CHEMCENTRAL SITE
WYOMING TOWNSHIP, MICHIGAN
DRAFT VAPOR INTRUSION SAMPLING TRIP REPORT

UROC – REGION 5
CONTRACT NUMBER EP-S5-15-08
TASK ORDER NUMBER 5003

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ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
BKG	background sample
COC	Chain-of-Custody
CRL	Chicago Regional Laboratory
D	duplicate sample
DUP	duplicate sample
EBI	equipment blank
EPA	U.S. Environmental Protection Agency
ES	Environmental sample
FSAP	field sampling and analysis plan
GPS	global positioning system
IA	indoor air
IC	institutional control
ID	identification
IDW	investigation-derived waste
in Hg	Inches of Mercury
MDEQ	Michigan Department of Environmental Quality
PID	photoionization detector
PPE	personal protective equipment
QA	quality assurance
QC	quality control
QMP	quality management plan
SOP	standard operating procedure
SS	sub-slab
SVE	soil vapor extraction
SVP	soil vapor probe
TO	task order
Toeroek	Toeroek Associates, Inc.
VOC	volatile organic compound

EXECUTIVE SUMMARY

This report documents the field activities conducted under Task Order (TO) Number 5003 (Task 3) on U.S. Environmental Protection Agency (EPA) Contract No. EP-S5-15-08. The purpose of the TO was to assist EPA Region 5 in completing a sampling and analysis project at the ChemCentral Site (the Site) in Wyoming Township, Michigan. EPA Region 5 was assisting Michigan Department of Environmental Quality (MDEQ) in the evaluation of contaminated groundwater that has migrated off site is impacting soil vapor and indoor air contaminant concentrations in sampled media. The specific purpose of this sampling project is to conduct environmental sampling of sub-slab soil vapor and indoor air to determine volatile organic compound (VOC) contaminant concentrations in sample locations identified by EPA at off-site residential, commercial and industrial areas adjacent to the ChemCentral Superfund Site (MID980477079) and the associated contaminant plumes (Toeroek 2018).

Toeroek Associates, Inc. (Toeroek) mobilized to the Site on March 18, 2018. Vapor Intrusion investigation consisting of indoor air, sub-slab and ambient air sampling was completed between March 19 and March 23, 2018. Toeroek demobilized on March 23, 2018. The following activities were completed:

- collection of 14 paired indoor air and sub-slab vapor samples located off-site;
- collection of one background ambient air sample; one equipment blank, and
- collection of two quality assurance duplicate samples.

Toeroek shipped the collected samples to the EPA Region 5 Chicago Regional Laboratory (CRL). CRL received the air and vapor samples, including duplicate samples, to be analyzed for VOCs on March 21, 2018. Toeroek received the draft CRL analytical data packages on April 3, 2018 and April 9, 2018. Toeroek completed analytical data completeness verification; however, did not validate the CRL data packages.

Toeroek completed the field activities in accordance with the Final Field Sampling and Analysis Plan (FSAP) dated March 22, 2018, with the exception of those deviations discussed in this report (Toeroek 2018). Deviations were evaluated with EPA input during execution of the event.

1.0 INTRODUCTION

Toeroek received TO Number 5003 on October 4, 2017, under Contract No. EP-S5-15-08, to provide technical assistance to CERCLA program staff in EPA Region 5. The purpose of the TO was to conduct environmental sampling of sub-slab soil vapor and indoor air to determine VOC contaminant concentrations in sample locations identified by EPA at off-site residential, commercial and industrial areas adjacent to the ChemCentral Superfund Site (MID980477079) and adjacent to the facility contaminant plumes. Specifically, EPA Region 5 requested Toeroek provide support to conduct a sampling project that included soil vapor from sub-slab and indoor air sampling at the ChemCentral Superfund Site (the Site) in Wyoming Township, Michigan (Figure 1). Under this TO, as directed by the EPA, Toeroek planned the sampling activities, collected the samples, recorded field activities, coordinated laboratory analyses and reported the analytical data findings.

1.1 PURPOSE OF REPORT AND PROJECT

The intent of this report is to chronicle the vapor intrusion sampling event at the ChemCentral site. The report includes a limited discussion of the Site history and setting, a description of the sampling field activities, and provides the analytical data for EPA and MDEQ use.

For the purpose of this project, Toeroek was tasked with collecting sub-slab soil vapor and indoor air samples from six properties in the vicinity of the ChemCentral Superfund Site and previously identified contaminant plumes (see Figure 2), in order to determine current contaminant concentrations and to determine if a complete VI exposure pathway potentially exists for these properties. EPA identified the following six properties for sample collection (see Figure 2):

1. [redacted]; (building [redacted]
2. 255 Colrain Street SW; (building 255),
3. [redacted]; (building [redacted]
4. 2945 Hillcroft Avenue SW; (building 2945) [office listed as 3000 Hillcroft Ave SW],
5. 2946 Hillcroft Avenue SW; and, (building 2496), and
6. [redacted] SW; (no access granted, building not sampled).

The objective of the investigative activities conducted at the Site was to collect data to evaluate what are the current contaminant concentrations present adjacent to the ChemCentral Superfund Site, and have soil vapor plumes migrated off-site. The analytical results generated from Toeroek field activities will be used to check and verify current VOC concentrations in the sub-slab soil vapor in selected commercial, residential and industrial locations adjacent to previously identified plumes to identify potential occurrence of contamination.

1.2 REPORT ORGANIZATION

The format of this report complies with requirements outlined in Section 1.0 of Toeroek's "Field Sampling and Analysis Plan, Revision 3" prepared for EPA Region 5 under Contract No. EP-S5-15-08 (Toeroek 2018). This trip report includes the following sections:

- Section 1.0, Introduction, presents introductory information regarding the objectives of the sampling and the organization of this report;
- Section 2.0, Site Background, provides Site background information on the project;
- Section 3.0, Sampling Investigation Activities, summarizes the sampling activities;
- Section 4.0, Data Completeness, identify omissions and verify completeness of the resulting data and discusses data validation;
- Section 5.0, Sampling Results, highlights the sampling and analytical results; and
- Section 6.0, References, lists sources used to develop this report.

The following appendices include supporting documentation:

- Appendix A, Figures;
- Appendix B, Photographic Log;
- Appendix C, Field Logbooks;
- Appendix D, Field Forms;
- Appendix E, Chain-of-Custody Forms;
- Appendix F, Analytical Data Summary Table; and
- Appendix G, Sample Location Coordinates.

2.0 SITE BACKGROUND

This section briefly describes the Site location and its regulatory history.

2.1 SITE LOCATION

The ChemCentral Superfund Site is located in a suburb of Grand Rapids, Michigan, in the City of Wyoming (Figure 1). The City of Wyoming is located in west-central Michigan, approximately 25 miles east of Lake Michigan in Kent County. The Site is bordered by US 131, Cole Drain, a Consumers Power substation, and several small industrial facilities (Figure 2). The Site consists of a 2-acre parcel of land owned by Univar USA, Inc., formerly known as the ChemCentral Corporation; a rectangular parcel, 1,800 feet long and 300 feet wide, owned by Consumers Power extending north of the ChemCentral Site; Cole Drain, a northerly flowing creek along the Site's western boundary; and, any property beyond the ChemCentral property boundaries where hazardous substances are located. Currently, hazardous substances have been identified in soil and/or groundwater of nine properties, including the ChemCentral property (EPA 2017).

2.2 SITE HISTORY

ChemCentral site is situated in a mixed residential and commercial section of the City of Wyoming that includes small industrial facilities. Residential areas are located to the south and south east of the Site and the plume areas. The remedy for the Site included the following components: continue operation of the existing groundwater collection and treatment system; install and operate a soil vapor extraction (SVE) system for soils on-property as well as two off-property locations just north of the ChemCentral (Univar USA, Inc.) property; install and operate a purge well at the deep lens of a contaminated groundwater location and hook this well into the current groundwater collection and treatment system; collect oil accumulating in the purge wells and dispose of the oil at an off-site Site in accordance with applicable federal and state regulations; install and operate an expansion of the current off-property groundwater collection system, by either extending the interceptor trench or installing additional purge wells; impose institutional controls (ICs), such as deed restrictions to prohibit the installation of water wells in the site area and any future development that might disturb contaminated soils; and implement a groundwater monitoring program capable of demonstrating the effectiveness of the groundwater capture system and that the groundwater treatment technology is achieving the cleanup standards. The Site achieved construction completion with the signing of the Preliminary Closeout Report on September 19, 1995 (EPA 2017).

The remedy is currently protective of human health and the environment in the short term because it eliminates the principal threat posed by the Site by preventing direct contact with contaminated materials

through the groundwater collection and treatment system, the soil vapor extraction system, and groundwater monitoring program. The IC Plan ensures Long-Term Stewardship because it establishes a process to ensure that ICs are in place, maintained, ChemCentral Superfund Site (SSID 05W5) Wyoming Township, MI Site Description (revised August 8, 2017) page 2 of 5 and effective. ICs in the form of deed restrictions are in place for three of the nine parcels that comprise the Site. However, long-term protectiveness requires compliance with effective ICs. Therefore, environmental covenants should be implemented on the six remaining parcels that comprise the Site. In addition, screening and soil gas sampling under the building should be conducted to determine whether there is a risk that requires implementing mitigative measures (EPA 2017).

3.0 SAMPLING INVESTIGATION ACTIVITIES

This section discusses field activities during the sampling event conducted March 19 through March 23, 2018. Appendix A presents a figure depicting the sampling locations within buildings (Figure 3) and within an approximate plume overlay (Figure 4). Appendix B is a photographic log including representative photographs taken during the sampling event and investigation-derived waste (IDW) disposal. Appendix C presents the field logbook pages for the sampling investigation. Appendix D contains the field forms generated during sampling activities Appendix E contains chain-of-custody (COC) forms and Appendix F contains the laboratory analytical data reports from CRL Region 5 laboratory. Appendix G provides the approximate sample location coordinates. Specific sample collection information is presented in Tables 1-4 and indicates the specific analyses performed for each sample. A total of 30 air samples were collected; 14 sub-slab and indoor air paired samples including two duplicate samples. Of the total, one equipment blank and two duplicates and one background ambient air samples were collected as Quality Assurance (QA) samples were collected. Toeroek received preliminary analytical data packages on for air samples on April 3, and April 9, 2018, respectively.

3.1 ON-SITE PREPARATION FOR SAMPLING ACTIVITIES

Two Toeroek staff members arrived at the Site on Monday morning, March 19, 2018 and conducted a health and safety orientation meeting. Following a health and safety orientation meeting, Toeroek team met with MDEQ and EPA at Building 2946. There, the team met the owner and proceeded to observe building and site conditions. Toeroek, EPA and MDEQ initiated work to identify and install sub-slab vapor pins within building locations as access and coordination activities with owners would allow. Throughout the sampling event, the Toeroek staff coordinated daily activities, building access and field schedules with EPA. Throughout the sampling event Toeroek and EPA continuously remained in contact with building owners and occupants to notify them of sample location selection, vapor probe installation and, sample observation and collection schedules. It should be noted that preliminary building surveys were not possible and limited field activities were used to reduce impacts to building occupants. During the event, Toeroek contacted CRL Region 5 laboratory to coordinate and confirm sample shipments and receipt. A photographic log and field notes generated during the sampling event are included in Appendices B and C, respectively.

3.2 INDOOR AIR AND SUB-SLAB INSTALLATION AND SAMPLING

Sampling began with the collection of air samples from building 2946 and continued to buildings 255, [redacted] 2945, [redacted] No building access was acquired for building [redacted]) so no samples were collected from this location. Sample locations were determined using Figure 2 from the FSAP and

through direction from the EPA and/or MDEQ representatives on-site. EPA and Toeroek personnel used professional judgment to modify sampling locations and numbers based on site conditions and some areas were eliminated due to building condition, access or were deemed not practical.

Prior to sampling at each location, the Toeroek team coordinated with EPA and building owners/occupants, completed a reconnaissance, and used a photoionization detector (PID) to measure the potential concentration of volatile organic compounds, if any. Sample vapor pins/probes were installed, seal/leak tested and sampled per the FSAP and Toeroek standard operating procedure (SOP) No. 026. Field forms recorded sampling information for each sample location and are presented in Appendix D. Upon completion of the soil vapor pin/probe installation the Toeroek team waited a 24-hour equilibrium period to allow sub-slab surface pressure to equalize. Prior to the collection of sub-slab and air samples Toeroek completed a helium leak shroud test, a leak test for each sample train section, and SUMMA canister vacuum test. Toeroek then completed a leak test on all SUMMA canisters, valves and fittings. After ensuring leaks or bad sub-slab connections were eliminated, the Toeroek team completed a final check on the paired indoor air connections and SUMMA canisters prior to opening the valves and initiating sampling with the paired sub-slab soil vapor and indoor air sample equipment. Toeroek returned to the sample site at least twice to check vacuum pressures and to ensure no sample vacuum problems occurred. The number of locations and sample depths varied at the five properties although approximate depths were 4 to 18 inches below ground surface (bgs)[(depending on slab thickness]. Paired indoor air samples were collected at approximately 30-inches above the floor. Indoor air and sub-slab soil vapor were collected for a period of no-more than 24-hours or until the vacuum pressure registered between 3 and 5 inches of mercury (in Hg) Field observations and representative organic vapor detector readings were recorded in the field logbook and field forms and are presented in Appendices C and D.

EPA supplied sampling equipment (regulator, SUMMA canisters and gauges) were used to collect air samples from the interior of buildings in accordance with the sampling procedures outlined in the FSAP. Samples were collected after soil vapor probe and sample train purging activities were completed, in one 0.5-L SUMMA canisters for each sample media or QA sample. After samples were collected the valves were shut (tightened appropriately), capped and doubled checked. The canisters and labels were affixed to the appropriate containers, and COCs were completed onsite. After field QA of labels and COCs, the samples were immediately placed in laboratory approved containers approved for shipment. The first batch of air samples were shipped via FedEx to the CRL Region 5 to be analyzed for VOCs using EPA Method TO-15. The second batch air samples were hand-delivered to the CRL Region 5 for sample check-in (again, to be analyzed. for VOCs using EPA Method TO-15). Table 1 provides a sample location list of sub-slab and indoor air sample IDs, sample end-dates, sample type and analysis method.

TABLE 1
SUB-SLAB AND INDOOR AIR SAMPLE LOCATIONS

Sample Identification (ID) Number	Sample Date (End)	Sample Type	Analyses
Building 2945			
5003-SS02-2945-ES	03/23/18	Sub-slab	EPA Method TO-15
5003-IA2-2945-ES	03/23/18	Indoor air	EPA Method TO-15
5003-SS01-2945-ES	03/23/18	Sub-slab	EPA Method TO-15
5003-IA1-2945-ES	03/23/18	Indoor air	EPA Method TO-15
5003-SS03-2945-ES	03/23/18	Sub-slab	EPA Method TO-15
5003-IA3-2995-ES	03/23/18	Indoor air	EPA Method TO-15
5003-SS04-2945-ES	03/23/18	Sub-slab	EPA Method TO-15
5003-IA4-2945-ES	03/23/18	Indoor air	EPA Method TO-15
Building 255*			
5003-SS03-0255-ES	03/23/18	Sub-slab	EPA Method TO-15
5003-IA3-0255-ES	03/22/18	Indoor air	EPA Method TO-15
5003-SS02-0255-ES	03/22/18	Sub-slab	EPA Method TO-15
5003-IA2-[redacted]ES	03/22/18	Indoor air	EPA Method TO-15
Building [redacted]			
5003-SS01-[redacted]ES	03/22/18	Sub-slab	EPA Method TO-15
5003-DUP2-[redacted]DUP2	03/22/18	Duplicate Sample	EPA Method TO-15
5003-IA1-[redacted]ES	03/22/18	Indoor air	EPA Method TO-15
5003-SS02-[redacted]ES	03/22/18	Sub-slab	EPA Method TO-15
5003-IA2-[redacted]ES	03/22/18	Indoor air	EPA Method TO-15
Building 2946			
5003-SS01-2946-ES	03/20/18	Sub-slab	EPA Method TO-15
5003-IA1-2946-ES	03/20/18	Indoor air	EPA Method TO-15
5003-SS02-2946-ES	03/20/18	Sub-slab	EPA Method TO-15
5003-IA2-2946-ES	03/20/18	Indoor air	EPA Method TO-15
5003-SS03-2946-ES	03/20/18	Sub-slab	EPA Method TO-15
5003-IA3-2946-ES	03/20/18	Indoor air	EPA Method TO-15
5003-EBI-2946-EBI	03/20/18	Equipment Blank	EPA Method TO-15
5003-BKG1-2946-BKG1	03/20/18	Ambient Background Air	EPA Method TO-15
Building [redacted]			
5003-DUP1-[redacted]DUP1	03/22/18	Duplicate Sample	EPA Method TO-15
5003-SS01-[redacted]ES	03/22/18	Sub-slab	EPA Method TO-15
5003-IA1-[redacted]ES	03/22/18	Indoor air	EPA Method TO-15
5003-SS02-[redacted]ES	03/22/18	Sub-slab	EPA Method TO-15
5003-IA2-[redacted]ES	03/22/18	Indoor air	EPA Method TO-15
Building [redacted] **			
N/A			

Notes:

*- –No 5003-SS01-255-ES or 5003-IA1-255-ES samples were collected due to underground sub-slab structures.
**- – No property access agreement were obtained for the [redacted] SW address therefore, no samples were collected.
BKG - Background sample
D –-Duplicate sample
DUP -Duplicate sample
EBI -Equipment blank
ES - Environmental sample
IA -Indoor air
ID - Identification
SS -Sub-slab

A MDEQ and/or EPA representative was present to observe a majority of sample collection activities during the field event. The EPA representative was provided a daily update in the form of a verbal daily report on progress and possible deviations and then periodic follow-up phone calls following the completion of field activities for the analytical results status from the CRL.

The Toeroek team collected pre- and post-sampling vacuum measurements and checked three times the continuous vacuum during purging and sample collection to determine if sample collection was progressing at an acceptable rate and to ensure the canisters would not fall below 3 in Hg.

Following the completion of sampling activities, Toeroek removed all sampling equipment, threaded the stainless soil vapor probe with a cap, placed the stainless steel cap flush-mount to the concrete floor and returned the area to its original condition. For locations that required offset or abandonment, Toeroek removed soil vapor probe and plugged the concrete boring with adequate mixture of water and hydrated Portland cement filling the hole completely and hand finished the plug flush-mount to the floor.

Table 2 provides a summary list of sample ID, installation dates, depth/heights, sample start and end dates/times/vacuum pressures, and associated notes.

TABLE 2
SUB-SLAB, INDOOR AIR AND AMBIENT AIR SAMPLE SUMMARY

Sample ID	Sample Probe Install Date	SS Depth (in.)/Height (ft.)	Sample Start/ Pressure in Hg	Sample End/ Pressure in Hg	Notes
Building 2946					
SS01-02946-ES	3/19/18 at 915A	6-8	3/19/18 at 1034A; 30	3/20/18 at 740A; 5	
IA1-02946-ES	3/19/18 at 1034A	2.5-3	3/19/18 at 1034A; 30	3/20/18 at 753A; 6.5	
SS02-02946-ES	3/19/18 at 1146A	6-8	3/19/18 at 118; 29	3/20/18 at 801A; 5	Secondary sources possible
IA2-02946-ES	3/19/18 at 118	2.5-3	3/19/18 at 118; 30	3/20/18 at 820A; 7	Secondary sources possible
SS03-02946-ES	3/19/18 at 1215	6-8	3/19/18 at 214; 30	3/20/18 at 1214; 5	Bay doors in use once during sampling
IA3-02946-ES	3/19/18 at 214	2.5-3	3/19/18 at 214; 30	3/20/18 at 1152A; 3.9	Bay doors in use once during sampling
BKG-02946-BKG1	3/19/18 at 1210	2.5-3	3/19/18 at 1210; 28.5	3/20/18 at 905A; 3	
EB1-02946-EB1	3/19/18 at 1210	2.5-3	3/19/18 at 1210; 30	3/20/18 at 905A; 3	
Building [redacted]					
SS01-[redacted]ES	3/20/18 at 120	6-8	3/21/18 at 1230; 30	3/22/18 at 904; 5	Secondary sources possible
SS01-[redacted]DUP1	3/20/18 at 120	6-8	3/21/18 at 1230; 29	3/22/18 at 904A; 6.5	Secondary sources possible (D)
IA1-[redacted]ES	3/21/18 at 1230	2.5-3	3/21/18 at 1230; 29.5	3/22/18 at 903A; 3.5	Secondary sources possible
SS02-[redacted]ES	3/19/18 at 151	6-8	3/21/18 at 139; 30	3/22/18 at 1107A; 5	Secondary sources possible
IA2-[redacted]ES	3/21/18 at 139	2.5-3	3/21/18 at 139; 30	3/22/18 at 1107A; 5	Secondary sources possible
Building 255					
SS01-0255-ES	3/20/18	16-18	NO SVP completed	Abandon SVP borehole	-
IA1-0255-ES	3/20/18	2.5-3	NO SVP completed	No SVP borehole	-
SS02-0255-ES	3/21/18 at 832A	16-18	3/21/18 at 630; 30	3/22/18 at 440; 5	
IA2-0255-ES	3/21/18 at 832A	2.5-3	3/21/18 at 630; 29	3/22/18 at 440; 5	
BKG2-0255-BKG2	3/21/18 at 649	4.5-5	3/21/18 at 649; 30	N/A Sample Canister stolen	
SS03-0255-ES	3/22/18 at 823A	6-8	3/22/18 at 405; 30	3/23/18 at 1206; 5	Secondary sources possible
IA3-0255-ES	3/22/18 at 405	2.5-3	3/22/18 at 405; 30	3/23/18 at 1206; 5	Secondary sources possible
Building 2945					

Sample ID	Sample Probe Install Date	SS Depth (in.)/Height (ft.)	Sample Start/ Pressure in Hg	Sample End/ Pressure in Hg	Notes
SS01-02945-ES	3/21/18 at 220	6-8	3/22/18 at 110; 30	3/23/18 at 1030A; 5	Secondary sources possible
IA1-02945-ES	3/22/18 at 110	2.5-3	3/22/18 at 110; 30	3/23/18 at 1030A; 4	Secondary sources possible
SS02-02945-ES	3/21/18 at 233	6-8	3/22/18 at 146; 29	3/23/18 at 1122A; 5	Secondary sources possible
IA2-02945-ES	3/22/18 at 138	2.5-3	3/22/18 at 138; 29	3/23/18 at 1037A; 3	Secondary sources possible
SS03-02945-ES	3/21/18 at 242	6-8	3/22/18 at 215; 29.5	3/23/18 at 1138A; 5	Secondary sources possible
IA3-02945-ES	3/22/18 at 215	2.5-3	3/22/18 at 215; 30	3/23/18 at 1040A; 4	Bay doors in use once during sampling
SS04-02945-ES	3/21/18 at 342	6-8	3/22/18 at 1236; 30	3/23/18 at 950A; 5	
IA4-02945-ES	3/22/18 at 1236	2.5-3	3/22/18 at 1236; 30	3/23/18 at 950A; 5	Bay doors in use once during sampling
Building [redacted]					
SS01-[redacted] ES	3/21/18 at 407	3-5	3/21/18 at 746; 29	3/22/18 at 455; 2. 5	SVP installation due to sub slab thickness
SS01-[redacted] DUP2	3/21/18 at 407	3-5	3/21/18 at 746; 30	3/22/18 at 455; 4	SVP installation due to sub slab thickness (D)
IA1-[redacted]ES	3/19/18 at 746	2.5-3	3/21/18 at 746; 30	3/22/18 at 455; 3	
SS02-[redacted] ES	3/19/18 at 432	1-2.5	3/21/18 at 818; 29	3/22/18 at 628; 5.5	Partial SVP installation due to sub slab thickness
IA2-[redacted]ES	3/21/18 at 818	23	3/21/18 at 818; 30	3/22/18 at 455;	Bay doors in use once during sampling

Notes:
BKG - Background sample
D –-Duplicate sample
DUP -Duplicate sample
EBI -Equipment blank
ES - Environmental sample
IA -Indoor air
ID - Identification
SS -Sub-slab
SVP -Soil vapor probe

3.3 AMBIENT AIR SAMPLING

Ambient air or background sampling was conducted as noted above in Section 3.2 and was also analyzed for VOCs using EPA Method TO-15. Background samples locations were identified at Buildings 2946 and 255 however, the background sample outside of 255 was stolen and therefore, no sample was collected. The ambient/background sample collected at building 2946 is summarized on Tables 1-4.

3.4 QUALITY CONTROL SAMPLING

Toeroek collected two quality control (QC) duplicate samples during the sampling investigation. In addition to the two duplicate samples, Toeroek collected one equipment blank that accompanied the sample containers from the lab, to the field and return to the lab. A summary of the collected duplicate and equipment blank samples are presented in Tables 2 and 3. Toeroek collected two field duplicate samples to allow verification of reproducibility of laboratory and field procedures. The field duplicate samples were collected with an original (parent) environmental sample. CRL Region 5 laboratory analyzed the field duplicate samples for the same analytes and using the same method as the co-located original sample. Toeroek collected duplicate per the EPA approved FSAP (Toeroek 2018).

Toeroek collected all QC samples in laboratory-prepared sample containers (SUMMA canisters), affixed labels, and placed them in laboratory provided containers for shipment. The first round of samples were documented on the COC form, packaged, and shipped via FedEx to CRL. The second round of samples were documented on the COC form, packaged, and hand delivered by Toeroek personnel to CRL. Copies of the COC forms are presented in Appendix E.

Toeroek used equipment blank samples to assess whether any cross-contamination of samples canisters occurred during sample shipment. Per the FSAP, Toeroek included one trip blank at a frequency of at least one blank per event for VOC analyses. CRL analyzed the trip blanks and rinsate blanks for VOCs. Table 3 provides a list of Quality Control/Quality Assurance Sample Locations and presents sample IDs, collection end dates, sample types, and analytical methods.

TABLE 3
QUALITY ASSURANCE/QUALITY CONTROL SAMPLE LOCATIONS

Sample ID	Sample Date (End)	Sample Type	Analyses
Building [redacted]			
5003-SS01-[redacted]ES	03/22/18	Sub-slab	EPA Method TO-15
5003-DUP2-[redacted]DUP2	03/22/18	Duplicate Sample	EPA Method TO-15
Building 2946			
5003-EBI-2946-EBI	03/20/18	Equipment Blank	EPA Method TO-15
5003-BKG1-2946-BKG1	03/20/18	Ambient Background Air	EPA Method TO-15
Building [redacted]			
5003-SS01-[redacted]ES	03/22/18	Sub-slab	EPA Method TO-15

Sample ID	Sample Date (End)	Sample Type	Analyses
5003-DUP1-[redacted]DUP1	03/22/18	Duplicate Sample	EPA Method TO-15

Notes:
BKG - Background sample
DUP – Duplicate sample
EBI – Equipment blank
ES - Environmental sample
SS -Sub-slab

3.5 SECONDARY SOURCES

Due to access limitation, scheduling and logistics, no preliminary building reconnaissance and survey was completed prior to the sampling event was conducted. MDEQ and/or EPA representative were present to assist in sample location selection and to observe interior settings for all sample collection activities during the field event. The EPA received a daily update and provided assistance in building access and coordination. Observations for each building and sample locations were recorded on the field sampling forms presented in Appendix D. In addition, an attempt to limit disruptions to business activities, secondary sources were not moved or relocated from the site. In some cases, the potential for secondary sources to impact analytical results may be possible.

Table 4 presents a summary of potential secondary sources for VOC indoor air constituents measured during indoor air sampling activities and represents only sources within the immediate vicinity at each location prior to or during the collection of indoor air samples. Toeroek recorded potential secondary sources to identify possible impacts to analytical results during indoor air sampling activities.

TABLE 4
INDOOR AIR SAMPLING POTENTIAL SECONDARY SOURCES SUMMARY

Building Sample Location	[redacted]	[redacted]	255	2945	2946
Cigarettes	IA1, IA2	IA1, IA2			
Household chemicals		IA1, IA2		IA1,IA2,IA3	
Cleaning agents		IA1		IA1,IA2,IA3	
Natural gas fork lifts				IA4	IA3
Gasoline powered vehicles				IA4	
Flammable Cabinets				IA4	
Air fresheners / laundry / odorizers				IA1,IA2,IA3	
Paints (oil)		IA2			
Grease/lubricants		IA2	IA3		IA3
adhesives		IA2		IA4	
Plumbing pipe dope				IA4	
Floor Drain present	IA1, IA2	IA1, IA2			

Building Sample Location	[redacted]	[redacted]	255	2945	2946
Sump present	IA1, IA2	IA1, IA2			

Notes:
* – Table represents the possible secondary sources within 20 feet of sampling locations. Potential sources did not represent a significant change in PID readings during sampling activities with the exception of building 2945 Crossfit Gym where cleaning activities were conducted simultaneously with sample installation and collection.

IA – Indoor air

3.6 DECONTAMINATION

Toeroek decontaminated non-disposable sampling equipment such as the drill bits prior to first use and after sampling at each location. Decontamination consisted of thoroughly scrubbing or wiping down the equipment with a non-phosphate detergent solution and rinsing the equipment with potable water followed by DI water. New sampling train equipment was used at the next sample location. No equipment was reused at more than one sample location.

3.7 INVESTIGATION-DERIVED WASTE

Toeroek collected decontamination water and wastewater from decontamination procedures for disposal. Liquid IDW from decontamination wastewater was mixed with unused DI water wiped up with paper towels and the deminimus quantity was disposed of on the ground or street. Toeroek properly disposed of personal protective equipment (PPE), and general refuse generated during the field event, including disposable sample tubing and equipment boxes, as municipal solid waste.

3.8 SAMPLE LOCATION COORDINATES

Sample locations were primarily contained within buildings and per the FSAP (2018 Toeroek), global positioning system (GPS) coordinates were not collected or recorded in the field. It should be noted that these locations are based on the initial building visual survey, site photographs and the GIS coordinates as determined during the mapping activities and are considered approximate. Approximate sample locations documented by Toeroek using mapping software GIS applications are presented in Appendix G. The sample coordinates were submitted to EPA via email on July 11, 2018. The sample locations are also presented on Figures 3 and 4, Appendix A and have been overlain on Google Earth file; presented within building footprints and with approximate plume dimensions as provided by EPA.

3.9 DEVIATIONS FROM THE FIELD SAMPLING AND ANALYSIS PLAN

The following summary provides a brief discussion of deviations from the EPA - approved FSAP (Toeroek 2018):

- The FSAP identified collection of samples at six properties including [redacted]. No sub-slab or indoor air samples were collected at this residential building location and no associated QA/QC samples were collected as no access agreement was finalized therefore preventing entry.
- The FSAP identified collection of sub-slab and indoor air samples from approximately 18-20 locations at 6 properties to check and verify contaminants present in the soil vapor and indoor air. The total number of samples (SS, IA and QC) collected varied from the FSAP based on the following field conditions: access, security (theft), sub-slab structures/interference and inadequate space/owner/occupant considerations.
    - Overall, thirty air samples were collected from a possible 40 presented in the FSAP due to availability and suitability of sample locations.
    - Overall, two duplicate samples were collected for 28 environmental samples. Two duplicate samples were collected instead of the four as specified in the FSAP, as the property at [redacted] which was not sampled, was previously identified as preferred location for duplicate samples due to its proximity and down-gradient location to the plume.
    - Only one background was collected from a possible five presented in the FSAP due to theft and a reduction of sample locations.
- The FSAP specified installation and collection procedures per Toeroek SOP-26 however, during sub-slab sample installation at building [redacted] ([redacted] the field team identified a very thin, possibly hand poured, sub slab basement floor of approximately 2-inches in thickness. The installation and collection of sample 5003-SS02-[redacted]ES was conducted using modeling putty to seal the probe tightly to the slab. Toeroek consulted with EPA personnel on-site to discuss this FSAP deviation prior to installation and sample collection.

Toeroek consulted with EPA personnel on-site to discuss all FSAP deviations and coordinated all activities related to sub-slab, indoor air, ambient/background and QC sample numbers and locations.

4.0 DATA COMPLETENESS

Toeroek reviewed all data reports generated by the CRL Region 5 laboratory to identify omissions and verify completeness readily apparent through a comparison to the COCs. A summary of findings for analyses are presented below. Laboratory analytical data reports generated by CRL Region 5 laboratory have been previously provided to EPA. Analytical data summary reports are presented in Appendix F.

A total of 30 air samples were collected; 14 sub-slab and indoor air pairs two duplicate samples and two ambient background samples. Of the total, one equipment blank and two duplicates and one background ambient air samples were collected. The air samples were shipped and hand delivered to CRL Region 5 in Chicago, Illinois for analysis. All samples were analyzed for VOCs using EPA Method TO-15. Specific sample collection information is presented in Tables 1-4 and indicates the specific analyses performed for each sample. Toeroek received preliminary analytical data packages on for air samples on April 3, and April 9, 2018, respectively. Toeroek submitted draft analytical data tables to EPA on April 10, 2018.

All data verification activities were conducted in accordance with the FSAP. Following the receipt of analytical data packages, a limited data verification review was conducted as part of our quality assurance program as indicated in the Toeroek, Quality Management Plan (QMP) for Region 5.

5.0 SAMPLING RESULTS

Toeroek received preliminary analytical data packages on for air samples on April 3, and April 9, 2018, respectively. Toeroek provided draft data tables to EPA on April 10, 2018. Toeroek has completed data verification activities for all samples as presented in Section 4.0 and Laboratory analytical data reports generated by CRL Region 5 laboratory are presented in Appendix F.

6.0 REFERENCES

EPA, 2017 (EPA 2017). ChemCentral Site Description and Performance Work Statement. August 8.

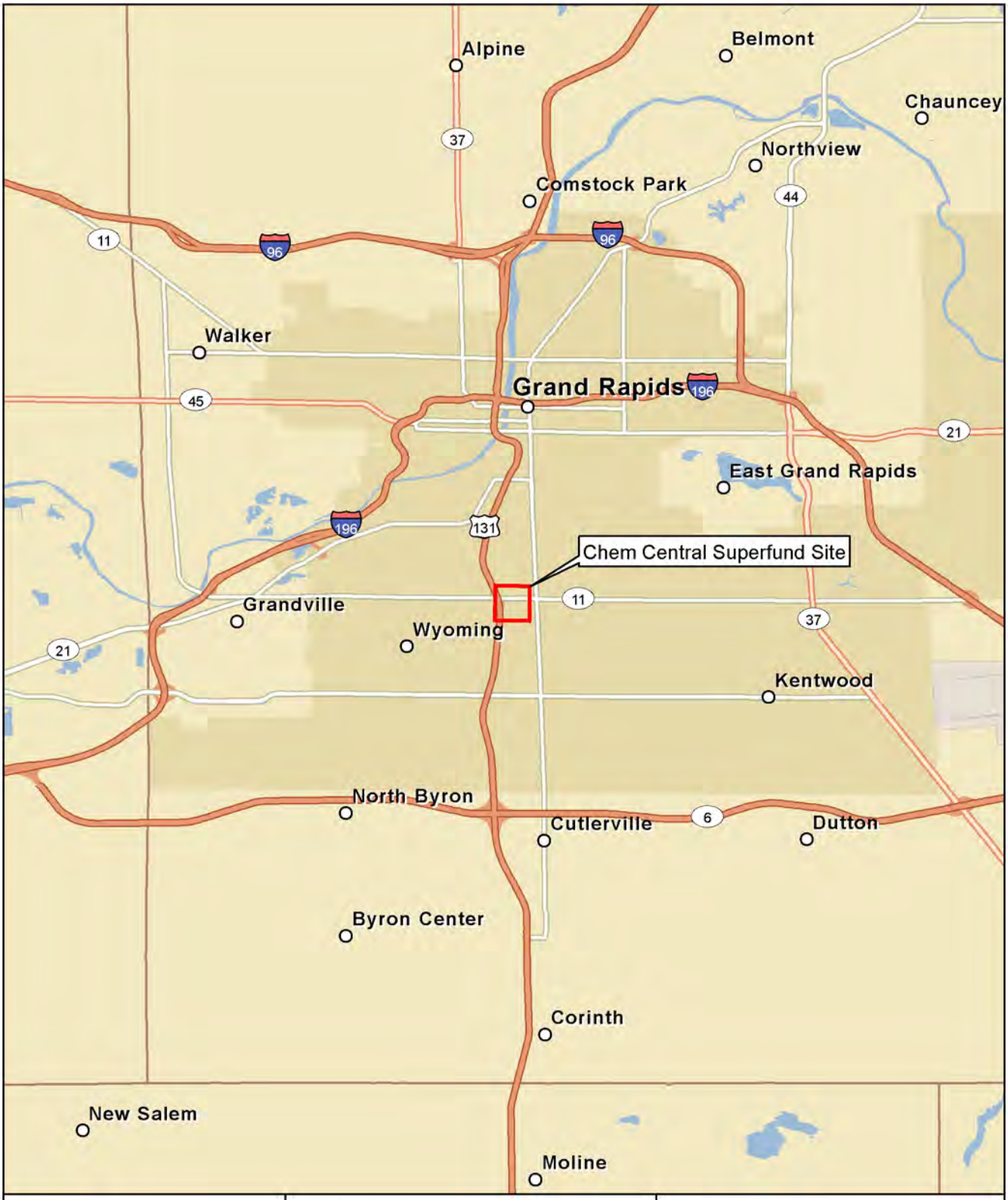
Univar, 2017 (Univar 2017). 2018 Preliminary VI Pathway Evaluation Work Plan (January 2017), Univar USA Inc., (formerly ChemCentral). January 30.

Toeroek, 2018. "Sub-Slab Soil Vapor and Indoor Air Sampling at ChemCentral Superfund Site, Wyoming Township, Michigan, EPA Site ID No.: MID980477079", Final Field Sampling and Analysis Plan." March 22; Rev 3, final EPA approval April 3.

APPENDIX A

FIGURES

FIGURE 1
SITE LOCATION MAP



TOEROEK ASSOCIATES, INC.

Sources: City and street names obtained from ESRI.

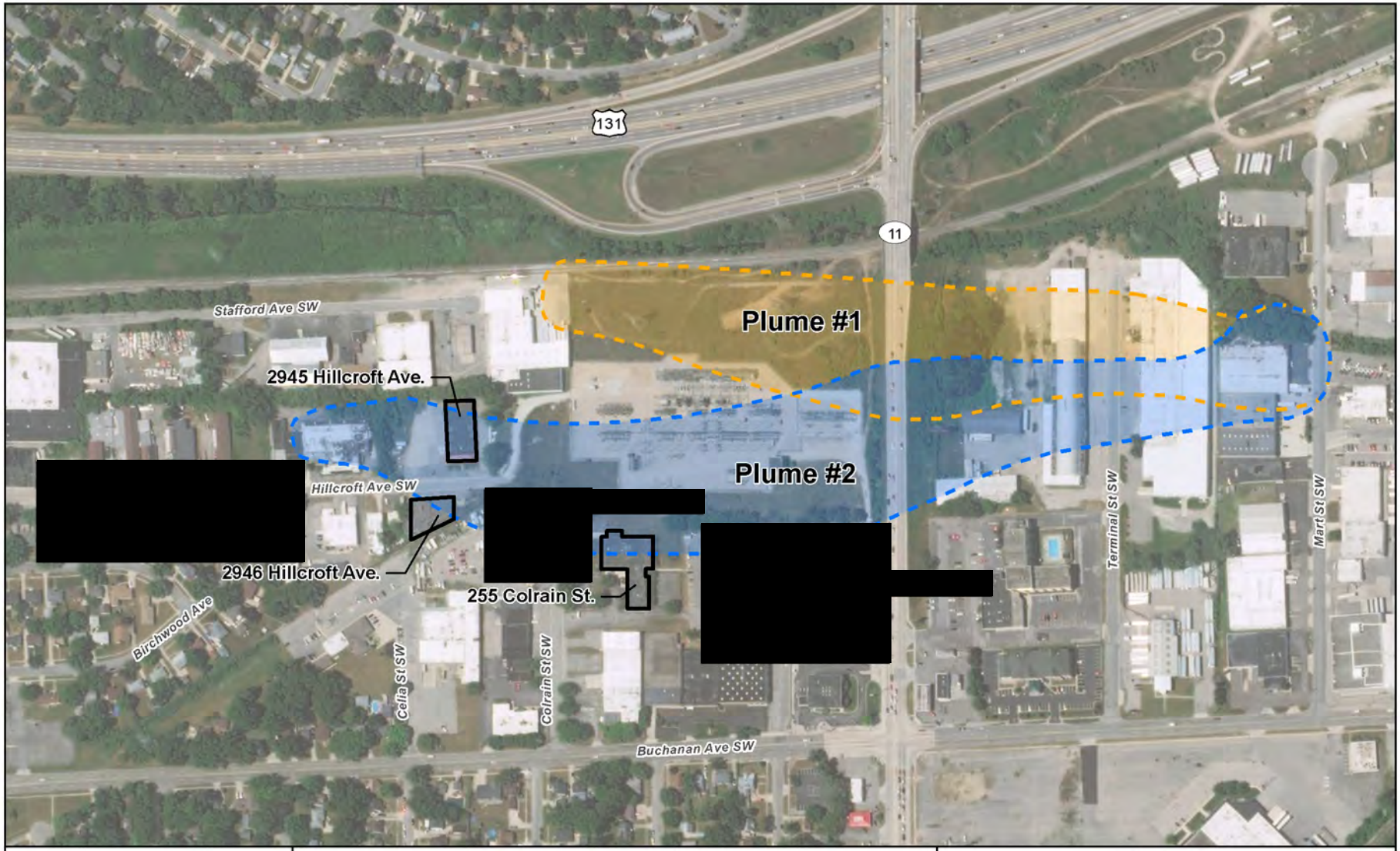
N

0 1.5 3 Miles

Figure 1
Chem Central Superfund Site Location
2940 Stafford Avenue SW
Wyoming, Michigan

D. Azzolini February 2018

FIGURE 2
BUILDING SAMPLING LOCATIONS MAP



TOEROEK ASSOCIATES, INC.

Sources: Aerial imagery (2016) and street names obtained from ESRI. Plume boundaries from ARCADIS.

N

0 200 400 Feet

Legend

Proposed Samping Locations

Groundwater Plumes

Plume #1

Plume #2

Figure 2

General Locations for Proposed Sub-Slab Soil Vapor and Indoor Air Sampling

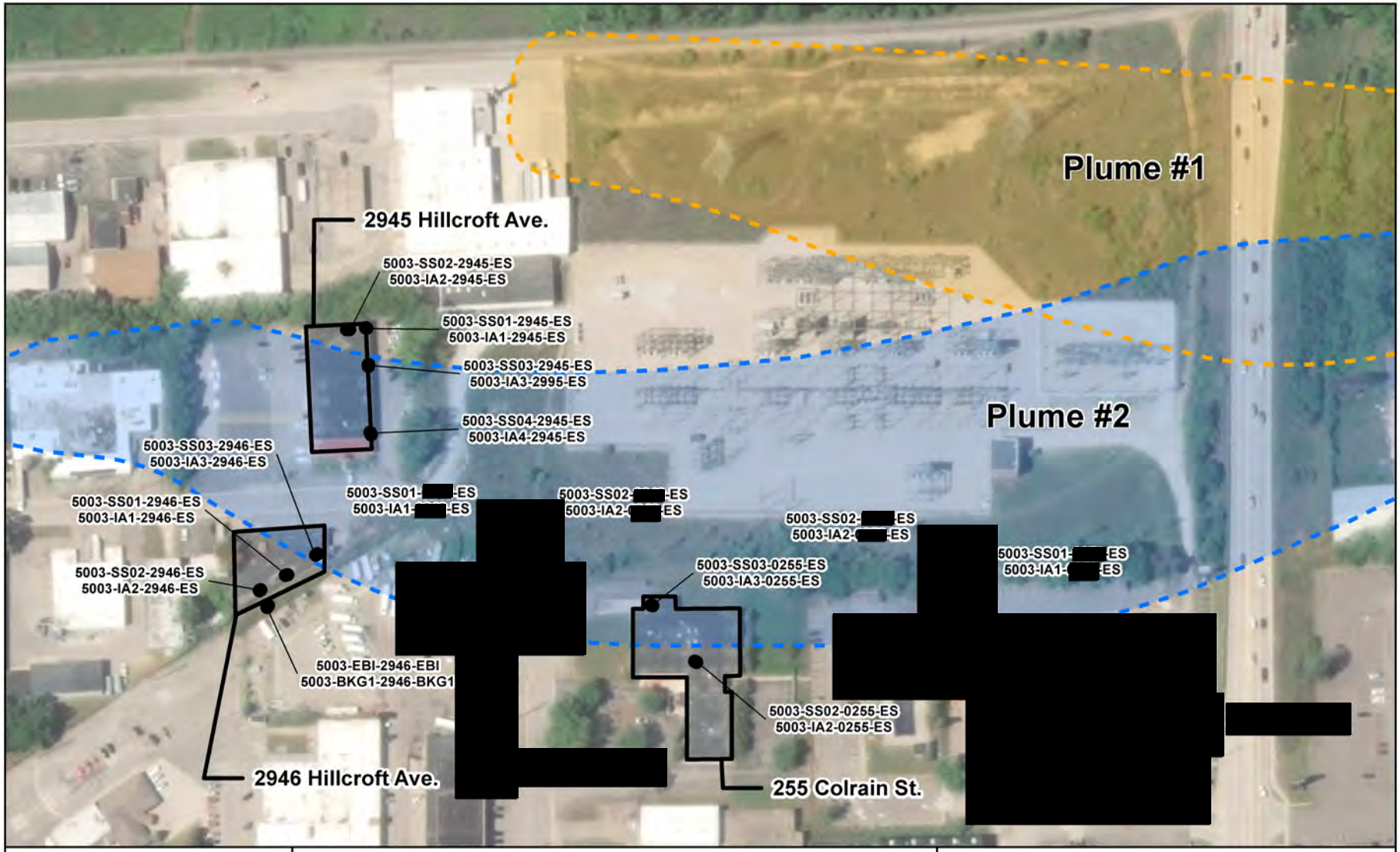
Chem Central Superfund Site

Wyoming, Michigan

D. Azzolini

February 2018

FIGURE 3
SUB-SLAB/INDOOR AIR SAMPLING LOCATIONS MAP (BUILDING FOOTPRINTS)



TOEROEK ASSOCIATES, INC.

Sources: Aerial imagery (2016) obtained from ESRI. Plume boundaries from ARCADIS. Sample locations from March 2018 Toeroek sampling event.

N

0 100 200 Feet

Legend

- Sampling Location
- Building Footprints

Groundwater Plumes

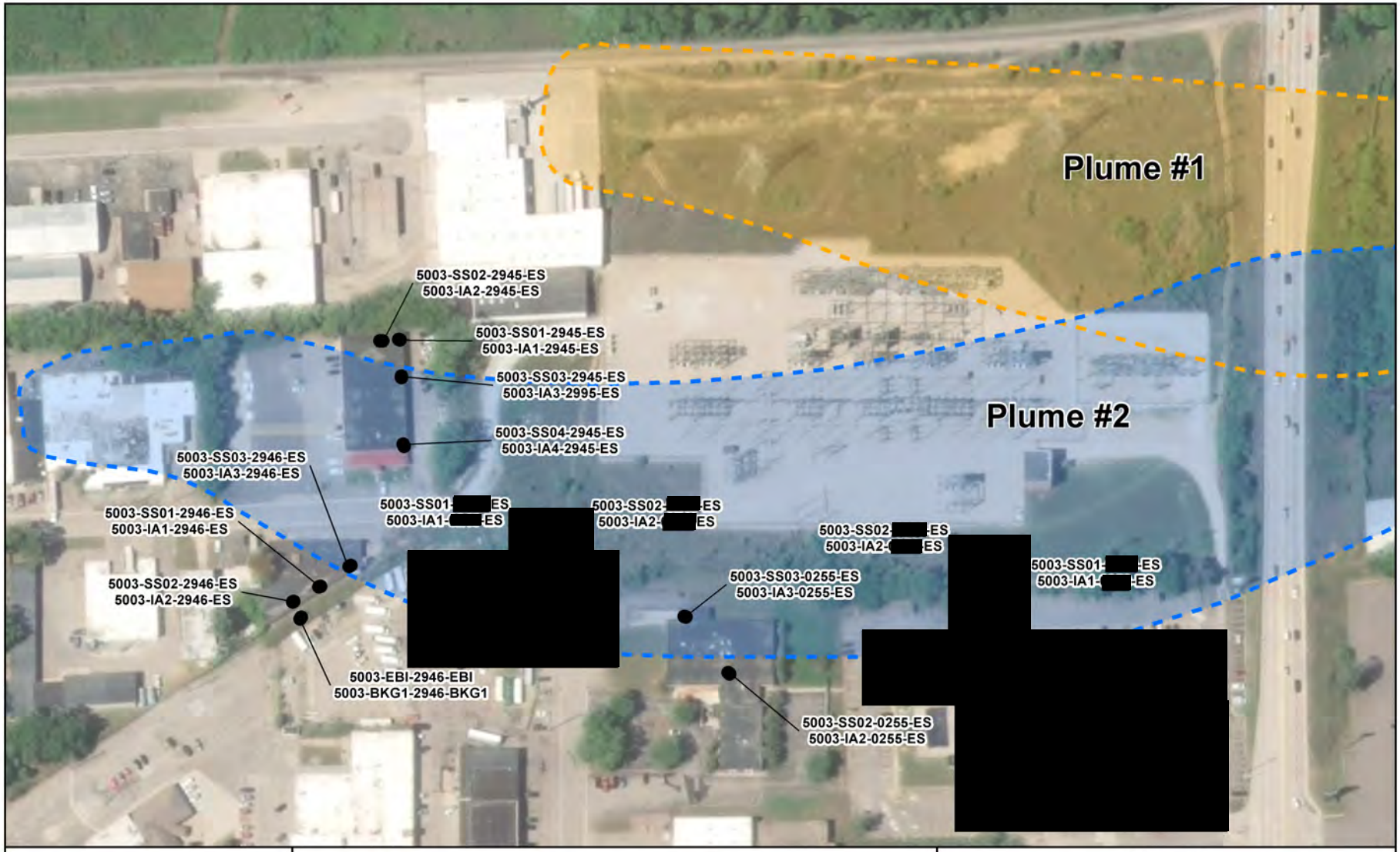
- Plume #1
- Plume #2

Figure 3
Indoor Air and Sub-Slab Gas Sampling Locations (with Building Footprints)

Chem Central Superfund Site
Wyoming, Michigan

M. Jaggers April 2018

FIGURE 4
SUB-SLAB/INDOOR AIR SAMPLING LOCATIONS MAP (APPROXIMATE PLUME BOUNDARY)



TOEROEK ASSOCIATES, INC.

Sources: Aerial imagery (2016) obtained from ESRI. Plume boundaries from ARCADIS. Sample locations from March 2018 Toeroek sampling event.

N

0 100 200 Feet

Legend

- Sampling Location

Groundwater Plumes

- Plume #1
- Plume #2

Figure 4
Indoor Air and Sub-Slab Gas Sampling Locations (with Approximate Plume Boundary)

Chem Central Superfund Site
Wyoming, Michigan

M. Jaggers April 2018

APPENDIX B

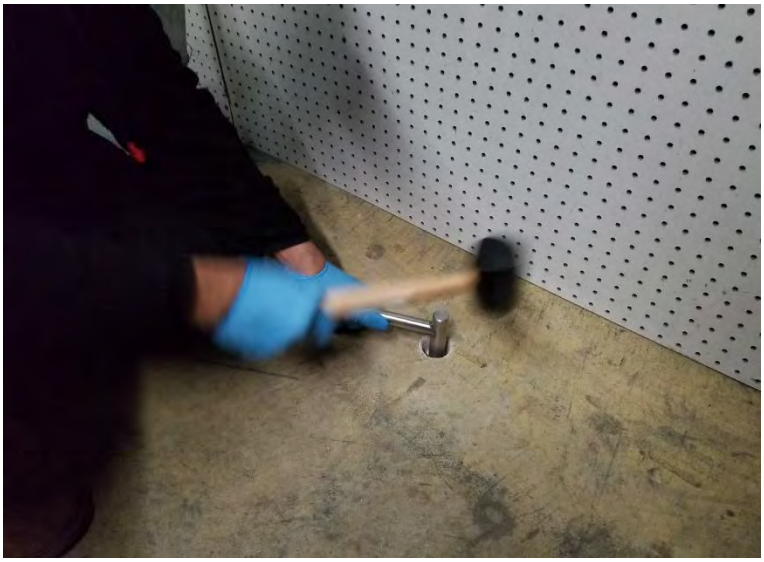
PHOTOGRAPHIC LOG

ChemCentral Site
Vapor Intrusion Sampling Photo Log
March 19-23, 2018

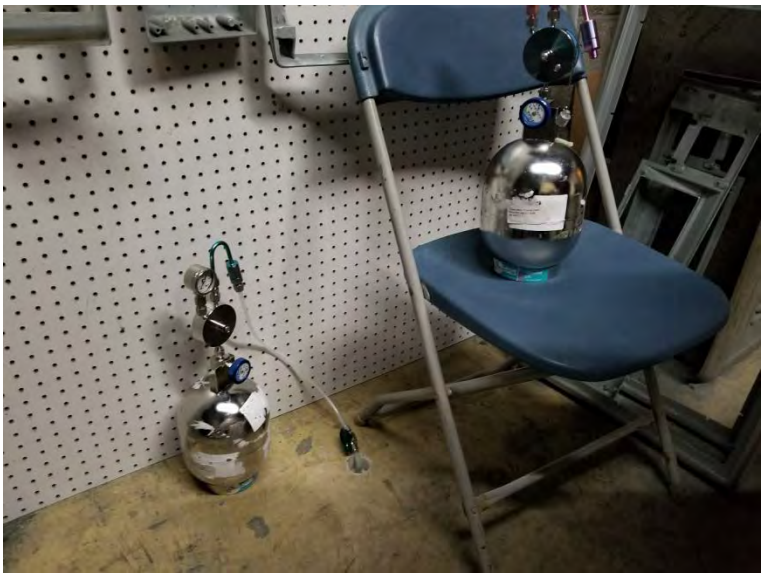
Unified Regional Oversight Contract (UROC) EP-S5-15-08 Task Order 5003	DESCRIPTION	Building 2946 location: 2946 Hillcroft Ave SW Grand Rapids, MI	1
	CLIENT	U.S. Environmental Protection Agency (EPA)	Date 03/23/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Initial sub-slab boring at location #5003-SS01-2946-ES.	2
	CLIENT	U.S. EPA	Date 03/19/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

ChemCentral Site
Vapor Intrusion Sampling Photo Log
March 19-23, 2018

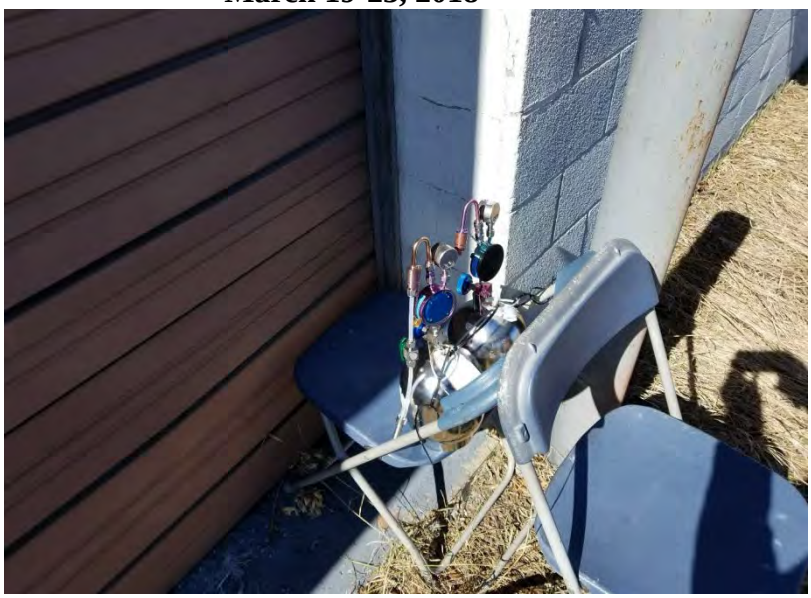


UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Installation of Vapor Pin at Building 2946. (sample location 5003-SS01-2946-ES).	3
	CLIENT	U.S. EPA	Date 03/19/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	



UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Beginning of 24-hour sampling against the east wall of Building 2946 in their lunch area. Samples 5003-SS01-2946-ES and 5003-IA1-2946-ES.	4
	CLIENT	U.S. EPA	Date 03/19/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

ChemCentral Site
Vapor Intrusion Sampling Photo Log
March 19-23, 2018



UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Background and Equipment blank samples set outside of eastern wall of Building 2946. Samples 5003-BKG1-2945-BKG1 and 5003-EB1-2945-EB1.	5
	CLIENT	U.S. EPA	Date 03/19/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building 2946: sample placement along the south-eastern wall. Samples 5003-SS02-2946-ES and 5003-IA2-2946-ES.	6
	CLIENT	U.S. EPA	Date 03/19/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

ChemCentral Site
Vapor Intrusion Sampling Photo Log
March 19-23, 2018

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building 2946 along northern wall. Samples 5003-SS03-ES and 5003-IA3-ES.	7
	CLIENT	U.S. EPA	Date 03/20/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

[redacted]

3UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building [redacted] location: [redacted] SW, Grand Rapids, MI, west side of building. Arrow indicates room locations of samples 5003-SS01-[redacted] ES, DUP1 and 5003-IA1-[redacted] ES.	8
	CLIENT	U.S. EPA	Date 03/19/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

ChemCentral Site
Vapor Intrusion Sampling Photo Log
March 19-23, 2018

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building [redacted] Helium shroud leak testing at sample locations 5003-SS01-[redacted] ES and 5003-DUP1-[redacted] ES.	9
	CLIENT	U.S. EPA	Date 03/21/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building [redacted] Sample locations 5003-SS01-[redacted] ES, 5003-IA1-[redacted] ES and 5003-DUP1-[redacted] ES.	10
	CLIENT	U.S. EPA	Date 03/21/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

ChemCentral Site
Vapor Intrusion Sampling Photo Log
March 19-23, 2018

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	East side of Building [redacted] Arrow indicates door to sample locations 5003-SS02-[redacted] ES and 5003-IA2-[redacted] ES.	11
	CLIENT	U.S. EPA	Date 03/21/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building [redacted] Sample locations 5003-SS02-[redacted] ES and 5003-IA2-[redacted] ES.	12
	CLIENT	U.S. EPA	Date 03/21/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

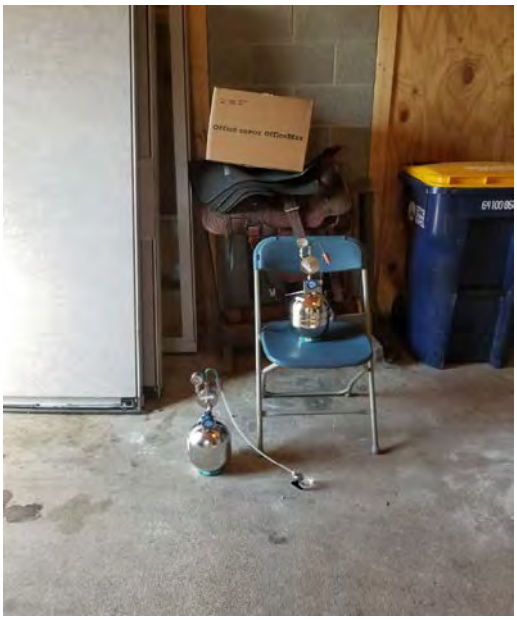
ChemCentral Site
Vapor Intrusion Sampling Photo Log
March 19-23, 2018

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building 255 location: 255 Colrain St SW # 2, Grand Rapids, MI, looking south. Arrow denotes room for sample location of 5003-SS03-255-ES and 5003-IA3-255-ES.	13
	CLIENT	U.S. EPA	Date 3/21/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building 255: sample locations 5003-SS02-0255-ES and 5003- IA2-0255-ES.	14
	CLIENT	U.S. EPA	Date 3/18/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

ChemCentral Site
Vapor Intrusion Sampling Photo Log
March 19-23, 2018

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building 255 helium leak test at sample locations 5003-SS03-0255-ES and 5003-IA3-0255-ES.	15
	CLIENT	U.S. EPA	Date 03/22/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	



UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building 255 sample locations 5003-SS03-0255-ES and 5003-IA3-0255-ES.	16
	CLIENT	U.S. EPA	Date 03/23/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

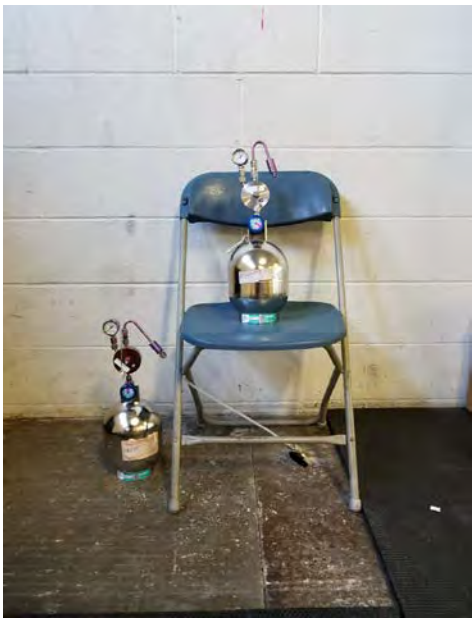
ChemCentral Site
Vapor Intrusion Sampling Photo Log

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building 2945 location: 2945 Hillcroft Ave SW, Grand Rapids, MI, looking southwest. Arrow indicates door to sample locations 5003-SS01 through SS04-2945-ES and IA1 through IA4-2945-ES.	17
	CLIENT	U.S. EPA	Date 03/23/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building 2945 sample locations 5003-SS01-2945-ES and 5003-IA1-2945-ES.	18
	CLIENT	U.S. EPA	Date 03/22/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

ChemCentral Site
Vapor Intrusion Sampling Photo Log
March 19-23, 2018

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building 2945 sample locations 5003-SS02-2945-ES and 5003-IA2-2945-ES.	19
	CLIENT	U.S. EPA	Date 03/22/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	



UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building 2945 sample locations 5003-SS03-2945-ES and 5003-IA3-2945-ES.	20
	CLIENT	U.S. EPA	Date 03/22/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

ChemCentral Site
Vapor Intrusion Sampling Photo Log
March 19-23, 2018

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building 2945 location looking north. Arrow indicates entrance to sample locations 5003-SS04-2945-ES and 5003-IA4-2045-ES.	21
	CLIENT	U.S. EPA	Date 03/23/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building 2945 sample locations 5003-SS04-2945-ES and 5003-IS4-2045-ES.	22
	CLIENT	U.S. EPA	Date 03/17/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

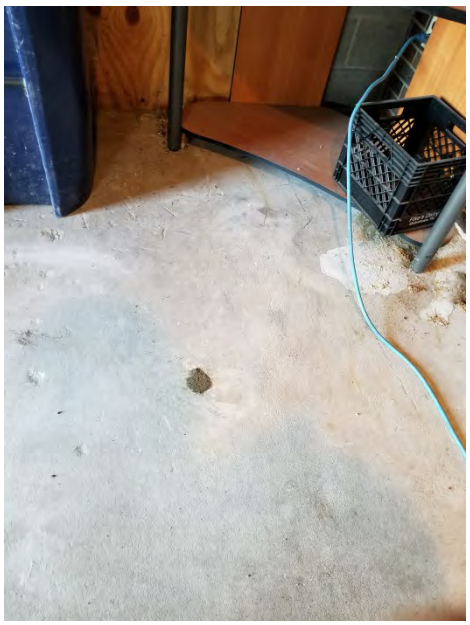
ChemCentral Site
Vapor Intrusion Sampling Photo Log
March 19-23, 2018

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building [redacted] location: [redacted] SW, Grand Rapids, MI looking south. Arrow indicates entrance to basement for samples 5003-SS01/IA1, SS02/IA2, and DUP2 - [redacted] ES.	23
	CLIENT	U.S. EPA	Date 03/22/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Building [redacted] borehole sample 5003-SS02-[redacted] ES co-located with 5003-IA2-[redacted] ES. Note very thin slab with gravel substrate.	24
	CLIENT	U.S. EPA	Date 03/22/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

ChemCentral Site
Vapor Intrusion Sampling Photo Log
March 19-23, 2018

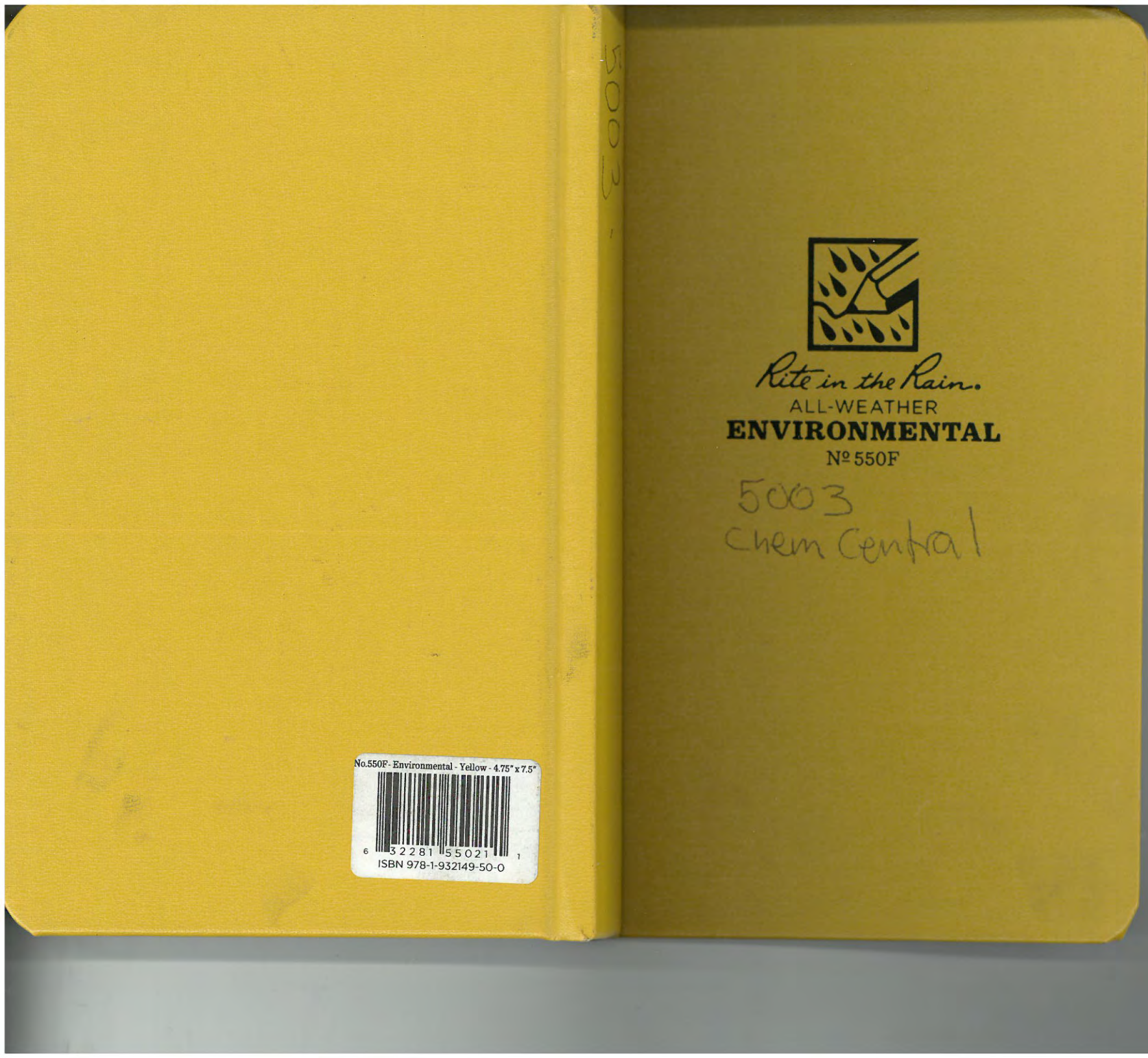
UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Example soil vapor pin screw cap at sample location 5003-SS02-2945-ES (Building 2945).	25
	CLIENT	U.S. EPA	Date 03/22/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	



UROC EP-S5-15-08 Task Order 5003	DESCRIPTION	Portland cemented borehole abandonment for offset boring of sample 5003-SS03-255-ES (Building 255).	26
	CLIENT	U.S. EPA	Date 03/23/18
	PHOTOGRAPHER	P. Kieler/A. Noamany Ali	

APPENDIX C

FIELD LOGBOOKS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CONTENTS

PAGE	REFERENCE	DATE

Location 5003 ChemCentral VI Date 3/19/18
Project / Client EPA Region 5

Depart hotel for HOME DEPOT/WALMART
750 DEPART WALMART FOR ALPINE
RENTAL; CREW: Kieler Normany Al,
815 DEPART ALPINE Rental (1405 mtg)
830 ARRIVED ONSITE - meet owner
out front. 5 garage doors 3 loading docks
2946 HILCROFT AVE SW Wyoming MI
weather temp 30° clear, sun
barometric 1016.9mb humidity 51%
wind E 4mph dew 20°
meet Ben complete reconn
1958 9164 sq ft, no basement
gas heat no a/c slab on grade
~~unknown~~ thickness see form
complete interview, soil vapor probes ~~~~
915 complete install 6" concrete
#5003-SS01-2946-ES
1000 start helium shroud construction
Note: Jessica Ferris of MDEQ
arrive onsite 930
purge helium shroud sampling
1019 PID-0 (SVP) breathing zone-0 He-3025
1022 helium shroud test passed
0-he, 0-PID 0-bz
[signature]

Rite in the Rain

Location 5003 Clem Central VT Date 3/19/18

Project / Client EPA Region 5 Subslab Under Air/Soil Vapor - Bldg 2946

Will coordinate next 2 locations per discussion, vacuum test 30 mHg complete sample set,

1034 5003-SS01-2946-ES
start 30Hg vacuum

1036 5003-IA01-2946-ES
start 30Hg vacuum
see sample form
Matt Ohl and Diane Russell onsite paved site selected 2 locations

1146 complete SVP install at
5003-SS02-2946-ES
while equalization time is going; team will set EB and BKG Air sample canisters along eastern wall of bldg #2946 2.5-3' above ground surface

1210 sample 5003-EB1-2946-EB1
5003-BKG1-2946-BKG1 PK
Diane, Matt Jessica, Ahmed, Paul use zipties to ensure sample canisters stay upright in wind

RMK

Location 5003 Clem Central Date 3/19/18

Project / Client Bldg 2946

1215 move to 5003-SS03-2946-ES to install SVP at NE corner

1238 complete SVP SS03
move to purge test and sample SS02 location with Matt O, Nate - Jessica and Diane departed site after EB1 and BKG1 ~~was~~ PK 3/19/18 was sampled

1249 helium purged, SVP purge, helium test grid PID readings at PID 0, he 58% outflow 0

110 sample train passed, 5 min SVP purge

118 samples collected at
5003-SS02-2946-ES
5003-IA02-2946-ES
move to SS03 SVP location set up canisters, controller flow and helium shroud set up

155 purge SVP for 5 minutes

202 test helium out/in PID - 1 He - outflow 49%
sample train outflow PID 0

RMK

Rite in the Rain

Location 5003 Chem Central Date 3/19/18

Project / Client EPA Reg 5

Bldg 2946

214 start Collect 5003-SS03-2946-ES

215 Collect 5003-IA03-2946-ES
30 in/Hg vacuum

Check pressure check-2hr before leaving

SS01 -	26 in/Hg	(2hr readings)
IA01	26.5	
SS 02	28	
IA 02	28.5	
EB 1	28	
BK61	26	
SS03	30	
236 IA03	30	

Will recon other properties with Matt O.

242 [redacted]

326 arrive 255 Colgrain St; identify 3 potential SVI site 2 on west side of bldg, one centrally located

416 depart for 2499 hillcroft identify 3 location in Crossfit, 2 on western wall and one eastern wall

502 depart site for hotel after meeting with Matt O. [signature] 3/19/18

Location 5003- Chem Central Date 3/20/18

Project / Client

Check	location	vacuum	Bldg 2946
700	SS01	6.0	(22hr reading)
	IA01	7.5	
	SS02	6.5	
	IA02	9.0	
	EB	7.0	
	BKG	7.0	
	IA03	10	
	SS03	11	

Will prepare for sample collection

Note: arrived onsite at 655 Kieler, Noamany Ali;

Weather: 21° temp, wind 3mph SE humidity: 79%, Dewpt 15°, barometric pressure 1014.9 mb↓

COC for Bldg 2946: 5-49507

711 prepare for sample collection

718 H&S meeting topics: hospital route, emergency
see sample forms for detail

740 end sample 5003-SS01-2946-ES
5 in/Hg vacuum reading, PID-0

753 end sample 5003-IA01-2946-ES
6.5 in/Hg vacuum PID-0

[signature] 3/20/18

Location 5003 Chem Central Date 3/20/18

Project / Client EPA Region 5

Bldg 2946

601 end sample 5003-SS02-2946-ES 5 m/Hg PID 0.2

820 end sample 5003-IA02-2946-ES 7 m/Hg vacuum 0-PID, breathing zone - 0.1

840 complete sampling forms discuss schedule and FedEx sample location schedule/ strategy w/ EPA Matt Ohl

856 check canister vacuums

857 Jessica F from MDEQ arrives onsite

904 EB and BK6 are ready

905 stop collection 5003-EB1-2946-EB1 and 5003-BK61-2946-BK61 vacuum 3m/Hg for both PID-0

QA sample labels to COC and log book

930 log book

1000 measure vacuum 6.5 IA03 and 7

measure the distance from SE corner of bldg to EB1 and BK61 48' 10" along east face of

RPK 3/20/18

Location 5003 Chem Central Date 3/20/18

Project / Client

Bldg 2496/[redacted]

building to north end of "garage door" sample collected on chains outdoor 3 to 3.1 ft off ground

1152 end collection 5003-~~SS~~EA03-2946-ES 3.9 vacuum PK 3/20/18 0 PID

1214 end collection at 5003-SS03-2946-ES vacuum 5m/Hg, PID 0.1 ppm

meet Ben at 3000 hillcroft to notify, Mendota

1244 arrive at [redacted]

1247 [redacted]

120

[redacted] wooden

RPK 3/20/18

Rite in the Rain

Location 5003 Chem Central Date 3/20/18

Project / Client EPA Reg 5

Bldg [redacted] /255

151 Install 5003-SS02-[redacted]-ES
157 depart for 255 Colrain while equalizes
1404 arrive 255 Colrain (Bldg 255)
prep
5003-SS01-0255-ES
SVP BH install, 16 inch
bit stuck at 12" cannot get it
out, seems pinned on re-bar (drill is shot)
1418 discuss options w/ EPA
1425 depart Bldg 255 Colrain to Alpine
rental and harbor frieght after
stopping in at ~~Grand~~ Grand Rapids Inn
stop at Grand Inn to notify
them of schedule
1435 decide to get tools at harbor
frieght to free drill bit depart
returned Bldg 255 and attempted
to remove drill bit w/ wrench and
prybar - unsucessful
1555 depart Bldg 255 for Alpine
rental to return drill and get 16"
bit replacement
1606 arrive, pick up equipment and
depart for Bldg 255

[signature] 3/20/18

Location 5003 chem central Date 3/20/18

Project / Client 5003

Bldg 255

1630 arrive at family outreach cent to
attempt removal and to
install SVP for location
5003-SS02-0255-ES.
BH installed to 16" without
reaching bottom of slab.
unable to retrieve drill bit
also
1730 discuss options and schedule w/
EPA. Will attempt to acquire a
longer drill bit and complete
SS02 and evaluate retrieval
methods for drill bit at SS01
1750 depart for residential
property w/ EPA
1752 [redacted]
1815 depart site after coordinating
w/ EPA. Will go to return
unused harbor frieght tools.
1817 arrive harbor frieght, depart
for hotel at 1830

[signature] 3/20/18

Location 5003 Clean Central Date 3/21/18

Project / Client EPA Reg 5

Bldg 255

650 H&S meeting, depart for
7-20 united rentals call EPA
727 7-37 fastenal equipment
8-8 Alpine
812 arrive B255
832 installed SVP/BH at
5003-SS02-0255-ES at
16-18" interior of Bldg
845 coordinate w/ Family outreach
personnel for access and
building hours
910 depart for gas supplies and
prep for fed ex sample shipment
938 arrive fed ex (Falcon Dr. Airport)
organize flow controllers
complete sample label, COC
and log book QA prep
canisters for shipment
#COC 5-49507 (QA)

			PID
3/20	753	5003-IA1-2946-ES	0
3/20	820	5003-IA2-2946-ES	0
3/20	801	5003-SS02-2946-ES	0.2
3/20	905	5003-BKG1-2946-BKG1	0
3/20	905	5003-EB1 2946-EB1	0

[signature] 3/21/18

Location 5003 Clean Central Date 3/21/18

Project / Client

Bldg [redacted]

			PID
3/20	1214	5003-SS03-2946-ES	0.1
3/20	740	5003-SS01-2946-ES	0
3/20	1152	5003-IA3-2946-ES	0

1027 signed 8 cans total
Shipping # 780181914840
41 lbs 1 box 41.1 lbs
priority over
312-886-2935
1046 Stephen Connet Sample Custodian
call to notify shipment
1050 depart to site
1121 [redacted]

[signature] 3/21/18

12 14

Location 5003 Clem central Date 3/21/18

Project / Client EPA Reg 5 Bldg [redacted]

1140

1151

1208

1213

1219

1223

1226

1227

1230

1231

1240

1248

[redacted]

RKich

15

Location 5003 Clem Central Date 3/21/18

Project / Client B. [redacted]

121

126

136

139

139

[redacted]

1148 depart for crossfit

151 arrive Bldg 2945 see form(s)

220 install BH 5003-SS01-2945-ES

233 install BH 5003-SS02-2945-ES

242 install BH 5003-SS03-2945-ES

all BH 6 to 8 inches in depth

SVP installed and left to equalize before SVP is connected to sampletrain

250 call B. Martin to verify B255 locations - west to east Brad notified that we should ask Mike the owner, ask Mike he is OK with. Move to Suite A

311

RKich

Rite in the Rain

Location Chem Central Date 3/21/18

Project / Client EPA Reg 5 PR 3/21/18 2945

B. [redacted]

342 [redacted]

407

415

432

depart for Helium cylinder at Indy apts

530 arrive at crossfit to put caps on SVEs

535 return to B255 set up helium shroud

5003-SS02/IA2-ES (B255) / BK62

630 begin sample 5003-SS02-025-ES and 5003-IA2-025-ES

649 begin 5003-BK62-025-BK62 behind Bldg on surplus shelving

[redacted]

[redacted]

746

PRs

Location Date 3/21/18

Project / Client 5003

[redacted]

802 setup ite test at SS02

818 begin sample

835 depart site - no samples today
no new COCs #s
note: no access for [redacted]
[redacted]

Rite in the Rain

Location: Chem Central — Date: 3/22/18

Project / Client: EPA Reg 5

B[redacted]/B255

7-730 [redacted]

744

843

855

9

903

904

917

1016 check SS02 IA2 (6/6.5) depart [redacted] to

*est. B255 for sample check

1020 5003-BK62-0255-BKG2 is gone

[signature]

Location: — Date: 3/22/18

Project / Client: 5003

B[redacted] B2945

1030 check 5003-SS02/IA2-ES 14/15 in Hg

will search area for BKG2 cannister *

1050 will contact Matt Ohl EPA and Brad Martin Tetratech

no BKG2 is found in vicinity *

1107 [redacted]

depart site for 15 minute break

then will return to B2945 locations

for He test/sample setup, begin

sample at SS01-SS04 (IA1-IA4)

1157 return to B2945 start setup &

He test at 5003-SS04-B2945-ES

1225 begin fill He after initial SUP purge

note: SS04 near flammables cabinet

(fire cabinet) bkg is reading (.5) initial SUP

purge is 0.5 also (zero relative), He passed

1236 begin 5003-SS04-2945-ES and

5003-IA4-2945-ES collection

move from plumbing shop to

[signature]

Location Chem Central Date 3/22/18

Project / Client EPA Reg 5 B2945

crossfit place to start set and He test at SS01/IA1
note: cleaning of facility in place
PID bkg is .6 outside PID 0
cleaning solution PineSol/H_2O
Other cleaners include chlorox
these conditions exist at SVP
locations SS01, SS02 and SS03
(IA1-4). At SS01-B2946,
additional shower area/bathroom
area have fragrances and deoder-
izers in addition to cleaning
supplies location with 15' of SVP
110 point, After completion of He test
~~1256~~ 1256 start collection SS03-SS01
-2945-ES and SS03-IA1-
2945-ES both 30cm/Hg
move to SS02/IA2 near
water fountain in gym west
12.5 side conduct He test
note bkg is 0.9 and purge
port of SVP is 0.9 (zero)
prior to final ~~purge~~ sample set
VP bkg is 0.6 and

Location Date 3/22/18 21

Project / Client SS03 B2945

soil gas PID is .8 = .2 PID
see cleaning note pg 20
138 SS03-SS02-2945-ES* and
SS03-IA2-2945-ES begin
collection both 29cmHg will
move to SS03/IA3 setup
sample train & He test
*146 sample valve was not opened
start time is now 146 for
SS03-SS02-2945-ES
He test passed initial vac SS03
29.5/IA3 30 PID at SS02
SVP @0.2 ambient 0
25 begin SS03-SS03-2945-ES
and SS03-IA3-2945-ES
210 notify renter compile interview
information load truck move to
B255
setup sample trains / He test
at SS03/IA3 loading dock
316 ~~NOT~~ SVP purge; He test
passed 0 PID bkg SVP
0 PID SS03 and IA
initial & start 30cm/Hg

Rite in the Rain

Location Clen Central Date 3/22/18

Project / Client EPA Reg 5

405 begin collection for S003-SS03-0255-ES and S003-IA3-0255-ES both 30 in Hg
0 PID

440 stop/end collection at B255 SS. S003-SS02-0255-ES (5) S003-IA2-0255-ES (5.0) in/Hg
Final PID 0 both samples
COC# 5-49506 w/ 6 [redacted] samples. Waiting at [redacted] to meet with Wyoming Police to report missing S003-BKG-2-0255-BKG2 sample cannister. Report & file record. Will be ready to download from police website in next few days maybe as early as tonight. #7 per dispatch.

455 [redacted]

[illegible]

Location Date 3/22/18

Project / Client S003

[redacted]

618 [redacted]

[illegible]

Location Chem Central Date 3/22/18

Project / Client EPA Reg 5

3/22/18 Summary

COC#5-49506 samples

S003	IA1	[redacted]	ES
↓	SS01		ES
	DUP1		DUP1
	SS02		ES
	IA2		ES
	SS02	02SS	ES
↓	IA2	02SS	ES

7 samples

COC#5-49510 5 samples

S003	SS01	[redacted]	ES
S003	DUP2	↓	DUP2
↓	IA1		ES
	IA2		ES
↓	SS02	↓	ES

Note: met with Wyoming police and recieved case record #18-7661 and provided a photo of the stolen BKG controlled canister - per discussion w/ Brad Martin Toerek and Matt Ohl EPA exact time of meeting was not recorded

[signature]

Location Chem Central Date 3/23/18

Project / Client S003

700 Kieler/Ali: load van, equipment H&S mtg, make arrangement for Saturday

800 Arrive at Alpine rental to pick up cutting wheel for stuck drill bit SS01 - B255 depart for site meet Matt Ohl discuss work and potential Birchwood property sampling. Will conduct canister checks, QA canisters, COC and field sheets. Toerek discussion per EPA; a second background sample BKG2 could be collected in backyard of Birchwood property if access is granted today.

weather — Onsite: Kieler, Ali, Ohl

temp 23

humidity 42%

baro pressure 1027 hPA/30.4 in/Hg (↔)

wind 8 mph N

* need additional interview information for B255 and abandonment of B255 SS01 drill bit and BH

will look for BKG2 canister in B2946 and B2945 area

[signature]

Rite in the Rain

26

Location Clean control Date 3/23/18

Project / Client EPA Reg 5

B2945

950 end 5003-SS04-2945-ES and 5003-IA4-2945-ES sample 5 in/Hg vacuum in both 0 final PIDs, garage door opened at least once since sample started (truck entry) COC#5-49508 for all B2945 samples

1030 end sample 5003-SS01-2945-ES and 5003-IA1-2945-E IA canister 4 and SS01 at 5 O2 PID final

1037 end sample 5003-IA2-2945-ES PID 0 3 in/Hg vacuum 3/23 PID -0 from SUA reading

1040 end sample 5003-IA3-2945-ES 0 PID 4 vacuum

1122 end sample 5003-SS02-2945-ES final PID is 2.6 sustained from SUF sample port bkg varies slowly between 0 and .5 final vacuum measurement-5

RKA

Location Date 3/23/18 27

Project / Client 5003

0255/ B2945

visit w/ EPA regarding sample locations, An additional SUP along west wall south of SS02 may be warranted in future or later today if [redacted] is accessible

1138 end sample 5003-SS03-2945-ES PID 0.2 vacuum reading 5

visit with Plumbing employees for additional interview information and proceed to B255

1206 end sample 5003-SS03-0255-ES bkg and 0 final PID final vacuum 5 in/Hg

1245 call cap SS03 and cut and abandoned SS01 at B255 and interview B255 employees on remaining interview questions.

Meet with Matt Orf regarding sample collection

RKA

Rite in the Rain

Location Chem central Date 3/23/18

Project / Client EPA Reg 5

B255

activities and removing [redacted] property. Will not probably be able to collect additional IA/SS or BKG samples at this time. No concern

1220 will complete onsite activities; QA samples check out of hotel & return Alpine, Purity rented equipment and cylinders and depart for Chicago late today. Samples will remain in our custody until delivery to Chicago EPA CRL Monday.

Note: Sample from B255 will be on COC# 549510 with B[redacted] sample [e.g. SS03-0255 and IA3-0255] all other samples from 3/23/18 will remain on COC# 549508 as noted previously

Location Date 3/23/18

Project / Client 5003

Sample Summary COC# 5-49508

5003-SS04-2945-ES

- IA4 -
- SS01 -
- IA1 -
- IA2 -
- IA3 -
- SS02 -
- SS03 -

8 samples

Sample additions to 549510 COC & 2 samples (more)

5003-SS03-0255-ES

5003-IA3-0255-ES

- Deviations to QAPP/SAP include location and no. of IA/SS and BKG samples collected due to access, suitable location, theft and loss [redacted] property. EPA and/or MDEQ concurrence with selection no. and type of air sample collected.
- Installation of 5003-SS02-0248-ES was not completed per Manufacturers recommendation due

R&K

Rite in the Rain

30

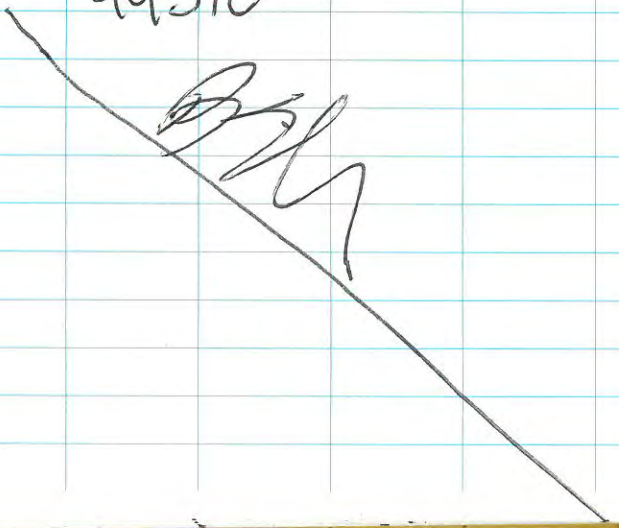
Location Chesterton | Date 7/20/18

Project / Client EPA Reg 5

to thin slab floor and kick of adequate depth. Sample installation & methodology in concurrence with EPA.

1015 - after departing Grand Rapids Wyoming MI and arriving in Chicago IL at Tetra Tech office transfer relinqished samples/COC on COC#5-49508 to Brad Martin at Chicago office

1020 relinquish & transfer Samples and COC on COC#5-49506 and 49510



31

Location Date

Project / Client

Rite in the Rain

144

Location _____ Date _____

Project / Client _____

Location 5003 ChemCentral | Date 3/19-21/18 145

Project / Client _____

CALIBRATION/QC

3/19/18

- PID #171560 factory calibration see calibration sheet
- MDGR2 RM1189 helium task test w/ shared cylinder
- SKC Gili 200mL/min
  #013448
  #917694 (ok - pump detection)

3/20/18

- PID #171560 calibration 100.2 isobutylene
- MDGR2 #RM1189 200mL/min detection test - OK
- SKC Gili pump #013448/#917684 200m

3/21/18

- PID #171560 cali 100.1 isobutylene
- SKC Gili pump 200mL/min adjustment
- MDGR2 - helium test OK

Rite in the Rain

Location 5003 Glen Century | Date 3/22-23/18

Project / Client

3/22/18

- PID #17156 100.1 isobutylene
- MOD22 #R11189 Hecheck passed
- SKC gili 200 ml/min ~~#917654~~ #13448

3/23/18 isobutylene

- PID #17156 100

Common Field Data Error Codes

Error codes are used to explain common mistakes and are written above or close to the mistake.
Commonly used error codes include:

RE	Recording Error
CE	Calculation Error
TE	Transcription Error
SE	Spelling Error
CL	Changed for Clarity
DC	Original Sample Description Changed After Further Evaluation
WO	Write Over
NI	Not Initialed and Dated at Time of Entry
OB	Not Recorded at the Time of Initial Observation

Note: Error code should be circled, dated, and initialed when recorded.

Hazard Classifications

Class 1 Explosives
Class 2 Gas
Class 3 Flammable Liquid
Class 4 Flammable Solids (Potential spontaneous combustion, or emission of flammable gases when in contact with water)
Class 5 Oxidizing Substances and Organic Peroxides
Class 6 Toxic (poisonous) and infectious substances
Class 7 Radioactive material
Class 8 Corrosives
Class 9 Miscellaneous dangerous goods

Container type abbreviations (for sampling guidelines)

BR - Boston Round • ABR - Amber Boston Round • AJ - Amber Jug • AWM - Amber Wide Mouth • Poly - Polyethylene Bottles • BOD - Bottle • CWM - Clear Wide Mouth

APPENDIX D

FIELD FORMS

☆ U.S. GOVERNMENT PRINTING OFFICE: 1993-747-251

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

CHAIN OF CUSTODY RECORD

REGION 5
77 West Jackson Boulevard
Chicago, Illinois 60604

PROJ. NO.	PROJECT NAME
5003	CHEMCENTRAL

SAMPLERS: *(Print Name and Sign)*
A. Normany , P. Kieler

Activity Code:

QA	STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Analyte: TO 15	PID	TAG NUMBERS
✓		3-20	0740		24 HR	5003-SS01-2946-ES	1	X	0	
✓		3/20	0753		24 HR	5003-IA1-2946-ES	1	X	0	
✓		3-20	0801		24 HR	5003-~~IA1~~ AN SS02-2946-ES	1	X	0.2	
✓		3.20	0820		24 HR	5003-IA2-2946-ES	1	X	0	
✓		3·20	1214		24 HR	5003-SS03-2946-ES	1	X	0.1	
✓		3·20	1152		24 HR	5003-IA3-2946-ES	1	X	0	
✓		3·20	905		24 HR	5003-EB1-2946-EB1	1	X	0	
✓		3·20	905		24 HR	5003-BKG1-2946-BKG1	1	X	0	

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
	03/21/18 1027	
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)* / Date / Time

Ship To: Sample Custodian 312-996-2935
Tech Law/ESAT
USEPA Chicago Regional Laboratory
536 S. Clark Street, 10th Floor
Chicago, IL 60605
ATTN: Stephen Connet

Airbill Number
7801 8191 4840

Chain of Custody Seal Numbers
75414 75409

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File

Printed on Recycled Paper/Printed with Soy Based Ink

5-49507

SAMPLE # 5003-3501-2946-ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/19/18 1034 Site/Facility Name: Bldg. 2496

Time: 1034 start / end 740 3/20 Project No.: 5003 Clem Cntrct

Sample Container:

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: 6-8"

Description of location: triangle portion of eastern back wall room 27.9' from angle corner, 1ft off wall

He test ✓

Sample location purged: Yes X FID or PID (circle one) Reading: 0 3/20/19

Sample relinquished by: A.N. / P.K. Date/Time: ~~3/21/18~~ 3/21/18 @ 10:27 AM AN 3/22/18

Sample received by: _____ Date/Time: _____

Attach field copy of sample label or write in sample number.

Notes: See above Colocated with 5003-IAI-2946-ES

SAMPLE START Time 1034 3/19/18 Vacuum reading Initial 30 START 30 PID 0

STOP Time 740 3/20/18 STOP 5

Summa Serial No. 0917

CS1200ES Serial No. 02317

COC # 5-49507

3/20 740

5003-IA01-2946-ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/19/18 1034 PK 3/20/18 Site/Facility Name: Bldg. 2496

Time: Start 1034 End 753 ~~25~~ mm Hg 6.5 Project No.: 5003 Chem control

Sample Container:

Tedlar® Bag: _____ Syringe: ~~PK~~ 3/20/19 Summa canister: X Sorbent Tube: _____

Sampling location and ~~depth~~: HT AN 3/22/18 ~~6-6"~~ 2.5-3"

Description of location: triangle room in east portion, eastern wall located 279' from south corner, 1ft off wall

Sample location purged: Yes X FID or (PID) (circle one) Reading: 0 3/20/19

Sample relinquished by: AN PK Date/Time: 3.21.18 1027 AM

Sample received by: _____ Date/Time: _____

Attach field copy of sample label or write in sample number.

Notes: See above co located with 5003-SS01-2946-ES

SAMPLE START TIME 1036 Vacuum reading Initial 30 START 30

STOP TIME 753 3/20/18 STOP 6.5 0 PID

SUMMA Serial No. 0814

CS1200ES Serial No. #01297 COC# 5-49507

3/20 753 sample #is 5003-IA1-2946-ES

5003-SS02-2946-ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/19/18 Site/Facility Name: Bldg 2946

Time: Start 118 end 801 3/20/18 Project No.: 5003 Chem Central

Sample Container:

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: 6-8"

Description of location: SE most room shop area, 3ft of eastern wall 50'0" from SE corner

Sample location purged: (Yes) _____ FID or (PID) (circle one) Reading: 0.2

Sample relinquished by: AN PK Date/Time: 3.21.18 1027 AM

Sample received by: _____ Date/Time: _____

Attach field copy of sample label or write in sample number:

Notes: see above, co-located w/ 5003-IA02-2946-ES

SAMPLE
3/19/18 START TIME 118
3/20/18 STOP TIME 801

Vacuum reading
Initial 29 START 29
STOP 5

PID
0.2

SUMMA Serial No. 1737

CS1200 ES Serial No. 01770

COC #
5-49507

3/20 801 Sample # 5003-SS02-2946 ES

S003- IA02 - ~~ES~~ IE 2946 -ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/19/18 . Site/Facility Name: Bldg 2946

Time: Start: 18 end 820 3/20/18 Project No.: S003 Clem Central

Sample Container:

Tedlar® Bag: ______ Syringe: ______ Summa canister: X Sorbent Tube: ______

Sampling location and ~~depth~~: HT AN 3/22/18 ~~6~~ 8 4 AN 3/22/18 2.5 - 3 ft

Description of location: SE most room, shop area, 3.5 ft off eastern wall, 50' 10" from SE corner

Sample location purged: (Yes) FID or (PID) (circle one) Reading: 0

Sample relinquished by: AN PK Date/Time: 3/21/18 10:27 AM

Sample received by: ______ Date/Time: ______

Attach field copy of sample label or write in sample number:

Notes: See above, co-located with #S003-SS02-2946-ES

SAMPLE
3/19/18 START TIME 118 Vacuum reading Initial 30 START 30
3/20/18 STOP TIME 820 STOP 7 OPID

SUMMA Serial No. 0640
CS1200 ES Serial No. 01689
COC # S-49507
3/20 820 Sample # S003-IA2-2946-ES

5003 - BK6 - 2946 - BK61

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

28.5 in Hg initial

Date: 3/19/18 3/20/18. Site/Facility Name: Bldg 2946

Time: 1210 start end 905 Project No.: 5003 - Chem Central

Sample Container:

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: HJ: 2.5 - 3' AN 3/22/18

Description of location: East side of Bldg #2946

Sample location purged: Yes No FID or (PID) (circle one) Reading: 0

Sample relinquished by: AN. PK Date/Time: 3-21-18 10:27 AM

Sample received by: _____ Date/Time: _____

Attach field copy of sample label or write in sample number:

Notes: Colocated with 5003-EB1-2946-EB1 equipment blank

SAMPLE

3/19/18 START Time 1210 Vacuum reading Initial 28.5 START 30

3/20/18 STOP Time 905 STOP 3

OPID

Summa Serial No. 05155 PK 3/19/18

CS1200ES Serial No. 0804 PK 3/19/18

COC # 5-49507

3/20 905

5003-EB1-2946-EB1

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

30Hg initial

Date: 3/19/18 Site/Facility Name: Bldg 2946

Time: 1210 start end 905 Project No.: 5003 ChemCentral

Sample Container:

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: EB with sample train blank 2.5-3'

Description of location: East side of Bldg #2946

Sample location purged: Yes No FID or PID (circle one) Reading: 0

Sample relinquished by: AN. PK. Date/Time: 3/21/18 1027 AM

Sample received by: _____ Date/Time: _____

Attach field copy of sample label or write in sample number:

Notes: see above, co located with background sample #1 5003-BK61-2946-BK61 3/19/18 sample train- nut/ferrule/tubing/"T"/valve/tubing/soil vapor pin

SAMPLE
3/19 START Time 1210 Vacuum reading Initial 30 START 30
3/20/18 STOP Time 905 STOP 3

Summa Serial No. 0818

CS1200ES Serial No. 01696

COC
5-49507

3/20 905

5003 - SS03 - 2946 - ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/19/18 Site/Facility Name: Bldg 2946

Time: start 214 end ~~1152 PK 3/20/18~~ 1214 3/20/18 Project No.: 5003

Sample Container:

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: 6-8 ft

Description of location: NE corner of main shop north. Five feet off eastern wall and four feet off northern wall

Sample location purged: (Yes) X FID or (PID) (circle one) Reading: 0.1

Sample relinquished by: PK AN Date/Time: 3.21.18 10:27 AM

Sample received by: _____ Date/Time: _____

Attach field copy of sample label or write in sample number:

5003-
✓
Notes: See above, co-located with IA03-2946-ES

note: garage door opened briefly and natural gas fork lift use for a few minutes during sampling duration

SAMPLE
3/19/18 START Time 25 Vacuum reading Initial 30 START 30
3/20/18 STOP Time ~~1152 PK 3/20/18~~ 1214 STOP ~~3.9~~ 3.1 PK 3/20/18 in 3/19/18 5.0 0 in PID

Summa Serial No. ~~03489~~ 03489 PK 3/19/18 #5-49507

CS1200ES Serial No. 0806 3/19/18

3/20 1214

5003 -IA003-2946-ES
PK 3/19/18

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/19/18 Site/Facility Name: Bldg

Time: start 214 end 1152 3/20/18 Project No.: 5003-Chem Central

Sample Container:

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: ~~HT~~ 1-8-11 2.5-3' AN 3/22/18 AN 3/22/18

Description of location: NE Corner of main shop - north. Five feet off eastern wall 4 feet off northwall

Sample location purged: (Yes) _____ FID or (PID) (circle one) Reading: 0

Sample relinquished by: AN P.K. Date/Time: 3.21.18 10:27am

Sample received by: _____ Date/Time: _____

Attach field copy of sample label or write in sample number.

Notes: see above, colocated with 5003-SS03-2946-ES

note: garage door opened briefly and natural gas forklift in use for a few minutes during sample duration

SAMPLE
START Time 214 Vacuum reading Initial 30 START 30
STOP Time 1152 STOP 3.9 in/Hg OPID

Summa Serial No. 0145 COC # S-49507

CS1200ES Serial No. 03504

3/20 1152 sample # 5003-IA3-2946-ES

Office of Enforcement

CHAIN OF CUSTODY RECORD

Chicago, Illinois 60604

PROJ. NO.	PROJECT NAME
5003	CHEM CENTRAL

Activity Code:

SAMPLERS: *(Print Name and Sign)* A. NOAMANY P. KIELER

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Analyte: TO15	PID	TAG NUMBERS
	3.22	9:03		24 HR	5003-IA1-[redacted]-ES	1	X	0	
	3.22	9:04		24 HR	5003-SS01-[redacted]-ES	1	X	0	
	3.22	9:04		24 HR	5003-DUP1-[redacted]-ES DUP1 AN 322418	1	X	0	
	3.22	11:07		24 HR	5003-SS02-[redacted]-ES	1	X	0	
	3.22	11:07		24 HR	5003-IA1-[redacted]-ES	1	X	0	
	3.22	16:40		24 HR	5003-SS02-0255-ES	1	X	0	
	3.22	16:40		24 HR	5003-IA2-0255-ES	1	X	0	
	3.22			24 HR	5003-	1	X	AN 3.22.18	

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
	3/23/18 1020	
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)* / Date / Time

Ship To: SAMPLE CUSTODIAN 312-886-2935
TECH/ESAT
USEPA CHICAGO REGIONAL LAB
536 S. CLARK ST, 10th FLOOR
ATTN: Stephen Connect Chicago IL 60605

Airbill Number

Chain of Custody Seal Numbers

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File

Printed on Recycled Paper/Printed with Soy-Based Ink

5-49506

5003 - IA1 - [redacted] -ES

Figure 2. Example ~~Field~~ Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

(3/20 install SS01 250)

sample Date: 3/21/18 -120 sample 3/22/18 . Site/Facility Name: Clen Central Bldg [redacted]

Time: Start ~~1120~~ 1230 end 903

Project No.: 5003

Sample Container: PK 3/21/18

Tedlar® Bag: ______ Syringe: ______ Summa canister: X ______ Sorbent Tube: ______

Sampling location and depth: 2.5 - 3' ft

Description of location: 1st floor/ground level equipment room, west side of building 3 doors south of Room #125, 5' north of sump; 5' east of west exterior wall

Sample location purged: ~~Yes~~ No ______ FID or (PID) (circle one) Reading: Initial ~~Final: 0~~ AN 3/22/18 final 0

Sample relinquished by: Keller ______ Date/Time: 3/23/18 1020PM

Sample received by: Martin ______ Date/Time: ______

Attach field copy of sample label or write in sample number:

Notes: Co-located with 5003-SS01- [redacted] -ES
within 2ft of subslab point; 5003-SS01 - [redacted] - DUP1

SAMPLE
3/22 START TIME 1230 Vacuum reading Initial 29.5 START 29.5
STOP TIME 903 STOP 3.5 (3.7) est.

COC# 5-49506

Summa Serial No. 1911

CS1200ES Serial No. 01688

3/22 903

5003-SS01-[redacted]-ES
5003-SS04-[redacted]-DUP1
DUP1 PK

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/21 Site/Facility Name: Chem central Bldg [redacted]

Time: Start 1230 end 904 3/22/18 Project No.: 5003

Sample Container:

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: 6-8"

Description of location: First floor/ground level equipment room, west side of bldg - 3 doors South of room #125; 5ft. north of sump 5(ft) east of west wall

Helfest ✓

Sample location purged: (Yes) 6min FID or (PID) (circle one) Reading: _____ Final: 0

Sample relinquished by: Kiefer Date/Time: 3/23/18 1020am

Sample received by: Martin Date/Time: _____

Attach field copy of sample label or write in sample number:

Notes: Co located with 5003-IA1-[redacted]-ES
2 ft distance

3/21

SAMPLE
START Time 1230
STOP Time 904

Vacuum reading
Initial 30/29 ES DUP1 START
STOP ES 5 6.5 DUP1 PK 5 6.5

ES DUP1
30/29
5 6.5 final

ES DUP1 (blank)
Summa Serial No. 1915 0492 (30 initial inHg)

COC# 5-49506

CS1200 ES Serial No. 03495 ← 05156 (29 initial inHg)

3/22 904

5003-SSG2-[redacted]-ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/21/18 Site/Facility Name: Chemical Bldg [redacted]

Time: Start 139 end 1107 3/22/18 Project No.: 5003

Sample Container:

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: 6-8"

Description of location: _____

He test ✓

Sample location purged: (Yes) 5 min FID or PID (circle one) Reading: 0.3 1338 SVP 1.3 ppm

Sample relinquished by: Kiefer Date/Time: 3/23/18 1020PM FAN 7/27/18

Sample received by: Martin Date/Time: _____

Attach field copy of sample label or write in sample number:

Notes: Co located with 5003-FA2-[redacted]-ES storage room with latex paints and misc. maintenance like lubricants, few small 1/4 qt. oil paints

3/21 SAMPLE START Time 139 PM Vacuum reading Initial 30 in Hg START 30

STOP Time 1107 AM STOP 5.0 Pink-

Summa Serial No. 1721 COC #

CS1200ES Serial No. 01702 5-49506

3/22

5003-IA2-[redacted]-ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/21 3/22 Site/Facility Name: Chemcentral Bldg [redacted]

Time: Start 139 end 1107 Project No.: 5003

Sample Container:

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: 2-3'

Description of location: Storage room: latex paints & misc. lubricants a few small 1/4 qt oil paints

Sample location purged: ~~Yes~~ _____ FID or PID (circle one) Reading: _____ Final 1.0

Sample relinquished by: Kiefer Date/Time: 3/23/18 1020M

Sample received by: Martin Date/Time: _____

Attach field copy of sample label or write in sample number.

Notes: AN 3/22/18 Colocated @ with 5003-SS02-[redacted]-ES
cleaning of gym w/ PineSol is ongoing during sample start

SAMPLE START Time 139 STOP Time 1107

Vacuum reading Initial 30 STOP 5.0 START 30

green

Summa Serial No. 1731

CS1200ES Serial No. 03483

COC # 5-49506

3/22

DC 3/21/18
5003-SS02-~~ES~~0255-ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/21/18
Site/Facility Name: Clem Central Bldg 255
Time: Start 630 end 440 3/22/18
Project No.: S003
Sample Container: OPID 0.3
Tedlar® Bag: ______ Syringe: ______ Summa canister: X Sorbent Tube: ______
Sampling location and depth: 16-18"
Description of location: SW corner of computerroom in suite 2 (Grantsuite) ~75' west of front 2 glass doors
He * 47% he * 47.7
He test ✓
Sample location purged: (Yes) 8 min FID or (PID) (circle one) Reading: 0
Sample relinquished by: Keller Date/Time: 3/23/18 1020PM
Sample received by: Malbin Date/Time: ______

Note: ⟶ * field team super saturated office/shroud by over ~~purging~~ filling shroud. We used a tedlar bag after failing He test 3x (tightened fittings and used modeling clay to fix leaks). Sample train passed with tedlar bag of sample train purged air.

Attach field copy of sample label or write in sample number.

Notes: Co located w S003-~~SS02~~ FA2-0255-ES

SAMPLE
START TIME 630
STOP TIME 440

Vacuum reading
Initial 30 START 30
STOP 5.0

COC#
549506

Summa Serial No. 0827
CS1200ES Serial No. 03498

5003 - IA2 - 0255 - ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/21/18 3/22/18 Site/Facility Name: Chem Central Bldg 255

Time: start 630 end 440 Project No.: 5003

Sample Container:

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: ~~10~~ - 2.5 to 3'

Description of location: 2-3.5' SW corner of computer room 75' west of Suite 2, 2 glass door entrance

Sample location purged: ~~Yes~~ _____ FID or PID (circle one) Reading: _____ Final: 0

Sample relinquished by: Keler Date/Time: 3/23/18 1020 AM

Sample received by: Martin Date/Time: _____

Attach field copy of sample label or write in sample number.

Notes: Co located with 5003-SSO2-0255-E S

SAMPLE START Time 630 STOP Time 440

Vacuum reading Initial 29 STOP 5.0 START 29 (Green)

SUMMA Serial No: 02311 pic 3/21/18

CS1200ES Serial No. 0501

COC# 5-49506

5003- BKG2-0255-BKG2

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/21/18 Site/Facility Name: Chem Central Bldg 255

Time: start 649 end (N/A) Project No.: 5003

Sample Container:

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: 4.5-5'

Description of location: Behind loading dock, on top of surplus bookshelf

Sample location purged: Yes _____ FID or (PID) (circle one) Reading: 0

Sample relinquished by: _____ Date/Time: _____

Sample received by: _____ Date/Time: _____

Attach field copy of sample label or write in sample number:

3/22 NO SAMPLE vandalism?
CANISTER STOLEN

Notes:

Called Matt Ohl - EPA then report to police Wyoming MI
Case/record # 18-7661.

SAMPLE START Time 649 Vacuum reading Initial 30 START 30
STOP Time N/A STOP N/A

SUMMA Serial No. 0508

CS1200ES Serial No. 2310

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ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

CHAIN OF CUSTODY RECORD

REGION 5
77 West Jackson Boulevard
Chicago, Illinois 60604

PROJ. NO.	PROJECT NAME	Activity Code:
5003	CHEMCENTRAL	

SAMPLERS: *(Print Name and Sign)*
A. Noamany P. Kieler

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Analyte: TO 15	PID	TAG NUMBERS
	3-22	4:55		24 HR	5003-SS01-[redacted]-ES	1	X	0	
	3-22	455		24 HR	5003-DUP2-[redacted]-DUP2	1	X	0	
	3-22	455		24 HR	5003-IA1-0[redacted]ES	1	X	0	
	3-22	4:55		24 HR	5003-IA2-[redacted]ES	1	X	0	
	3-22	6:00		24 HR	5003-SS02-[redacted]-ES	1	X	0	
	3-23	1206		24 HR	5003-SS03-0255-ES	1	X	0	
	3-23	1200		24 HR	5003-IA3-0255-ES	1	X	0	

	Date / Time		
Relinquished by: *(Signature)*	3/23/18 1020	Received by: *(Signature)*	Ship To: Sample Custodian 312-886-2[illegible] TechLaw/ESAT USEPA Chicago Regional LABORATORY 536 S. Clark Street, 10th floor CHICAGO, IL 60605 ATTN: Stephen Connect
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time
			Airbill Number
			Chain of Custody Seal Numbers

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File

5-49510

5003 – SS01 – [redacted] – ES
5003 – SS01 – [redacted] – DUP2

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/21/18 3/22/18 Site/Facility Name: Clencanhal Bldg [redacted]

Time: 746 start 455 Project No.: 5003

Sample Container:

Tedlar® Bag: ______ Syringe: ______ Summa canister: X Sorbent Tube: ______

Sampling location and depth: 3-5"

Description of location: SE corner of basement, 5 ft of southwall and 4 feet of westwall

He test ✓

Sample location purged: Yes 2 minute FID or PID (circle one) Reading: initial 0.2 (0 final 90/0)

Sample relinquished by: Kieler Date/Time: 3/23/18 1020AM

Sample received by: Martin Date/Time: ______

Attach field copy of sample label or write in sample number:

purge 725 – 728

Notes: Colocated with 5003-IA1-[redacted]-ES

SAMPLE START TIME 746 Vacuum reading Initial 29/30 START 29/30

STOP TIME 4:55 STOP 2.5/4.5

ES 2 DUP2 ES 30 DUP 29 pink blue

SUMMA Serial No. 0810 0144

CS1200ES Serial No. 03484 03485

COC# 5-49510

5003 - IA1 - [redacted] - ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/21/18 3/22/18 Site/Facility Name: Chemcentral Bldg [redacted]

Time: 7:46 455 Project No.: 5003

Sample Container:

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: ~~H/I~~ 2.5 - 3'

Description of location: SE CORNER of Basement, 5ft of Southwall and 4 ft west wall

Sample location purged: Yes AN 32218 2 minute No. FID or PID (circle one) Reading: 0

Sample relinquished by: [redacted] Date/Time: 3/23/18 1020PM

Sample received by: Martin Date/Time: _____

Attach field copy of sample label or write in sample number.

Notes: Co located w/ 5003-SS01-[redacted]-ES & 5003-DUP2-[redacted]-DUP2

SAMPLE
START TIME 7:46 Vacuum reading Initial 30 START 30
STOP TIME 4:55 STOP 3

SUMMA Serial No. 0522
CS1200 ES Serial No. 03457

COC
S-49510

5003- IA2-[redacted]-ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/21/18 3/22/18 Site/Facility Name: ChemCentral Bldg [redacted]

Time: 918 end 455 Project No.: 5003

Sample Container:

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: 3'

Description of location: 3' on shelf, off floor

Sample location purged: ~~Yes~~ _____ FID or PID (circle one) Reading: 0/0

Sample relinquished by: Kiefer Date/Time: 3/23/18 1000PM

Sample received by: Martin Date/Time: _____

Attach field copy of sample label or write in sample number:

Notes: Co located w/ 5003-SS02-[redacted]-ES.
See Notes for SS02-0248-ES
Cigarettes butts ashtray nearby, near active smokers room

SAMPLE START Time 918 Vacuum reading Initial 30 START 30
STOP Time 455 STOP 3.5
SS02 IA2
Summa Serial No. 0637 / 490
CS1200ES Serial No. 01703 / 3493
COC # 5-49510

5003-SS02-[redacted]-ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/21/18 3/22/18 Site/Facility Name: Chem Cooling Bldg [redacted]

Time: start 8:18 end 6:28pm Project No.: 5003

Sample Container:

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: 1-2.5" break through (2" slab) concrete He Pip SS02

Description of location: installed SVP at NE corner of basement, east of floor drain (~10'); used putty to seal SVP which is not fully emplaced

He test ✓

Sample location purged: Yes 3min. FID or PID (circle one) Reading: 0 / Final PID: 0

Sample relinquished by: Kuefer Date/Time: 3/20/18 1020PM

Sample received by: Martin Date/Time: _____

Attach field copy of sample label or write in sample number:

Notes: Colocated with 5003-IA2-[redacted]-ES
lots of cigarettes, hand finish poured concrete floor varying 3-4" in SW corner near SS01 to less than 2 inch at SE corner gravel base under floor; sealed offset holes w/modeling clay and SVP caps during sampling (2 holes)

SAMPLE
START Time 8:18 PM Vacuum reading Initial 29 START 29
STOP Time 6:28 PM STOP 5.5

	IA2	SS02
Summa Serial No.	0490	637
CS1200ES Serial No.	03493	01703

COC # S-49510

5003-SS03-0255-ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/22/18 3/23/18 Site/Facility Name: Clem Central Bldg 255

Time: start 4:05 end 1206 Project No.: 5003

Sample Container:

Tedlar® Bag: ______ Syringe: ______ Summa canister: X Sorbent Tube: ______

Sampling location and depth: 6-8"

Description of location: loading dock at west end of building (SW Side) 7' ft of east wall 5' north wall (5' off) Purge 316-26 helium test

He test ✓ Sample location purged: Yes 10 minutes FID or PID (circle one) Reading: 0bkg / 0

Sample relinquished by: Lieler Date/Time: 3/23/18 1020PM

Sample received by: Martin Date/Time: ______

Attach field copy of sample label or write in sample number:

Notes: Colocated 1 ft from 5003-IA3-0255-ES

SAMPLE START TIME 405 Vacuum reading Initial 30 START 30

STOP TIME 1206 STOP 5

Summa Serial No. 0497, 3479 QA/V 3/22

CS1200ES Serial No. 03474 1902 Bldg 2945

COC# 549510

5003-IA3-0255-ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/22 (4:05) PK Site/Facility Name: ChemCentral Bldg 255

Time: Start 4:05 end [redacted] Project No.: 5003

Sample Container: 1206 Bldg 255

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: 2.5-3'

Description of location: loading dock at west end of Bldg (SW corner) 7' from east wall, 5' off north wall

Sample location purged: ~~Yes~~ _____ FID or PID (circle one) Reading: 0

Sample relinquished by: Kipler Date/Time: 10/23/18 1020PM

Sample received by: MrAm Date/Time: _____

Attach field copy of sample label or write in sample number.

Notes: Colocated 1 ft from 5003-SS03-0255-ES

SAMPLE
START Time 405 Vacuum reading START 30 mm Hg
STOP Time ~~1040~~ 1206 Initial 30 STOP ~~0~~ 5

SUMMA Serial No. 0494 I (QC# 5-49507)

CS1200ES Serial No. 3482 (5-49510)

☆ U.S. GOVERNMENT PRINTING OFFICE: 1993-747-251

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 5
77 West Jackson Boulevard
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	Activity Code:
5003	Chemical control	

SAMPLERS: *(Print Name and Sign)* KIELER / ALI

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Analyte: TCL	PID	TAG NUMBERS
	3/23/18	0950		X	5003-SS04-2945-ES	1	X	0	
	3/23/18	0958		X	5003-IA4-2945-E	1	X	0	
	3/23/18	1030		X	5003-SS01-2945-ES	1	X	.2	
	3/23/18	1030		X	5003-IA1-2945-ES	1	X	.2	
	3/23/18	1037		X	5003-IA2-2945-ES	1	X	0	
	3/23/18	1040		X	5003-IA3-2945-ES	1	X	0	
	3/23/18	1122		X	5003-SS02-2945-ES	1	X	2.6	
	3/23/18	1130		X	5003-SS03-2945-ES	1		.2	
~~3/23~~		~~1200~~			~~AN 3/23/18~~				
		~~1200~~			~~AN 3/23/18~~				

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
	3/23/18 1015	
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)* / Date / Time

Ship To:
Sample custodian
TECH LAW / ESAT
USEPA Chicago Regional Laboratory
536 S. Clark Street, 10th floor
ATTN: Chicago IL 60605

Airbill Number

Chain of Custody Seal Numbers

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File

5-49508

5003-SS04-2945-ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/22 3/23 Site/Facility Name: Chem Central Bldg 2945

Time: Start 1236 end 950 Project No.: ______

Sample Container:

Tedlar® Bag: ______ Syringe: ______ Summa canister: X Sorbent Tube: ______

Sampling location and depth: 6-8"

Description of location: 11' from north

He test ✓

1225 Sample location purged: Yes 5 min FID or PID (circle one) Reading: sup bkg 0.5/0.5 (0) relative

Sample relinquished by: Keler Date/Time: 3/23/18 1015pm Final 0

Sample received by: Martin Date/Time: ______

Attach field copy of sample label or write in sample number:

Notes: near flammable 7ft away 11 from north wall, garage doors on northwall, opened at least once during sample collection

SAMPLE
START TIME 1236 Vacuum reading Initial 30 START 30 CCC#
STOP TIME 950 STOP 5 5-49508

No OK ← Is this I4 serial #?

QA/100 ✓ SUMMA Serial No. ~~0507PK0148~~

CS1200ES Serial No. ~~3490~~ PK * check this # for verification

01690?

✓

5003-IA4-2945-ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/22/18 3/23/18. Site/Facility Name: CleanCentral Bldg 2945
Time: Start 1236 950 Project No.: 5003

Sample Container:

Tedlar® Bag: ______ Syringe: ______ Summa canister: X Sorbent Tube: ______

Sampling location and ~~depth~~ ht.: 2.5-3 ft

Description of location: ______

______ relative

Sample location purged: Yes 5 minutes FID or (PID) (circle one) Reading: SVP 0.5 bkg 0.5 (0)

Sample relinquished by: 3/23/18 Keeler Date/Time: 3/23/18 1015PM

Sample received by: Martin Date/Time: ______

Attach field copy of sample label or write in sample number:

Notes: near flamable cabinet 7' away and mini backhoe car bay and at least one running truck ~11 ft from north wall ~9' from east interior wall

SAMPLE
4/22 START TIME 1236 Vacuum reading Initial 30 START 30
STOP TIME 950 STOP ~~X~~ ~~X~~ 5

PK
Summa Serial No. 0143 ~~[illegible]~~

CS1200ES Serial No. ~~0[illegible]~~ PK 1690

COC#
5-49508

S003-SS01-2945-ES (1)

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/22/18 Site/Facility Name: Chem Central Bldg 2945

Time: start 1138 end 1030 Project No.: S003

Sample Container: 110 3/23

Tedlar® Bag: ______ Syringe: ______ Summa canister: X Sorbent Tube: ______

Sampling location and depth: 5' from office wall south (interior wall) 5.5 from west wall

Description of location: 6-8"

He test ✓ bkg .6 / .08 sup read

Sample location purged: Yes 5 minutes FID or PID (circle one) Reading: .2 relative

Sample relinquished by: Kiefer Date/Time: 3/23/18 1015AM

Sample received by: Martin Date/Time: ______

Attach field copy of sample label or write in sample number:

Notes: shower deodorizers & cleaning supplies nearby - Pine Sol, air freshener, chlorox etc..

Colocated with S003-IA1-2945-ES

SAMPLE START TIME 1138 Vacuum reading Initial 30 START 30

STOP TIME 1030 3/22 STOP 5

COC# S-49508

Summa Serial No. 0507

CS1200ES Serial No. 3490

SS01

5003- IA1-2945-ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/22 ~~1306~~ Site/Facility Name: Chen(ential) Bldg 2945

Time: Start 110 end 1030 3/23/15 Project No.: 5003

Sample Container:

Tedlar® Bag: ______ Syringe: ______ Summa canister: X ______ Sorbent Tube: ______

Sampling location and depth: Ht. 2.5-3'

Description of location: Gym office 4 ft of north wall, 5 ft of west wall

relative (i2)

Sample location purged: Yes 5min FID or PID (circle one) Reading: 0.8* bkg is 0.6

Sample relinquished by: Kieler Date/Time: 3/23/15 1015PM

Sample received by: Martin Date/Time: ______

total purge time 10minutes during helium test

Attach field copy of sample label or write in sample number:

Notes: fragrances deodorizers, cleaning supplies w/in 15' of SVP point in gym office

Co located with 5003-SS01-2945-ES

SAMPLE
START TIME 110 Vacuum reading Initial 30inHg - START 30
STOP TIME 1030 ✓ STOP 4 ✓

COC #
5-49 508

Summa Serial No. 0117
CS1200ES Serial No. 01699

5003 - IA2 - 2945 - ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/22/18 / 1355 3/22/18 Site/Facility Name: Chem Central Bldg 2945

Time: ~~Start 1355~~ End ~~1030~~ 1037 Project No.: 5003

Sample Container: ~~1 L~~

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: ~~X~~ Ht. 2.5 3'

Description of location: 5' from office wall (interior wall) purge (5s)
5.5' from west exterior wall 125

Sample location purged: ~~Yes~~ _____ FID or PID (circle one) Reading: final 3/22 0.9 * (bkg is 0.9) = zero

Sample relinquished by: Kiefer 3/23/18 1015 PM Date/Time: 3/22 0.6 bkg = 0.2

Sample received by: Martin Date/Time: _____

Attach field copy of sample label or write in sample number:

Notes: cleaning of gym is daily and includes floor scrub/mop

SAMPLE START Time ~~1355~~ 1355 3/22/18 Vacuum reading Initial 29 START 29

STOP Time ~~1030~~ 1037 STOP ~~3~~

Summa Serial No. 0113

CS1200 ES Serial No. 1263

COC # 549508

5003 - IA3 - 2945-ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/22/18 3/23/18 Site/Facility Name: Clemantha B 2945

Time: 2:15 1040 Project No.: 5003

Sample Container:

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: _____

Description of location: East wall gym area by standing press lift station off north wall

Sample location purged: ~~Yes~~ _____ FID or (PID) (circle one) Reading: 3/23 - 0

Sample relinquished by: Kieler Date/Time: 3/23/18 10:15PM

Sample received by: Martin Date/Time: _____

Attach field copy of sample label or write in sample number:

Notes: Co located with 5003-SS03-2945-ES

garage door to gym are opened weather permitting spring to early fall per staff

SAMPLE START TIME 215 Vacuum reading Initial 30 START 30 COC # 5-49508

STOP TIME 1040 ✓ STOP 4

SUMMA Serial No. 1907 ✓

CS1200ES Serial No. 3479

5003-SSO2-2945-ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/22/18 pc 3/24/18 Site/Facility Name: Crew Central Bldg 2945

Time: start 138 end 1122 Project No.: 5003

Sample Container: 146 3/23/18 - Note: PID is 2.6

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: 6-8"

Description of location: 5' from office wall (interior north) and 5.5 from west exterior wall

Sample location purged: Yes 5 minutes FID or PID (circle one) Reading: 1.1 3/22 * (note BKG is 0.9) = 0.2

Purge (ss) 125

Sample relinquished by: Kueler Date/Time: 3/23/18 1015pm

Sample received by: Martin Date/Time: _____

3/29 * .5 in kg 2.6

Attach field copy of sample label or write in sample number:

Notes: cleaning of gym is daily and includes floor mop/scrub Pinesol and Chlorox

SAMPLE
START Time 146 Vacuum reading Initial 29 START 29
STOP Time 1122 STOP 5

COC #

Summa Serial No. 0807 ✓

CS1200ES Serial No. 3752 ✓ 549508

3/23 1122

5003-SS03-2945-ES

Figure 2. Example Field Data Sheet for Indoor Air and Sub-Slab Soil Gas Sampling

Date: 3/22/18 Site/Facility Name: Bldg 2945

Time: Start 2:15 end 1138 Project No.: 5003

Sample Container: 3/23/18

Tedlar® Bag: _____ Syringe: _____ Summa canister: X Sorbent Tube: _____

Sampling location and depth: 6-8"

Description of location: East interior wall by sanding press lift station off north wall

He test ✓

Sample location purged: (Yes) 5 minutes FID or (PID) (circle one) Reading: .2

Sample relinquished by: Kueler Date/Time: 3/23/18 1015PM

Sample received by: Martin Date/Time: _____

Attach field copy of sample label or write in sample number:

Notes: Co located with 5003-IA3-2945-ES

SAMPLE
START Time 2:15 Vacuum reading Initial 29.5 START 29.5
STOP Time 1138 STOP 5

SUMMA Serial No. 0812

CS1200ES Serial No. 01705

COC# 5-49508

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
7332 S. Alton Way, Bldg. 13, Suite E.
Centennial, CO 80112
Toll-free: (866) 960-PINE (7463)

Pine Environmental Services, Inc.

Instrument ID 17156
Description MiniRAE 3000
Calibrated 3/15/2018 3:21:25PM

Manufacturer Rae Systems
Model Number PGM7320
Serial Number/ Lot Number 592-904358
Location Colorado
Department

State Certified
Status Pass
Temp °C 24
Humidity % 16

Calibration Specifications

Group # 1
Group Name VOC
Stated Accy Pct of Reading

Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
100.00 / 100.00	PPM	100.00	PPM	106.40	100.00	0.00%	Pass

Test Instruments Used During the Calibration (As Of Cal Entry Date)

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date
CO 100PPM ISO KAP-248-100-16	CO Isobutylene 100ppm	Calgaz	GP11012	KAP-248-100-16		10/27/2019

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Mike Haduck

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

INSTRUMENT QC/ PACKING LIST

Description	RAE Systems MiniRAE 3000
Instrument ID	171560
Date Calibrated	3-15-18

PINE
www.pine-environmental.com

Standard Items	**Prepared**	**QC check**	**Received by customer**	**Returned to Pine**
MiniRAE 3000 w/ 10.6 eV lamp and carry case	✓	✓		
Protective rubber boot	✓	✓		
Manual	✓	✓		
Quick reference card	✓	✓		
Probe tip	✓	✓		
Charger/ adapter, or charger and cradle	✓	✓		
(2) Hydrophobic filters	✓	✓		
Alkaline battery adapter	✓	✓		
(4) AA Alkaline batteries	✓	✓		
ProCal calibration sheet	✓	✓		
Supporting Items				
100 ppm isobutylene calibration gas	✓	✓		
100 ppm Isobutylene SDS	✓	✓		
✓ *Must match cylinder with setup*				
Gas regulator	✓	✓		
Tedlar bag	✓	✓		
Datalogging software				
Communications cable				

Prepared by: MA
QC checked by:
Date: 3/15/18

This packing list is to ensure that every item needed to operate the unit was sent and received. Upon receiving a shipment, please fill out the "Received by customer" column. Call Pine within 24 hours of receiving the equipment if any pieces are missing, damaged, or malfunctioning. Thank you for choosing Pine Environmental Services LLC

INSTRUMENT QC/ PACKING LIST

Description	SKC Sampling pumps (1 – 5)
Instrument ID	3448
Date Tested	3-15-18

PINE
www.pine-environmental.com

Standard Items	Prepared	QC check	Received by customer	Returned to Pine
1 SKC pump(s) and case	✓	✓		
(1) Manual	✓	✓		
1 Keypad cover(s)	✓	✓		
1 Adjustable low-flow tube adapter	✓	✓		
1 Low-flow tube adapter tube cover		✓		
Brass low flow regulator cap	✓	✓		
Brass exhaust port cap	✓	✓		
1 Exhaust port barb(s)	✓	✓		
1 3' tubing length(s)	✓	✓		
1 37mm Cassette holder w/ luer adapters	✓	✓		
(1) Tool kit small and medium flat screwdrivers	✓	✓		
Single smart chargers (old style)				
Single port PowerFlex charger(s)				
single PowerFlex 15V* AC adapter(s) *Must be **15V / 1.0A** for proper operation*				
1 Five port PowerFlex charger	✓	✓		
1 5-port PowerFlex 15V* AC adapter(s) *Must be **15V / 3.3A – 4.8A** for proper operation*	✓	✓		
1 xr charger cables (s) one per pump	✓	✓		
(1) PowerFlex charger warning/ instructions	✓	✓		

Optional Items

feet of extra tubing				
Cyclones				
Cyclone calibration adapter				
Tripod(s)				

Prepared by: [signature]

QC checked by: [signature]

Date: 3/15/18

This packing list is to ensure that every item needed to operate the unit was sent and received. Upon receiving a shipment, please fill out the "Received by customer" column. Call Pine within 24 hours of receiving the equipment if any pieces are missing, damaged, or malfunctioning. Thank you for choosing Pine Environmental Services LLC

INSTRUMENT QC/ PACKING LIST

Description	Dielectric MGD-2002
Instrument ID	R1189
Date Prepared	3-15-18

PINE
www.pine-environmental.com

Standard Items	**Prepared**	**QC check**	**Received by customer**	**Returned to Pine**
MGD-2002 and carry case	✓	✓		
Manual	✓	✓		
Quick reference card	✓	✓		
Charger	✓	✓		
12VDC auto plug adapter	✓	✓		
Needle probe	✓	✓		
Ground probe	✓	✓		
Handle assembly with moisture filter cartridge	✓	✓		
Extra moisture filter cartridge	✓	✓		
Drying adapter for cartridges	✓	✓		
Carry strap	✓	✓		
ProCal inspection report	X	X		

Prepared by: MM
QC checked by: [illegible]
Date: 3/15/18

This packing list is to ensure that every item needed to operate the unit was sent and received. Upon receiving a shipment, please fill out the "Received by customer" column. Call Pine within 24 hours of receiving the equipment if any pieces are missing, damaged, or malfunctioning. Thank you for choosing Pine Environmental Services LLC.

APPENDIX E

CHAIN-OF-CUSTODY FORMS
EPA REGION 5 CRL

☆ U.S. GOVERNMENT PRINTING OFFICE: 1993-747-251

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 5
77 West Jackson Boulevard
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.: 5003
PROJECT NAME: CHEMCENTRAL
SAMPLERS: *(Print Name and Sign)*: A. Noamany , P. Kieler
Activity Code:

QA	STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Analyte: TO15	PID	TAG NUMBERS
✓		3-20	0740		24 HR	5003-SS01-2946-ES	1	X	0	
✓		3/20	0753		24 HR	5003-IA1-2946-ES	1	X	0	
✓		3-20	0801		24 HR	5003-~~IA1~~SS02-2946-ES	1	X	0.2	
✓		3.20	0820		24 HR	5003-IA2-2946-ES	1	X	0	
✓		3-20	1214		24 HR	5003-SS03-2946-ES	1	X	0.1	
✓		3-20	1152		24 HR	5003-IA3-2946-ES	1	X	0	
✓		3-20	905		24 HR	5003-EB1-2946-EB1	1	X	0	
✓		3-20	905		24 HR	5003-BKG1-2946-BKG1	1	X	0	

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
[signature]	03/21/18 1027	
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)* / Date / Time

Ship To: Sample Custodian 312-996-2935
Tech Law/ESAT
USEPA Chicago Regional Laboratory
536 S. Clark Street, 10th Floor
Chicago, IL 60605
ATTN: Stephen Connet

Airbill Number: 7801 8191 4840

Chain of Custody Seal Numbers: 75414 75409

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File

5-49507

☆ U.S. GOVERNMENT PRINTING OFFICE: 1993-747-251

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

CHAIN OF CUSTODY RECORD

REGION 5
77 West Jackson Boulevard
Chicago, Illinois 60604

PROJ. NO.	PROJECT NAME	Activity Code:
5003	CHEMCENTRAL	

SAMPLERS: *(Print Name and Sign)*
A. Naamany P. Kieler

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Analyte: TO 15	PID	TAG NUMBERS
	3-22	4:55		24 HR	5003-SS01-[redacted]-ES	1	X	0	
	3-22	455		24 HR	5003-DUP2-[redacted]-DUP2	1	X	0	
	3-22	455		24 HR	5003-IA1-[redacted]-ES	1	X	0	
	3-22	4:55		24 HR	5003-IA2-[redacted]-ES	1	X	0	
	3-22	6:05		24 HR	5003-SS02-[redacted]-ES	1	X	0	
	3-23	1206		24 HR	5003-SS03-0255-ES	1	X	0	
	3-23	1206		24 HR	5003-IA3-0255-ES	1	X	0	

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
	3/23/18 1020	
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)* / Date / Time

Ship To: Sample Custodian 312-886-2
TECHLAW/ESAT
USEPA Chicago Regional LABORATORY
536 S. Clark Street, 10th floor
CHICAGO, IL 60605
ATTN: Stephen Connect

Airbill Number

Chain of Custody Seal Numbers

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File

5-49510

☆ U.S. GOVERNMENT PRINTING OFFICE: 1993-747-251

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 5
77 West Jackson Boulevard
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	Activity Code:
5003	Chemical control	

SAMPLERS: *(Print Name and Sign)* KIELER/ALI

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Analyte: TO15	PID	TAG NUMBERS
	3/23/18	958 AN 3/23/18		X	5003-SS04-2945-ES	1	X	0	
	3/23/18	958		X	5003-IA4-2945-E	1	X	6	
	3/23/18	1030		X	5003-SS01-2945-ES	1	X	.2	
	3/23/18	1030		X	5003-IA1-2945-ES	1	X	.2	
	3/23/18	1037		X	5003-IA2-2945-ES	1	X	0	
	3/23/18	1040		X	5003-IA3-2945-ES	1	X	0	
	3/23/18	1122		X	5003-SS02-2945-ES	1	X	2.6	
	3/23/18	1134		X	5003-SS03-2945-ES	1	X	.2	
	~~3/23/18~~	~~1206~~ AN ~~3/23/18~~							
		~~1206~~ AN ~~3/23/18~~							

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
[signature]	3/23/18 1015	[signature]
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)* / Date / Time

Ship To: Sample custodian
TECHLAW/ESAT
USEPA Chicago Regional Laboratory
536 S. Clark Street, 10th floor
ATTN: Chicago IL 60605

Airbill Number

Chain of Custody Seal Numbers

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File

5-49508

Office of Enforcement

CHAIN OF CUSTODY RECORD

Chicago, Illinois 60604

PROJ. NO.	PROJECT NAME
5003	CHEM CENTRAL

Activity Code:

SAMPLERS: *(Print Name and Sign)* A. NOAMANY P. KIELER

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Analyte: TO15							PID	TAG NUMBERS
	3-22	9:03		24 HR	5003-IA1-[redacted]-ES	1	X							0	
	3-22	9:04		24 HR	5003-SS01-[redacted]-ES	1	X							0	
	3-22	9:04		24 HR	5003-DUP1-[redacted]-ES DUP1 AN 3.22.18	1	X							0	
	3-22	11:07		24 HR	5003-SS02-[redacted]-ES	1	X							0	
	3-22	11:07		24 HR	5003-IA2-[redacted]-ES	1	X							0	
	3-22	16:40		24 HR	5003-SS02-0255-ES	1	X							0	
	3-22	16:40		24 HR	5003-IA2-0255-ES	1	X							0	
	3-22			24 HR	5003-	1	X						AN	3.22.18	

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
	3/23/18 1020	
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)* / Date / Time

Ship To: SAMPLE CUSTODIAN 312-886-2935
TECH/ESAT
USEPA CHICAGO REGIONAL LAB
536 S. CLARK ST, 10th FLOOR
ATTN: Stephen Connect Chicago IL 60605

Airbill Number

Chain of Custody Seal Numbers

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File

5-49506

Printed on Recycled Paper/Printed with Soy-Based Ink

APPENDIX F

ANALYTICAL DATA SUMMARY REPORTS

AIR SAMPLING DATA SUMMARY
CHEM CENTRAL SUPERFUND SITE
WYOMING TOWNSHIP, MI

Parameters	Screening Levels (µg/m³)					Sample ID:	Q	Sample ID:	Q	Sample ID:	Q	Sample ID:	Q	Sample ID:	Q
	Non-Residential VIAC[1] <50,000 ft²	Non-Residential VIAC[1] >50,000 ft²	Residential VIAC[1]	SVIIC[2]	Indoor Air Interim Action Screening Levels – Residential (RIASL)	5003-SS01-2946-ES		5003-IA1-2946-ES		5003-SS02-2946-ES		5003-IA2-2946-ES		5003-SS03-2946-ES	
						Sample Date: 3/20/2018		Sample Date: 3/20/2018		Sample Date: 3/20/2018		Sample Date: 3/20/2018		Sample Date: 3/20/2018	
Acetone	--	--	--	2.90E+08	31,000	**30.5**	J	**8.85**	J	**77.7**	J	**4.90**	J	**56.8**	J
1,1-Dichloroethene	10,000	10,000	7,000	--	210	U	J	U	J	U	J	U	J	U	J
Methylene chloride / Dichloromethane	--	--	--	45,000	630	U	J	**0.46**	J	U	J	**0.46**	J	U	J
Carbon disulfide	--	--	--	76,000		U	J	**0.24**	J	**5.92**	J	U	J	U	J
Methyl tertiary butyl ether	--	--	--	9.90E+06	98	U	J	U	J	U	J	U	J	U	J
1,1-Dichloroethane	1,200	1,200	530	--	16	U	J	U	J	U	J	U	J	U	J
n-Hexane	--	--	--	5.10E+05	730	**3.27**	J	**0.44**	J	**8.14**	J	**0.47**	J	U	J
Vinyl acetate	--	--	--	7.90E+05	210	U	J	U	J	U	J	U	J	U	J
Cis-1,2-dichlorothene	410	410	280	--	8.3	U	J	U	J	U	J	U	J	U	J
Dichlorodifluoromethane (F-12)	--	--	--	9.00E+05		**2.88**	J	**2.86**	J	**4.71**	J	**3.07**	J	**2.51**	J
Chloroform	--	--	--	7,200	1.1	U	J	U	J	U	J	U	J	U	J
1,1,1-Trichloroethane	2.30E+05	2.30E+05	1.70E+05	--	5,000	**7.24**	J	U	J	**4.50**	J	U	J	**7.05**	J
1,2-Dichloroethane	--	--	--	1,200		U	J	U	J	U	J	U	J	U	J
Cyclohexane	--	--	--	--		**0.95**	J	U	J	**2.72**	J	U	J	U	J
Carbon tetrachloride / Tetrachloromethane	--	--	--	190		U	J	**0.769**	J	U	J	**0.736**	J	U	J
Benzene	--	--	--	1,600	3.3	**1.6**	J	**0.73**	J	**1.93**	J	**0.62**	J	U	J
Dichlorotetrafluoroethane (F-114)	--	--	--	--		U	J	U	J	U	J	U	J	U	J
Trichloroethene	67	67	67	--	2	U	J	**1.80**	J	U	J	**1.34**	J	**7.43**	J
1,2-Dichloropropane	--	--	--	4,000		U	J	U	J	U	J	U	J	U	J
Bromodichloromethane	--	--	--	1,200		U	J	U	J	U	J	U	J	U	J
1,4-Dioxane	--	--	--	--		U	J	U	J	U	J	U	J	U	J
Cis-1,3-dichloropropene	--	--	--	1,000		U	J	U	J	U	J	U	J	U	J
4-Methyl-2-pentanone / Methyl isobutyl ketone	--	--	--	3.70E+07		U	J	**0.43**	J	**2.19**	J	U	J	U	J
2-Hexanone / Methyl n-butyl ketone	--	--	--	9.90E+05		U	J	**3.45**	J	**2.37**	J	**3.79**	J	**1.64**	J
Trans-1,3-dichloropropene	--	--	--	1,000		U	J	U	J	U	J	U	J	U	J
Chloromethane / Methyl chloride	--	--	--	2,300	94	U	J	**1.35**	J	U	J	**1.41**	J	U	J
Toluene	--	--	--	3.30E+05	5,200	**3.7**	J	**1.28**	J	**9.47**	J	**1.29**	J	**4.15**	J
1,1,2-Trichloroethane	--	--	--	4,600		U	J	U	J	U	J	U	J	U	J
Tetrachloroethene	1,400	1,400	1,400	--	41	**7.79**	J	U	J	U	J	U	J	**12.1**	J
1,2-Dibromoethane	--	--	--	670		U	J	U	J	U	J	U	J	U	J
Chlorobenzene	--	--	--	1.20E+05		U	J	U	J	U	J	U	J	U	J
Ethylbenzene	800	800	340	--	10	**1.30**	J	**0.40**	J	**2.86**	J	**0.38**	J	**1.81**	J
m+p-Xylene	--	--	--	--		**2.7**	J	**0.89**	J	**8.95**	J	**0.77**	J	**5.50**	J
o-Xylene	--	--	--	--		**1.2**	J	**0.38**	J	**3.94**	J	**0.29**	J	**2.40**	J
Styrene	--	--	--	2.50E+05		U	J	**0.24**	J	**1.13**	J	**0.22**	J	U	J
Bromoform / Tribromomethane	--	--	--	1.50E+05		U	J	U	J	U	J	U	J	U	J
Vinyl chloride	450	450	54	--	1.6	U	J	U	J	U	J	U	J	U	J
1,1,2,2-Tetrachloroethane	--	--	--	4,300		U	J	U	J	U	J	U	J	**1.96**	J
1,3,5-Trimethylbenzene	3,100	3,100	2,100	--	63	U	J	U	J	**1.91**	J	U	J	**1.88**	J
1,2,4-Trimethylbenzene	3,100	3,100	2,100	--	63	**2.05**	J	**0.39**	J	**5.08**	J	**0.34**	J	**5.17**	J
1,3-Dichlorobenzene	--	--	--	26,000	3.1	U	J	U	J	U	J	U	J	U	J
1,4-Dichlorobenzene	--	--	--	19,000	6.5	**1.54**	J	U	J	**1.54**	J	U	J	U	J

AIR SAMPLING DATA SUMMARY
CHEM CENTRAL SUPERFUND SITE
WYOMING TOWNSHIP, MI

Parameters	Screening Levels (µg/m^3)					Sample ID:	Q		Q		Q		Q		Q
	Non-Residential VIAC[1] <50,000 ft^2	Non-Residential VIAC[1] >50,000 ft^2	Residential VIAC[1]	SVIIC[2]	Indoor Air Interim Action Screening Levels – Residential (RIASL)										
						Sample Date:		3/20/2018		3/20/2018		3/20/2018		3/20/2018	
1,2-Dichlorobenzene	--	--	--	1.10E+07		U	J	U	J	U	J	U	J	U	J
1,2,4-Trichlorobenzene	--	--	--	9.60E+06	2.1	U	J	U	J	U	J	U	J	U	J
Bromomethane	--	--	--	860		U	J	U	J	U	J	U	J	U	J
Propene	--	--	--	--		**3.80**	J	**156**	J	**5.90**	J	**162**	J	**10.3**	J
1,3-Butadiene	--	--	--	--		U	J	U	J	U	J	U	J	U	J
Benzyl chloride	--	--	--	6,300		U	J	U	J	U	J	U	J	U	J
1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113)	--	--	--	5.10E+06		U	J	**0.427**	J	U	J	**0.479**	J	U	J
2-Propanol / Isopropyl alcohol	--	--	--	--		**176**	J	**3.76**	J	**58.8**	J	**1.71**	J	**137**	J
Acrolein	--	--	--	410		**1.42**	J	**0.82**	J	**4.05**	J	**0.87**	J	U	J
Chloroethane	2.00E+05	2.00E+05	1.40E+05	--	4,200	U	J	U	J	U	J	U	J	U	J
Methyl ethyl ketone / 2-butanone	--	--	--	5.40E+07		U	J	U	J	**7.9**	J	U	J	U	J
Ethanol	--	--	--	--	19,000	**87.9**	J	**13.7**	J	**354**	J	**12.7**	J	**68.2**	J
Trans-1,2-dichloroethene	26,000	26,000	9,000	--	270	U	J	U	J	U	J	U	J	U	J
Dibromochloromethane	--	--	--	3,900		U	J	U	J	U	J	U	J	U	J
Naphthalene	59	59	25	--		U	J	U	J	U	J	U	J	U	J
Trichlorofluoromethane (F-11)	--	--	--	2.80E+06		**2.22**	J	**1.39**	J	**3.05**	J	**1.44**	J	**2.11**	J

1- Site-specific Non-residential and Residential Volatilization to Indoor Air Criteria (VIAC) were developed by MDEQ and provided by EPA via email on February 13, 2018.

2- MDEQ Part 201 Generic Cleanup Criteria and Screening Levels / Part 213 Risk-Based Screening Levels Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) were included if available for those analytes that did not have site-specific criteria.

J - The identification of the analyte is acceptable; the reported value is an estimate.
µg/m^3 - micrograms per cubic meter
U - Non-detect
Bold - The analyte was detected

Highlight - The analyte is above the sceening level

AIR SAMPLING DATA SUMMARY
CHEM CENTRAL SUPERFUND SITE
WYOMING TOWNSHIP, MI

Parameters	Screening Levels (µg/m^3)					Sample ID:	Q	5003-EB1-2946-ES	Q	5003-BKG1-2946-ES	Q	5003-SS01-[redacted]ES	Q	5003-DUP2-[redacted]DUP2	Q
	Non-Residential VIAC[1] <50,000 ft^2	Non-Residential VIAC[1] >50,000 ft^2	Residential VIAC[1]	SVIIC[2]	Indoor Air Interim Action Screening Levels – Residential (RIASL)	Sample Date:		3/20/2018		3/20/2018		3/22/2018		3/22/2018	
Acetone	--	--	--	2.90E+08	31,000	**6.52**	J	**97.7**	J	**8.80**	J	**29.7**	J	**31.4**	J
1,1-Dichloroethene	10,000	10,000	7,000	--	210	U	J	U	J	U	J	U	J	U	J
Methylene chloride / Dichloromethane	--	--	--	45,000	630	**0.42**	J	**0.41**	J	**0.41**	J	U	J	U	J
Carbon disulfide	--	--	--	76,000		U	J	**0.40**	J	U	J	U	J	**0.85**	J
Methyl tertiary butyl ether	--	--	--	9.90E+06	98	U	J	U	J	U	J	U	J	U	J
1,1-Dichloroethane	1,200	1,200	530	--	16	U	J	U	J	U	J	U	J	U	J
n-Hexane	--	--	--	5.10E+05	730	**0.51**	J	**0.89**	J	**0.23**	J	**1.56**	J	**1.43**	J
Vinyl acetate	--	--	--	7.90E+05	210	U	J	U	J	U	J	U	J	U	J
Cis-1,2-dichlorothene	410	410	280	--	8.3	U	J	U	J	U	J	U	J	U	J
Dichlorodifluoromethane (F-12)	--	--	--	9.00E+05		**2.72**	J	**2.64**	J	**2.67**	J	**2.97**	J	**3.05**	J
Chloroform	--	--	--	7,200	1.1	U	J	U	J	U	J	U	J	U	J
1,1,1-Trichloroethane	2.30E+05	2.30E+05	1.70E+05	--	5,000	U	J	U	J	U	J	U	J	**0.77**	J
1,2-Dichloroethane	--	--	--	1,200		U	J	U	J	U	J	U	J	U	J
Cyclohexane	--	--	--	--		U	J	**0.58**	J	U	J	U	J	**0.78**	J
Carbon tetrachloride / Tetrachloromethane	--	--	--	190		**0.696**	J	**0.705**	J	**0.783**	J	U	J	**0.413**	J
Benzene	--	--	--	1,600	3.3	**0.73**	J	**0.91**	J	**0.55**	J	**1.37**	J	**1.25**	J
Dichlorotetrafluoroethane (F-114)	--	--	--	--		U	J	U	J	U	J	U	J	U	J
Trichloroethene	67	67	67	--	2	**5.76**	J	U	J	U	J	U	J	U	J
1,2-Dichloropropane	--	--	--	4,000		U	J	U	J	U	J	U	J	U	J
Bromodichloromethane	--	--	--	1,200		U	J	U	J	U	J	U	J	U	J
1,4-Dioxane	--	--	--	--		U	J	U	J	U	J	U	J	U	J
Cis-1,3-dichloropropene	--	--	--	1,000		U	J	U	J	U	J	U	J	U	J
4-Methyl-2-pentanone / Methyl isobutyl ketone	--	--	--	3.70E+07		U	J	**0.52**	J	U	J	**1.22**	J	**1.20**	J
2-Hexanone / Methyl n-butyl ketone	--	--	--	9.90E+05		**3.20**	J	**0.80**	J	**0.39**	J	U	J	**1.19**	J
Trans-1,3-dichloropropene	--	--	--	1,000		U	J	U	J	U	J	U	J	U	J
Chloromethane / Methyl chloride	--	--	--	2,300	94	**1.27**	J	**1.41**	J	**1.37**	J	U	J	**0.20**	J
Toluene	--	--	--	3.30E+05	5,200	**1.81**	J	**4.14**	J	**0.56**	J	**10.3**	J	**11.5**	J
1,1,2-Trichloroethane	--	--	--	4,600		U	J	U	J	U	J	U	J	**0.8**	J
Tetrachloroethene	1,400	1,400	1,400	--	41	U	J	**3.31**	J	U	J	U	J	**0.51**	J
1,2-Dibromoethane	--	--	--	670		U	J	U	J	U	J	U	J	U	J
Chlorobenzene	--	--	--	1.20E+05		U	J	U	J	U	J	U	J	U	J
Ethylbenzene	800	800	340	--	10	**0.46**	J	**1.33**	J	**0.25**	J	**3.28**	J	**3.84**	J
m+p-Xylene	--	--	--	--		**0.94**	J	**5.00**	J	**0.49**	J	**13.6**	J	**16.3**	J
o-Xylene	--	--	--	--		**0.35**	J	**2.09**	J	**0.22**	J	**5.33**	J	**7.11**	J
Styrene	--	--	--	2.50E+05		**0.23**	J	**0.38**	J	U	J	**1.15**	J	**0.80**	J
Bromoform / Tribromomethane	--	--	--	1.50E+05		U	J	U	J	U	J	U	J	U	J
Vinyl chloride	450	450	54	--	1.6	U	J	U	J	U	J	U	J	U	J
1,1,2,2-Tetrachloroethane	--	--	--	4,300		U	J	**1.15**	J	U	J	U	J	**5.58**	J
1,3,5-Trimethylbenzene	3,100	3,100	2,100	--	63	U	J	**1.61**	J	U	J	**2.98**	J	**4.97**	J
1,2,4-Trimethylbenzene	3,100	3,100	2,100	--	63	**0.46**	J	**5.17**	J	U	J	**7.68**	J	**15.4**	J
1,3-Dichlorobenzene	--	--	--	26,000	3.1	U	J	**0.4**	J	U	J	U	J	U	J
1,4-Dichlorobenzene	--	--	--	19,000	6.5	U	J	**0.64**	J	U	J	U	J	**0.43**	J

AIR SAMPLING DATA SUMMARY
CHEM CENTRAL SUPERFUND SITE
WYOMING TOWNSHIP, MI

Parameters	Screening Levels (µg/m^3)					Sample ID:	Q		Q		Q		Q		Q
	Non-Residential VIAC[1] <50,000 ft^2	Non-Residential VIAC[1] >50,000 ft^2	Residential VIAC[1]	SVIIC[2]	Indoor Air Interim Action Screening Levels – Residential (RIASL)	Sample Date:									
						5003-IA3-2946-ES		5003-EB1-2946-ES		5003-BKG1-2946-ES		5003-SS01-[redacted]ES		5003-DUP2-[redacted]DUP2	
						3/20/2018		3/20/2018		3/20/2018		3/22/2018		3/22/2018	
1,2-Dichlorobenzene	--	--	--	1.10E+07		U	J	U	J	U	J	U	J	U	J
1,2,4-Trichlorobenzene	--	--	--	9.60E+06	2.1	U	J	U	J	U	J	U	J	U	J
Bromomethane	--	--	--	860		U	J	U	J	U	J	U	J	U	J
Propene	--	--	--	--		**175**	J	**1.37**	J	**0.44**	J	U	J	**0.82**	J
1,3-Butadiene	--	--	--	--		U	J	U	J	U	J	U	J	**0.14**	J
Benzyl chloride	--	--	--	6,300		U	J	U	J	U	J	U	J	**1.9**	J
1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113)	--	--	--	5.10E+06		**0.402**	J	**0.413**	J	**0.496**	J	U	J	**0.391**	J
2-Propanol / Isopropyl alcohol	--	--	--	--		**0.82**	J	**38.8**	J	**4.19**	J	**5.78**	J	**5.88**	J
Acrolein	--	--	--	410		**0.91**	J	**1.18**	J	**0.32**	J	U	J	**1.05**	J
Chloroethane	2.00E+05	2.00E+05	1.40E+05	--	4,200	U	J	U	J	U	J	U	J	U	J
Methyl ethyl ketone / 2-butanone	--	--	--	5.40E+07		U	J	**2.9**	J	U	J	U	J	**3.2**	J
Ethanol	--	--	--	--	19,000	**11.2**	J	**128**	J	**11.9**	J	**106**	J	**94.6**	J
Trans-1,2-dichloroethene	26,000	26,000	9,000	--	270	U	J	U	J	U	J	U	J	U	J
Dibromochloromethane	--	--	--	3,900		U	J	U	J	U	J	U	J	U	J
Naphthalene	59	59	25	--		U	J	**0.68**	J	U	J	U	J	**2.20**	J
Trichlorofluoromethane (F-11)	--	--	--	2.80E+06		**1.32**	J	**1.34**	J	**1.44**	J	**2.21**	J	**1.61**	J

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AIR SAMPLING DATA SUMMARY
CHEM CENTRAL SUPERFUND SITE
WYOMING TOWNSHIP, MI

Parameters	Screening Levels (µg/m³)					Sample ID:											
	Non-Residential VIAC[1] <50,000 ft²	Non-Residential VIAC[1] >50,000 ft²	Residential VIAC[1]	SVIIC[2]	Indoor Air Interim Action Screening Levels – Residential (RIASL)	5003-IA1-[redacted]ES	Q	5003-IA2-[redacted]ES	Q	5003-SS02-[redacted]ES	Q	5003-SS03-0255-ES	Q	5003-IA3-0255-ES	Q
						Sample Date:											
						3/22/2018		3/22/2018		3/22/2018		3/23/2018		3/23/2018	
Acetone	--	--	--	2.90E+08	31,000	**19.4**	J	**18.1**	J	**40.9**	J	**71.1**	J	**7.80**	J
1,1-Dichloroethene	10,000	10,000	7,000	--	210	U	J	U	J	U	J	U	J	U	J
Methylene chloride / Dichloromethane	--	--	--	45,000	630	**0.59**	J	**0.64**	J	U	J	U	J	**0.73**	J
Carbon disulfide	--	--	--	76,000		U	J	U	J	U	J	U	J	U	J
Methyl tertiary butyl ether	--	--	--	9.90E+06	98	U	J	U	J	U	J	U	J	U	J
1,1-Dichloroethane	1,200	1,200	530	--	16	U	J	U	J	U	J	U	J	U	J
n-Hexane	--	--	--	5.10E+05	730	**1.97**	J	**2.02**	J	**1.74**	J	**3.21**	J	**1.85**	J
Vinyl acetate	--	--	--	7.90E+05	210	U	J	U	J	U	J	U	J	U	J
Cis-1,2-dichlorothene	410	410	280	--	8.3	U	J	U	J	U	J	U	J	U	J
Dichlorodifluoromethane (F-12)	--	--	--	9.00E+05		**2.43**	J	**2.58**	J	**2.77**	J	**7.66**	J	**2.76**	J
Chloroform	--	--	--	7,200	1.1	**0.3**	J	**0.3**	J	U	J	U	J	U	J
1,1,1-Trichloroethane	2.30E+05	2.30E+05	1.70E+05	--	5,000	U	J	U	J	U	J	U	J	U	J
1,2-Dichloroethane	--	--	--	1,200		U	J	U	J	U	J	U	J	U	J
Cyclohexane	--	--	--	--		**0.40**	J	**0.45**	J	U	J	**1.12**	J	**0.34**	J
Carbon tetrachloride / Tetrachloromethane	--	--	--	190		**0.618**	J	**0.692**	J	U	J	U	J	**0.631**	J
Benzene	--	--	--	1,600	3.3	**1.67**	J	**1.87**	J	**1.37**	J	**1.31**	J	**0.79**	J
Dichlorotetrafluoroethane (F-114)	--	--	--	--		U	J	U	J	U	J	U	J	U	J
Trichloroethene	67	67	67	--	2	U	J	U	J	U	J	U	J	U	J
1,2-Dichloropropane	--	--	--	4,000		U	J	U	J	U	J	U	J	U	J
Bromodichloromethane	--	--	--	1,200		U	J	U	J	U	J	U	J	U	J
1,4-Dioxane	--	--	--	--		U	J	U	J	U	J	U	J	U	J
Cis-1,3-dichloropropene	--	--	--	1,000		U	J	U	J	U	J	U	J	U	J
4-Methyl-2-pentanone / Methyl isobutyl ketone	--	--	--	3.70E+07		**0.33**	J	**0.31**	J	**1.18**	J	**1.39**	J	**0.32**	J
2-Hexanone / Methyl n-butyl ketone	--	--	--	9.90E+05		**0.39**	J	**0.39**	J	U	J	U	J	**0.30**	J
Trans-1,3-dichloropropene	--	--	--	1,000		U	J	U	J	U	J	U	J	U	J
Chloromethane / Methyl chloride	--	--	--	2,300	94	**2.46**	J	**2.52**	J	U	J	U	J	**1.40**	J
Toluene	--	--	--	3.30E+05	5,200	**8.97**	J	**7.26**	J	**10.5**	J	**7.50**	J	**4.17**	J
1,1,2-Trichloroethane	--	--	--	4,600		**0.9**	J	**0.7**	J	U	J	U	J	U	J
Tetrachloroethene	1,400	1,400	1,400	--	41	U	J	U	J	**7.48**	J	U	J	U	J
1,2-Dibromoethane	--	--	--	670		U	J	U	J	U	J	U	J	U	J
Chlorobenzene	--	--	--	1.20E+05		U	J	U	J	U	J	U	J	U	J
Ethylbenzene	800	800	340	--	10	**0.65**	J	**0.67**	J	**3.660**	J	**2.95**	J	**0.79**	J
m+p-Xylene	--	--	--	--		**2.20**	J	**2.20**	J	**15.3**	J	**11.9**	J	**1.40**	J
o-Xylene	--	--	--	--		**0.70**	J	**0.70**	J	**5.82**	J	**4.72**	J	**0.47**	J
Styrene	--	--	--	2.50E+05		**0.54**	J	**0.57**	J	**1.11**	J	**1.16**	J	**0.23**	J
Bromoform / Tribromomethane	--	--	--	1.50E+05		U	J	U	J	U	J	U	J	U	J
Vinyl chloride	450	450	54	--	1.6	U	J	U	J	U	J	U	J	U	J
1,1,2,2-Tetrachloroethane	--	--	--	4,300		U	J	U	J	**3.09**	J	**1.94**	J	U	J
1,3,5-Trimethylbenzene	3,100	3,100	2,100	--	63	U	J	U	J	**3.88**	J	**3.03**	J	**0.30**	J
1,2,4-Trimethylbenzene	3,100	3,100	2,100	--	63	**0.51**	J	**0.51**	J	**12.0**	J	**9.20**	J	**0.78**	J
1,3-Dichlorobenzene	--	--	--	26,000	3.1	U	J	U	J	U	J	U	J	U	J
1,4-Dichlorobenzene	--	--	--	19,000	6.5	U	J	U	J	U	J	U	J	U	J

AIR SAMPLING DATA SUMMARY
CHEM CENTRAL SUPERFUND SITE
WYOMING TOWNSHIP, MI

Parameters	Screening Levels (µg/m^3)					Sample ID:									
	Non-Residential VIAC[1] <50,000 ft^2	Non-Residential VIAC[1] >50,000 ft^2	Residential VIAC[1]	SVIIC[2]	Indoor Air Interim Action Screening Levels – Residential (RIASL)	5003-IA1-[redacted]ES	Q	5003-IA2-[redacted]ES	Q	5003-SS02-[redacted]ES	Q	5003-SS03-0255-ES	Q	5003-IA3-0255-ES	Q
						Sample Date: 3/22/2018		3/22/2018		3/22/2018		3/23/2018		3/23/2018	
1,2-Dichlorobenzene	--	--	--	1.10E+07		U	J	U	J	U	J	U	J	U	J
1,2,4-Trichlorobenzene	--	--	--	9.60E+06	2.1	U	J	U	J	U	J	U	J	U	J
Bromomethane	--	--	--	860		U	J	U	J	U	J	U	J	U	J
Propene	--	--	--	--		**10.4**	J	**10.9**	J	U	J	**1.26**	J	**0.77**	J
1,3-Butadiene	--	--	--	--		**1.05**	J	**1.12**	J	**0.84**	J	U	J	U	J
Benzyl chloride	--	--	--	6,300		U	J	U	J	U	J	U	J	U	J
1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113)	--	--	--	5.10E+06		U	J	**0.403**	J	U	J	U	J	**0.433**	J
2-Propanol / Isopropyl alcohol	--	--	--	--		**13.5**	J	**15.5**	J	**1310**	J	**14.8**	J	**1.37**	J
Acrolein	--	--	--	410		**1.94**	J	**2.05**	J	U	J	**1.24**	J	**0.47**	J
Chloroethane	2.00E+05	2.00E+05	1.40E+05	--	4,200	U	J	U	J	U	J	U	J	U	J
Methyl ethyl ketone / 2-butanone	--	--	--	5.40E+07		**1.7**	J	**2.0**	J	U	J	U	J	**1.6**	J
Ethanol	--	--	--	--	19,000	**238**	J	**147**	J	**97.8**	J	**162**	J	**6.77**	J
Trans-1,2-dichloroethene	26,000	26,000	9,000	--	270	U	J	U	J	U	J	U	J	U	J
Dibromochloromethane	--	--	--	3,900		U	J	U	J	U	J	U	J	U	J
Naphthalene	59	59	25	--		U	J	U	J	U	J	U	J	U	J
Trichlorofluoromethane (F-11)	--	--	--	2.80E+06		**1.43**	J	**1.44**	J	**2.15**	J	**2.04**	J	**1.43**	J

1- Site-specific Non-residential and Residential Volatilization to Indoor Air Criteria (VIAC) were developed by MDEQ and provided by EPA via email on February 13, 2018.

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AIR SAMPLING DATA SUMMARY
CHEM CENTRAL SUPERFUND SITE
WYOMING TOWNSHIP, MI

Parameters	Screening Levels (µg/m³)					Sample ID:	Q	Sample ID:	Q	Sample ID:	Q	Sample ID:	Q	Sample ID:	Q
	Non-Residential VIAC[1] <50,000 ft²	Non-Residential VIAC[1] >50,000 ft²	Residential VIAC[1]	SVIIC[2]	Indoor Air Interim Action Screening Levels – Residential (RIASL)	5003-IA1-[redacted]ES		5003-SS01-[redacted]ES		5003-DUP1-[redacted]DUP1		5003-SS02-[redacted]ES		5003-IA2-[redacted]ES	
						Sample Date: 3/22/2018		3/22/2018		3/22/2018		3/22/2018		3/22/2018	
Acetone	--	--	--	2.90E+08	31,000	**24.1**	J	**21.2**	J	**21.1**	J	**260**	J	**73.4**	J
1,1-Dichloroethene	10,000	10,000	7,000	--	210	U	J	U	J	U	J	U	J	U	J
Methylene chloride / Dichloromethane	--	--	--	45,000	630	**0.49**	J	U	J	U	J	**3.72**	J	**1.96**	J
Carbon disulfide	--	--	--	76,000		U	J	**1.50**	J	**1.40**	J	**7.51**	J	U	J
Methyl tertiary butyl ether	--	--	--	9.90E+06	98	U	J	U	J	U	J	U	J	U	J
1,1-Dichloroethane	1,200	1,200	530	--	16	U	J	U	J	U	J	U	J	U	J
n-Hexane	--	--	--	5.10E+05	730	**1.74**	J	**1.64**	J	**1.65**	J	**12.7**	J	**3.42**	J
Vinyl acetate	--	--	--	7.90E+05	210	U	J	U	J	U	J	U	J	U	J
Cis-1,2-dichlorothene	410	410	280	--	8.3	U	J	U	J	U	J	U	J	U	J
Dichlorodifluoromethane (F-12)	--	--	--	9.00E+05		**2.40**	J	**2.21**	J	**2.17**	J	**2.33**	J	**2.29**	J
Chloroform	--	--	--	7,200	1.1	U	J	U	J	U	J	U	J	U	J
1,1,1-Trichloroethane	2.30E+05	2.30E+05	1.70E+05	--	5,000	U	J	U	J	U	J	**2.31**	J	U	J
1,2-Dichloroethane	--	--	--	1,200		U	J	U	J	U	J	U	J	U	J
Cyclohexane	--	--	--	--		**0.58**	J	**0.90**	J	**1.0**	J	**10.5**	J	**5.32**	J
Carbon tetrachloride / Tetrachloromethane	--	--	--	190		**0.496**	J	U	J	U	J	U	J	**0.437**	J
Benzene	--	--	--	1,600	3.3	**0.93**	J	U	J	U	J	**10.5**	J	U	J
Dichlorotetrafluoroethane (F-114)	--	--	--	--		U	J	U	J	U	J	U	J	U	J
Trichloroethene	67	67	67	--	2	U	J	U	J	U	J	U	J	U	J
1,2-Dichloropropane	--	--	--	4,000		U	J	U	J	U	J	U	J	U	J
Bromodichloromethane	--	--	--	1,200		U	J	U	J	U	J	U	J	U	J
1,4-Dioxane	--	--	--	--		U	J	U	J	U	J	U	J	U	J
Cis-1,3-dichloropropene	--	--	--	1,000		U	J	U	J	U	J	U	J	U	J
4-Methyl-2-pentanone / Methyl isobutyl ketone	--	--	--	3.70E+07		U	J	U	J	U	J	**3.44**	J	U	J
2-Hexanone / Methyl n-butyl ketone	--	--	--	9.90E+05		U	J	U	J	U	J	**1.67**	J	U	J
Trans-1,3-dichloropropene	--	--	--	1,000		U	J	U	J	U	J	U	J	U	J
Chloromethane / Methyl chloride	--	--	--	2,300	94	**1.44**	J	U	J	U	J	U	J	**1.45**	J
Toluene	--	--	--	3.30E+05	5,200	**3.17**	J	**5.86**	J	**5.89**	J	**42.3**	J	U	J
1,1,2-Trichloroethane	--	--	--	4,600		U	J	U	J	U	J	U	J	U	J
Tetrachloroethene	1,400	1,400	1,400	--	41	U	J	U	J	U	J	U	J	U	J
1,2-Dibromoethane	--	--	--	670		U	J	U	J	U	J	U	J	U	J
Chlorobenzene	--	--	--	1.20E+05		U	J	U	J	U	J	U	J	U	J
Ethylbenzene	800	800	340	--	10	**0.55**	J	**2.02**	J	**1.98**	J	**5.40**	J	**2.43**	J
m+p-Xylene	--	--	--	--		**1.80**	J	**8.89**	J	**8.75**	J	**20.8**	J	**9.14**	J
o-Xylene	--	--	--	--		**0.59**	J	**3.45**	J	**3.43**	J	**8.24**	J	**2.96**	J
Styrene	--	--	--	2.50E+05		U	J	U	J	U	J	U	J	U	J
Bromoform / Tribromomethane	--	--	--	1.50E+05		U	J	U	J	U	J	U	J	U	J
Vinyl chloride	450	450	54	--	1.6	U	J	U	J	U	J	U	J	U	J
1,1,2,2-Tetrachloroethane	--	--	--	4,300		U	J	U	J	U	J	U	J	U	J
1,3,5-Trimethylbenzene	3,100	3,100	2,100	--	63	U	J	**1.28**	J	U	J	**3.55**	J	**2.54**	J
1,2,4-Trimethylbenzene	3,100	3,100	2,100	--	63	**0.35**	J	**4.67**	J	**4.57**	J	**12.1**	J	**6.23**	J
1,3-Dichlorobenzene	--	--	--	26,000	3.1	U	J	U	J	U	J	U	J	U	J
1,4-Dichlorobenzene	--	--	--	19,000	6.5	U	J	U	J	U	J	U	J	U	J

AIR SAMPLING DATA SUMMARY
CHEM CENTRAL SUPERFUND SITE
WYOMING TOWNSHIP, MI

Parameters	Screening Levels (µg/m^3)					Sample ID:		Sample ID:		Sample ID:		Sample ID:		Sample ID:	
	Non-Residential VIAC[1] <50,000 ft^2	Non-Residential VIAC[1] >50,000 ft^2	Residential VIAC[1]	SVIIC[2]	Indoor Air Interim Action Screening Levels – Residential (RIASL)	5003-IA1-[redacted]ES	Q	5003-SS01-[redacted]ES	Q	5003-DUP1-[redacted]DUP1	Q	5003-SS02-[redacted]ES	Q	5003-IA2-[redacted]ES	Q
						Sample Date: 3/22/2018		3/22/2018		3/22/2018		3/22/2018		3/22/2018	
1,2-Dichlorobenzene	--	--	--	1.10E+07		U	J	U	J	U	J	U	J	U	J
1,2,4-Trichlorobenzene	--	--	--	9.60E+06	2.1	U	J	U	J	U	J	U	J	U	J
Bromomethane	--	--	--	860		U	J	U	J	U	J	U	J	U	J
Propene	--	--	--	--		**2.13**	J	**2.06**	J	**2.07**	J	**14.6**	J	**6.63**	J
1,3-Butadiene	--	--	--	--		**0.12**	J	U	J	U	J	**2.54**	J	**0.15**	J
Benzyl chloride	--	--	--	6,300		U	J	U	J	U	J	U	J	U	J
1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113)	--	--	--	5.10E+06		**0.512**	J	U	J	U	J	U	J	**0.504**	J
2-Propanol / Isopropyl alcohol	--	--	--	--		**0.78**	J	**6.30**	J	**6.70**	J	**19.2**	J	**4.98**	J
Acrolein	--	--	--	410		**1.07**	J	U	J	U	J	**8.42**	J	**2.09**	J
Chloroethane	2.00E+05	2.00E+05	1.40E+05	--	4,200	U	J	U	J	U	J	U	J	U	J
Methyl ethyl ketone / 2-butanone	--	--	--	5.40E+07		U	J	U	J	U	J	U	J	U	J
Ethanol	--	--	--	--	19,000	**24.7**	J	**114**	J	**106**	J	NO DATA		**44.3**	J
Trans-1,2-dichloroethene	26,000	26,000	9,000	--	270	U	J	U	J	U	J	U	J	U	J
Dibromochloromethane	--	--	--	3,900		U	J	U	J	U	J	U	J	U	J
Naphthalene	59	59	25	--		U	J	U	J	U	J	U	J	U	J
Trichlorofluoromethane (F-11)	--	--	--	2.80E+06		**1.49**	J	**1.68**	J	**1.52**	J	**1.57**	J	**1.48**	J

1- Site-specific Non-residential and Residential Volatilization to Indoor Air Criteria (VIAC) were developed by MDEQ and provided by EPA via email on February 13, 2018.

2- MDEQ Part 201 Generic Cleanup Criteria and Screening Levels / Part 213 Risk-Based Screening Levels Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) were included if available for those analytes that did not have site-specific criteria.

J - The identification of the analyte is acceptable; the reported value is an estimate.
µg/m^3 - micrograms per cubic meter
U - Non-detect
Bold - The analyte was detected

Highlight - The analyte is above the sceening level

AIR SAMPLING DATA SUMMARY
CHEM CENTRAL SUPERFUND SITE
WYOMING TOWNSHIP, MI

Parameters	Screening Levels (µg/m³)					Sample ID:	Q	Sample ID:	Q	Sample ID:	Q	Sample ID:	Q	Sample ID:	Q
	Non-Residential VIAC[1] <50,000 ft²	Non-Residential VIAC[1] >50,000 ft²	Residential VIAC[1]	SVIIC[2]	Indoor Air Interim Action Screening Levels – Residential (RIASL)	Sample Date:		Sample Date:		Sample Date:		Sample Date:		Sample Date:	
						5003-SS02-0255-ES		5003-IA2-0255-ES		5003-SS04-2945-ES		5003-IA4-2945-E		5003-SS01-2945-ES	
						3/22/2018		3/22/2018		3/23/2018		3/23/2018		3/23/2018	
Acetone	--	--	--	2.90E+08	31,000	**51.4**	J	U	J	**131**	J	**55.8**	J	**67.5**	J
1,1-Dichloroethene	10,000	10,000	7,000	--	210	U	J	U	J	U	J	U	J	U	J
Methylene chloride / Dichloromethane	--	--	--	45,000	630	U	J	**0.57**	J	U	J	**1.42**	J	U	J
Carbon disulfide	--	--	--	76,000		**1.31**	J	U	J	**0.83**	J	U	J	**1.14**	J
Methyl tertiary butyl ether	--	--	--	9.90E+06	98	U	J	U	J	U	J	U	J	U	J
1,1-Dichloroethane	1,200	1,200	530	--	16	U	J	U	J	U	J	U	J	U	J
n-Hexane	--	--	--	5.10E+05	730	**1.80**	J	**1.70**	J	**24.3**	J	**28.0**	J	**1.88**	J
Vinyl acetate	--	--	--	7.90E+05	210	U	J	U	J	U	J	U	J	U	J
Cis-1,2-dichlorothene	410	410	280	--	8.3	U	J	U	J	U	J	U	J	U	J
Dichlorodifluoromethane (F-12)	--	--	--	9.00E+05		**5.01**	J	**5.98**	J	**2.97**	J	**2.26**	J	**2.26**	J
Chloroform	--	--	--	7,200	1.1	U	J	U	J	U	J	**0.5**	J	**25.9**	J
1,1,1-Trichloroethane	2.30E+05	2.30E+05	1.70E+05	--	5,000	U	J	U	J	U	J	U	J	U	J
1,2-Dichloroethane	--	--	--	1,200		U	J	U	J	U	J	U	J	U	J
Cyclohexane	--	--	--	--		U	J	U	J	U	J	**10.0**	J	**1.88**	J
Carbon tetrachloride / Tetrachloromethane	--	--	--	190		U	J	**0.518**	J	U	J	**0.384**	J	U	J
Benzene	--	--	--	1,600	3.3	**1.29**	J	**0.91**	J	**7.72**	J	**7.95**	J	**1.18**	J
Dichlorotetrafluoroethane (F-114)	--	--	--	--		U	J	U	J	U	J	U	J	U	J
Trichloroethene	67	67	67	--	2	U	J	U	J	U	J	U	J	U	J
1,2-Dichloropropane	--	--	--	4,000		U	J	U	J	U	J	U	J	U	J
Bromodichloromethane	--	--	--	1,200		U	J	U	J	U	J	U	J	U	J
1,4-Dioxane	--	--	--	--		U	J	U	J	U	J	**0.3**	J	U	J
Cis-1,3-dichloropropene	--	--	--	1,000		U	J	U	J	U	J	U	J	U	J
4-Methyl-2-pentanone / Methyl isobutyl ketone	--	--	--	3.70E+07		U	J	U	J	**2.22**	J	**1.37**	J	**1.87**	J
2-Hexanone / Methyl n-butyl ketone	--	--	--	9.90E+05		U	J	U	J	U	J	**0.38**	J	U	J
Trans-1,3-dichloropropene	--	--	--	1,000		U	J	U	J	U	J	U	J	U	J
Chloromethane / Methyl chloride	--	--	--	2,300	94	U	J	**1.14**	J	U	J	**0.14**	J	U	J
Toluene	--	--	--	3.30E+05	5,200	**12.3**	J	**4.33**	J	**39.3**	J	U	J	**10.1**	J
1,1,2-Trichloroethane	--	--	--	4,600		U	J	U	J	U	J	U	J	U	J
Tetrachloroethene	1,400	1,400	1,400	--	41	U	J	U	J	**1.75**	J	U	J	U	J
1,2-Dibromoethane	--	--	--	670		U	J	U	J	U	J	U	J	U	J
Chlorobenzene	--	--	--	1.20E+05		U	J	U	J	U	J	U	J	U	J
Ethylbenzene	800	800	340	--	10	**4.50**	J	**2.47**	J	**7.93**	J	**5.52**	J	**4.20**	J
m+p-Xylene	--	--	--	--		**20.2**	J	**1.68**	J	**24.5**	J	**15.7**	J	**19.1**	J
o-Xylene	--	--	--	--		**8.03**	J	**0.53**	J	**8.62**	J	**6.73**	J	**7.09**	J
Styrene	--	--	--	2.50E+05		U	J	U	J	U	J	**0.40**	J	U	J
Bromoform / Tribromomethane	--	--	--	1.50E+05		U	J	U	J	U	J	U	J	U	J
Vinyl chloride	450	450	54	--	1.6	U	J	U	J	U	J	U	J	U	J
1,1,2,2-Tetrachloroethane	--	--	--	4,300		U	J	U	J	U	J	U	J	U	J
1,3,5-Trimethylbenzene	3,100	3,100	2,100	--	63	**3.41**	J	U	J	**2.82**	J	**2.52**	J	**3.07**	J
1,2,4-Trimethylbenzene	3,100	3,100	2,100	--	63	**11.9**	J	**0.47**	J	**9.41**	J	**9.19**	J	**11.8**	J
1,3-Dichlorobenzene	--	--	--	26,000	3.1	U	J	U	J	U	J	U	J	U	J
1,4-Dichlorobenzene	--	--	--	19,000	6.5	U	J	U	J	U	J	U	J	U	J

AIR SAMPLING DATA SUMMARY
CHEM CENTRAL SUPERFUND SITE
WYOMING TOWNSHIP, MI

Parameters	Screening Levels (µg/m^3)					Sample ID:	Q	Sample ID:	Q	Sample ID:	Q	Sample ID:	Q	Sample ID:	Q
	Non-Residential VIAC[1] <50,000 ft^2	Non-Residential VIAC[1] >50,000 ft^2	Residential VIAC[1]	SVIIC[2]	Indoor Air Interim Action Screening Levels – Residential (RIASL)	Sample Date:		Sample Date:		Sample Date:		Sample Date:		Sample Date:	
						5003-SS02-0255-ES		5003-IA2-0255-ES		5003-SS04-2945-ES		5003-IA4-2945-E		5003-SS01-2945-ES	
						3/22/2018		3/22/2018		3/23/2018		3/23/2018		3/23/2018	
1,2-Dichlorobenzene	--	--	--	1.10E+07		U	J	U	J	U	J	U	J	U	J
1,2,4-Trichlorobenzene	--	--	--	9.60E+06	2.1	U	J	U	J	U	J	U	J	U	J
Bromomethane	--	--	--	860		U	J	U	J	U	J	U	J	U	J
Propene	--	--	--	--		**0.79**	J		J	**2.75**	J	**34.1**	J	U	J
1,3-Butadiene	--	--	--	--		U	J	**1.51**	J	**0.98**	J	**3.24**	J	U	J
Benzyl chloride	--	--	--	6,300		U	J	U	J	U	J	**1.0**	J	U	J
1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113)	--	--	--	5.10E+06		U	J	**0.521**	J	U	J	**0.474**	J	U	J
2-Propanol / Isopropyl alcohol	--	--	--	--		**38.6**	J	**4.69**	J	**16.7**	J	**39.9**	J	**29.9**	J
Acrolein	--	--	--	410		**1.56**	J	**1.29**	J	**14.1**	J	U	J	**1.38**	J
Chloroethane	2.00E+05	2.00E+05	1.40E+05	--	4,200	U	J	U	J	U	J	U	J	U	J
Methyl ethyl ketone / 2-butanone	--	--	--	5.40E+07		U	J	U	J	**14.3**	J	**45.9**	J	U	J
Ethanol	--	--	--	--	19,000	**111**	J	**28.2**	J	**546**	J	**208**	J	**657**	J
Trans-1,2-dichloroethene	26,000	26,000	9,000	--	270	U	J	U	J	U	J	U	J	U	J
Dibromochloromethane	--	--	--	3,900		U	J	U	J	U	J	U	J	U	J
Naphthalene	59	59	25	--		U	J	U	J	U	J	**0.86**	J	U	J
Trichlorofluoromethane (F-11)	--	--	--	2.80E+06		**1.62**	J	**1.61**	J	U	J	**1.35**	J	**1.65**	J

1- Site-specific Non-residential and Residential Volatilization to Indoor Air Criteria (VIAC) were developed by MDEQ and provided by EPA via email on February 13, 2018.

2- MDEQ Part 201 Generic Cleanup Criteria and Screening Levels / Part 213 Risk-Based Screening Levels Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) were included if available for those analytes that did not have site-specific criteria.

J - The identification of the analyte is acceptable; the reported value is an estimate.
µg/m^3 - micrograms per cubic meter
U - Non-detect
Bold - The analyte was detected

Highlight - The analyte is above the sceening level

AIR SAMPLING DATA SUMMARY
CHEM CENTRAL SUPERFUND SITE
WYOMING TOWNSHIP, MI

Parameters	Screening Levels (µg/m³)					Sample ID:	Q		Q		Q		Q		Q
	Non-Residential VIAC[1] <50,000 ft[2]	Non-Residential VIAC[1] >50,000 ft[2]	Residential VIAC[1]	SVIIC[2]	Indoor Air Interim Action Screening Levels – Residential (RIASL)	Sample Date:		5003-IA1-2945-ES 3/23/2018		5003-IA2-2945-ES 3/23/2018		5003-IA3-2945-ES 3/23/2018		5003-SS02-2945-ES 3/23/2018		5003-SS03-2945-ES 3/23/2018	
Acetone	--	--	--	2.90E+08	31,000	**52.9**	J	U	J	**62.2**	J	**784**	J	**105**	J
1,1-Dichloroethene	10,000	10,000	7,000	--	210	U	J	U	J	U	J	U	J	U	J
Methylene chloride / Dichloromethane	--	--	--	45,000	630	**0.55**	J	**0.43**	J	**0.44**	J	U	J	U	J
Carbon disulfide	--	--	--	76,000		U	J	U	J	U	J	U	J	**1.50**	J
Methyl tertiary butyl ether	--	--	--	9.90E+06	98	U	J	U	J	U	J	U	J	U	J
1,1-Dichloroethane	1,200	1,200	530	--	16	U	J	U	J	U	J	U	J	U	J
n-Hexane	--	--	--	5.10E+05	730	**1.61**	J	**1.56**	J	**1.66**	J	**2.14**	J	**2.81**	J
Vinyl acetate	--	--	--	7.90E+05	210	U	J	U	J	U	J	U	J	U	J
Cis-1,2-dichlorothene	410	410	280	--	8.3	U	J	U	J	U	J	U	J	U	J
Dichlorodifluoromethane (F-12)	--	--	--	9.00E+05		**2.32**	J	**2.24**	J	**2.37**	J	**1.96**	J	**2.31**	J
Chloroform	--	--	--	7,200	1.1	**61.9**	J	**13.8**	J	**12.1**	J	**2.62**	J	**2.68**	J
1,1,1-Trichloroethane	2.30E+05	2.30E+05	1.70E+05	--	5,000	U	J	U	J	U	J	U	J	U	J
1,2-Dichloroethane	--	--	--	1,200		U	J	U	J	U	J	U	J	U	J
Cyclohexane	--	--	--	--		U	J	**0.80**	J	**0.86**	J	**1.63**	J	**2.56**	J
Carbon tetrachloride / Tetrachloromethane	--	--	--	190		**0.583**	J	**0.467**	J	**0.495**	J	U	J	U	J
Benzene	--	--	--	1,600	3.3	**1.16**	J	**1.12**	J	**1.22**	J	**1.36**	J	**2.09**	J
Dichlorotetrafluoroethane (F-114)	--	--	--	--		U	J	U	J	U	J	U	J	U	J
Trichloroethene	67	67	67	--	2	U	J	U	J	U	J	U	J	U	J
1,2-Dichloropropane	--	--	--	4,000		U	J	U	J	U	J	U	J	U	J
Bromodichloromethane	--	--	--	1,200		U	J	U	J	U	J	U	J	U	J
1,4-Dioxane	--	--	--	--		U	J	U	J	U	J	**1.8**	J	U	J
Cis-1,3-dichloropropene	--	--	--	1,000		U	J	U	J	U	J	U	J	U	J
4-Methyl-2-pentanone / Methyl isobutyl ketone	--	--	--	3.70E+07		**2.61**	J	**6.56**	J	**6.45**	J	**3.05**	J	**3.25**	J
2-Hexanone / Methyl n-butyl ketone	--	--	--	9.90E+05		**0.32**	J	U	J	**0.50**	J	**1.88**	J	U	J
Trans-1,3-dichloropropene	--	--	--	1,000		U	J	U	J	U	J	U	J	U	J
Chloromethane / Methyl chloride	--	--	--	2,300	94	**1.88**	J	**1.27**	J	**1.31**	J	U	J	U	J
Toluene	--	--	--	3.30E+05	5,200	**3.26**	J	**2.79**	J	**3.16**	J	**10.8**	J	**11.7**	J
1,1,2-Trichloroethane	--	--	--	4,600		U	J	U	J	U	J	U	J	U	J
Tetrachloroethene	1,400	1,400	1,400	--	41	**0.88**	J	**0.79**	J	**0.82**	J	U	J	**4.01**	J
1,2-Dibromoethane	--	--	--	670		U	J	U	J	U	J	U	J	U	J
Chlorobenzene	--	--	--	1.20E+05		U	J	U	J	U	J	U	J	U	J
Ethylbenzene	800	800	340	--	10	**1.08**	J	**0.90**	J	**0.88**	J	**4.69**	J	**4.54**	J
m+p-Xylene	--	--	--	--		**13.1**	J	**13.2**	J	**13.8**	J	**22.5**	J	**21.0**	J
o-Xylene	--	--	--	--		**1.12**	J	**0.97**	J	**1.05**	J	**10.1**	J	**7.61**	J
Styrene	--	--	--	2.50E+05		**1.55**	J	**0.57**	J	**0.58**	J	U	J	U	J
Bromoform / Tribromomethane	--	--	--	1.50E+05		U	J	U	J	U	J	U	J	U	J
Vinyl chloride	450	450	54	--	1.6	U	J	U	J	U	J	U	J	U	J
1,1,2,2-Tetrachloroethane	--	--	--	4,300		U	J	U	J	U	J	U	J	U	J
1,3,5-Trimethylbenzene	3,100	3,100	2,100	--	63	U	J	U	J	U	J	**4.27**	J	**3.25**	J
1,2,4-Trimethylbenzene	3,100	3,100	2,100	--	63	**0.78**	J	**0.81**	J	**0.80**	J	**14.6**	J	**11.7**	J
1,3-Dichlorobenzene	--	--	--	26,000	3.1	U	J	U	J	U	J	U	J	U	J
1,4-Dichlorobenzene	--	--	--	19,000	6.5	U	J	U	J	U	J	U	J	U	J

AIR SAMPLING DATA SUMMARY
CHEM CENTRAL SUPERFUND SITE
WYOMING TOWNSHIP, MI

Parameters	Screening Levels (µg/m^3)					Sample ID:	Q		Q		Q		Q		Q
	Non-Residential VIAC[1] <50,000 ft^2	Non-Residential VIAC[1] >50,000 ft^2	Residential VIAC[1]	SVIIC[2]	Indoor Air Interim Action Screening Levels – Residential (RIASL)	Sample Date:									
						5003-IA1-2945-ES		5003-IA2-2945-ES		5003-IA3-2945-ES		5003-SS02-2945-ES		5003-SS03-2945-ES	
						3/23/2018		3/23/2018		3/23/2018		3/23/2018		3/23/2018	
1,2-Dichlorobenzene	--	--	--	1.10E+07		U	J	U	J	U	J	U	J	U	J
1,2,4-Trichlorobenzene	--	--	--	9.60E+06	2.1	U	J	U	J	U	J	U	J	U	J
Bromomethane	--	--	--	860		U	J	U	J	U	J	U	J	U	J
Propene	--	--	--	--		**0.12**	J	**6.13**	J	**6.65**	J	**0.81**	J	**1.84**	J
1,3-Butadiene	--	--	--	--		**0.35**	J	**0.24**	J	**0.26**	J	U	J	**1.51**	J
Benzyl chloride	--	--	--	6,300		U	J	U	J	U	J	U	J	U	J
1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113)	--	--	--	5.10E+06		**0.475**	J	**0.471**	J	**0.501**	J	U	J	U	J
2-Propanol / Isopropyl alcohol	--	--	--	--		**33.9**	J	**34.3**	J	**33.3**	J	**358**	J	**31.6**	J
Acrolein	--	--	--	410		**2.46**	J	**1.78**	J	**1.97**	J	**1.93**	J	**1.96**	J
Chloroethane	2.00E+05	2.00E+05	1.40E+05	--	4,200	U	J	U	J	U	J	U	J	U	J
Methyl ethyl ketone / 2-butanone	--	--	--	5.40E+07		U	J	U	J	U	J	**14.0**	J	**8.2**	J
Ethanol	--	--	--	--	19,000	**1360**	J	**1630**	J	**1420**	J	**1060**	J	**1130**	J
Trans-1,2-dichloroethene	26,000	26,000	9,000	--	270	U	J	U	J	U	J	U	J	U	J
Dibromochloromethane	--	--	--	3,900		U	J	U	J	U	J	U	J	U	J
Naphthalene	59	59	25	--		U	J	**0.54**	J	**0.95**	J	U	J	U	J
Trichlorofluoromethane (F-11)	--	--	--	2.80E+06		**1.60**	J	**1.56**	J	**1.63**	J	**1.73**	J	**1.75**	J

1- Site-specific Non-residential and Residential Volatilization to Indoor Air Criteria (VIAC) were developed by MDEQ and provided by EPA via email on February 13, 2018.

2- MDEQ Part 201 Generic Cleanup Criteria and Screening Levels / Part 213 Risk-Based Screening Levels Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) were included if available for those analytes that did not have site-specific criteria.

J - The identification of the analyte is acceptable; the reported value is an estimate.
µg/m^3 - micrograms per cubic meter
U - Non-detect
Bold - The analyte was detected

Highlight - The analyte is above the sceening level

APPENDIX G

GPS COORDINATES

APPENDIX G
ChemCentral Approximate Sample Coordinates
Sub-Slab Soil Vapor and Indoor Air Sampling
March 2018

SampleID	Easting	Northing
5003-SS02-2945-ES	608206.3228	4751674.419
5003-IA2-2945-ES	608206.3228	4751675.487
5003-SS01-2945-ES	608205.6824	4751681.89
5003-IA1-2945-ES	608205.8959	4751682.317
5003-SS03-2945-ES	608220.1974	4751682.958
5003-IA3-2995-ES	608220.8377	4751682.958
5003-SS04-2945-ES	608247.0927	4751683.598
5003-IA4-2945-ES	608247.9465	4751684.025
5003-SS03-0255-ES	608315.1849	4751794.595
5003-IA3-0255-ES	608315.3984	4751795.235
5003-SS02-0255-ES	608337.3843	4751811.885
5003-IA2-[redacted]ES	[redacted]	[redacted]
5003-SS01-[redacted]ES	[redacted]	[redacted]
5003-DUP2-[redacted]DUP2	[redacted]	[redacted]
5003-IA1-[redacted]ES	[redacted]	[redacted]
5003-SS02-[redacted]ES	[redacted]	[redacted]
5003-IA2-[redacted]ES	[redacted]	[redacted]
5003-SS01-2946-ES	608303.4671	4751650.291
5003-IA1-2946-ES	608303.2374	4751650.98
5003-SS02-2946-ES	608309.44	4751639.953
5003-IA2-2946-ES	608309.2103	4751640.413
5003-SS03-2946-ES	608295.4268	4751662.237
5003-IA3-2946-ES	608294.9673	4751662.926
5003-EBI-2946-EBI	608316.102	4751642.94
5003-BKG1-2946-BKG1	608315.4129	4751643.399
5003-DUP1-[redacted]DUP1	[redacted]	[redacted]
5003-SS01-[redacted]ES	[redacted]	[redacted]
5003-IA1-[redacted]ES	[redacted]	[redacted]
5003-SS02-[redacted]ES	[redacted]	[redacted]
5003-IA2-[redacted]ES	[redacted]	[redacted]