Site Investigation Status Report

Former Quality Cleaners
1226-1228 11th Avenue
Grafton, Wisconsin

BRRTS #02-46-560212
FID #246166470

PREPARED FOR

Wisconsin Department of Natural Resources
Attention: John M. Feeney
1027 W. St. Paul Avenue
Milwaukee, WI 53233

PREPARED BY

THE SIGMA GROUP
Single Source. Sound Solutions.

Project Number – 21703

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Stephen Meer, P.E.
Senior Engineer

Adam J. Roder, P.E., P.G.
Geosciences Group Leader

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Executive Summary

On behalf of the Wisconsin Department of Natural Resources (WDNR), The Sigma Group, Inc. (Sigma) was retained to complete supplemental vapor intrusion investigation activities at two properties (1233 and 1229 12th Avenue) down-gradient (east) from the former Quality Cleaners property located at 1226-1228 11th Avenue, Grafton, Wisconsin (the "Site").

In March 2023 Sigma collected sub-slab vapor samples (two beneath the concrete floor slab of the 1233 12th Avenue building and one beneath the concrete floor slab of the 1229 12th Avenue building) using passive vapor samplers for laboratory analysis of select chlorinated volatile organic compounds (CVOCs). Concurrently with the sub-slab vapor samples, Sigma also collected indoor air samples within both the 1233 and 1229 12th Avenue buildings, a sample of the sealed headspace of the sump within the basement of the 1229 12th Avenue building, and an ambient outdoor air sample. The indoor air samples were also collected using passive sampling devices. Following retrieval of the passive samplers, the sub-slab vapor sample locations were abandoned by filling and capping with cement.

Laboratory analytical results indicate reported concentrations of CVOC constituents within both the sub-slab and indoor air samples were limited to tetrachloroethene (PCE) reported within the sub-slab vapor samples collected beneath the 1233 12th Avenue building. The reported PCE concentrations did not exceed 10% of the residential Vapor Risk Screening Level.

Based on the results of the sub-slab vapor and indoor air sampling, residential CVOC impacts to soil and groundwater associated with the former Quality Cleaners property do not appear to pose a significant vapor intrusion risk to the buildings located at 1233 and 1229 12th Avenue.

1. Introduction

On behalf of the Wisconsin Department of Natural Resources (WDNR), The Sigma Group, Inc. (Sigma) was retained to complete supplemental vapor intrusion investigation activities at two properties (1233 and 1229 12th Avenue) down-gradient (east) from the former Quality Cleaners property located at 1226-1228 11th Avenue, Grafton, Wisconsin (the "Site").

This report describes the additional sub-slab vapor and indoor air sampling completed at the 1233 and 1229 12th Avenue properties in March 2023. The additional sampling activities were completed in accordance with Sigma's February 20, 2023 *Consultant Proposal for Vapor Intrusion Investigation.* A discussion of the results of the additional sampling compared to applicable WDNR Vapor Action Levels (VALs) and Vapor Risk Screening Levels (VRSLs) is also presented.

Sigma's additional investigation activities described within this report were performed in general accordance with Chapter Natural Resources (NR) 716 of the Wisconsin Administrative Code (WAC).

2. Purpose and Scope of Work

2.1 Purpose of Work

The purpose of the supplemental vapor intrusion investigation activities was to evaluate the potential vapor intrusion risk to the existing buildings located at two properties, 1233 and 1229 12th Avenue, Grafton, Wisconsin associated with chlorinated volatile organic compound (CVOC) impacts to soil and groundwater from a release associated with the Site.

2.2 Scope of Work

Sigma's scope of work for this project included a pre-sampling Site visit, collection of sub-slab vapor samples, collection of a sump headspace air sample and collection of indoor and ambient air samples. Specifically, Sigma completed the following investigation activities at the Site.

- Completion of a pre-sampling Site visit to each of the buildings selected for sampling to collect building-specific information, screen for the presence of potential background sources of VOCs, select potential sampling locations, and provide information on the sampling process and associated requirements to the owner of each building.

- Collection of sub-slab vapor samples at two locations (03_A_SSV_SSV02-202303 and 03_A_SSV_SSV03_202303) within the 1233 12th Avenue building at one location (03_B_SSV_SSV01_202303) within the 1229 12th Avenue building. Abandonment of the sub-slab vapor sample locations with cement followed sampler retrieval.

- Collection of one sealed headspace sample (03_B_SUMP_SUMP01_202303) within the basement sump within the 1229 12th Avenue building.

- Collection of an indoor air sample (03_B_IA_IA01_202303) within the basement of the 1229 12th Avenue building and withing the ground floor (03_A_IA_IA01_202303) of the 1233 12th Avenue building, along with an exterior ambient air sample (03_AA_AA01_202303).

- Completion of this report to document field methodologies and to present laboratory results and conclusions.

2.3 Project Team

The following firms and contractors provided services during Sigma's vapor intrusion investigation activities:

Environmental Consulting Firm:

The Sigma Group, Inc.
1300 W. Canal Street
Milwaukee, WI 53233
Telephone: (414) 643-4200
Project Manager: Stephen Meer, P.E.
Email: smeer@thesigmagroup.com

Laboratory Services:

Beacon Environmental
2203A Commerce Road, Suite 1
Forest Hill, MD 21050
Telephone: (410) 838-8780
Contact: Ryan Schneider
Email: ryan.schneider@beacon-usa.com

3. Background Information

3.1 Site Description

The Site, as depicted in **Figure 1**, is located at 1226-1228 11th Avenue in Grafton, Wisconsin and operated as a drycleaning facility between the 1960s and 2013. Tetrachloroethene (PCE) impacts to soil beneath the Site building were discovered in 2013. Supplemental soil and groundwater sampling indicates that PCE impacts associated with the Site have migrated off-site to the east and that the buildings located at 1229 and 1233 12th Avenue are located within distances of the identified soil and groundwater impacts where sampling to further evaluate the vapor intrusion risk is required.

The building located at 1233 12th Avenue is slab on grade and used commercially as an antiques store (first floor) with a residential apartment building located on the second floor. Both sub-slab and indoor air samples have previously been collected at the 1233 building (results discussed below).

The building located at 1229 12th Avenue has a partial basement level and is used commercially (first floor) with a residential apartment building located on the second floor. Neither sub-slab nor indoor air samples have previously been collected at the 1229 building.

3.2 Summary of Vapor Intrusion Investigation and Mitigation Activities Completed to Date

1233 12th Avenue

Three rounds (July 2019, November 2019 and February 2020) of sub-slab vapor and indoor air sampling have been completed at the 1233 12th Avenue building. Locations of previously collected sub-slab vapor samples (SS-2 and SS-3) are illustrated on **Figure 1**. Sub-slab and indoor air sampling completed in 2019 and 2020 utilized laboratory-supplied Summa canisters. PCE concentrations within the previously collected sub-slab vapor and indoor air samples did not exceed the residential Vapor Risk Screening Level (VRSL) (for sub-slab vapor samples) nor the residential Vapor Action Level (VAL) (for indoor air samples), respectively. However, the reported PCE concentration (1,390 micrograms per cubic meter [µg/m^3]) within the sub-slab vapor samples collected at sample point SS-2 in July 2019 was just below the VRSL (1,400 µg/m^3).

1229 12th Avenue

Neither sub-slab nor indoor air sampling have been completed at the 1229 12th Avenue building. However, an active sub-slab vapor mitigation was reportedly installed as part of loan requirements by a bank.

4. Investigation Procedures

This report includes a discussion of the additional vapor intrusion sampling activities completed in March 2023.

4.1 Pre-Sampling Site Visit

Sigma completed a pre-sampling site visit to both the 1233 and 1229 12th Avenue buildings on March 8, 2023. WDNR project manager Mr. John Feeney was also present for the pre-sampling site visit. As part of the pre-sampling site visit, Sigma personnel completed the *Building Checklist* document provided by the WDNR for each building. Potential sampling locations were evaluated and potential background sources of VOCs, where observed, were identified and the need to remove the observed potential background sources was communicated to the owner of each building as appropriate. The active sub-slab vapor mitigation system installed at the 1229 12th Avenue building was deactivated (by unplugging the fan) in preparation for the proposed sub-slab and indoor air sampling.

Copies of the completed *Building Checklist* for both the 1233 and 1229 12th Avenue buildings are included as **Appendix A**. Photographs from the pre-sampling site visit are included as **Appendix B**. Relevant observations for each building are summarized as follows:

1233 12th Avenue: The building owner pointed out the locations of previously collected sub-slab vapor samples SS-2 and SS-3. The sub-slab sample locations were within a portion of the building primarily used for storage and outside the limits of the building's HVAC system (beyond communication with conditioned portions via doorways) based on Sigma's observations. A shelf containing WD40™, paints, and other household products was observed in the area of the building to the east of the previously collected sub-slab vapor samples. Sigma requested removal of the materials prior to and during the proposed sampling period.

1229 12th Avenue: The building was in the process of interior renovation during the pre-sampling site visit and renovations would be on-going during the anticipated sub-slab and indoor air sampling period. The active sub-slab vapor mitigation system was connected to a sump located within the partial basement level. The sump had a sealed plastic cover; however, a smoke test identified communication points around penetrations associated with drain lines from a furnace and dehumidifiers present within the basement. The mitigation system fan (installed within the basement level) and discharge location (located less than 2 feet above grade at the building exterior) did not meet American Association of Radon Scientists and Technologists (AARST) standards.

A shelf containing paints, WD40™, oil and grease remover, and other household products was observed within the basement. Sigma requested removal of the materials prior to and during the proposed sampling period. The building owner noted that interior renovation work, including work by plumbers potentially including the use of primer/solvents associated with polyvinylchloride (PVC) pipe, would continue.

4.2 Sampling Plan Modification

Based on pre-sampling site observations, Sigma recommended that the proposed sampling plan be modified to include collection of an air sample from within the sealed headspace of the basement sump within the 1229 12th Avenue building. The sump headspace sample would be collected in lieu of a duplicate indoor air sample. Mr. Joseph Martinez of the WDNR provided concurrence with the recommended sampling plan modification in electronic correspondence dated March 9, 2023. A copy of the correspondence is included as **Appendix C**.

As part of the correspondence, Sigma also noted the potential for PVC primer/cement to be in use at the 1229 12th Avenue building during the proposed sampling period and WDNR concurred that sampling while the products may be in use was acceptable if required by the sampling and contractor schedule.

4.3 Sub-Slab Vapor Sampling

Sigma personnel mobilized to the 1233 and 1229 12th Avenue buildings on March 22, 2023 to install sub-slab vapor samplers at the designated sample locations, specifically:

- One sub-slab vapor sample location (03_B_SSV_SSV01_202303) in the central portion of the basement level of the 1229 12th Avenue building, and
- A sub-slab vapor sample location adjacent to the locations of previously collected sub-slab vapor samples SS-2 (03_A_SSV_SSV02-202303) and SS-3 (03_A_SSV_SSV03_202303) on the first (ground) floor level of the 1233 12th Avenue building.

Sample locations are illustrated on **Figure 1**. The passive samplers used for collection of the sub-slab vapor samples (Beacon PSG Samplers, described below) allow the collection of a duplicate sample at each sample location, if desired, as each sampler is equipped with two sets of adsorbent cartridges. As part of the scope of work, Sigma requested analysis of a duplicate sample for the sub-slab vapor sample 03_A_SSV_SSV02-202303; therefore, the duplicate sample was collected from the same sub-slab sample location. Prior to initiation of the sub-slab vapor sampling activities, Sigma personnel verified that the sub-slab vapor mitigation system at the 1229 12th Avenue building remained inactive and that potential background sources of VOCs identified during the pre-sampling Site visit had been removed from each building (both 1233 and 1229 12th Avenue).

Sigma utilized passive samplers provided by Beacon Environmental (Beacon PSG Samplers) to collect sub-slab vapor samples under this scope of work. The Beacon PSG Samplers were handled and installed in accordance with the recommendations provided by Beacon. Specifically, installation of the passive vapor samplers was completed as follows:

- A 1.5-inch diameter hammer drill bit was used to drill through the concrete floor slab at each location until the sub-slab material was encountered. A shop vac and hose equipped with the "T" fitting was used during the drilling process to remove concrete debris during drilling. The observed thickness of the concrete floor slab at each sampling location is noted on the field data sheets included in **Appendix D**.
- Once sub-slab material was encountered, Sigma utilized a 5/8-inch diameter drill bit to drill approximately 4 to 6 inches into the sub-slab material to create the sub-slab vapor pathway.
- An appropriate length of 1-inch diameter aluminum pipe was placed within the hole through the concrete floor slab to rest on top of the sub-slab material with the top of the pipe located approximately one-inch below the top of the surrounding floor slab to allow for placement of the aluminum foil cap and temporary concrete patch.
- A Beacon PSG Sampler was prepared for placement by unwinding the retrieval wire around the sampler and ensuring that the Sampler/wire will fit within the aluminum pipe.
- The shipping cap on the Beacon PSG Sampler was removed and replaced with a Sampling Cap provided by Beacon. Once the Sampling Cap was installed, the Beacon PSG Sampler was lowered with the Sampling Cap at the bottom, into the aluminum pipe so that the bottom of the Sampler remained within the aluminum pipe and did not contact the sub-slab material.
- An aluminum foil plug was installed at the top of the aluminum pipe to form a flattened seal and a temporary cement (mixed using dry quick-setting cement) seal placed over the foil plug.

Passive samplers were left in place over a sampling period of seven days. Based on recommendations provided by Beacon, the target reporting limits (below residential VRSLs) would be achieved using this sampling duration. Therefore, Sigma personnel retrieved the passive sub-slab vapor samplers on March 29, 2023 as follows:

- The temporary cement seal was removed using a hammer and chisel. The underlying aluminum foil plug was carefully removed using a screwdriver or pliers. The Beacon PSG Sampler was removed from within the aluminum pipe using the retrieval wire.
- The sides of the Sampler were cleaned with a laboratory provided towel and the Sampling Cap was removed from the Sampler. The retrieval wire was removed from the Sampler and the vial threads of the Sampler were cleaned using a laboratory-provided piece of gauze cloth.
- A solid cap was placed on the Sampler and appropriately labeled with the sample identification. The Sampler was placed within an individual Sampler Bag for return shipment to Beacon.
- Following Sampler retrieval, each sub-slab sample point location was filled with filter pack sand to depth of approximately two inches below the top of the slab and capped with a patch of quick-setting cement.

A copy of the field sheet associated with placement and retrieval of the passive sub-slab vapor samplers is included in **Appendix D.** Photographs of the passive sub-slab vapor sampler placement and retrieval are included in **Appendix E**.

4.4 Indoor Air Sampling

Following installation and temporary sealing of the sub-slab vapor samplers on March 22, 2023, Sigma personnel also placed passive samplers for the collection of indoor air, sump headspace and exterior, ambient air samples. Passive samplers were installed at the following locations:

- One sample location within the headspace of the sealed sump (03_B_SUMP_SUMP01_202303) within the basement level of the 1229 12th Avenue building,
- One sample location within the basement level (03_B_IA_IA01_202303) of the 1229 12th Avenue building,
- One sample location within the ground (first) floor level (03_A_IA_IA01_202303) of the 1233 12th Avenue building, and
- One exterior ambient air sample location (03_AA_AA01_202303) to the north of the 1233 12th Avenue building and to the west (in the prevailing upwind direction) of the 1229 12th Avenue building.

Sample locations are illustrated on **Figure 1.** Sigma utilized passive vapor samplers provided by Beacon Environmental (Beacon Passive Sorbent Tubes) to collect indoor air samples under this scope of work. The Beacon Passive Sorbent Tubes were handled and installed in accordance with the recommendations provided by Beacon. Specifically, installation of the passive vapor samplers was completed as follows:

- At each sampling location, a Passive Sorbent Tube was removed from the plastic sample bag it was shipped in from the laboratory and reviewed to confirm the identification on the Tube matched the identification on the sample bag.
- The Sampler Tube was removed from within the plastic shipping tube and the laboratory provided disk wrench set used to remove the solid brass cap from the end of the Sampler Tube.
- A laboratory-provided Diffusion Cap was placed on the open end of the Sampler Tube per the instructions provided by the analytical laboratory.

- A hanging cap (provided by the laboratory) was attached to the end of the Sampler Tube opposite the Diffusion Cap to allow for placement of the Passive Sorbent Tube and the sampler was placed at the desired sample location.

At each of indoor air sample locations, the sampler was suspended using new nylon bailer rope at an elevation within the typical breathing zone (approximately 5 feet above the floor). The sampler placed within the sealed sump was suspended within the sump (via a screw-in access port in the plastic cover) at above the water level and top of the sump pump using new nylon bailer rope. Following placement of the sampler, the cover of the access port was replaced. The exterior ambient air sampler was installed within a solid PVC cap to protect the sampler from precipitation. The sampler and protective cap were secured to a post located within the parking area to the west of the 1229 12th Avenue building at a height within the normal breathing zone (approximately 5 feet above the ground surface).

Passive samplers were left in place over a sampling period of seven days. Based on recommendations provided by Beacon, the target reporting limits (below residential VALs) would be achieved using this sampling duration. To prevent cross contamination between the sub-slab vapor sampling locations and the indoor air samplers, indoor air samplers were retrieved and packaged for return shipment to the analytical laboratory prior to retrieval of the sub-slab samplers described above. In addition, the indoor air sampler within the within the basement level (03_B_IA_IA01_202303) of the 1229 12th Avenue building was retrieved prior to opening of the access port in the sump to retrieve the sampler within the headspace of the sealed sump (03_B_SUMP_SUMP01_202303) within the basement level of the 1229 12th Avenue building.

Sigma retrieved the passive samplers on March 29, 2023 as follows:

- The hanging cap and Diffusion Cap were removed from the Passive Sorbent Tube and the corresponding solid brass cap replaced onto the sampling end of the Passive Sorbent Tube and finger tightened.
- The disk wrench set provided the analytical laboratory was used to further tighten the solid brass cap on the end of the Passive Sorbent Tube by an additional 1/8th turn or until tight.
- The sealed Passive Sorbent Tube was replaced within the plastic shipping tube and, subsequently, into the plastic sample bag it was shipped in for return shipment to the analytical laboratory.
- Following retrieval of the sump headspace sampler, the cover over the access port in the sump was replaced.

A copy of the field sheet associated with placement and retrieval of the passive indoor air samplers is included in **Appendix D.** Photographs of the passive indoor air sampler placement and retrieval are included in **Appendix E**. Following retrieval of the indoor air samplers and the passive sub-slab vapor samplers (described above), the active vapor mitigation system installed at the 1229 12th Avenue building was reactivated by plugging the system fan into the dedicated electrical outlet.

5. Investigation Results

5.1 Sub-Slab Vapor Sample Results

Sub-slab vapor sample locations and results are illustrated on **Figure 2**. Sub-slab vapor analytical results are summarized in **Table 1**. The laboratory analytical report for the sub-slab vapor samples is included as **Appendix F**.

The sub-slab vapor samples were collected using Beacon PSG Samplers and analyzed using EPA Method 8260C. There were no discrepancies identified in the Quality Control portion of the laboratory analytical report. Specific results were not qualified by the analytical laboratory. Additional information on laboratory certifications and a detailed quality control summary are presented in the laboratory analytical report in **Appendix F**.

The sub-slab vapor samples collected beneath the ground floor slab at the 1233 12th Avenue building (03_A_SSV_SSV02-202303 and 03_A_SSV_SSV03_202303) contained PCE at concentrations greater than the laboratory reporting limit. The reported PCE concentrations did not exceed 10% of the residential VRSL. None of the other analyzed CVOC constituents were reported greater than laboratory limits within the sub-slab vapor samples collected at the 1233 12th Avenue building.

The sub-slab vapor sample collected beneath the basement floor slab at the 1229 12th Avenue building (03_B_SSV_SSV01_202303) did not contain analyzed CVOCs at concentrations greater than laboratory reporting limits.

A duplicate sample (03_A_SSV_SSV02-202303 Dup) collected at the SSV-02 sub-slab vapor sampling location in the 1233 12th Avenue building was also analyzed and the relative percent difference (RPD) between the reported PCE concentration in the duplicate and original sample was 2.2%. No VOCs were reported at concentrations greater than laboratory reporting limits within the Trip Blank sample submitted with the sub-slab vapor samples.

5.2 Indoor Air Sample Results

Indoor air sample locations and results are illustrated on **Figure 3**. Indoor air analytical results are summarized in **Table 2**. The laboratory analytical report for the indoor air samples is included as **Appendix G**.

The indoor air, exterior ambient air, and sump headspace samples were collected using Beacon Passive Sorbent Tubes and analyzed using EPA Method TO-17. There were no discrepancies identified in the Quality Control portion of the laboratory analytical report. Specific results were not qualified by the analytical laboratory. Additional information on laboratory certifications and a detailed quality control summary are presented in the laboratory analytical report in **Appendix G**.

The indoor air, exterior ambient air, and sump headspace sample did not contain analyzed CVOCs at concentrations greater than laboratory reporting limits. In addition, no CVOCs were reported at concentrations greater than laboratory reporting limits within the Trip Blank sample submitted with the indoor air samples.

6. Recommendation

Based on the sub-slab vapor and indoor air analytical results, CVOC impacts to soil and groundwater associated with the former Quality Cleaners property do not appear to pose a significant vapor intrusion risk to the existing buildings located at 1229 and 1233 12th Avenue in Grafton. Considering the results of previously completed sub-slab vapor and indoor air sampling, additional sampling to evaluate the potential vapor intrusion risk to the existing Site buildings is not recommended.

Tables

1. Sub-Slab Vapor Analytical Data
2. Indoor Air Analytical Data

Table 1
Subslab Vapor Analytical Data
Former Quality Cleaners , Grafton, WI
Sigma Project No. # 21703

Sample Type:		Subslab Vapor Samples				Residential Vapor Risk Screening Level [2] (AF=0.03)	Small Commercial Vapor Risk Screening Level [3] (AF = 0.03)	Large Commercial / Industrial Vapor Risk Screening Level [4] (AF = 0.01)
Sample Location Address:		**1229 12th Avenue**	**1233 12th Avenue**	**1233 12th Avenue**	**1233 12th Avenue**			
Sample Identification:		03_B_SSV_SSV01_202303	03_A_SSV_SSV02_202303	03_A_SSV_SSV02_202303 Dup	03_A_SSV_SSV03_202303			
Sample Date(s):		3/22/23 - 3/29/23	3/22/23 - 3/29/23	3/22/23 - 3/29/23	3/22/23 - 3/29/23			
Sampling/Analysis Method:		Beacon Passive Sampler/EPA 8260C	Beacon Passive Sampler/EPA 8260C	Beacon Passive Sampler/EPA 8260C	Beacon Passive Sampler/EPA 8260C			
Sample Duration (minutes):		10,190	10,048	10,048	10,057			
VOCs								
cis-1,2-Dichloroethene	µg/m^3	<1.85	<1.88	<1.88	<1.88	1,400	5,800	18,000
trans-1,2-Dichloroethene	µg/m^3	<2.23	<2.26	<2.26	<2.26	1,400	5,800	18,000
Tetrachloroethene (PCE)	µg/m^3	<2.39	56.4	55.3	97.8	1,400	5,800	18,000
Trichloroethene (TCE)	µg/m^3	<2.97	<3.02	<3.02	<3.01	70	290	880
Vinyl Chloride	µg/m^3	<1.21	<1.23	<1.23	<1.23	56	930	2,800

Notes:

1. Analytical units: µg/m^3 = micrograms per cubic meter

2. Residential Vapor Risk Screening Level = Risk-based concentrations based on VALs for **residential** air which has been adjusted with an **Attenuation Factor of 0.03** for the subslab vapor to ambient air pathway in a **residential** building. VALs for residential indoor air based on WDNR publication RR-800 "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin" (dated January 2018) which in turn references EPA Region 3 Risk-Based Concentrations for residential air [Regional Screening Level (RSL) Summary Table (TR=1E-06, HQ=1) November 2022] and residential air in January 2023 "Wisconsin Vapor Quick Look-Up Table, Indoor Air Vapor Action Levels And Vapor Risk Screening Levels" publication RR-0136. VAL adjusted to 1-in-100,000 increase in lifetime cancer risk for carcinogens per WDNR publication RR-800; VAL is not adjusted for non-carcinogens (i.e., hazard index = 1).

3. Small Commercial Vapor Risk Screening Level = Risk-based concentrations based on VALs for **small commercial** air which has been adjusted with an **Attenuation Factor of 0.03** for the subslab vapor to ambient air pathway in a **small commercial** building. VALs for small commercial building indoor air based on WDNR publication PUB-RR-800 "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin" (dated January 2018) which in turn references EPA Region 3 Risk-Based Concentrations for industrial air [Regional Screening Level (RSL) Summary Table (TR=1E-06, HQ=1) November 2022] and small commercial air in January 2023 "Wisconsin Vapor Quick Look-Up Table, Indoor Air Vapor Action Levels And Vapor Risk Screening Levels" publication RR-0136. VAL adjusted to 1-in-100,000 increase in lifetime cancer risk for carcinogens per WDNR publication RR-800; VAL is not adjusted for non-carcinogens (i.e., hazard index = 1).

4. Large Commercial / Industrial Vapor Risk Screening Level = Risk-based concentrations based on VALs for **large commercial/industrial** air which has been adjusted with an **Attenuation Factor of 0.01** for the subslab vapor to ambient air pathway in a **large commercial/industrial** building. VALs for large commerical / industrial indoor air based on WDNR publication PUB-RR-800 "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin" (dated January 2018) which in turn references EPA Region 3 Risk-Based Concentrations for industrial air [Regional Screening Level (RSL) Summary Table (TR=1E-06, HQ=1) November 2022] and large commercial / industrial air in January 2023 "Wisconsin Vapor Quick Look-Up Table, Indoor Air Vapor Action Levels And Vapor Risk Screening Levels" publication RR-0136. VAL adjusted to 1-in-100,000 increase in lifetime cancer risk for carcinogens per WDNR publication RR-800; VAL is not adjusted for non-carcinogens (i.e., hazard index = 1).

5. NA = not analyzed

6. Laboratory flags: None noted.

7. Exceedances: **BOLD** = concentration greater than residential Vapor Risk Screening Level
[ ] = concentration greater than small commercial Vapor Risk Screening Level
{ } = concentration greater than large commercial / industrial Vapor Risk Screening Level

RJA Date: 4/14/2023

SRM Date: 4/14/2023

Table 2
Indoor Air Analytical Data
Former Quality Cleaners , Grafton, WI
Sigma Project No. # 21703

Sample Type:		Ambient Air Samples				VAL for Residential Indoor Air [2]	VAL for Small Commercial Indoor Air [3]	VAL for Large Commercial / Industrial Indoor Air [4]
Sample Location Address:		**Exterior, West of 1229 12th Avenue**	**1229 12th Avenue**	**1229 12th Avenue**	**1233 12th Avenue**			
Sample Identification:		03_AA_AA01_202303	03_B_SUMP_SUMP01_202303	03_B_IA_IA01_202303	03_A_IA_IA01_202303			
Sample Date(s):		3/22/23 - 3/29/23	3/22/23 - 3/29/23	3/22/23 - 3/29/23	3/22/23 - 3/29/23			
Sampling/Analysis Method:		Chlorosorber Packed Tube/EPA TO-17	Chlorosorber Packed Tube/EPA TO-17	Chlorosorber Packed Tube/EPA TO-17	Chlorosorber Packed Tube/EPA TO-17			
Sample Duration (min):		10,105	9,957	9,944	9,973			
VOCs								
cis-1,2-Dichloroethene	µg/m^3	<0.361	<0.360	<0.360	<0.361	42	180	180
trans-1,2-Dichloroethene	µg/m^3	<0.361	<0.360	<0.360	<0.361	42	180	180
Tetrachloroethene (PCE)	µg/m^3	<0.460	<0.458	<0.458	<0.459	42	180	180
Trichloroethene (TCE)	µg/m^3	<0.389	<0.387	<0.388	<0.389	2.1	8.8	8.8
Vinyl Chloride	µg/m^3	<0.451	<0.450	<0.450	<0.451	1.7	28	28

Notes:

1. Analytical units: µg/m^3 = micrograms per cubic meter

2. VAL for Residential Indoor Air = Vapor Action Level described in WDNR publication RR-800 "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin" (dated January 2018) which in turn references EPA Region 3 Risk-Based Concentrations for **residential** air [Regional Screening Level (RSL) Summary Table (TR=1E-06, HQ=1) November 2022] and **residential** air in January 2023 "Wisconsin Vapor Quick Look-Up Table, Indoor Air Vapor Action Levels And Vapor Risk Screening Levels" publication RR-0136. VAL adjusted to 1-in-100,000 increase in lifetime cancer risk for carcinogens per WDNR publication RR-800; VAL is not adjusted for non-carcinogens (i.e., hazard index = 1).

3. VAL for Small Commercial Indoor Air = Vapor Action Level described in WDNR publication RR-800 "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin" (dated January 2018) which in turn references EPA Region 3 Risk-Based Concentrations for **industrial** air [Regional Screening Level (RSL) Summary Table (TR=1E-06, HQ=1) November 2022] and **small commercial** air in January 2023 "Wisconsin Vapor Quick Look-Up Table, Indoor Air Vapor Action Levels And Vapor Risk Screening Levels" publication RR-0136. VAL adjusted to 1-in-100,000 increase in lifetime cancer risk for carcinogens per WDNR publication RR-800; VAL is not adjusted for non-carcinogens (i.e., hazard index = 1).

4. VAL for Large Commercial / Industrial Indoor Air = Vapor Action Level described in WDNR publication RR-800 "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin" (dated January 2018) which in turn references EPA Region 3 Risk-Based Concentrations for **industrial** air [Regional Screening Level (RSL) Summary Table (TR=1E-06, HQ=1) November 2022] and **large commerical / industrial** air in January 2023 "Wisconsin Vapor Quick Look-Up Table, Indoor Air Vapor Action Levels And Vapor Risk Screening Levels" publication RR-0136. VAL adjusted to 1-in-100,000 increase in lifetime cancer risk for carcinogens per WDNR publication RR-800; VAL is not adjusted for non-carcinogens (i.e., hazard index = 1).

5. NA = not analyzed

6. Laboratory flags: None noted

7. Exceedances: **BOLD** = concentration greater than residential Vapor Action Level
[ ] = concentration greater than small commercial Vapor Action Level
{ } = concentration greater than large commercial / industrial Vapor Action Level

RJA Date: 4/14/2023

SRM Date: 4/14/2023

Figures

1. Site Plan Map
2. Sub-Slab Vapor Quality Map
3. Indoor Air Quality Map

DATE: 04/19/2023 | CREATED BY: RJA | FILENAME: 21703_Fig 1_SPM.ai | DIRECTORY: CAD | PROJECT: 21703

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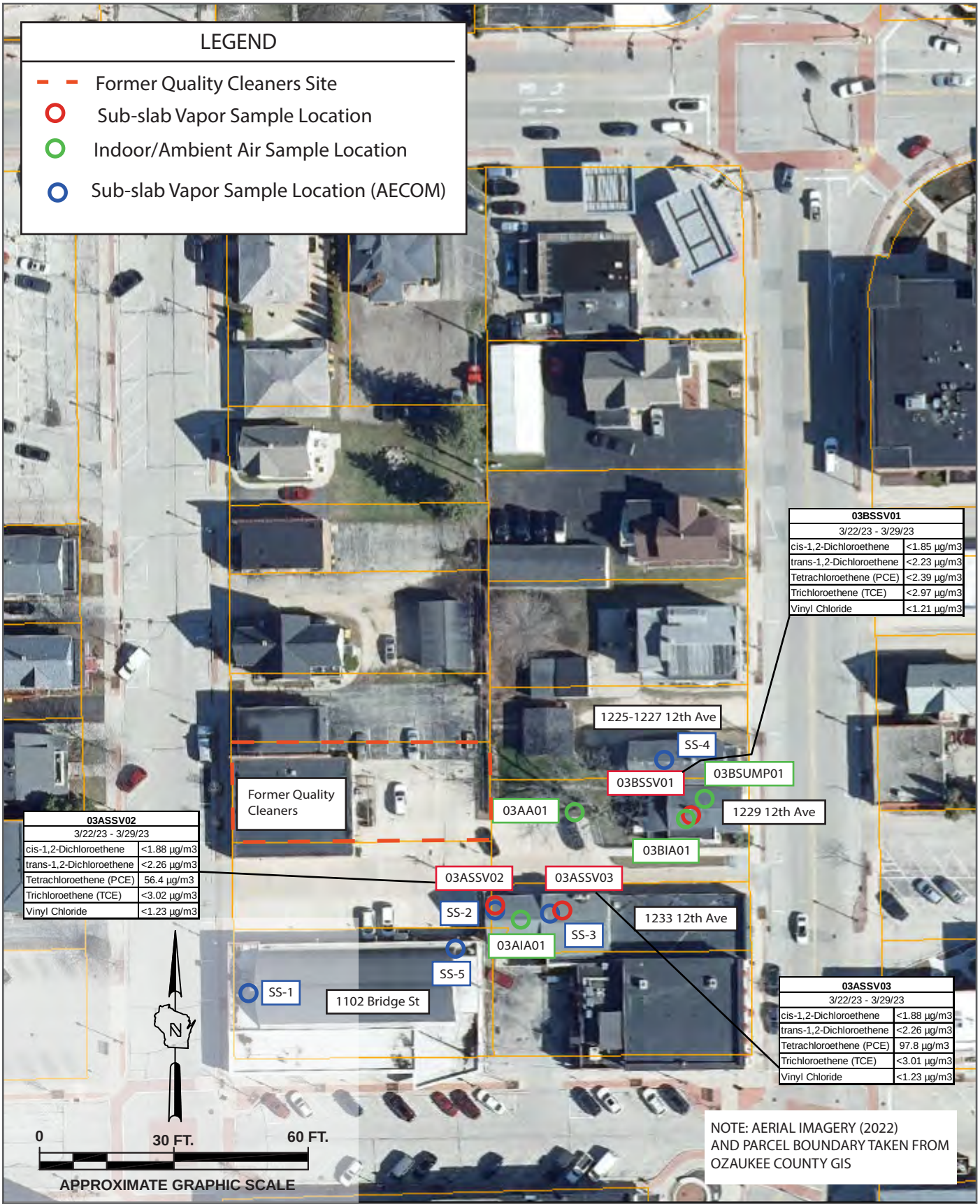
SITE PLAN MAP

1226-1228 11TH AVE
GRAFTON, WI 53024

FIGURE
1



03ASSV02	
3/22/23 - 3/29/23	
cis-1,2-Dichloroethene	<1.88 µg/m3
trans-1,2-Dichloroethene	<2.26 µg/m3
Tetrachloroethene (PCE)	56.4 µg/m3
Trichloroethene (TCE)	<3.02 µg/m3
Vinyl Chloride	<1.23 µg/m3

03BSSV01	
3/22/23 - 3/29/23	
cis-1,2-Dichloroethene	<1.85 µg/m3
trans-1,2-Dichloroethene	<2.23 µg/m3
Tetrachloroethene (PCE)	<2.39 µg/m3
Trichloroethene (TCE)	<2.97 µg/m3
Vinyl Chloride	<1.21 µg/m3

03ASSV03	
3/22/23 - 3/29/23	
cis-1,2-Dichloroethene	<1.88 µg/m3
trans-1,2-Dichloroethene	<2.26 µg/m3
Tetrachloroethene (PCE)	97.8 µg/m3
Trichloroethene (TCE)	<3.01 µg/m3
Vinyl Chloride	<1.23 µg/m3

DATE: 04/19/2023 | CREATED BY: RJA | FILENAME: 21703_Fig 1_SPM.ai | DIRECTORY: CAD | PROJECT: 21703

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SUB-SLAB VAPOR QUALITY MAP

1226-1228 11TH AVE
GRAFTON, WI 53024

FIGURE
2

DATE: 04/19/2023 | CREATED BY: RJA | FILENAME: 21703_Fig 1_SPM.ai | DIRECTORY: CAD | PROJECT: 21703

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INDOOR AIR QUALITY MAP

1226-1228 11TH AVE
GRAFTON, WI 53024

FIGURE
3

Appendix A

Building Checklist Forms

Vapor Intrusion Sampling – Relevant Building Features Slow Poke's 1229 12th Avenue

Building Feature	Description -Take Photos
Primary use of building	commercial - first floor, residential - 2nd floor on the interior under renovation
Footprint (sq. ft.)	740 (basement) 1,146 (1st floor)
Basement present? Full/partial? Depth below grade?	Yes - partial basement, approximately 7.5' below grade
Primary use of basement?	houses A/C furnace, storage, water softener & water heater
Air flow in basement?(presence of HVAC vents, fans, other ventilation, is it open to upper floors or closed by doors, does air seem stagnant?)	2 dehumidifiers running - condensate drains to sump, no door on stairs to first floor, also gaps around utility penetrations to first floor
Foundation material, thickness, & condition	lower 3-3.5' feet is cinder block, upper 4-4.5' feet is field stone
Foundation wall material & condition	cinder block generally appears to be in good shape, field stone appears generally sealed
Sump present? Where does the sump receive liquid from? Discharge to? Contain water?	Yes - receives liquid from furnace & dehumidifier - sealed cover on but based on fan attached there is likely drain tile also feeds sump
Basement damp or wet?	not really - 2 dehumidifiers running
Slab material, thickness & condition	Concrete
Sub-grade material (granular fill, native, etc.)	see Field Data Sheet
Noticeable gaps (around utility penetrations, foundation floor, etc.)	Yes - around penetrations into field stone walls and around utilities running to 1st floor but building under renovation
Describe basement plumbing (floor drains, bathrooms, vent stacks, cleanouts, etc.)	no floor drain beside sump - utilities (sanitary type sink) run out through field stone portion of walls
Primary type of heating and cooling system	furnace in basement only used for A/C per owner
Heating/cooling system on during sampling?	upstairs but not in basement
Vented hot water heater or clothes dryer in basement?	hot water heater but no dryer vents to chimney

Vapor Intrusion Sampling – Relevant Building Features

Whole house fan present?	under renovation
Describe any indoor air vapor source removed prior to sampling. (see RR-800 Appendix A)	shelf full of paints, WD40, degreaser, TSP, oil + grease remover
Other observations	mitigation system not to AARST standards - fan is located within occupied space + discharges less than 2 feet above grade - Fan is Radon Away GP301 two spots in sealed sump cover that show smoke drawn down into sump with mitigation fan active - 1 around sump discharge pipe + 1 around furnace drain pipe

Vapor Intrusion Sampling – Relevant Building Features

Seth's Antiques - 1233 12th Avenue

Building Feature	Description -Take Photos
Primary use of building	1st (ground floor) - Commercial Cantique store) & storage 2nd floor - residential apartment
Footprint (sq. ft.)	5,564
Basement present? Full/partial? Depth below grade?	No basement.
Primary use of basement?	Not applicable
Air flow in basement?(presence of HVAC vents, fans, other ventilation, is it open to upper floors or closed by doors, does air seem stagnant?)	Not applicable
Foundation material, thickness, & condition	Rear addition appears to have cinder block foundation,
Foundation wall material & condition	Not observed.
Sump present? Where does the sump receive liquid from? Discharge to? Contain water?	No sump
Basement damp or wet?	No basement
Slab material, thickness & condition	Concrete floor slab - see Field Data Sheet
Sub-grade material (granular fill, native, etc.)	see Field Data sheet
Noticeable gaps (around utility penetrations, foundation floor, etc.)	No penetrations/gaps observed in floor slab.
Describe basement plumbing (floor drains, bathrooms, vent stacks, cleanouts, etc.)	Plumbing does not appear to penetrate foundation.
Primary type of heating and cooling system	Gas Natural powered furnace
Heating/cooling system on during sampling?	Yes
Vented hot water heater or clothes dryer in basement?	No

Vapor Intrusion Sampling – Relevant Building Features

Whole house fan present?	No
Describe any indoor air vapor source removed prior to sampling. (see RR-800 Appendix A)	WD 40, paints, typical cleaners
Other observations	Area where previous sub-slab samples were collected is not conditioned by HVAC except by communication with conditioned spaces via doorways, etc.

Appendix B

Pre-Sampling Site Visit Photographs

Photo Page 1

Photo 1: View of eastern portion of north basement wall in 1229 12th Avenue building, View to north. 3/8/2023.

Photo 2: View of west basement wall in 1229 12th Avenue building. View to west. 3/8/2023.

1229 and 1233 12th Avenue, Grafton, Wisconsin

Sigma Project Number: 21703

Photo Page 2

Photo 3: View of west side of 1229 12th Avenue building. View to northeast. 3/8/2023.

Photo 4: View of sump in basement of 1229 12th Avenue building. 3/8/2023.

Photo Page 3

Photo 5: View of mitigation system fan connected to sump in 1229 12th Avenue building. 3/8/2023.

Photo 6: View of mitigation system discharge on north exterior of 1229 12th Avenue building. 3/8/2023.

Photo Page 4

Photo 7: View of west end of ground floor (location of SS-2) of 1233 12th Avenue building. View to west. 3/8/2023

Photo 6: View of northwest exterior of 1233 12th Avenue building. View to southeast. 3/8/2023.

Appendix C

March 9, 2023 Correspondence

Stephen Meer, P.E.

From: Martinez, Joseph J - DNR <Joseph.Martinez@wisconsin.gov>
Sent: Thursday, March 9, 2023 9:59 AM
To: Stephen Meer, P.E.; Walden, James E -DNR; Feeney, John M - DNR; Borski, Jennifer - DNR
Cc: Hoverman, Robert R - DNR
Subject: RE: [EXT] Action: PO # 37000-0000023533 for Quality Cleaners (Gerald Kuehl Estate), BRRTS #02-46-560212

See responses below.

1229 building:

1) Yes, collect a sealed sump headspace sample in lieu of a duplicate sample
2) If possible, conduct the sampling on days when the plumber is not actively using PVC primer/cement. If that is not possible due to the plumbers schedule and our proposed use of long term samples, then yes proceed with the IA sampling.

1233 building:

1) Collect the indoor air sample in the storage area which overlies the sub-slab location of concern identified to date

Let me know if you have any questions about the comments above.

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Joseph J. Martinez
Hydrogeologist – Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
1027 W. St. Paul Avenue
Milwaukee, WI 53233
Phone: (414)218-6042
Email: joseph.martinez@wisconsin.gov


dnr.wi.gov


From: Stephen Meer, P.E. <smeer@thesigmagroup.com>
Sent: Thursday, March 9, 2023 9:07 AM
To: Walden, James E -DNR <jamese.walden@wisconsin.gov>; Feeney, John M - DNR <JohnM.Feeney@wisconsin.gov>; Borski, Jennifer - DNR <Jennifer.Borski@wisconsin.gov>
Cc: Martinez, Joseph J - DNR <Joseph.Martinez@wisconsin.gov>
Subject: RE: [EXT] Action: PO # 37000-0000023533 for Quality Cleaners (Gerald Kuehl Estate), BRRTS #02-46-560212

Good morning,

We completed the initial site visits to both Slow Poke's (1229 12th Avenue) and Seth's Antique's (1233 12th Avenue) yesterday on 3/8/23. Based on the site visits we have a few questions on the sampling SOW and locations for specific samples. (John, please feel free to clarify as you see fit since you were present).

For the 1229 12th Avenue building, the existing mitigation system is connected to a sump located within the basement level. The sump has a sealed cover and multiple penetrations including the mitigation system pipe, sump discharge pipes, and penetrations for condensate drains from a furnace located in the basement (according to the owner this furnace is only used for A/C, not heating) and two dehumidifiers. With the mitigation system fan active, we used a smoke stick and observed two communication points between the sump interior and basement air around the pipe penetrations (points where smoke was being drawn down into the sump). There is a sealed access port through the sump cover secured with screws. We have attached a .MOV file showing the cover – for some reason my phone turned the photo with flash into a movie.

There 1229 building is also currently under interior renovation. We identified a shelf of materials (paints, WD40, etc.) in the basement and requested those be removed by the owner prior to sampling. She indicated that wouldn't be an issue. However, the owner also indicated our anticipated sampling date (3/22) may overlap with renovation work being completed by the plumber. The owner indicated they were not willing to delay work by the plumber as the renovations need to be complete to accommodate the occupancy schedule of the future user. As part of that work we'd anticipate the plumber potentially using PVC primer/cement. PVC primer typically contains acetone, MEK, tetrahydrofuran and cyclohexanone but the PVC cement can also contain vinyl chloride.

Therefore, our questions for the SOW at the 1229 building are:

1) In place of one of the currently proposed samples or duplicate samples, do we want to substitute collection of a sample of the sealed sump headspace at the 1229 building?
2) Do we want to proceed with sampling the indoor air at the 1229 building if the plumber is using PVC primer/cement?

In our experience we have collected indoor air samples at sites where mitigation systems have recently been installed using PVC primer/cement and not detected vinyl chloride within those samples.

For the 1233 12th Avenue building (Seth's Antiques), the owner was able to show us the location of the previously completed sub-slab sample points (building is slab on grade). SS-2 is located in a portion of the ground floor that appears to be a later addition to the original building, is not conditioned (limited HVAC) and used for storage (a photo of this area is attached). SS-3 is located in a unfinished room housing the furnace/water heater but within the portion of the ground floor that is heated. The owner indicated that the previously collected indoor air sample was collected within the residential portion of the building (2nd floor), which extends over the portion of the building where both SS-2 and SS-3 are located.

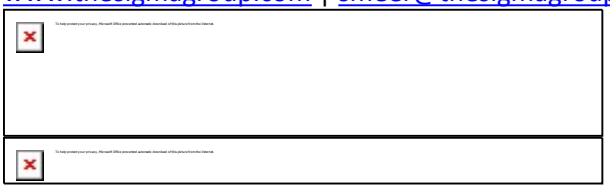
Therefore, our question for the SOW at the 1233 building is:

1) Do we want to collect the indoor air sample in the ground floor portion of the building overlying SS-2 (the sample that contained PCE close to the VRSL during one of the three previously completed sampling events) which is not conditioned and used for storage or within the portion of the ground floor further to the east that is commercially occupied and conditioned?

Our recommendation would be to collect the sample in the storage area which overlies the sub-slab location of concern identified to date.

Please let us know if it would make sense to schedule a discussion or if you have any additional questions in response to the questions posed above.

Stephen R. Meer, P.E.
Senior Engineer
The Sigma Group, Inc.
(414) 643-4124 (direct)
(414) 588-8910 (mobile)
1300 W. Canal Street, Milwaukee, WI 53233
www.thesigmagroup.com | smeer@thesigmagroup.com



From: Walden, James E -DNR <jamese.walden@wisconsin.gov>
Sent: Monday, March 6, 2023 6:03 AM
To: Stephen Meer, P.E. <smeer@thesigmagroup.com>; Feeney, John M - DNR <JohnM.Feeney@wisconsin.gov>; Borski, Jennifer - DNR <Jennifer.Borski@wisconsin.gov>
Cc: Martinez, Joseph J - DNR <Joseph.Martinez@wisconsin.gov>
Subject: RE: [EXT] Action: PO # 37000-0000023533 for Quality Cleaners (Gerald Kuehl Estate), BRRTS #02-46-560212

Hi Steve:

We are not quite finished revising the Building Checklist referenced in the SOW but should have that document completed before the first state-funded VIZC project. For Quality Cleaners, I pulled out some of the more relevant features and include those in the attached word document. Please document those feature and anything else you believe is relevant for the two buildings you are sampling.

For the unique sampling identification system described in item IV.A.d of the SOW, we have completed a "Vapor Intrusion Sample Log" that we want contractors on the VIZC investigations to use and it is attached. For future projects we will put the [State Funded Response Project ID] and the [Building ID] in the SOW (the first two elements of the sample naming convention). For the Quality Cleaners project use **03** for the project ID and the letter **A** for 1233 12th Avenue and **B** for 1229 12th Avenue.

Thanks for proceeding quickly and let me know if you have any follow-up questions on these. Thanks

Jim

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James Walden
Hydrogeologist, P.G. – Vapor Intrusion Expert

Bureau for Remediation and Redevelopment
Wisconsin Department of Natural Resources
Cell: 608-640-6639
jamese.walden@wisconsin.gov

dnr.wi.gov

From: Stephen Meer, P.E. <smeer@thesigmagroup.com>
Sent: Friday, March 3, 2023 4:16 PM
To: Feeney, John M - DNR <JohnM.Feeney@wisconsin.gov>; Borski, Jennifer - DNR <Jennifer.Borski@wisconsin.gov>
Cc: Martinez, Joseph J - DNR <Joseph.Martinez@wisconsin.gov>; Walden, James E -DNR <jamese.walden@wisconsin.gov>
Subject: RE: [EXT] Action: PO # 37000-0000023533 for Quality Cleaners (Gerald Kuehl Estate), BRRTS #02-46-560212

Good afternoon,
We have the initial site visits tentatively scheduled for next Wednesday 3/8. Would it be possible for us to receive the Building Checklist referenced in the Scope of Work early next week?

Thanks!

Stephen R. Meer, P.E.
Senior Engineer
The Sigma Group, Inc.
(414) 643-4124 (direct)
(414) 588-8910 (mobile)
1300 W. Canal Street, Milwaukee, WI 53233
www.thesigmagroup.com | smeer@thesigmagroup.com

From: Feeney, John M - DNR <JohnM.Feeney@wisconsin.gov>
Sent: Friday, March 3, 2023 11:37 AM
To: Stephen Meer, P.E. <smeer@thesigmagroup.com>; Borski, Jennifer - DNR <Jennifer.Borski@wisconsin.gov>
Cc: Martinez, Joseph J - DNR <Joseph.Martinez@wisconsin.gov>; Walden, James E -DNR <jamese.walden@wisconsin.gov>; Kristin Kurzka, P.E. <kkurzka@thesigmagroup.com>
Subject: RE: [EXT] Action: PO # 37000-0000023533 for Quality Cleaners (Gerald Kuehl Estate), BRRTS #02-46-560212

Steve, here is the contact information for scheduling the work. I can come along on the initial site visit.

Mr. VJ Seth, Seth's Antiques
sethsantq@aol.com
262-376-0113

Ms. Kathy Buchholz, Slow Poke's
katselhaus@wi.rr.com
414-881-5503

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John M Feeney
Phone: 262-416-8643
johnm.feeney@wisconsin.gov

dnr.wi.gov

From: Stephen Meer, P.E. <smeer@thesigmagroup.com>
Sent: Friday, March 3, 2023 11:33 AM
To: Borski, Jennifer - DNR <Jennifer.Borski@wisconsin.gov>; Feeney, John M - DNR <JohnM.Feeney@wisconsin.gov>
Cc: Martinez, Joseph J - DNR <Joseph.Martinez@wisconsin.gov>; Walden, James E -DNR <jamese.walden@wisconsin.gov>; Kristin Kurzka, P.E. <kkurzka@thesigmagroup.com>
Subject: RE: [EXT] Action: PO # 37000-0000023533 for Quality Cleaners (Gerald Kuehl Estate), BRRTS #02-46-560212

Jennifer,
Received. We'll send out the HASP early next week at the latest and in the interim work on coordinating the initial site visit with John and order the sampling materials from Beacon.

Stephen R. Meer, P.E.
Senior Engineer
The Sigma Group, Inc.
(414) 643-4124 (direct)
(414) 588-8910 (mobile)

1300 W. Canal Street, Milwaukee, WI 53233
www.thesigmagroup.com | smeer@thesigmagroup.com

From: Borski, Jennifer - DNR <Jennifer.Borski@wisconsin.gov>
Sent: Friday, March 3, 2023 10:43 AM
To: Stephen Meer, P.E. <smeer@thesigmagroup.com>; Feeney, John M - DNR <JohnM.Feeney@wisconsin.gov>
Cc: Martinez, Joseph J - DNR <Joseph.Martinez@wisconsin.gov>; Walden, James E -DNR <jamese.walden@wisconsin.gov>
Subject: [EXT] Action: PO # 37000-0000023533 for Quality Cleaners (Gerald Kuehl Estate), BRRTS #02-46-560212
Importance: High

Steve & John,

The PO # is assigned for the vapor investigation at the two off-site properties at this site. Shelley Fox will be sending out the formal paperwork with the purchase order next week when she returns to the office. In the interim, attached is the Invoice Cover Sheet that includes the PO # specific to this site so we can begin scheduling. Note that I will be out of the office at a conference and then vacation after today, returning March 16th. However, please move forward with Jim Walden and Beacon in my absence.

Since the access agreements are already in place, my hope is that this work can be coordinated to take place yet in March. However, please discuss appropriate timing with Jim if scheduling does not allow for sampling to be accomplished in March since we only have one shot at getting representative data with the remaining estate funds.

Please let me know if you have any questions.

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Jennifer Borski
(she/her/hers)
Vapor Intrusion Team Leader / Hydrogeologist
Remediation & Redevelopment Program / Environmental Management Division
Wisconsin Department of Natural Resources
625 E. County Road Y, STE. 700, Oshkosh, WI 54901-9731
Cell Phone: (920) 360-0853
jennifer.borski@wisconsin.gov

dnr.wi.gov

Appendix D

Sub-Slab Vapor and Indoor Air Sampling Field Sheets

THE SIGMA GROUP

SUB-SLAB VAPOR SAMPLING FIELD LOG

Project Number: 21703
Client Name: WDNR
Phase / Task: 001
Project Name: Former Quality Cleaners
Personnel: SRM
Project Location: 1229 + 1233 12th Ave. (Address) Grafton (City) WI (State)
Notes in Field Book #:

Date of Service:	3/22/23	Temperature:	40°	☐ Sunny	☒ Cloudy
Arrival Time:	9:44 AM	Barometric Pressure:	29.98 in	☐ Partly Sunny	☐ Rain
Departure Time:	12:55 PM	Wind (speed/direction):	10 mph from South	☐	☐ Snow

Complete Building Features Checklist Sheet (Mandatory) – previously completed ☒
Attach Scaled Map with Sample Locations (Mandatory) ☒

Sub-Slab Sample Type (e.g. summa canister/size, passive vapor sampler/type): Beacon PSG

	Sample Point IDs									
	1229	1233	1237							
	03BSSV01	03ASSV02	03ASSV03							
Can/Sampler ID	NA	NA	NA							
Slab Thickness (in.)	4	3.5	8							
Subslab Material	gray sand wet brown soil	brick gravelly sand	sand							
Surface Seal Test/Results	—	—	—							
Shut-In Test Results	—	—	—							
PID Readings	0.5-1.1	0.5-0.8	0.5-0.8							
Micromanometer Reading	—	—	—							
Test Start Date/Time	3/22 10:30	3/22 11:47	3/22 11:53							
Initial Pressure	—	—	—							
Test End Date/Time	3/29/23 12:20	3/29/23 11:15	3/29/23 11:30							
Final Pressure										

Comments: Mitigation system off, shelves w/ chemicals identified during pre-sampling walkthrough removed, one dehumidifier running in basement, closed building conditions observed – 1229

1233 – shelves w/ chemicals removed – both subslab samples in area of building used for storage + no HVAC

3/29/23 weather: sunny, 55°F

BEACON ENVIRONMENTAL
2203A Commerce Rd, Suite 1
Forest Hill, MD 21050, USA
Need help? Call 1-410-838-8780
or email help@beacon-usa.com

PASSIVE SOIL GAS SAMPLES | CHAIN-OF-CUSTODY

Project Information		Client Information	
Site Name: Former Quality Cleaners	Company Name: The Sigma Group, Inc.	Project Manager: Stephen Meer	
	Office Location: 1300 W. Canal St., Milwaukee, WI	Client PO: 21703	
Site Location: 1229 & 1233 12th Avenue Grafton, WI	Submitted by: Stephen Meer	Turn around time (check one): ☒ Normal ☐ Rush (specify) ____ days	
	Email: smeer@thesigmagroup.com		

Field Sample ID	Start Date	Start Time	Stop Date	Stop Time	Sampling Hole Depth ■ cm ◪ inches	Surface Type (Soil, Asphalt, Concrete, Gravel)	Optional Information (Location Description, Sample Condition, PID / FID Readings, etc)
03_B_SSV_SSV01_202303	03/22/23	10:30 AM	3/29/23	12:20	10	concrete	
03_A_SSV_SSV02_202303	03/22/23	11:47 AM	3/29/23	11:15	10	concrete	
03_A_SSV_SSV03_202303	03/22/23	11:53 AM	3/29/23	11:30	14	Concrete	
03_A_SSV_SSV02_202303-Dup	03/22/23	11:47 AM	3/29/23	11:15 AM	10	concrete	
Trip Blank	—	—	—	—			

Special Instructions:

Relinquished by (signature):	Date / Time: 3/29/23 12:00 PM	Received by (signature):	Date / Time:
Relinquished by (signature):	Date / Time	Received by (signature):	Date / Time:
For Lab Use Only	Beacon Job No:	Beacon Proposal: 230202R02	Analytical Method:
Courier Name:	Shipment Condition:	Custody Seal Intact: ☐ Yes ☐ No ☐ n/a	Custody Seal No:

THE SIGMA GROUP

INDOOR AIR SAMPLING FIELD LOG

Project Number: 21703

Client Name: WDNR

Phase / Task: 001

Project Name: Former Quality Cleaners

Personnel: SRM

Project Location: 1229 & 1233 12th Ave. (Address) Gratton (City) WI (State)

Notes in Field Book #:

Date of Service:	3/22/23	Temperature:	40°	☐ Sunny	☒ Cloudy
Arrival Time:	9:44 AM	Barometric Pressure:	29.98 in	☐ Partly Sunny	☐ Rain
Departure Time:	12:55 pm	Wind (speed/direction):	10 mph from South	☐	☐ Snow

Complete Building Features Checklist Sheet (Mandatory) - previously completed ☒

Attach Scaled Map with Sample Locations (Mandatory) ☒

Indoor Air Sample Type (e.g. summa canister/size, passive vapor sampler/type):

	Sample Point IDs									
	03AA01	03BSump 01	03BIA01	03AIA01						
Can/Sampler ID	1179269	1141942	1153987	1141947						
Location In Room	- outside	- in sump	- Not shown	N of south door						
Sample Height	~6'	NA	~5'	~5.5'						
Test Start Date/Time	12:20	12:33	12:36	12:47						
Initial Pressure	NA	NA	NA	NA						
Test End Date/Time	3/29/23 11:45	3/29/23 10:30	3/29/23 10:20	3/29/23 11:00						
Final Pressure	NA	NA	NA	NA						

Comments: water present in sump located within 1229 12th Avenue building 3/22/2023
- Samplers suspended with bailer rope (crew)
- Ambient air sampler placed in 4" diameter PVC cover to protect from rain
- Plumber working upstairs
- Smell of PVC glue/Primer (strong) 3/29/2023

weather: sunny 55°F

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Forest Hill MD 21050, USA
1-410-838-8780
800-878-5510 Toll Free

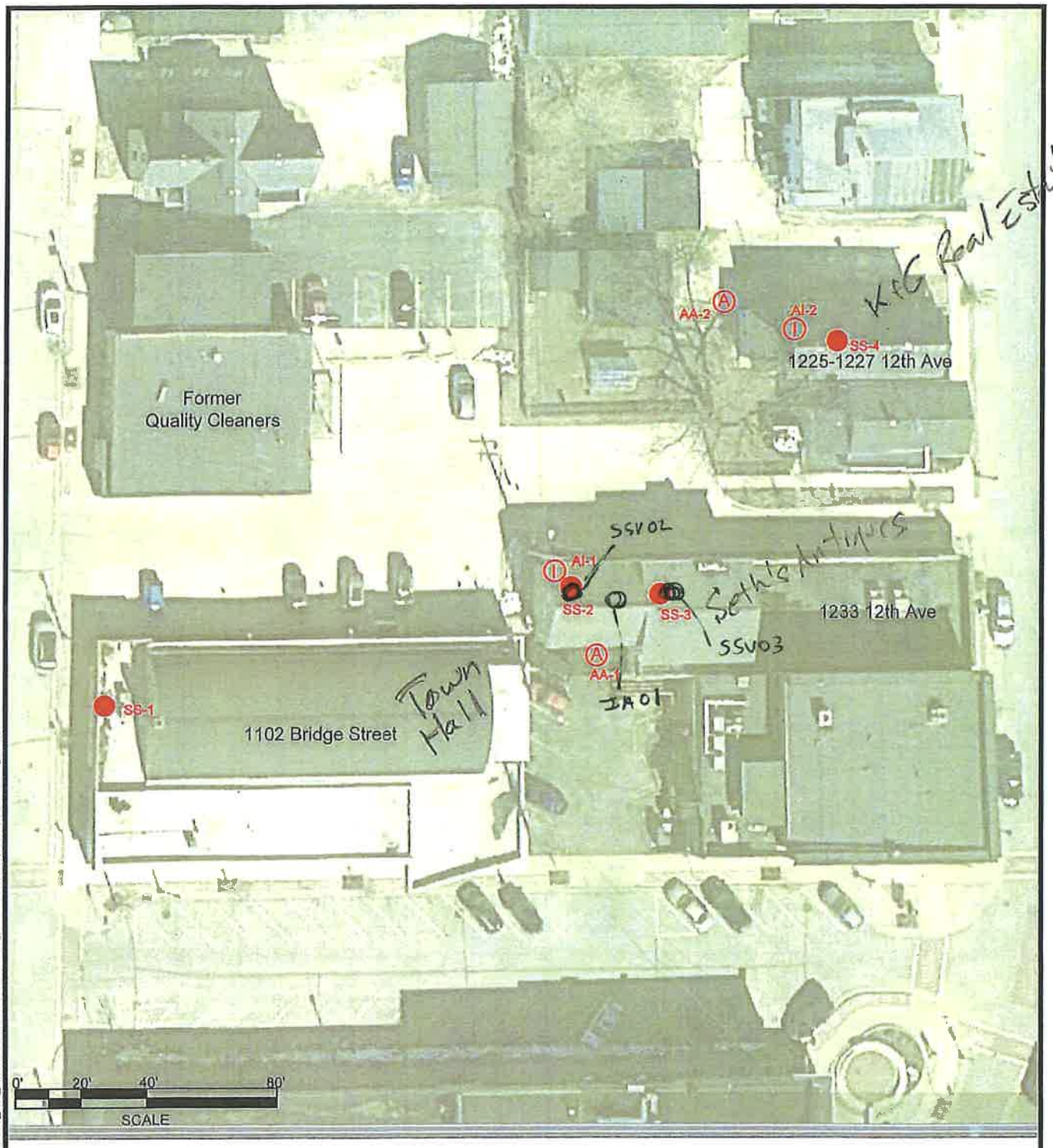
PASSIVE AIR SAMPLING – SORBENT TUBE | CHAIN-OF-CUSTODY

Client Information			
Company: The Sigma Group, Inc.	Project Manager: Stephen Meer	Client PO: 21703	
Address: 1300 W. Canal St.	Project Name: Former Quality Cleaners	Turn around time (check one): ☒ Normal ☐ Rush (specify) ____ days	
City / State / Zip: Milwaukee/WI/53233	Location: 1224 & 1233 12th Ave., Grafton, WI	Analysis: ☒ Method TO-17 ☐ Method 325	
Phone: 414-643-4124	Submitted by: Stephen Meer		
	Email: smeer@thesigmagroup.com		

Location ID	Tube ID	Start Date	Start Time	Stop Date	Stop Time	Aver Temp (C)	Target Compounds	INDOOR AIR	AMBIENT AIR	CRAWL SPACE	SEWER GAS
03_AA_AA01_202303	1179269	3/22/2023	12:20 PM	3/29/23	12:45	4.4/4	PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride		X		
03_B_SUMP_SUMP01_202303	1141942	3/22/2023	12:33 PM	3/29/23	10:30	15	↓	X			
03_B_IA_IA01_202303	1153987	3/22/2023	12:36 PM	3/29/23	10:20	15		X			
03_A_IA_IA01_202303	1141947	3/22/2023	12:47 PM	3/29/23	11:00	12		X			
Trip Blank	1181172	—	—	—	—						

Special Notes / Instructions:

Relinquished by (signature):	Date / Time: 3/29/23 2:00 PM	Received by (signature):	Date / Time:
Relinquished by (signature):	Date / Time:	Received by (signature):	Date / Time:
For Lab Use Only	Beacon Job No:	Beacon Proposal: 230202R03	
Courier Name:	Shipment Condition:	Custody Seal Intact: ☐ Yes ☐ No ☐ n/a	Custody Seal No:



Legend:

- Subslab Vapor Probe and Identification Number
- Indoor Air Sample Location and Identification Number
- Ambient Air Sample Location and Identification Number

Notes:

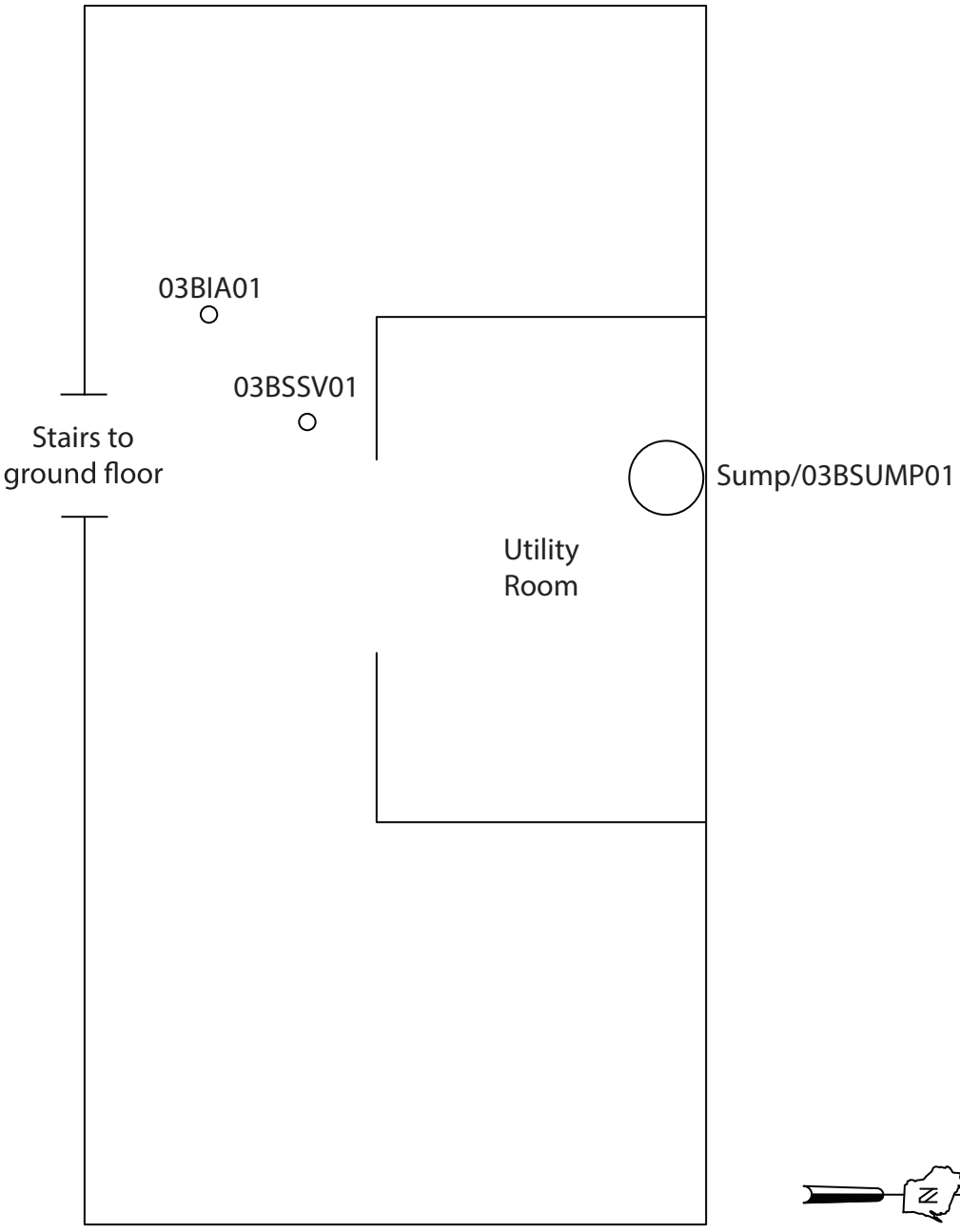
1. Aerial photograph from Google Earth Pro dated 10/10/2013.

AECOM
Milwaukee Office
1555 RiverCenter Dr
Milwaukee, WI
414.944.6080

GRAFTON VI ASSESSMENT

VAPOR INTRUSION ASSESSMENT
SAMPLE LOCATIONS

Project Number:	Drawn By:	Date:	Figure No. 1
60602996	CAS	8/13/2019	



N

0 5 FT. 10 FT.

APPROXIMATE GRAPHIC SCALE

PROJECT: 21703 | DIRECTORY: CAD | FILENAME: 21703_Fig 2_SPM.ai | CREATED BY: RJA | DATE: 04/19/2023

THE SIGMA GROUP
Single Source. Sound Solutions.

BASEMENT LAYOUT MAP

1229 12TH AVENUE
GRAFTON, WI 53024

FIGURE

Appendix E

Sub-Slab Vapor and Indoor Air Sampling Photographs

Photo Page 1

Photo 1: Sub-slab sample point SSV-01 in the basement of the 1229 12th Avenue building following installation of the aluminum tube. 3/22/2023

Photo 2: Sub-slab sample point SSV-01 in the basement of the 1229 12th Avenue building following installation of the passive sampler and capping with aluminum foil plug. 3/22/2023

1229 and 1233 12th Avenue, Grafton, Wisconsin

Sigma Project Number: 21703

Photo Page 2

Photo 3: Sub-slab sample point SSV-01 in the basement of the 1229 12th Avenue building following installation of the temporary cement cap. 3/22/2023

Photo 4: Sub-slab sample point SSV-02 in the 1233 12th Avenue building following installation of the passive sampler and aluminum foil plug. 3/22/2023

Photo Page 3

Photo 5: Sub-slab sample point SSV-02 in the 1233 12th Avenue building following installation of the temporary cement cap. Previous SS-2 sample location visible. 3/22/2023.

Photo 6: Sub-slab sample point SSV-03in the 1233 12th Avenue building following installation of the aluminum tube. 3/22/2023..

Photo Page 4

Photo 7: Sub-slab sample point SSV-03 in the 1233 12th Avenue building following installation of the temporary cement cap. Previous SS-3 sample location visible. 3/22/2023.

Photo 6: Passive sampler installed in headspace of basement sump in the 1229 12th Avenue building. 3/22/2023.

Photo Page 5

Photo 9: Indoor air sampler installed in basement of 1229 12th Avenue building. 3/22/2023.

Photo 10: Indoor air sampler installed in ground floor of 1233 12th Avenue building. 3/22/2023.

Photo Page 6

Photo 11: Ambient air sampler installed to the west of the 1229 12th Avenue building. View to northeast. 3/22/2023

Photo 12: View of sealed sump in basement of 1229 12th Avenue building prior to retrieval of sampler from sump headspace. View to north. 3/29/2023.

1229 and 1233 12th Avenue, Grafton, Wisconsin

Sigma Project Number: 21703

Photo Page 7

Photo 13: Filled and sealed location of SSV-02 in 1233 12th Avenue building following passive sampler retrieval. 3/29/2023.

Photo 14: Filled and sealed location of SSV-03 in 1233 12th Avenue building following passive sampler retrieval. 3/29/2023.

Photo Page 8

Photo 15: Filled and sealed location of SSV-01 in 122912th Avenue building following passive sampler retrieval. 3/29/2023.

Photo 16: Reactivated vapor mitigation system in 1229 12th Avenue building. 3/29/2023.

Appendix F

Sub-Slab Vapor Laboratory Analytical Report

Beacon Environmental
2203A Commerce Road, Suite 1
Forest Hill, MD 21050 USA
1.410.838.8780

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 230202R02

Laboratory Work Order: 0006906

Project Description:
Former Quality Cleaners
Grafton, WI

Client PO No.: 21703

Prepared for:
Steve Meer
The Sigma Group
1300 West Canal Street
Milwaukee, WI 53233

Ryan W. Schneider
Senior Project Manager

April 13, 2023

All data meet requirements as specified in the Beacon Environmental Quality Assurance Project Plan and the results relate only to the samples reported. The work performed was in accordance with ISO/IEC 17025:2017. This report shall not be reproduced, except in full, without written approval of the laboratory. Release of the data contained in this data package has been authorized by the Laboratory Director or his signee, as verified by the following signatures:

Steven C. Thornley
Laboratory Director

Peter B. Kelly
Quality Manager

Table of Contents

Table of Contents (continued)

BEACON ENVIRONMENTAL

2203A Commerce Road, Suite 1
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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0006906-01	Trip Blank	03/30/2023	EPA 8260C	Air
Sampler Type:	Beacon Passive Sampler			
0006906-02	03_B_SSV_SSV01_202303	03/30/2023	EPA 8260C	Soil Gas
Sampler Type:	Beacon Passive Sampler			
0006906-03	03_A_SSV_SSV02_202303	03/30/2023	EPA 8260C	Soil Gas
Sampler Type:	Beacon Passive Sampler			
0006906-04	03_A_SSV_SSV03_202303	03/30/2023	EPA 8260C	Soil Gas
Sampler Type:	Beacon Passive Sampler			
0006906-05	03_A_SSV_SSV02_202303 Dup	03/30/2023	EPA 8260C	Soil Gas
Sampler Type:	Beacon Passive Sampler			

Project Completeness

Samples Received: 5
Samples Analyzed: 5

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Case Narrative

U.S. EPA Method 8260C

All samples were analyzed using thermal desorption-gas chromatography/mass spectrometry (TD-GC/MS) instrumentation following U.S. EPA Method 8260C, with laboratory results provided in nanograms (ng) and micrograms per cubic meter ($\mu g/m^3$). Laboratory QA/QC procedures included internal standards, surrogates, and blanks based on EPA Method 8260C. Analyses and reporting were under BEACON's Quality Assurance Project Plan.

Passive Soil-Gas Survey Notes

If sample locations are covered with or near the edge of an impervious surface (*e.g.*, asphalt or concrete), the concentrations of compounds in soil gas are higher than if the surfacing was not present. Therefore, the sample location conditions should be considered when comparing results between locations.

Survey findings are exclusive to this project and when the spatial relationships are compared with results of other BEACON Surveys it is necessary to incorporate information from both investigations (*e.g.*, depth to sources, soil types, porosity, soil moisture, presence of impervious surfacing, sample collection times).

Reporting Limits

The RLs represent a baseline above which results meet laboratory-determined limits of precision and accuracy. All reported results are within the calibration range. The project method quantitation limit (MQL) is the limit of quantitation (LOQ) as noted in the data tables. Beacon determined uptake rates for a suite of compounds with the Beacon sampler for sampling in air. Beacon calculated the uptake rates for the remaining compounds using Graham's Law of Diffusion. The reported data includes LOQ limits.

Project Details

Samples were received in proper condition and laboratory control parameters were met unless otherwise noted below. The work performed was in accordance with ISO/IEC 17025:2017.

End of Case Narrative

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Analytical Results

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Summary of Compound Detections- Mass

Lab Sample ID: 0006906-03 — **03_A_SSV_SSV02_202303** — Soil Gas — Method: EPA 8260C

Analyte	CAS#	Result (ng)	Q	RT	LOQ (ng)	File ID
Tetrachloroethene	127-18-4	**233**		5.942	10	C23033009.D

Lab Sample ID: 0006906-04 — **03_A_SSV_SSV03_202303** — Soil Gas — Method: EPA 8260C

Analyte	CAS#	Result (ng)	Q	RT	LOQ (ng)	File ID
Tetrachloroethene	127-18-4	**403**		5.943	10	C23033011.D

Lab Sample ID: 0006906-05 — **03_A_SSV_SSV02_202303 Dup** — Soil Gas — Method: EPA 8260C

Analyte	CAS#	Result (ng)	Q	RT	LOQ (ng)	File ID
Tetrachloroethene	127-18-4	**228**		5.943	10	C23033010.D

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Summary of Compound Detections- Concentration

Lab Sample ID: 0006906-03 — **03_A_SSV_SSV02_202303** — Soil Gas — Method: EPA 8260C

Analyte	CAS#	Result (µg/m³)	Q	RT	LOQ (µg/m³)	File ID
Tetrachloroethene	127-18-4	**56.4**		5.942	2.43	C23033009.D

Lab Sample ID: 0006906-04 — **03_A_SSV_SSV03_202303** — Soil Gas — Method: EPA 8260C

Analyte	CAS#	Result (µg/m³)	Q	RT	LOQ (µg/m³)	File ID
Tetrachloroethene	127-18-4	**97.8**		5.943	2.43	C23033011.D

Lab Sample ID: 0006906-05 — **03_A_SSV_SSV02_202303 Dup** — Soil Gas — Method: EPA 8260C

Analyte	CAS#	Result (µg/m³)	Q	RT	LOQ (µg/m³)	File ID
Tetrachloroethene	127-18-4	**55.3**		5.943	2.43	C23033010.D

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Data Summary Table- Mass

Compound	Frequency	LOQ (ng)	Max Value (ng)
Tetrachloroethene	2	10	403

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Data Summary Table- Concentration

Compound	Frequency	LOQ (µg/m³)	Max Value (µg/m³)
Tetrachloroethene	2	2.43	97.8

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
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Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Detailed Analytical Results

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Detailed Analytical Results- Mass

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CERTIFICATE OF ANALYSIS

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1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Lab Sample ID: 0006906-01

Trip Blank

Air

Method: EPA 8260C

Analyte	CAS#	Result (ng)	Q	LOQ (ng)	Analyzed	File ID
Vinyl Chloride	75-01-4	<10		10	03/30/2023 17:03	C23033007.D
trans-1,2-Dichloroethene	156-60-5	<10		10	03/30/2023 17:03	C23033007.D
cis-1,2-Dichloroethene	156-59-2	<10		10	03/30/2023 17:03	C23033007.D
Trichloroethene	79-01-6	<10		10	03/30/2023 17:03	C23033007.D
Tetrachloroethene	127-18-4	<10		10	03/30/2023 17:03	C23033007.D

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Lab Sample ID: 0006906-02

03_B_SSV_SSV01_202303

Soil Gas

Method: EPA 8260C

Analyte	CAS#	Result (ng)	Q	LOQ (ng)	Analyzed	File ID
Vinyl Chloride	75-01-4	<10		10	03/30/2023 17:31	C23033008.D
trans-1,2-Dichloroethene	156-60-5	<10		10	03/30/2023 17:31	C23033008.D
cis-1,2-Dichloroethene	156-59-2	<10		10	03/30/2023 17:31	C23033008.D
Trichloroethene	79-01-6	<10		10	03/30/2023 17:31	C23033008.D
Tetrachloroethene	127-18-4	<10		10	03/30/2023 17:31	C23033008.D

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CERTIFICATE OF ANALYSIS

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1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Lab Sample ID: 0006906-03

03_A_SSV_SSV02_202303

Soil Gas

Method: EPA 8260C

Analyte	CAS#	Result (ng)	Q	LOQ (ng)	Analyzed	File ID
Vinyl Chloride	75-01-4	<10		10	03/30/2023 18:01	C23033009.D
trans-1,2-Dichloroethene	156-60-5	<10		10	03/30/2023 18:01	C23033009.D
cis-1,2-Dichloroethene	156-59-2	<10		10	03/30/2023 18:01	C23033009.D
Trichloroethene	79-01-6	<10		10	03/30/2023 18:01	C23033009.D
Tetrachloroethene	127-18-4	**233**		10	03/30/2023 18:01	C23033009.D

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Lab Sample ID: 0006906-04

03_A_SSV_SSV03_202303

Soil Gas

Method: EPA 8260C

Analyte	CAS#	Result (ng)	Q	LOQ (ng)	Analyzed	File ID
Vinyl Chloride	75-01-4	<10		10	03/30/2023 19:02	C23033011.D
trans-1,2-Dichloroethene	156-60-5	<10		10	03/30/2023 19:02	C23033011.D
cis-1,2-Dichloroethene	156-59-2	<10		10	03/30/2023 19:02	C23033011.D
Trichloroethene	79-01-6	<10		10	03/30/2023 19:02	C23033011.D
Tetrachloroethene	127-18-4	**403**		10	03/30/2023 19:02	C23033011.D

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1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Lab Sample ID: 0006906-05

03_A_SSV_SSV02_202303 Dup

Soil Gas

Method: EPA 8260C

Analyte	CAS#	Result (ng)	Q	LOQ (ng)	Analyzed	File ID
Vinyl Chloride	75-01-4	<10		10	03/30/2023 18:31	C23033010.D
trans-1,2-Dichloroethene	156-60-5	<10		10	03/30/2023 18:31	C23033010.D
cis-1,2-Dichloroethene	156-59-2	<10		10	03/30/2023 18:31	C23033010.D
Trichloroethene	79-01-6	<10		10	03/30/2023 18:31	C23033010.D
Tetrachloroethene	127-18-4	**228**		10	03/30/2023 18:31	C23033010.D

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1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Detailed Analytical Results- Concentration

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Lab Sample ID: 0006906-01

Trip Blank

Air

Method: EPA 8260C

Analyte	CAS#	Result (µg/m³)	Q	LOQ (µg/m³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<1.21		1.21	03/30/2023 17:03	C23033007.D
trans-1,2-Dichloroethene	156-60-5	<2.23		2.23	03/30/2023 17:03	C23033007.D
cis-1,2-Dichloroethene	156-59-2	<1.85		1.85	03/30/2023 17:03	C23033007.D
Trichloroethene	79-01-6	<2.97		2.97	03/30/2023 17:03	C23033007.D
Tetrachloroethene	127-18-4	<2.39		2.39	03/30/2023 17:03	C23033007.D

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Lab Sample ID: 0006906-02

03_B_SSV_SSV01_202303

Soil Gas

Method: EPA 8260C

Analyte	CAS#	Result (µg/m³)	Q	LOQ (µg/m³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<1.21		1.21	03/30/2023 17:31	C23033008.D
trans-1,2-Dichloroethene	156-60-5	<2.23		2.23	03/30/2023 17:31	C23033008.D
cis-1,2-Dichloroethene	156-59-2	<1.85		1.85	03/30/2023 17:31	C23033008.D
Trichloroethene	79-01-6	<2.97		2.97	03/30/2023 17:31	C23033008.D
Tetrachloroethene	127-18-4	<2.39		2.39	03/30/2023 17:31	C23033008.D

BEACON ENVIRONMENTAL

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Lab Sample ID: 0006906-03

03_A_SSV_SSV02_202303

Soil Gas

Method: EPA 8260C

Analyte	CAS#	Result (µg/m³)	Q	LOQ (µg/m³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<1.23		1.23	03/30/2023 18:01	C23033009.D
trans-1,2-Dichloroethene	156-60-5	<2.26		2.26	03/30/2023 18:01	C23033009.D
cis-1,2-Dichloroethene	156-59-2	<1.88		1.88	03/30/2023 18:01	C23033009.D
Trichloroethene	79-01-6	<3.02		3.02	03/30/2023 18:01	C23033009.D
Tetrachloroethene	127-18-4	**56.4**		2.43	03/30/2023 18:01	C23033009.D

BEACON ENVIRONMENTAL

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Lab Sample ID: 0006906-04

03_A_SSV_SSV03_202303

Soil Gas

Method: EPA 8260C

Analyte	CAS#	Result (µg/m³)	Q	LOQ (µg/m³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<1.23		1.23	03/30/2023 19:02	C23033011.D
trans-1,2-Dichloroethene	156-60-5	<2.26		2.26	03/30/2023 19:02	C23033011.D
cis-1,2-Dichloroethene	156-59-2	<1.88		1.88	03/30/2023 19:02	C23033011.D
Trichloroethene	79-01-6	<3.01		3.01	03/30/2023 19:02	C23033011.D
Tetrachloroethene	127-18-4	**97.8**		2.43	03/30/2023 19:02	C23033011.D

BEACON ENVIRONMENTAL

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1.410.838.8780

CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Lab Sample ID: 0006906-05

03_A_SSV_SSV02_202303 Dup

Soil Gas

Method: EPA 8260C

Analyte	CAS#	Result (µg/m³)	Q	LOQ (µg/m³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<1.23		1.23	03/30/2023 18:31	C23033010.D
trans-1,2-Dichloroethene	156-60-5	<2.26		2.26	03/30/2023 18:31	C23033010.D
cis-1,2-Dichloroethene	156-59-2	<1.88		1.88	03/30/2023 18:31	C23033010.D
Trichloroethene	79-01-6	<3.02		3.02	03/30/2023 18:31	C23033010.D
Tetrachloroethene	127-18-4	**55.3**		2.43	03/30/2023 18:31	C23033010.D

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

QC Information/Summary

BEACON ENVIRONMENTAL

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Soil-Gas Sample Analysis by EPA Method 8260C - Quality Control Summary

23C0062-BLK1 (Lab Blank) File ID: C23033003.D Analyzed: 3/30/23 11:48

Sampler: Beacon Passive Sampler

Analyte	CAS#	Result (ng)	LOQ (ng)	Q
Vinyl Chloride	75-01-4	<10	10	U
trans-1,2-Dichloroethene	156-60-5	<10	10	U
cis-1,2-Dichloroethene	156-59-2	<10	10	U
Trichloroethene	79-01-6	<10	10	U
Tetrachloroethene	127-18-4	<10	10	U

BEACON ENVIRONMENTAL

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Soil-Gas Analysis by EPA 8260 - Data in Concentration - Quality Control Summary

23C0062-BLK1 (Lab Blank) File ID: C23033003.D Analyzed: 3/30/23 11:48

Sampler: Beacon Passive Sampler

Analyte	CAS#	Result (µg/m³)	LOQ (µg/m³)	Q
Vinyl Chloride	75-01-4	<1.21	1.21	U
trans-1,2-Dichloroethene	156-60-5	<2.23	2.23	U
cis-1,2-Dichloroethene	156-59-2	<1.85	1.85	U
Trichloroethene	79-01-6	<2.97	2.97	U
Tetrachloroethene	127-18-4	<2.39	2.39	U

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Sample Duplicate RPD Summary

Soil-Gas Sample Analysis by EPA Method 8260C

Duplicate Sample: 03_A_SSV_SSV02_202303 Dup (0006906-05) ***Sample: 03_A_SSV_SSV02_202303 (0006906-03)*** ***Average RPD:*** 0.4***%***

Analyte	CAS#	Duplicate Result (ng)	LOQ (ng)	Sample Result (ng)	LOQ (ng)	RPD (%)
Vinyl Chloride	75-01-4	<10	10	<10	10	0.0
trans-1,2-Dichloroethene	156-60-5	<10	10	<10	10	0.0
cis-1,2-Dichloroethene	156-59-2	<10	10	<10	10	0.0
Trichloroethene	79-01-6	<10	10	<10	10	0.0
Tetrachloroethene	127-18-4	228	10	233	10	2.2

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Sample Duplicate RPD Summary - Concentration

Soil-Gas Analysis by EPA 8260 - Data in Concentration

Duplicate Sample: 03_A_SSV_SSV02_202303 Dup (0006906-05) ***Sample: 03_A_SSV_SSV02_202303 (0006906-03)*** ***Average RPD:*** 0.4***%***

Analyte	CAS#	Duplicate Result (µg/m³)	LOQ (µg/m³)	Sample Result (µg/m³)	LOQ (µg/m³)	RPD (%)
Vinyl Chloride	75-01-4	<1.23	1.23	<1.23	1.23	0.0
trans-1,2-Dichloroethene	156-60-5	<2.26	2.26	<2.26	2.26	0.0
cis-1,2-Dichloroethene	156-59-2	<1.88	1.88	<1.88	1.88	0.0
Trichloroethene	79-01-6	<3.02	3.02	<3.02	3.02	0.0
Tetrachloroethene	127-18-4	55.3	2.43	56.4	2.43	2.0

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Additional QC Information

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Sample Result Calculation Summary (Concentration)

EPA 8260C

Analyte	t Sampling Time minutes	DF Dilution Factor	U Uptake Rate	M Initial Result ng	C Calculated Result µg/m³	File ID
Lab ID: 0006906-01 **Sample Name:** Trip Blank						
Vinyl Chloride	10,190	1.00	0.810	U	U	C23033007.D
trans-1,2-Dichloroethene	10,190	1.00	0.440	U	U	C23033007.D
cis-1,2-Dichloroethene	10,190	1.00	0.530	U	U	C23033007.D
Trichloroethene	10,190	1.00	0.330	U	U	C23033007.D
Tetrachloroethene	10,190	1.00	0.410	U	U	C23033007.D
Lab ID: 0006906-02 **Sample Name:** 03_B_SSV_SSV01_202303						
Vinyl Chloride	10,190	1.00	0.810	U	U	C23033008.D
trans-1,2-Dichloroethene	10,190	1.00	0.440	U	U	C23033008.D
cis-1,2-Dichloroethene	10,190	1.00	0.530	U	U	C23033008.D
Trichloroethene	10,190	1.00	0.330	U	U	C23033008.D
Tetrachloroethene	10,190	1.00	0.410	U	U	C23033008.D
Lab ID: 0006906-03 **Sample Name:** 03_A_SSV_SSV02_202303						
Vinyl Chloride	10,048	1.00	0.810	U	U	C23033009.D
trans-1,2-Dichloroethene	10,048	1.00	0.440	U	U	C23033009.D
cis-1,2-Dichloroethene	10,048	1.00	0.530	U	U	C23033009.D
Trichloroethene	10,048	1.00	0.330	U	U	C23033009.D
Tetrachloroethene	10,048	1.00	0.410	232.54	56.4	C23033009.D
Lab ID: 0006906-04 **Sample Name:** 03_A_SSV_SSV03_202303						
Vinyl Chloride	10,057	1.00	0.810	U	U	C23033011.D
trans-1,2-Dichloroethene	10,057	1.00	0.440	U	U	C23033011.D
cis-1,2-Dichloroethene	10,057	1.00	0.530	U	U	C23033011.D
Trichloroethene	10,057	1.00	0.330	U	U	C23033011.D
Tetrachloroethene	10,057	1.00	0.410	403.09	97.8	C23033011.D
Lab ID: 0006906-05 **Sample Name:** 03_A_SSV_SSV02_202303 Dup						
Vinyl Chloride	10,048	1.00	0.810	U	U	C23033010.D
trans-1,2-Dichloroethene	10,048	1.00	0.440	U	U	C23033010.D
cis-1,2-Dichloroethene	10,048	1.00	0.530	U	U	C23033010.D
Trichloroethene	10,048	1.00	0.330	U	U	C23033010.D
Tetrachloroethene	10,048	1.00	0.410	227.94	55.3	C23033010.D

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Calculations:

$$C = \frac{1000 \times M \times DF}{U \times t}$$

where: C = concentration ($\mu g/m^3$)
M = mass (ng)
DF = dilution factor
t = sampling time (minutes)
U = compound specific uptake rate

Reference: Federal Register/Vol. 79, No. 125/June 30, 2014

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Method Detection and Reporting Limit Calculations (Concentration)

EPA 8260C

Analyte	t Sampling Time minutes	DF Dilution Factor	U Uptake Rate	M Initial LOQ ng	C Calculated LOQ µg/m³
Lab ID: 0006906-01 **Sample Name:** Trip Blank					
Vinyl Chloride	10,190	1.00	0.810	10.0	1.21
trans-1,2-Dichloroethene	10,190	1.00	0.440	10.0	2.23
cis-1,2-Dichloroethene	10,190	1.00	0.530	10.0	1.85
Trichloroethene	10,190	1.00	0.330	10.0	2.97
Tetrachloroethene	10,190	1.00	0.410	10.0	2.39
Lab ID: 0006906-02 **Sample Name:** 03_B_SSV_SSV01_202303					
Vinyl Chloride	10,190	1.00	0.810	10.0	1.21
trans-1,2-Dichloroethene	10,190	1.00	0.440	10.0	2.23
cis-1,2-Dichloroethene	10,190	1.00	0.530	10.0	1.85
Trichloroethene	10,190	1.00	0.330	10.0	2.97
Tetrachloroethene	10,190	1.00	0.410	10.0	2.39
Lab ID: 0006906-03 **Sample Name:** 03_A_SSV_SSV02_202303					
Vinyl Chloride	10,048	1.00	0.810	10.0	1.23
trans-1,2-Dichloroethene	10,048	1.00	0.440	10.0	2.26
cis-1,2-Dichloroethene	10,048	1.00	0.530	10.0	1.88
Trichloroethene	10,048	1.00	0.330	10.0	3.02
Tetrachloroethene	10,048	1.00	0.410	10.0	2.43
Lab ID: 0006906-04 **Sample Name:** 03_A_SSV_SSV03_202303					
Vinyl Chloride	10,057	1.00	0.810	10.0	1.23
trans-1,2-Dichloroethene	10,057	1.00	0.440	10.0	2.26
cis-1,2-Dichloroethene	10,057	1.00	0.530	10.0	1.88
Trichloroethene	10,057	1.00	0.330	10.0	3.01
Tetrachloroethene	10,057	1.00	0.410	10.0	2.43
Lab ID: 0006906-05 **Sample Name:** 03 A SSV SSV02 202303 Dup					
Vinyl Chloride	10,048	1.00	0.810	10.0	1.23
trans-1,2-Dichloroethene	10,048	1.00	0.440	10.0	2.26
cis-1,2-Dichloroethene	10,048	1.00	0.530	10.0	1.88
Trichloroethene	10,048	1.00	0.330	10.0	3.02
Tetrachloroethene	10,048	1.00	0.410	10.0	2.43

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Laboratory Certification List

Certification ID	Certification No.	Description	Expires	Project Required
Alaska CS-LAP	19-002	Alaska Department of Environmental Conservation	12/30/2024	
DoD-ELAP	72690/L22-563	United States Department of Defense Environmental Laboratory Accreditation	11/30/2024	
ISO/IEC 17025:2017	72690/L22-563	General Requirements for the Competence of Testing and Calibration Laboratories	11/30/2024	
NEFAP	72690/L22-564	TNI National Environmental Field Activities Program (NEFAP)	11/30/2024	
NY-NELAC	12097	New York Department of Health	04/01/2024	
Utah-NELAC	MD010912022-12	Utah Department of Health	12/31/2023	

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Qualifiers/Notes and Definitions

General Definitions:

DF	Dilution Factor
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
NA	Not Applicable
Q	Qualifier
RPD	Relative Percent Difference
RT	Retention Times in Minutes
RRT	Evaluation of Relative Retention Times in RRT Units (qualified if outside $\pm$0.06 control limits)
3σ	Uncertainty
∉	Compound not on scope of accreditation
+	values are outside method/contract required QC limits
∅	Compound not on scope of accreditation and analyzed with a one-point calibration

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R02
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006906
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Sample Management Records

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Forest Hill, MD 21050, USA
Need help? Call 1-410-838-8780
or email help@beacon-usa.com

PASSIVE SOIL GAS SAMPLES — CHAIN-OF-CUSTODY

Project Information		Client Information	
Site Name: Former Quality Cleaners		Company Name: The Sigma Group, Inc.	Project Manager: Stephen Meer
		Office Location: 1300 W. Canal St., Milwaukee, WI	Client PO: 21703
Site Location: 1229 & 1233 12th Avenue Grafton, WI		Submitted by: Stephen Meer	Turn around time (check one): ☒ Normal ☐ Rush (specify) ____ days
		Email: smeer@thesigmagroup.com	

Field Sample ID	Start Date	Start Time	Stop Date	Stop Time	Sampling Hole Depth ☐ cm ☒ inches	Surface Type (Soil, Asphalt, Concrete, Gravel)	Optional Information (Location Description, Sample Condition, PID / FID Readings, etc)
03_B_SSV_SSV01_202303	03/22/23	10:30 AM	3/29/23	12:20 PM	10	concrete	
03_A_SSV_SSV02_202303	03/22/23	11:47 AM	3/29/23	11:15 AM	10	concrete	
03_A_SSV_SSV03_202303	03/22/23	11:53 AM	3/29/23	11:30 AM	14	Concrete	
03_A_SSV_SSV02_202303-Dup	03/22/23	11:47 AM	3/29/23	11:15 AM	10	concrete	
Trip blank	—	—	—	—			

Special Instructions:

Relinquished by (signature):	Date / Time: 3/29/23 12:00 PM	Received by (signature): Nicole Reife	Date / Time: 3/30/23 10:08
Relinquished by (signature):	Date / Time:	Received by (signature):	Date / Time:
For Lab Use Only	Beacon Job No: 6906	Beacon Proposal: 230202R02	Analytical Method:
Courier Name: FedEx	Shipment Condition: Good	Custody Seal Intact: ☒ Yes ☐ No ☐ n/a	Custody Seal No: 4769984

Appendix G

Indoor Air Laboratory Analytical Report

Beacon Environmental
2203A Commerce Road, Suite 1
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CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 230202R03

Laboratory Work Order: 0006905

Project Description:
Former Quality Cleaners
Grafton, WI

Client PO No.: 21703

Prepared for:
Steve Meer
The Sigma Group
1300 West Canal Street
Milwaukee, WI 53233

Ryan W. Schneider
Senior Project Manager

April 13, 2023

All data meet requirements as specified in the Beacon Environmental Quality Assurance Project Plan and the results relate only to the samples reported. The work performed was in accordance with ISO/IEC 17025:2017. This report shall not be reproduced, except in full, without written approval of the laboratory. Release of the data contained in this data package has been authorized by the Laboratory Director or his signee, as verified by the following signatures:

Steven C. Thornley
Laboratory Director

Peter B. Kelly
Quality Manager

Table of Contents

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0006905-01	03_AA_AA01_202303	03/30/2023	TO-17 (Passive)	Ambient Air
Sampler Type:	Sorbent Tube			
0006905-02	03_B_SUMP_SUMP01_202303	03/30/2023	TO-17 (Passive)	Indoor Air
Sampler Type:	Sorbent Tube			
0006905-03	03_B_IA_IA01_202303	03/30/2023	TO-17 (Passive)	Indoor Air
Sampler Type:	Sorbent Tube			
0006905-04	03_A_IA_IA01_202303	03/30/2023	TO-17 (Passive)	Indoor Air
Sampler Type:	Sorbent Tube			
0006905-05	Trip Blank	03/30/2023	TO-17 (Passive)	Air
Sampler Type:	Sorbent Tube			

Project Completeness

Samples Received: 5
Samples Analyzed: 5

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Case Narrative

Beacon Environmental provided thermally conditioned ChloroSorbers for sampling, with analyses following U.S. EPA Method TO-17, with analytical results reported in µg/m3. Beacon calculated concentration results using the exposure period, target analyte mass, and the following procedures detailed in ISO 16017-2, *Indoor, ambient and workplace air-Sampling and analysis of volatile organic compounds by sorbent tube/thermal desorption/capillary gas chromatography-Part 2: Diffusive sampling.*

Beacon reports results and reporting limits to three significant digits.

Reporting Limits (RLs) for EPA Method TO-17
The RLs represent a baseline above which results meet laboratory-determined limits of precision and accuracy. Beacon performed dilution analysis when results exceeded the upper calibration limit, bringing all reported results within the calibration range. The project method quantitation limit (MQL) is the limit of detection (LOD) as noted in the data tables.

Calibration Verification
All continuing calibration verification (CCV) values are within ±30% of the true values as defined by the initial calibration and met the requirements specified in BEACON's Quality Manual.

Internal Standards and Surrogates
Internal standards and surrogates are spiked on all blanks (ICB, BLK), field samples and laboratory control samples (ICV/CALV, BS, ICV and CCV). Acceptance criteria for internal standards are 60 to 140 percent and surrogate recoveries are 70 to 130 percent; all internal standards and surrogates are within the acceptance criteria unless noted in the **Case Narrative**.

Blank Contamination
No targeted compounds above the limit of detection (LOD) for each compound were observed in the Laboratory Method Blanks unless noted in the **Case Narrative**.

Laboratory Control Samples
Acceptance criteria for surrogate and analytes recoveries are 70 to 130 percent; all recoveries are within the acceptance criteria unless noted in the **Case Narrative**.

Discussion
Samples were received in proper condition and laboratory control parameters were met unless otherwise noted below. The work performed was in accordance with ISO/IEC 17025:2017.

End of Case Narrative

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Analytical Results

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Detailed Analytical Results

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Lab Sample ID: 0006905-01

03_AA_AA01_202303

Ambient Air

Method: TO-17 (Passive)

Analyte	CAS#	Result (µg/m³)	Q	LOD (µg/m³)	LOQ (µg/m³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.451	U	0.451	0.903	03/31/2023 14:44	Kb23033106.D
trans-1,2-Dichloroethene	156-60-5	<0.361	U	0.361	0.722	03/31/2023 14:44	Kb23033106.D
cis-1,2-Dichloroethene	156-59-2	<0.361	U	0.361	0.722	03/31/2023 14:44	Kb23033106.D
Trichloroethene	79-01-6	<0.389	U	0.389	0.778	03/31/2023 14:44	Kb23033106.D
Tetrachloroethene	127-18-4	<0.460	U	0.460	0.919	03/31/2023 14:44	Kb23033106.D

Analyte	*CAS#*	*% Recovery*	*Recovery Limits*	*Q*	*Analyzed*	*File ID*
Surrogate: 1,2-DCA-d4	17060-07-0	*73.4%*	*70-130*		*03/31/2023 14:44*	*Kb23033106.D*
Surrogate: Toluene-d8	2037-26-5	*70.2%*	*70-130*		*03/31/2023 14:44*	*Kb23033106.D*

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Lab Sample ID: 0006905-02

03_B_SUMP_SUMP01_202303

Indoor Air

Method: TO-17 (Passive)

Analyte	CAS#	Result (µg/m³)	Q	LOD (µg/m³)	LOQ (µg/m³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.450	U	0.450	0.899	03/31/2023 15:15	Kb23033107.D
trans-1,2-Dichloroethene	156-60-5	<0.360	U	0.360	0.719	03/31/2023 15:15	Kb23033107.D
cis-1,2-Dichloroethene	156-59-2	<0.360	U	0.360	0.719	03/31/2023 15:15	Kb23033107.D
Trichloroethene	79-01-6	<0.387	U	0.387	0.775	03/31/2023 15:15	Kb23033107.D
Tetrachloroethene	127-18-4	<0.458	U	0.458	0.916	03/31/2023 15:15	Kb23033107.D

Analyte	*CAS#*	*% Recovery*	*Recovery Limits*	*Q*	*Analyzed*	*File ID*
Surrogate: 1,2-DCA-d4	17060-07-0	*79.3%*	*70-130*		*03/31/2023 15:15*	*Kb23033107.D*
Surrogate: Toluene-d8	2037-26-5	*76.0%*	*70-130*		*03/31/2023 15:15*	*Kb23033107.D*

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Lab Sample ID: 0006905-03

03_B_IA_IA01_202303

Indoor Air

Method: TO-17 (Passive)

Analyte	CAS#	Result (µg/m³)	Q	LOD (µg/m³)	LOQ (µg/m³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.450	U	0.450	0.900	03/31/2023 15:45	Kb23033108.D
trans-1,2-Dichloroethene	156-60-5	<0.360	U	0.360	0.720	03/31/2023 15:45	Kb23033108.D
cis-1,2-Dichloroethene	156-59-2	<0.360	U	0.360	0.720	03/31/2023 15:45	Kb23033108.D
Trichloroethene	79-01-6	<0.388	U	0.388	0.776	03/31/2023 15:45	Kb23033108.D
Tetrachloroethene	127-18-4	<0.458	U	0.458	0.917	03/31/2023 15:45	Kb23033108.D

Analyte	*CAS#*	*% Recovery*	*Recovery Limits*	*Q*	*Analyzed*	*File ID*
Surrogate: 1,2-DCA-d4	17060-07-0	*103%*	*70-130*		*03/31/2023 15:45*	*Kb23033108.D*
Surrogate: Toluene-d8	2037-26-5	*90.3%*	*70-130*		*03/31/2023 15:45*	*Kb23033108.D*

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Lab Sample ID: 0006905-04

03_A_IA_IA01_202303

Indoor Air

Method: TO-17 (Passive)

Analyte	CAS#	Result (µg/m³)	Q	LOD (µg/m³)	LOQ (µg/m³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.451	U	0.451	0.903	03/31/2023 16:16	Kb23033109.D
trans-1,2-Dichloroethene	156-60-5	<0.361	U	0.361	0.722	03/31/2023 16:16	Kb23033109.D
cis-1,2-Dichloroethene	156-59-2	<0.361	U	0.361	0.722	03/31/2023 16:16	Kb23033109.D
Trichloroethene	79-01-6	<0.389	U	0.389	0.778	03/31/2023 16:16	Kb23033109.D
Tetrachloroethene	127-18-4	<0.459	U	0.459	0.919	03/31/2023 16:16	Kb23033109.D

Analyte	*CAS#*	*% Recovery*	*Recovery Limits*	*Q*	*Analyzed*	*File ID*
Surrogate: 1,2-DCA-d4	17060-07-0	*99.6%*	*70-130*		*03/31/2023 16:16*	*Kb23033109.D*
Surrogate: Toluene-d8	2037-26-5	*88.4%*	*70-130*		*03/31/2023 16:16*	*Kb23033109.D*

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Lab Sample ID: 0006905-05

Trip Blank

Air

Method: TO-17 (Passive)

Analyte	CAS#	Result (µg/m³)	Q	LOD (µg/m³)	LOQ (µg/m³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.442	U	0.442	0.884	03/31/2023 14:14	Kb23033105.D
trans-1,2-Dichloroethene	156-60-5	<0.353	U	0.353	0.707	03/31/2023 14:14	Kb23033105.D
cis-1,2-Dichloroethene	156-59-2	<0.353	U	0.353	0.707	03/31/2023 14:14	Kb23033105.D
Trichloroethene	79-01-6	<0.381	U	0.381	0.761	03/31/2023 14:14	Kb23033105.D
Tetrachloroethene	127-18-4	<0.450	U	0.450	0.900	03/31/2023 14:14	Kb23033105.D

Analyte	*CAS#*	*% Recovery*	*Recovery Limits*	*Q*	*Analyzed*	*File ID*
Surrogate: 1,2-DCA-d4	17060-07-0	*84.4%*	*70-130*		*03/31/2023 14:14*	*Kb23033105.D*
Surrogate: Toluene-d8	2037-26-5	*91.0%*	*70-130*		*03/31/2023 14:14*	*Kb23033105.D*

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

QC Information/Summary

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Organics in Air by EPA TO-17 Using ChloroSorber Packed Tube - Quality Control Summary

Sequence: B23B028 - Instrument: K System - File ID: Kb23021316.D

B23B028-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	52.4	5	2.5	ng	50.0		105	70-130			
trans-1,2-Dichloroethene	50.7	5	2.5	ng	50.0		101	70-130			
cis-1,2-Dichloroethene	49.4	5	2.5	ng	50.0		98.7	70-130			
Trichloroethene	48.5	5	2.5	ng	50.0		96.9	70-130			
Tetrachloroethene	55.0	5	2.5	ng	50.0		110	70-130			
Surrogate: 1,2-DCA-d4	*53.9*			*ng*	50.0		*108*	*70-130*			
Surrogate: Toluene-d8	*50.2*			*ng*	50.0		*100*	*70-130*			

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Organics in Air by EPA TO-17 Using ChloroSorber Packed Tube - Quality Control Summary

Sequence: B23B028 - Instrument: K System - File ID: Kb23021318.D

B23B028-ICB1 (Lab Blank/Initial Calibration Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<2.5	5	2.5	ng							U
trans-1,2-Dichloroethene	<2.5	5	2.5	ng							U
cis-1,2-Dichloroethene	<2.5	5	2.5	ng							U
Trichloroethene	<2.5	5	2.5	ng							U
Tetrachloroethene	<2.5	5	2.5	ng							U
Surrogate: 1,2-DCA-d4	*89.2*			*ng*	100		*89.2*	*70-130*			
Surrogate: Toluene-d8	*98.3*			*ng*	100		*98.3*	*70-130*			

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Organics in Air by EPA TO-17 Using ChloroSorber Packed Tube - Quality Control Summary

Sequence: B23C077 - Batch: 23C0066 - Instrument: K System - File ID: Kb23033102.D

23C0066-BS1 (LCS, Calibration Source Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	45.2	5	2.5	ng	50.0		90.4	70-130			
trans-1,2-Dichloroethene	48.1	5	2.5	ng	50.0		96.2	70-130			
cis-1,2-Dichloroethene	48.5	5	2.5	ng	50.0		97.0	70-130			
Trichloroethene	49.3	5	2.5	ng	50.0		98.6	70-130			
Tetrachloroethene	54.4	5	2.5	ng	50.0		109	70-130			
Surrogate: 1,2-DCA-d4	*50.1*			*ng*	50.0		*100*	*70-130*			
Surrogate: Toluene-d8	*46.8*			*ng*	50.0		*93.6*	*70-130*			

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Organics in Air by EPA TO-17 Using ChloroSorber Packed Tube - Quality Control Summary

Sequence: B23C077 - Batch: 23C0066 - Instrument: K System - File ID: Kb23033103.D

23C0066-BLK1 (Lab Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<0.221	0.884	0.442	µg/m³							U
trans-1,2-Dichloroethene	<0.177	0.707	0.353	µg/m³							U
cis-1,2-Dichloroethene	<0.177	0.707	0.353	µg/m³							U
Trichloroethene	<0.191	0.761	0.381	µg/m³							U
Tetrachloroethene	<0.225	0.900	0.450	µg/m³							U
Surrogate: 1,2-DCA-d4	*86.6*			*ng*	100		*86.6*	*70-130*			
Surrogate: Toluene-d8	*85.5*			*ng*	100		*85.5*	*70-130*			

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Organics in Air by EPA TO-17 Using ChloroSorber Packed Tube - Quality Control Summary

Sequence: B23C077 - Instrument: K System - File ID: Kb23033104.D

B23C077-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	45.6	5	2.5	ng	50.0		91.2	70-130			
trans-1,2-Dichloroethene	48.3	5	2.5	ng	50.0		96.7	70-130			
cis-1,2-Dichloroethene	48.9	5	2.5	ng	50.0		97.9	70-130			
Trichloroethene	51.0	5	2.5	ng	50.0		102	70-130			
Tetrachloroethene	54.5	5	2.5	ng	50.0		109	70-130			
Surrogate: 1,2-DCA-d4	*48.1*			*ng*	50.0		*96.2*	*70-130*			
Surrogate: Toluene-d8	*46.2*			*ng*	50.0		*92.3*	*70-130*			

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Organics in Air by EPA TO-17 Using ChloroSorber Packed Tube - Quality Control Summary

Sequence: B23C077 - Instrument: K System - File ID: Kb23033110.D

B23C077-CCV1 (LCS, Closing Calibration Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	42.0	5	2.5	ng	50.0		83.9	70-130			
trans-1,2-Dichloroethene	46.6	5	2.5	ng	50.0		93.3	70-130			
cis-1,2-Dichloroethene	47.4	5	2.5	ng	50.0		94.8	70-130			
Trichloroethene	49.2	5	2.5	ng	50.0		98.4	70-130			
Tetrachloroethene	53.5	5	2.5	ng	50.0		107	70-130			
Surrogate: 1,2-DCA-d4	*49.3*			*ng*	50.0		*98.5*	*70-130*			
Surrogate: Toluene-d8	*46.6*			*ng*	50.0		*93.2*	*70-130*			

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CERTIFICATE OF ANALYSIS

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Organics in Air by EPA TO-17 Using ChloroSorber Packed Tube - Quality Control Summary

Sequence: B23C077 - Instrument: K System - File ID: Kb23033111.D

B23C077-CCB1 (Lab Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<2.5	5	2.5	ng							U
trans-1,2-Dichloroethene	<2.5	5	2.5	ng							U
cis-1,2-Dichloroethene	<2.5	5	2.5	ng							U
Trichloroethene	<2.5	5	2.5	ng							U
Tetrachloroethene	<2.5	5	2.5	ng							U
Surrogate: 1,2-DCA-d4	*90.5*			*ng*	100		*90.5*	*70-130*			
Surrogate: Toluene-d8	*85.1*			*ng*	100		*85.1*	*70-130*			

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

TO-17 (Passive) - LCS/LCSD RPD Quality Control Summary

LCS: 23C0066-BS1 ***File ID: Kb23033102.D*** Analyzed: 3/31/23 13:30

LCSD: B23C077-ICV1 ***File ID: Kb23033104.D*** Analyzed: 3/31/23 12:40

Analyte	CAS#	LCS Result (ng)	%REC	Q	Spike Level (ng)	LCSD Result (ng)	%REC	%REC Limits	RPD	RPD Limit	Q
Vinyl Chloride	75-01-4	45.19	90.38		50	45.59	91.20	70-130	0.88	30	
trans-1,2-Dichloroethene	156-60-5	48.10	96.2		50	48.33	96.70	70-130	0.48	30	
cis-1,2-Dichloroethene	156-59-2	48.51	97.02		50	48.93	97.90	70-130	0.86	30	
Trichloroethene	79-01-6	49.29	98.58		50	51.04	102.00	70-130	3.49	30	
Tetrachloroethene	127-18-4	54.36	108.72		50	54.47	109.00	70-130	0.20	30	

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Additional QC Information

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Sample Result Calculation Summary (Concentration)

TO-17 (Passive)

Analyte	t Sampling Time minutes	DF Dilution Factor	Uc Uptake Rate	M Initial Result ng	C Calculated Result µg/m³	File ID
Lab ID: 0006905-01 **Sample Name:** 03_AA_AA01_202303					**x̄ Temp (°C):** 4.44	
Vinyl Chloride	10,105	1.00	0.548	U	U	Kb23033106.D
trans-1,2-Dichloroethene	10,105	1.00	0.685	U	U	Kb23033106.D
cis-1,2-Dichloroethene	10,105	1.00	0.685	U	U	Kb23033106.D
Trichloroethene	10,105	1.00	0.636	U	U	Kb23033106.D
Tetrachloroethene	10,105	1.00	0.538	U	U	Kb23033106.D
Lab ID: 0006905-02 **Sample Name:** 03_B_SUMP_SUMP01_202303					**x̄ Temp (°C):** 15.00	
Vinyl Chloride	9,957	1.00	0.558	U	U	Kb23033107.D
trans-1,2-Dichloroethene	9,957	1.00	0.698	U	U	Kb23033107.D
cis-1,2-Dichloroethene	9,957	1.00	0.698	U	U	Kb23033107.D
Trichloroethene	9,957	1.00	0.648	U	U	Kb23033107.D
Tetrachloroethene	9,957	1.00	0.548	U	U	Kb23033107.D
Lab ID: 0006905-03 **Sample Name:** 03_B_IA_IA01_202303					**x̄ Temp (°C):** 15.00	
Vinyl Chloride	9,944	1.00	0.558	U	U	Kb23033108.D
trans-1,2-Dichloroethene	9,944	1.00	0.698	U	U	Kb23033108.D
cis-1,2-Dichloroethene	9,944	1.00	0.698	U	U	Kb23033108.D
Trichloroethene	9,944	1.00	0.648	U	U	Kb23033108.D
Tetrachloroethene	9,944	1.00	0.548	U	U	Kb23033108.D
Lab ID: 0006905-04 **Sample Name:** 03_A_IA_IA01_202303					**x̄ Temp (°C):** 12.00	
Vinyl Chloride	9,973	1.00	0.555	U	U	Kb23033109.D
trans-1,2-Dichloroethene	9,973	1.00	0.694	U	U	Kb23033109.D
cis-1,2-Dichloroethene	9,973	1.00	0.694	U	U	Kb23033109.D
Trichloroethene	9,973	1.00	0.645	U	U	Kb23033109.D
Tetrachloroethene	9,973	1.00	0.546	U	U	Kb23033109.D
Lab ID: 0006905-05 **Sample Name:** Trip Blank						
Vinyl Chloride	10,105	1.00	0.560	U	U	Kb23033105.D
trans-1,2-Dichloroethene	10,105	1.00	0.700	U	U	Kb23033105.D
cis-1,2-Dichloroethene	10,105	1.00	0.700	U	U	Kb23033105.D
Trichloroethene	10,105	1.00	0.650	U	U	Kb23033105.D
Tetrachloroethene	10,105	1.00	0.550	U	U	Kb23033105.D

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Calculations:

$$C = \frac{1000 \times M \times DF}{Uc \times t}$$

$$Uc = U * \left(\left(\frac{Ts + 273.15}{Tu + 273.15}\right)^{1/2}\right)$$

where:
- C = concentration (µg/m^3)
- M = mass (ng)
- DF = dilution factor
- Uc = uptake rate (ml/min), corrected
- t = sampling time (minutes)
- U = compound specific uptake rate
- Tu = uptake rate study temperature
- Ts = sample average temperature

Note: Tu is 16.65°C

Reference: Federal Register/Vol. 79, No. 125/June 30, 2014

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Method Detection and Reporting Limit Calculations (Concentration)

TO-17 (Passive)

Analyte	t Sampling Time minutes	DF Dilution Factor	Uc Uptake Rate	M Initial (ng) LOQ	M Initial (ng) LOD	C Calculated (µg/m³) LOQ	C Calculated (µg/m³) LOD
Lab ID: 0006905-01	**Sample Name:** 03_AA_AA01_202303					**x̄ Temp (°C):** 4.44	
Vinyl Chloride	10,105	1.00	0.548	5.00	2.50	0.903	0.451
trans-1,2-Dichloroethene	10,105	1.00	0.685	5.00	2.50	0.722	0.361
cis-1,2-Dichloroethene	10,105	1.00	0.685	5.00	2.50	0.722	0.361
Trichloroethene	10,105	1.00	0.636	5.00	2.50	0.778	0.389
Tetrachloroethene	10,105	1.00	0.538	5.00	2.50	0.919	0.460
Lab ID: 0006905-02	**Sample Name:** 03_B_SUMP_SUMP01_202303					**x̄ Temp (°C):** 15.00	
Vinyl Chloride	9,957	1.00	0.558	5.00	2.50	0.899	0.450
trans-1,2-Dichloroethene	9,957	1.00	0.698	5.00	2.50	0.719	0.360
cis-1,2-Dichloroethene	9,957	1.00	0.698	5.00	2.50	0.719	0.360
Trichloroethene	9,957	1.00	0.648	5.00	2.50	0.775	0.387
Tetrachloroethene	9,957	1.00	0.548	5.00	2.50	0.916	0.458
Lab ID: 0006905-03	**Sample Name:** 03_B_IA_IA01_202303					**x̄ Temp (°C):** 15.00	
Vinyl Chloride	9,944	1.00	0.558	5.00	2.50	0.900	0.450
trans-1,2-Dichloroethene	9,944	1.00	0.698	5.00	2.50	0.720	0.360
cis-1,2-Dichloroethene	9,944	1.00	0.698	5.00	2.50	0.720	0.360
Trichloroethene	9,944	1.00	0.648	5.00	2.50	0.776	0.388
Tetrachloroethene	9,944	1.00	0.548	5.00	2.50	0.917	0.458
Lab ID: 0006905-04	**Sample Name:** 03_A_IA_IA01_202303					**x̄ Temp (°C):** 12.00	
Vinyl Chloride	9,973	1.00	0.555	5.00	2.50	0.903	0.451
trans-1,2-Dichloroethene	9,973	1.00	0.694	5.00	2.50	0.722	0.361
cis-1,2-Dichloroethene	9,973	1.00	0.694	5.00	2.50	0.722	0.361
Trichloroethene	9,973	1.00	0.645	5.00	2.50	0.778	0.389
Tetrachloroethene	9,973	1.00	0.546	5.00	2.50	0.919	0.459
Lab ID: 0006905-05	**Sample Name:** Trip Blank						
Vinyl Chloride	10,105	1.00	0.560	5.00	2.50	0.884	0.442
trans-1,2-Dichloroethene	10,105	1.00	0.700	5.00	2.50	0.707	0.353
cis-1,2-Dichloroethene	10,105	1.00	0.700	5.00	2.50	0.707	0.353
Trichloroethene	10,105	1.00	0.650	5.00	2.50	0.761	0.381
Tetrachloroethene	10,105	1.00	0.550	5.00	2.50	0.900	0.450

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1.410.838.8780

The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Laboratory Certification List

Certification ID	Certification No.	Description	Expires	Project Required
Alaska CS-LAP	19-002	Alaska Department of Environmental Conservation	12/30/2024	
DoD-ELAP	72690/L22-563	United States Department of Defense Environmental Laboratory Accreditation	11/30/2024	
ISO/IEC 17025:2017	72690/L22-563	General Requirements for the Competence of Testing and Calibration Laboratories	11/30/2024	
NEFAP	72690/L22-564	TNI National Environmental Field Activities Program (NEFAP)	11/30/2024	
NY-NELAC	12097	New York Department of Health	04/01/2024	
Utah-NELAC	MD010912022-12	Utah Department of Health	12/31/2023	

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Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Qualifiers/Notes and Definitions

General Definitions:

DF	Dilution Factor
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
NA	Not Applicable
Q	Qualifier
RPD	Relative Percent Difference
RT	Retention Times in Minutes
RRT	Evaluation of Relative Retention Times in RRT Units (qualified if outside $\pm$0.06 control limits)
3σ	Uncertainty
∉	Compound not on scope of accreditation
+	values are outside method/contract required QC limits
∅	Compound not on scope of accreditation and analyzed with a one-point calibration

Sample/Sample Receipt Qualifiers and Notes:

U	Analyte was not detected and is reported as less than the limit of detection (LOD). The LOD has been adjusted for any dilution or concentration of the sample.

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The Sigma Group	**Site Name:** Former Quality Cleaners	**Beacon Proposal:** 230202R03
1300 West Canal Street	**Site Location:** Grafton, WI	**Lab Work Order:** 0006905
Milwaukee, WI 53233	**Project Manager:** Steve Meer	**Reported:** 04/13/2023

Sample Management Records

BEACON ENVIRONMENTAL

2203A Commerce Rd, Suite 1
Forest Hill, MD 21050, USA
1-410-838-8780
800-878-5510 Toll Free

PASSIVE AIR SAMPLING – SORBENT TUBE | CHAIN-OF-CUSTODY

Client Information			
Company: The Sigma Group, Inc.	Project Manager: Stephen Meer	Client PO: 21703	
Address: 1300 W. Canal St.	Project Name: Former Quality Cleaners	Turn around time (check one): ☒ Normal ☐ Rush (specify) ____ days	
City / State / Zip: Milwaukee/WI/53233	Location: 1229 & 1233 12th Ave., Grafton, WI	Analysis: ☒ Method TO-17 ☐ Method 325	
Phone: 414-643-4124	Submitted by: Stephen Meer		
	Email: smeer@thesigmagroup.com		

Location ID	Tube ID	Start Date	Start Time	Stop Date	Stop Time	Aver Temp (C)	Target Compounds	INDOOR AIR	AMBIENT AIR	CRAWL SPACE	SEWER GAS
03_AA_AA01_202303	1179269	3/22/2023	12:20 PM	3/29/23	12:45 PM	4.4 | 4	PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride		X		
03_B_SUMP_SUMP01_202303	1141942	3/22/2023	12:33 PM	3/29/23	10:30 AM	15	↓	X			
03_B_IA_IA01_202303	1153987	3/22/2023	12:36 PM	3/29/23	10:20 AM	15		X			
03_A_IA_IA01_202303	1141947	3/22/2023	12:47 PM	3/29/23	11:00 AM	12		X			
Trip Blank	1181172	—	—	—	—						

Special Notes / Instructions:

Relinquished by (signature):	Date / Time: 3/29/23 2:00 PM	Received by (signature): Nicole Tuff	Date / Time: 3/30/23 10:08
Relinquished by (signature):	Date / Time:	Received by (signature):	Date / Time:
For Lab Use Only	Beacon Job No: 6905	Beacon Proposal: 230202R03	
Courier Name: FedEx	Shipment Condition: Good	Custody Seal Intact: ☒ Yes ☐ No ☐ n/a	Custody Seal No: 4769984

Pg ___ of ___