748	-0.755	-0.753
1051	-0.176	-0.182	-0.188	-0.192	-0.18
1049	-0.172	-0.191	-0.199	-0.194	-0.189
1048	-0.071	-0.07	-0.071	-0.081	-0.078
1050	-0.08	-0.083	-0.088	-0.092	-0.092
Out 1050	-0.109	-0.111	-0.113	-0.125	-0.124
1045	-0.039	-0.048	-0.046	-0.059	-0.056
Out 1044	-0.056	-0.139	-0.131	-0.127	-0.136
1043	0	-0.043	-0.032	-0.031	-0.024
1042	0	-0.032	-0.034	-0.017	-0.026
1041	0	-0.048	-0.048	-0.038	-0.144
1040	0	-0.046	-0.046	-0.039	-0.037
Out 1040	0	-0.063	-0.064	-0.055	-0.065
1039	0	-0.015	-0.015	-0.015	-0.019
1037	0	-0.059	-0.059	-0.065	-0.063
1036	0	-0.183	-0.188	-0.196	-0.186
1035	-0.006	-0.103	-0.106	-0.109	-0.122
Out 1035	0	-0.036	-0.033	-0.039	-0.043
1058 E	-0.005	-0.065	-0.071	-0.076	-0.077
1058 W	-0.016	-0.111	-0.109	-0.103	-0.109
1026	-0.019	-0.122	-0.121	-0.129	-0.13
1025	-0.039	-0.066	-0.067	-0.068	-0.069
1014	-0.203	-0.227	-0.227	-0.227	-0.215

1011	-0.054	-0.046	-0.058	-0.064	-0.055
SE Lobby	-0.555	-0.57	-0.57	-0.58	-0.569
BB 1	-0.006	-0.03	-0.026	-0.021	-0.021
BB 2	0	-0.005	-0.008	-0.009	-0.013
BB 3	-0.041	-0.056	-0.051	-0.065	-0.055
BB 4	0	-0.016	-0.011	-0.009	-0.022
BB 5	-0.006	-0.024	-0.021	-0.023	-0.029
SW Garage	0	0	0	0	0
SE Garage	0	0	-0.003	-0.006	-0.02
NW Garage	-0.108	-0.105	-0.005	-0.004	-0.015
NE Garage	-0.004	-0.008	-0.116	-0.128	-1.512
N Mech Room	0	0	0	0	0
Red highlighted cells indicate values below the desired level on -0.01 in H ₂ O					

Attachment C
Comprehensive Data Table – Indoor Air

Attachment D
Table 8: Comprehensive Data Table – Sub-Slab Vapor TCE

Green cells indicate the VRSL levels below the DNR limit of 70 µg/m ³				
Location	Location Reference	Week of 6/3	Week of 6/17	Week of 6/24
1055	Women's Locker Room		46.5	17.3
1054	Fitness Room	596	0.8	4.8
1053	Men's Locker Room		102.3	71.31
Oppo. 1054			58.9	55.6
Stairwell 4			252.5	6.3
1052	Mechanical Room		63.9	38.1
1051			47.3	32.4
1049	Storage Room	426	2.6	3.38
1048	Laundry Room	322	679	572
1050		1443	303.4	377
Out 1050		971	113.1	10.1
1045		750	271.6	206
Out 1044		456	380.5	364
1043			178.5	185
1042		11.8	15.93	10.4
1041			108.7	13.2
1040		1.6	11.7	16.1
1040 - out				21.3
1039		23.5	62.2	4.3
1037			240.4	4.3
1036			17.2	5.5
1035			0.8	7
1035 - out			87	55.4
1058 E	Electric Room		433.8	1.5
1058 W	Electric Room		73.3	6.99
1026			16.7	6.6

1025			2.2	2.1
1014			23.9	2.2
1011	Conference Room		17.5	1.6
SE Lobby	Near Exit	328	0.46	0.5
BB 1	SW of the Gym			73
BB 2	South part of the Gym		30.8	1.5
BB 3	SE part of the Gym		2.2	1.6
BB 4	N of the Gym		2.6	1.9
BB 5	Center of the Gym		58.9	1.9
SE Garage			10.3	1.6
SW Garage			227.4	63.7
NE Garage			24.8	2.8
NW Garage			141.5	4.7
N Mech Room			60.2	147

Attachment E Figures of TCE Levels through June 23, 2023

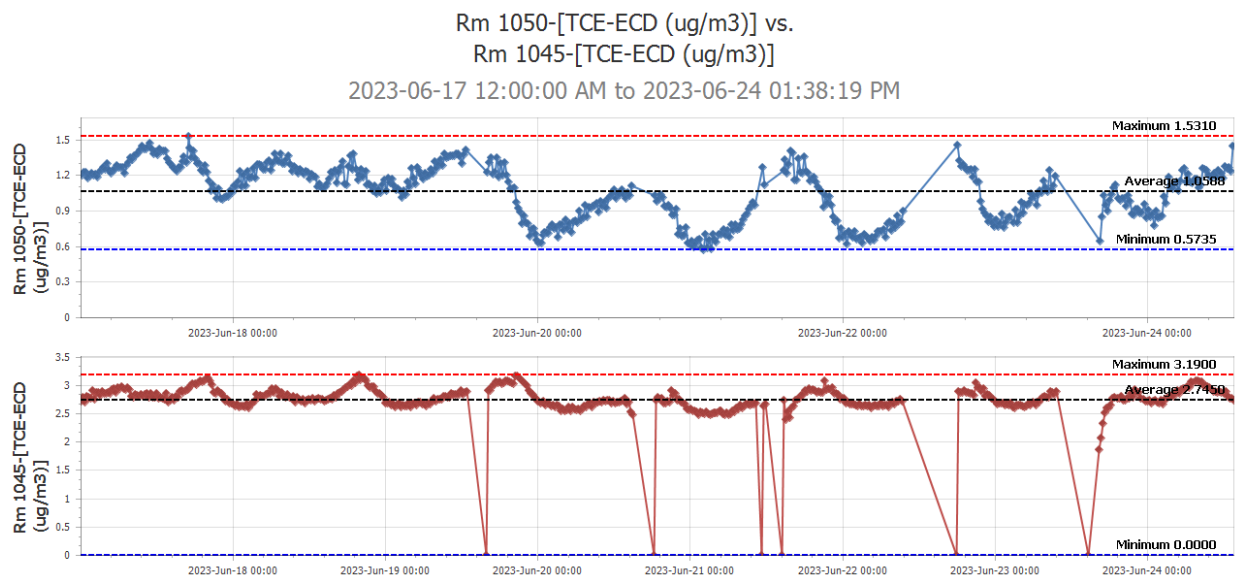


Figure 3 – Continuous Monitoring Data for Units 1045 and 1050 since June 18, 2023

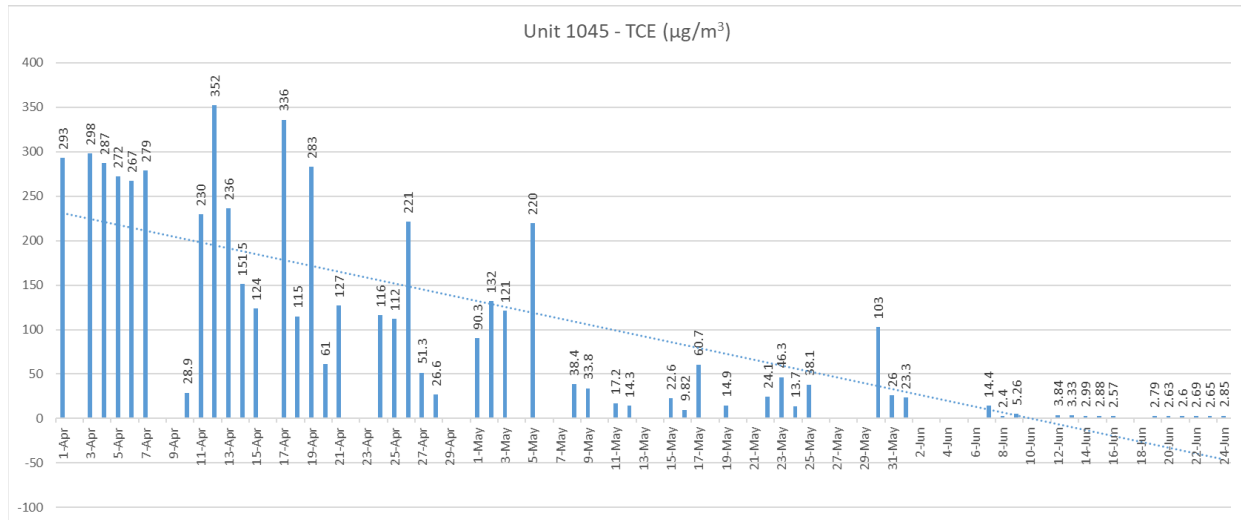


Figure 4 – YTD Data of TCE Concentration in Unit 1045

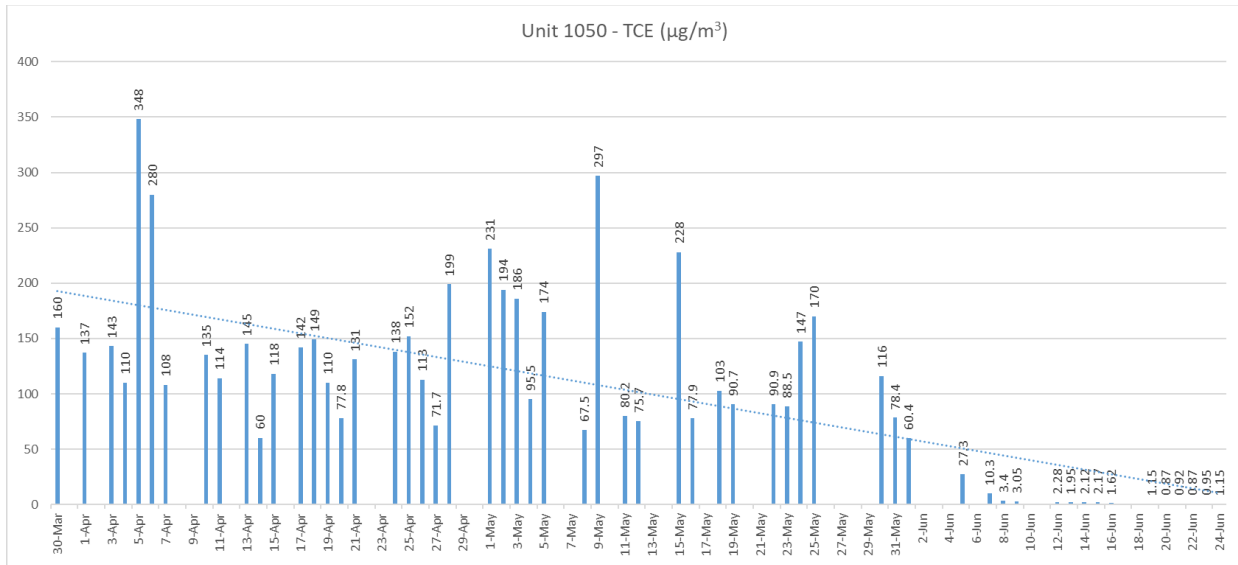


Figure 5 – YTD Data of TCE Concentration in Unit 1050

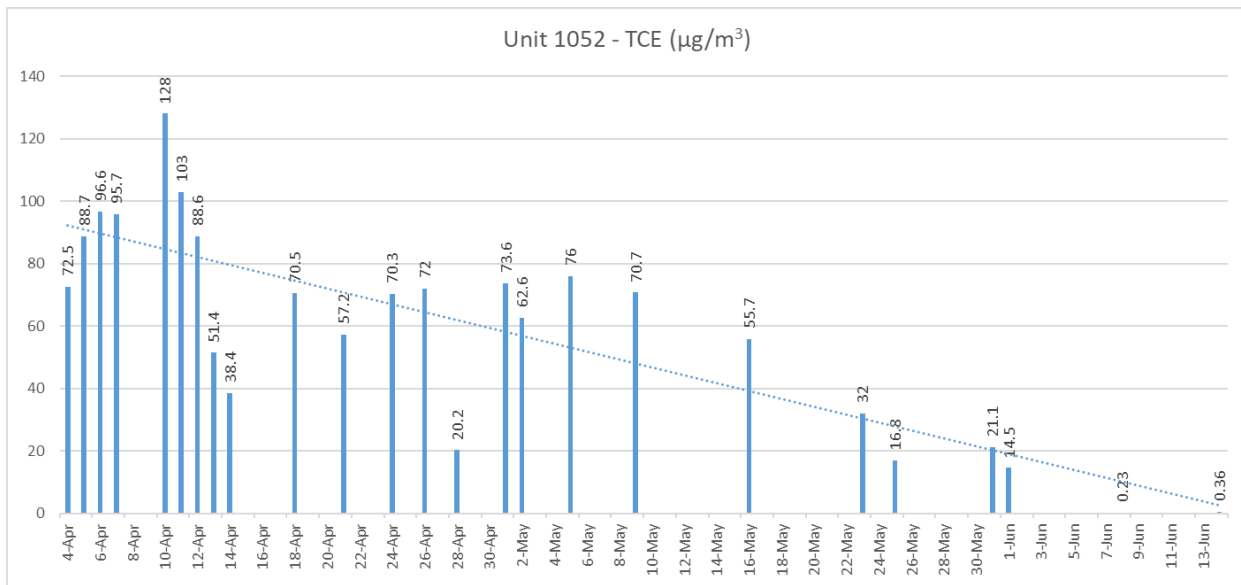


Figure 6 – YTD Data of TCE Concentration in Unit 1052

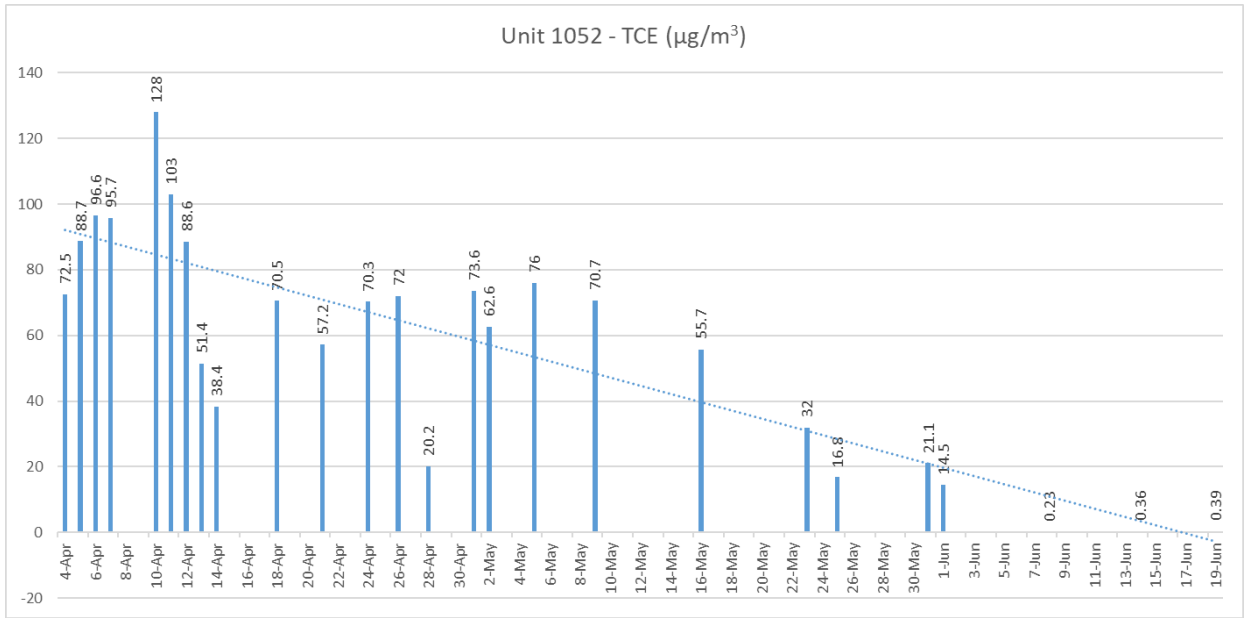


Figure 7 – YTD Data of TCE Concentration in 1st Floor Hallway

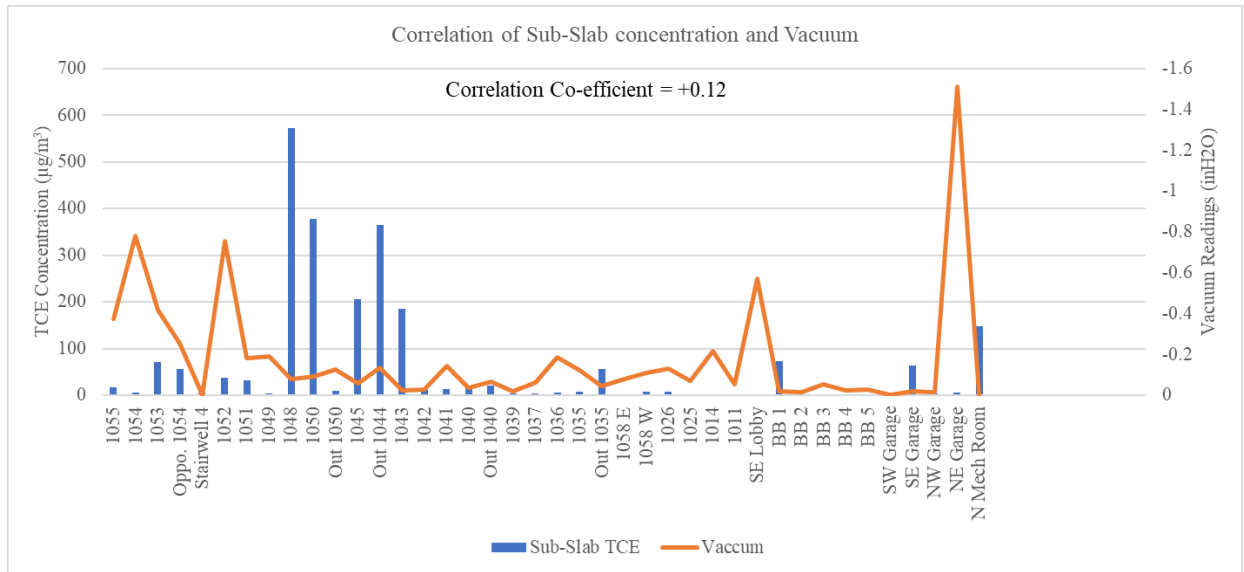


Figure 8 – YTD Data of TCE Concentration in 1st Floor Hallway

**Attachment F
Relevant Photos**



Picture 1 – Operation of Blowers 6 and 7



Picture 2 – Sealing of Access Point of Blowers 6



Picture 3 – Sealing of Access Point of Blowers 7



Picture 4 – Operation of Blowers 3 and 4