

September 28, 2023
File No. 25222269.03

Ms. Jennifer Borski
Wisconsin Department of Natural Resources
625 E. County Road Y, STE. 700
Oshkosh, WI 54901-9731

Subject: Site Investigation Status Report
So's Dry Cleaner (Former) – BRRTS #02-45-552133
304 West Wisconsin Ave
Appleton, Wisconsin

Dear Ms. Borski:

SCS Engineers (SCS) prepared this Site Investigation Status Report for the Wisconsin Department of Natural Resources (WDNR) to present results for the vapor investigation activities related to the chlorinated volatile organic compound (CVOC) release at the former So's Dry Cleaner (Former) (So's) site (the site) (**Figures 1 and 2**). The sampling was completed at the request of WDNR through the Vapor Intrusion Zone Contract (VIZC). Laboratory results indicate that while CVOC vapors were detected within each sanitary manhole structure sampled, the reported concentrations are less than Sanitary Sewer Gas Screening Levels (SSGSLs).

BACKGROUND

The So's site is occupied by an active dry cleaning business. CVOC impacts to soil, groundwater, and vapor/air attributed to historic dry cleaning operations have been identified. WDNR requested evaluation of potential CVOC vapors within sanitary sewers, which have the potential to act as conduits for vapor migration. The sanitary sewer that serves the former So's property also serves the surrounding area, which is developed with commercial and residential properties.

SANITARY SEWER INFORMATION

SCS obtained information regarding the sanitary sewers near the So's site from the City of Appleton. Three sanitary sewer manhole structures along W. Wisconsin Avenue were identified as sampling locations, including the structures identified on City plans as "SAN MH 58-24" located up-flow from the So's site, and "SAN MH 36-60" and "SAN MH 36-59" located in a down-flow direction. Based on communications with the City of Appleton it is our understanding that the current sanitary sewer was constructed in 1977. The sanitary sewer sampling locations are shown on **Figure 2**.

PASSIVE SEWER VAPOR SAMPLING

On May 9, 2023, SCS mobilized to the site for the placement of Beacon Environmental (Beacon) passive samplers in each sanitary manhole structure. Traffic control measures were implemented to allow safe access to the manhole sampling locations, which were located along the center line of West Wisconsin Avenue. Based on a traffic control plan approved by the City of Appleton, barricades and appropriate signage were deployed prior to SCS' arrival by Warning Lites of Appleton, Wisconsin.



Prior to sampler placement within each manhole, the liquid level was measured and recorded. The samplers were then suspended with a braided mason line approximately 1 foot above the measured liquid level using neodymium magnets to secure the string to the manhole structure. The manhole lid was then replaced. The ambient temperature was approximately 55 degrees Fahrenheit during sampler placement.

Samplers were retrieved on May 23, 2023, and were immediately placed in the return shipment packaging provided by Beacon. The ambient temperature was approximately 60 degrees during sampler retrieval. Very little precipitation fell during the period of sample collection, and samplers showed no signs of inundation. Samplers were returned to Beacon along with a completed chain-of-custody form for analysis of tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (DCE), trans-1,2-DCE, and vinyl chloride by EPA Method TO-17.

A copy of WDNR's Vapor Intrusion Sample Log is included as **Appendix A**. Photographs of the sample deployment, including traffic control measures implemented, are included as **Appendix B**.

RESULTS

Analytical results are summarized in **Table 1**. The Beacon laboratory analytical report is included in **Appendix C**.

PCE, TCE, cis-1,2-DCE, and trans-1,2-DCE were detected in each sample, while vinyl chloride was not detected in the samples. The trip blank analyzed as a quality control measure was not found to contain CVOCs at concentrations greater than the laboratory detection limits.

The analytical results were compared to SSGSLs, and no SSGSLs were exceeded. However, the reported concentrations of TCE and PCE at each sample location were greater than 10 percent of their respective SSGSLs.

Results for the two down-flow manholes "SAN MH 36-60" and "SAN MH 36-59" indicate that more elevated vapor concentrations are located further from the source property. However, the concentrations were not vastly different from one another, so it is possible that the results reflect normal variability of vapor concentrations. It is also possible that other sources located along the sewer lines that also flow into these manholes contributed to the concentrations reported for the manholes.

Although it is located in the up-flow direction from the So's site, vapor results from "SAN-MH 58-24" indicated the presence of CVOC vapors. The results are suspected to be the result of vapor migration from the So's site, given the proximity to the So's site, but not direct migration of waste liquids from the So's site due to the sewer flow direction. However, this manhole also receives flow from additional sewer lines which could potentially influence the sample results.

RECOMMENDATIONS

Concentrations of CVOCs in the sewer vapor samples were not reported to exceed SSGSLs, and therefore expansion of the vapor investigation to additional sanitary sewer locations or nearby residences is not warranted or recommended at this time. However, based on the reported PCE and TCE concentrations greater than 10 percent of SSGSLs, an additional round of sampling at the same three locations is recommended per WDNR guidance document RR-649. The additional round of

sampling should take place during a cooler season to evaluate potential seasonal variation in sewer vapor concentrations and the associated risk to nearby occupied buildings.

CLOSING

SCS appreciates the opportunity to assist WDNR with this important VIZC project. Please contact Robert Langdon at (608) 212-3995 or rlangdon@scsengineers.com with any questions regarding this report or its findings.

Sincerely,



Jacob Krause, PG
Hydrogeologist
SCS Engineers

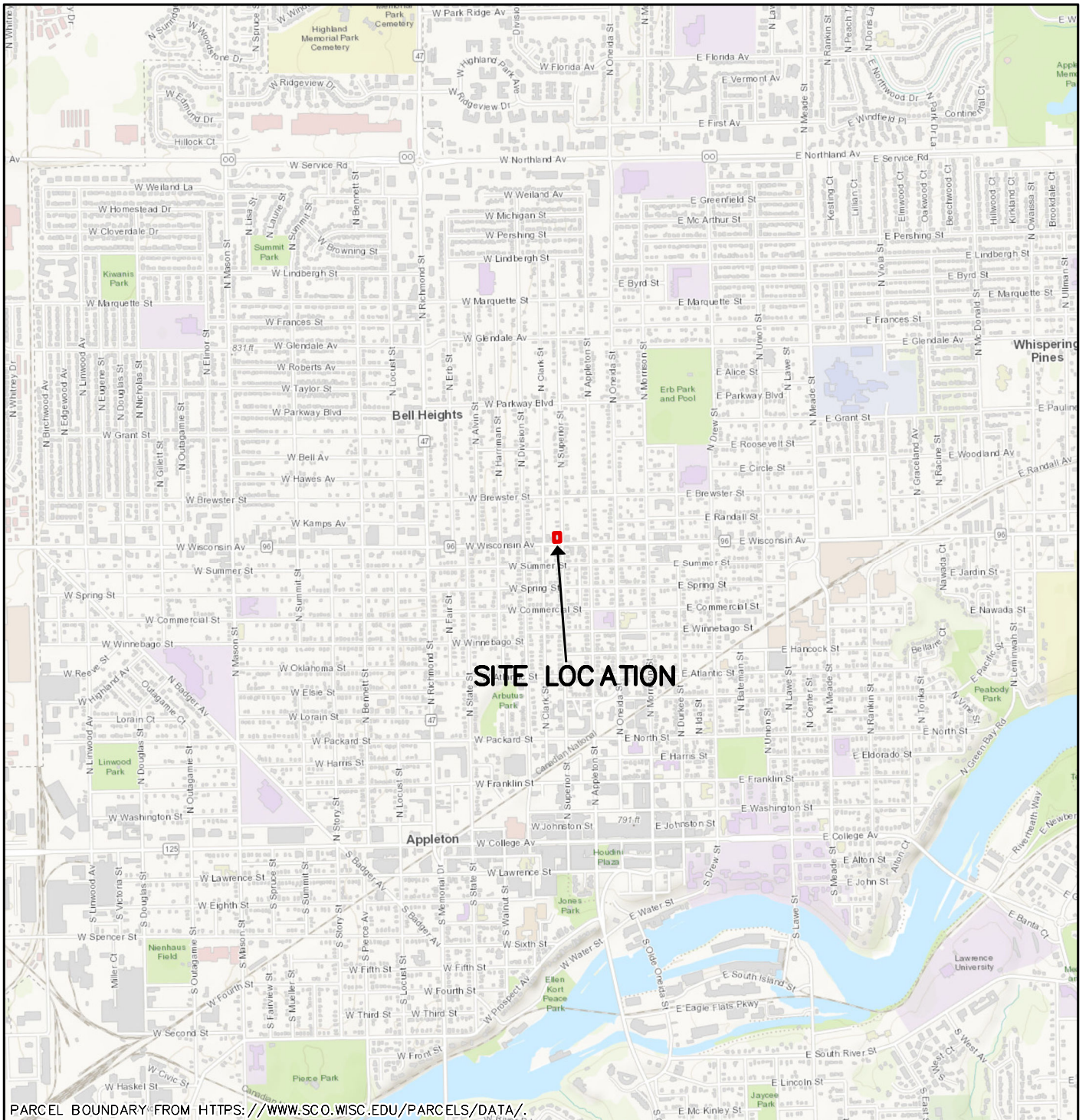


Robert Langdon
Senior Project Manager
SCS Engineers

JJK/lmh_REO/REL

- Encl. Figure 1. Site Location
Figure 2. Sanitary Sewer Vapor Analytical Results
Table 1. Sanitary Sewer Gas Analytical Results Summary
Appendix A. WDNR Vapor Intrusion Sample Log
Appendix B. Vapor Sample Deployment Photographs
Appendix C. Laboratory Analytical Report

I:\25222269.00\25222269.03 So's Dry Cleaners\Deliverables\VI Investigation Summary Report\FINAL\230928_Borski_So's Site Inv Status Report_Final.docx



PARCEL BOUNDARY FROM [HTTPS://WWW.SCO.WISC.EDU/PARCELS/DATA/](https://www.sco.wisc.edu/parcels/data/).



USGS THE NATIONAL MAP
APRIL 2023

2,000 0 2,000'

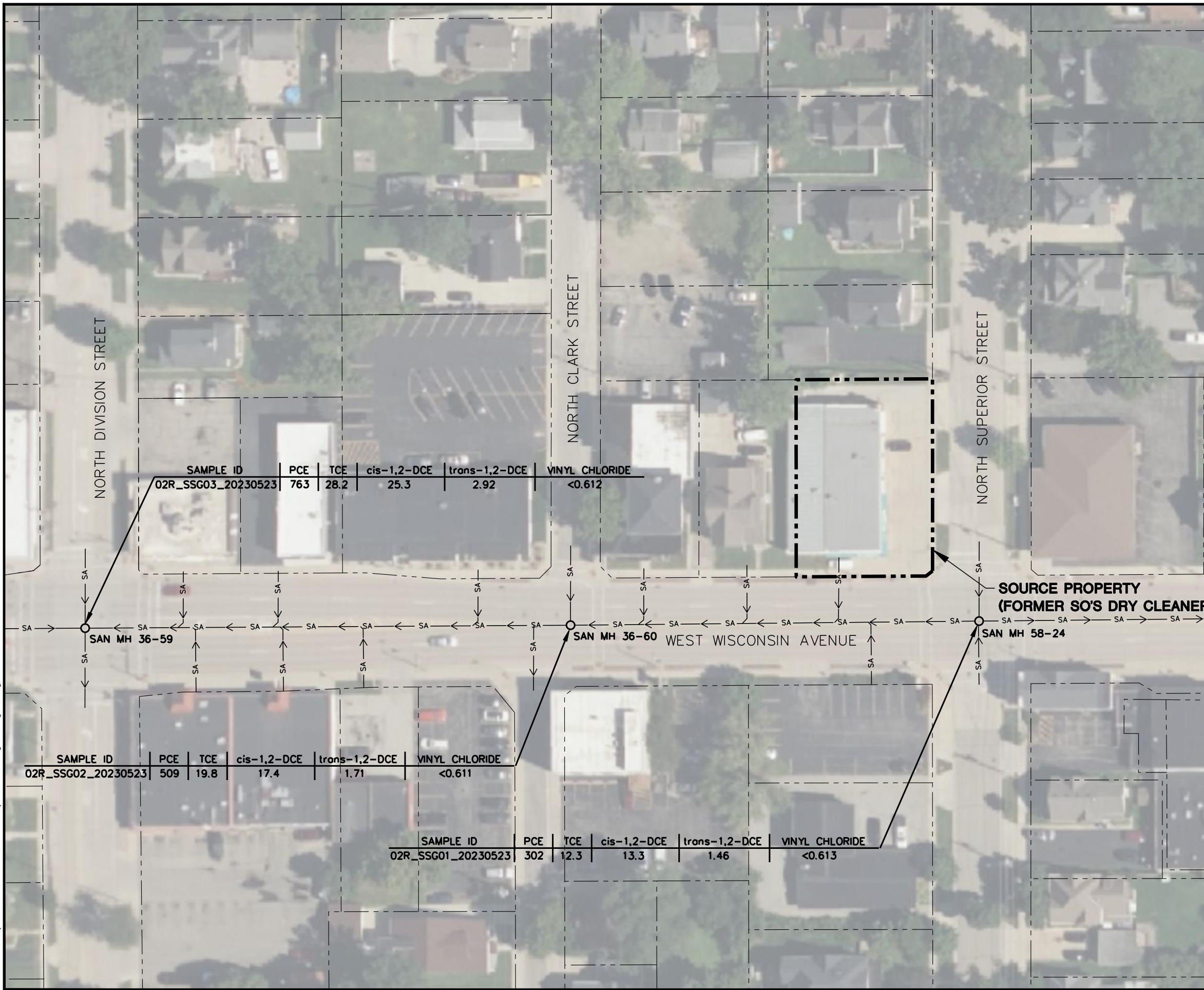


SCALE: 1" = 2,000'



CLIENT	WISCONSIN DEPARTMENT OF NATURAL RESOURCES		SITE	SO'S DRY CLEANER (FORMER) 304 WEST WISCONSIN AVENUE APPLETON, WISCONSIN		ENGINEER	SCS ENGINEERS 2830 DAIRY DRIVE, MADISON, WI 53718-6751 PHONE: (608) 224-2830		FIGURE	1
	PROJECT NO.	25222269.03		DRAWN BY:	AA		FIGURE	1		
	DRAWN:	08/04/20232		CHECKED BY:	JJK					
REVISED:	08/04/20232	APPROVED BY:	REL 9/22/2023							

\\Mad-fs1\data\Projects\2522269.00\2522269.03 So's Dry Cleaners\Drawings\Site - Figure 2.dwg, 9/22/2023 10:40:10 AM



SAMPLE ID	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VINYL CHLORIDE
02R_SSG03_20230523	763	28.2	25.3	2.92	<0.612

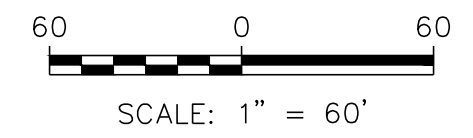
SAMPLE ID	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VINYL CHLORIDE
02R_SSG02_20230523	509	19.8	17.4	1.71	<0.611

SAMPLE ID	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VINYL CHLORIDE
02R_SSG01_20230523	302	12.3	13.3	1.46	<0.613



- LEGEND
- PROPERTY LINE (SUBJECT PROPERTY)
 - PARCEL LINE
 - SA → SANITARY SEWER
 - SANITARY MANHOLE
 - PCE = TETRACHLOROETHENE
 - TCE = TRICHLOROETHENE
 - DCE = DICHLOROETHENE

- LEGEND
- AERIAL BACKGROUND FROM BING MAPS.
 - PROPERTY LINES ARE APPROXIMATE AND WERE OBTAINED FROM THE WISCONSIN STATEWIDE PARCEL MAP INITIATIVE. INFORMATION WAS OBTAINED FROM WISCONSIN'S COUNTIES AND CITIES IN 2020 AND THUS MAY NOT BE THE MOST CURRENT, COMPREHENSIVE DATA AVAILABLE.
 - SANITARY SEWER INFORMATION FROM CITY OF APPLETON SEWER AND WATER CONSTRUCTION DRAWINGS PREPARED BY THE CITY OF APPLETON ENGINEERING DIVISION. LOCATION ARE APPROXIMATE.
 - ANALYTICAL RESULTS FROM THE BEACON ENVIRONMENTAL LABORATORY ANALYTICAL REPORT DATED JUNE 6, 2023.
 - ANALYTICAL RESULTS ARE REPORTED IN UNITS OF MICROGRAMS PER CUBIC METER.



	WISCONSIN DEPARTMENT OF NATURAL RESOURCES	SITE	SO'S DRY CLEANERS (FORMER) 304 WEST WISCONSIN AVENUE APPLETON, WISCONSIN	ENGINEER	SANITARY SEWER VAPOR ANALYTICAL RESULTS
	PROJECT NO. 2522269.03	DRAWN BY: KP	CHECKED BY: JJK	REL. 09/22/2023	FIGURE 2
DRAWN: 04/18/2023	REVISOR: 09/21/2023	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830			

Table 1. Sanitary Sewer Gas Analytical Results Summary
So's Dry Cleaner (Former), 304 W. Wisconsin Ave., Appleton, WI / SCS Engineers Project #25222269.03
 (Results are in $\mu\text{g}/\text{m}^3$)

Sample	Location	Sampler Deployment Date	Sampler Retrieval Date	Lab Notes	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
02R_SSG01_20230523	SAN MH 58-24	5/9/2023	5/23/2023	(1)	302	12.3	13.3	1.46	<0.613
02R_SSG02_20230523	SAN MH 36-60	5/9/2023	5/23/2023	--	509	19.8	17.4	1.71	<0.611
02R_SSG03_20230523	SAN MH 36-59	5/9/2023	5/23/2023	--	763 D	28.2	25.3	2.92	<0.612
Trip Blank	--	--	--	--	<1.21	<1.50	<0.934	<1.13	<0.611
Sanitary Sewer Gas Screening Level (Residential Buildings)					1,400	70	1,400	1,400	56
Sanitary Sewer Gas Screening Level (Commercial/Industrial Buildings)					5,800	290	5,800	5,800	930

Abbreviations:

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

-- = Not Applicable

cis-1,2-DCE = cis-1,2-dichloroethene

trans-1,2-DCE = trans-1,2-dichloroethene

Notes:

1. Samples were collected using BEACON Environmental passive samplers and analyzed using the USEPA TO-17 analytical method.
2. Sanitary Sewer Gas Screening Levels (SSGSLs) are Vapor Action Levels (VALs) divided by an attenuation factor (AF) of 0.03 per WDNR's Guidance Document RR-649.
3. **Bold+underlined** values meet or exceed SSGSLs for the appropriate setting (residential or commercial/industrial).

Lab Notes/Qualifiers:

D = Dilution required to report within calibration Limits.

(1) 1,4-Dichlorobenzene-d4 = Internal Standard recovery was below laboratory and method acceptance limits, associated results with detections are biased high.

Created by: JJK
 Last revision by: JJK
 Checked by: REL
 Proj Mgr QA/QC: REL

Date: 6/7/2023
 Date: 9/21/2023
 Date: 9/22/2023
 Date: 9/22/2023

I:\25222269.00\25222269.03 So's Dry Cleaners\Data and Calculations\Tables\[Sanitary Sewer Gas Vapor_short list VOCs_Sos.xlsx]Sanitary Sewer Gas

Appendix A

WDNR Vapor Intrusion Sample Log

Sample Identifier	Start	End	Duration	Sampler Type	Floor	HVAC	Ground Cover	For SSG: Total Depth to Liquid	For SSG: Depth of Sampler	For SSG: Linear Distance from Source	Comments
02R_SSG01_20230523	5/9/2023 10:14	5/23/23 9:59	20145.00	Beacon				8.85	7.71	86.0	up-flow from source property sanitary lateral
02R_SSG02_20230523	5/9/2023 9:24	5/23/23 10:06	20202.00	Beacon				7.23	5.75	163.0	down-flow from source property sanitary lateral
02R_SSG03_20230523	5/9/2023 9:56	5/23/23 10:11	20175.00	Beacon				9.41	7.88	459.0	down-flow from source property sanitary lateral

Appendix B

Vapor Sample Deployment Photographs

Vapor Sample Deployment Photos, May 9, 2023
WDNR VIZC, So's Dry Cleaner (Former), 304 W. Wisconsin Ave, Appleton, WI
SCS Engineers Project #25222269.03



Photo 1: Looking east down W. Wisconsin Ave with sanitary manhole “SAN MH 58-24” in the foreground. Traffic control measures are shown in the background.

Vapor Sample Deployment Photos, May 9, 2023
WDNR VIZC, So's Dry Cleaner (Former), 304 W. Wisconsin Ave, Appleton, WI
SCS Engineers Project #25222269.03



Photo 2: Measuring the string length to suspend the Beacon sampler at the appropriate depth.

Vapor Sample Deployment Photos, May 9, 2023
WDNR VIZC, So's Dry Cleaner (Former), 304 W. Wisconsin Ave, Appleton, WI
SCS Engineers Project #25222269.03



Photo 3: Measuring the magnet suspension connection depth to place the Beacon sampler at the appropriate depth.

Vapor Sample Deployment Photos, May 9, 2023
WDNR VIZC, So's Dry Cleaner (Former), 304 W. Wisconsin Ave, Appleton, WI
SCS Engineers Project #25222269.03



Photo 4: Beacon sampler ready for deployment with twisted mason line secured with neodymium magnets.

Vapor Sample Deployment Photos, May 9, 2023
WDNR VIZC, So's Dry Cleaner (Former), 304 W. Wisconsin Ave, Appleton, WI
SCS Engineers Project #25222269.03



Photo 5: Beacon sampler suspended approximately one foot above the liquid level.

Vapor Sample Deployment Photos, May 9, 2023
WDNR VIZC, So's Dry Cleaner (Former), 304 W. Wisconsin Ave, Appleton, WI
SCS Engineers Project #25222269.03



Photo 6: Photo looking northwest at manhole “SAN MH 36-59” with traffic control equipment shown in the background.

Appendix C

Laboratory Analytical Report



Beacon Environmental

2203A Commerce Road, Suite 1

Forest Hill, MD 21050 USA

1.410.838.8780

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 230503R01

Laboratory Work Order: 0006994

Project Description:

So's Dry Cleaner (Former)

Appleton, WI

Client PO No.: 25222269.03-001

Prepared for:

Jacob Krause

SCS Engineers

2830 Dairy Drive

Madison, WI 53718-6751

Ryan W. Schneider
Senior Project Manager

June 06, 2023

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

Steven C. Thornley
Laboratory Director

Peter B. Kelly
Quality Manager

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SCS Engineers
 2830 Dairy Drive
 Madison, WI 53718-6751

Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0006994-01 Sampler Type:	Trip Blank Beacon Passive Sampler	05/25/2023	TO-17 (Passive)	Air
0006994-02 Sampler Type:	02R_SSG01_20230523 Beacon Passive Sampler	05/25/2023	TO-17 (Passive)	Sewer Gas
0006994-03 Sampler Type:	02R_SSG02_20230523 Beacon Passive Sampler	05/25/2023	TO-17 (Passive)	Sewer Gas
0006994-04 Sampler Type:	02R_SSG03_20230523 Beacon Passive Sampler	05/25/2023	TO-17 (Passive)	Sewer Gas

Project Completeness

Samples Received: 4
Samples Analyzed: 4

SCS Engineers
2830 Dairy Drive
Madison, WI 53718-6751

Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Case Narrative

Beacon Environmental provided thermally conditioned Beacon Samplers for sampling, with analyses following U.S. EPA Method TO-17, with analytical results reported in $\mu\text{g}/\text{m}^3$. Beacon calculated concentration results using the exposure period, target analyte mass, and the following procedures detailed in ISO 16017-2, *Indoor, ambient and workplace air-Sampling and analysis of volatile organic compounds by sorbent tube/thermal desorption/capillary gas chromatography-Part 2: Diffusive sampling*.

Beacon reports results and reporting limits to three significant digits.

Reporting Limits (RLs)

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

Calibration Verification

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

Internal Standards and Surrogates

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

Blank Contamination

No targeted compounds above the project method quantitation limit (MQL) for each compound were observed in the Laboratory Method Blanks unless noted in the **Case Narrative**.

Laboratory Control Samples

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

Discussion

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

SCS Engineers
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Madison, WI 53718-6751

Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

STATEMENT OF DATA QUALIFICATIONS

Qualifier Summary:

Analysis: TO-17 (Passive) / Organics in Air by EPA TO-17 Using Beacon Sampler

0006994-02 02R_SSG01_20230523

Compound	Q	Q Explanation
1,4-Dichlorobenzene-d4	I3	Internal Standard recovery was below laboratory and method acceptance limits, associated results with detections are biased high.

SCS Engineers
2830 Dairy Drive
Madison, WI 53718-6751

Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Analytical Results

SCS Engineers
 2830 Dairy Drive
 Madison, WI 53718-6751

Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Summary of Compound Detections- Concentration

Lab Sample ID: 0006994-02	02R_SSG01_20230523	Method: TO-17 (Passive)
Sewer Gas		

Analyte	CAS#	Result (µg/m³)	Q	RT	LOQ (µg/m³)	File ID
trans-1,2-Dichloroethene	156-60-5	1.46		2.746	1.13	Ka23052614.D
cis-1,2-Dichloroethene	156-59-2	13.3		3.685	0.937	Ka23052614.D
Trichloroethene	79-01-6	12.3		5.920	1.50	Ka23052614.D
Tetrachloroethene	127-18-4	302		8.161	1.21	Ka23052614.D

Lab Sample ID: 0006994-03	02R_SSG02_20230523	Method: TO-17 (Passive)
Sewer Gas		

Analyte	CAS#	Result (µg/m³)	Q	RT	LOQ (µg/m³)	File ID
trans-1,2-Dichloroethene	156-60-5	1.71		2.749	1.13	Ka23052615.D
cis-1,2-Dichloroethene	156-59-2	17.4		3.685	0.934	Ka23052615.D
Trichloroethene	79-01-6	19.8		5.920	1.50	Ka23052615.D
Tetrachloroethene	127-18-4	509		8.161	1.21	Ka23052615.D

Lab Sample ID: 0006994-04	02R_SSG03_20230523	Method: TO-17 (Passive)
Sewer Gas		

Analyte	CAS#	Result (µg/m³)	Q	RT	LOQ (µg/m³)	File ID
trans-1,2-Dichloroethene	156-60-5	2.92		2.746	1.13	Ka23052616.D
cis-1,2-Dichloroethene	156-59-2	25.3		3.685	0.935	Ka23052616.D
Trichloroethene	79-01-6	28.2		5.920	1.50	Ka23052616.D
Tetrachloroethene	127-18-4	763	D	8.158	12.1	Ka23053006.D

SCS Engineers
2830 Dairy Drive
Madison, WI 53718-6751**Site Name:** So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause**Beacon Proposal:** 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023***Data Summary Table- Concentration***

Compound	Frequency	LOQ ($\mu\text{g}/\text{m}^3$)	Max Value ($\mu\text{g}/\text{m}^3$)
trans-1,2-Dichloroethene	3	1.13	2.92
cis-1,2-Dichloroethene	3	0.934	25.3
Trichloroethene	3	1.50	28.2
Tetrachloroethene	3	1.21	763

SCS Engineers
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Madison, WI 53718-6751

Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Detailed Analytical Results

SCS Engineers
 2830 Dairy Drive
 Madison, WI 53718-6751

Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Lab Sample ID: 0006994-01

Trip Blank

Method: TO-17 (Passive)

Air

Analyte	CAS#	Result (µg/m ³)	Q	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.611		0.611	05/26/2023 15:11	Ka23052613.D
trans-1,2-Dichloroethene	156-60-5	<1.13		1.13	05/26/2023 15:11	Ka23052613.D
cis-1,2-Dichloroethene	156-59-2	<0.934		0.934	05/26/2023 15:11	Ka23052613.D
Trichloroethene	79-01-6	<1.50		1.50	05/26/2023 15:11	Ka23052613.D
Tetrachloroethene	127-18-4	<1.21		1.21	05/26/2023 15:11	Ka23052613.D
Analyte	CAS#	% Recovery	Recovery Limits	Q	Analyzed	File ID
Surrogate: 1,2-DCA-d4	17060-07-0	94.8%	70-130		05/26/2023 15:11	Ka23052613.D
Surrogate: Toluene-d8	2037-26-5	95.9%	70-130		05/26/2023 15:11	Ka23052613.D
Surrogate: Bromofluorobenzene	460-00-4	103%	70-130		05/26/2023 15:11	Ka23052613.D

SCS Engineers
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 Madison, WI 53718-6751

Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Lab Sample ID: 0006994-02

02R_SSG01_20230523

Method: TO-17 (Passive)

Sewer Gas

Analyte	CAS#	Result (µg/m ³)	Q	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.613		0.613	05/26/2023 15:39	Ka23052614.D
trans-1,2-Dichloroethene	156-60-5	1.46		1.13	05/26/2023 15:39	Ka23052614.D
cis-1,2-Dichloroethene	156-59-2	13.3		0.937	05/26/2023 15:39	Ka23052614.D
Trichloroethene	79-01-6	12.3		1.50	05/26/2023 15:39	Ka23052614.D
Tetrachloroethene	127-18-4	302		1.21	05/26/2023 15:39	Ka23052614.D
Analyte	CAS#	% Recovery	Recovery Limits	Q	Analyzed	File ID
Surrogate: 1,2-DCA-d4	17060-07-0	96.2%	70-130		05/26/2023 15:39	Ka23052614.D
Surrogate: Toluene-d8	2037-26-5	91.6%	70-130		05/26/2023 15:39	Ka23052614.D
Surrogate: Bromofluorobenzene	460-00-4	104%	70-130		05/26/2023 15:39	Ka23052614.D

SCS Engineers
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Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Lab Sample ID: 0006994-03

02R_SSG02_20230523

Method: TO-17 (Passive)

Sewer Gas

Analyte	CAS#	Result (µg/m ³)	Q	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.611		0.611	05/26/2023 16:07	Ka23052615.D
trans-1,2-Dichloroethene	156-60-5	1.71		1.13	05/26/2023 16:07	Ka23052615.D
cis-1,2-Dichloroethene	156-59-2	17.4		0.934	05/26/2023 16:07	Ka23052615.D
Trichloroethene	79-01-6	19.8		1.50	05/26/2023 16:07	Ka23052615.D
Tetrachloroethene	127-18-4	509		1.21	05/26/2023 16:07	Ka23052615.D
Analyte	CAS#	% Recovery	Recovery Limits	Q	Analyzed	File ID
Surrogate: 1,2-DCA-d4	17060-07-0	96.3%	70-130		05/26/2023 16:07	Ka23052615.D
Surrogate: Toluene-d8	2037-26-5	93.6%	70-130		05/26/2023 16:07	Ka23052615.D
Surrogate: Bromofluorobenzene	460-00-4	107%	70-130		05/26/2023 16:07	Ka23052615.D

SCS Engineers
 2830 Dairy Drive
 Madison, WI 53718-6751

Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Lab Sample ID: 0006994-04

02R_SSG03_20230523

Method: TO-17 (Passive)

Sewer Gas

Analyte	CAS#	Result (µg/m ³)	Q	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.612		0.612	05/26/2023 16:36	Ka23052616.D
trans-1,2-Dichloroethene	156-60-5	2.92		1.13	05/26/2023 16:36	Ka23052616.D
cis-1,2-Dichloroethene	156-59-2	25.3		0.935	05/26/2023 16:36	Ka23052616.D
Trichloroethene	79-01-6	28.2		1.50	05/26/2023 16:36	Ka23052616.D
Tetrachloroethene	127-18-4	763	D	12.1	05/30/2023 13:44	Ka23053006.D
Analyte	CAS#	% Recovery	Recovery Limits	Q	Analyzed	File ID
Surrogate: 1,2-DCA-d4	17060-07-0	95.3%	70-130		05/30/2023 13:44	Ka23053006.D
Surrogate: 1,2-DCA-d4	17060-07-0	95.4%	70-130		05/26/2023 16:36	Ka23052616.D
Surrogate: Toluene-d8	2037-26-5	102%	70-130		05/30/2023 13:44	Ka23053006.D
Surrogate: Toluene-d8	2037-26-5	93.9%	70-130		05/26/2023 16:36	Ka23052616.D
Surrogate: Bromofluorobenzene	460-00-4	109%	70-130		05/26/2023 16:36	Ka23052616.D
Surrogate: Bromofluorobenzene	460-00-4	100%	70-130		05/30/2023 13:44	Ka23053006.D

SCS Engineers
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Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

QC Information/Summary

SCS Engineers
 2830 Dairy Drive
 Madison, WI 53718-6751

Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Organics in Air by EPA TO-17 Using Beacon Sampler - Quality Control Summary

Sequence: B23E038 - Instrument: K System - File ID: Kc23051215.D
B23E038-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	44.1	10	ng	50.0		88.2	70-130			
trans-1,2-Dichloroethene	51.6	10	ng	50.0		103	70-130			
cis-1,2-Dichloroethene	48.9	10	ng	50.0		97.8	70-130			
Trichloroethene	48.4	10	ng	50.0		96.8	70-130			
Tetrachloroethene	47.6	10	ng	50.0		95.2	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>50.1</i>		<i>ng</i>	<i>50.0</i>		<i>100</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>50.8</i>		<i>ng</i>	<i>50.0</i>		<i>102</i>	<i>70-130</i>			
<i>Surrogate: Bromofluorobenzene</i>	<i>49.1</i>		<i>ng</i>	<i>50.0</i>		<i>98.2</i>	<i>70-130</i>			

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Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Organics in Air by EPA TO-17 Using Beacon Sampler - Quality Control Summary

Sequence: B23E038 - Instrument: K System - File ID: Kc23051218.D
B23E038-ICB1 (Lab Blank/Initial Calibration Blank)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<5	10	ng							U
trans-1,2-Dichloroethene	<5	10	ng							U
cis-1,2-Dichloroethene	<5	10	ng							U
Trichloroethene	<5	10	ng							U
Tetrachloroethene	<5	10	ng							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>101</i>		<i>ng</i>	<i>100</i>		<i>101</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>103</i>		<i>ng</i>	<i>100</i>		<i>103</i>	<i>70-130</i>			
<i>Surrogate: Bromofluorobenzene</i>	<i>95.4</i>		<i>ng</i>	<i>100</i>		<i>95.4</i>	<i>70-130</i>			

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Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Organics in Air by EPA TO-17 Using Beacon Sampler - Quality Control Summary

Sequence: B23E060 - Batch: 23E0042 - Instrument: K System - File ID: Ka23052602.D
23E0042-BS1 (LCS, Calibration Source Verification)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	47.1	10	ng	50.0		94.1	70-130			
trans-1,2-Dichloroethene	52.6	10	ng	50.0		105	70-130			
cis-1,2-Dichloroethene	49.6	10	ng	50.0		99.2	70-130			
Trichloroethene	48.2	10	ng	50.0		96.3	70-130			
Tetrachloroethene	48.9	10	ng	50.0		97.7	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>49.0</i>		<i>ng</i>	<i>50.0</i>		<i>98.0</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>52.0</i>		<i>ng</i>	<i>50.0</i>		<i>104</i>	<i>70-130</i>			
<i>Surrogate: Bromofluorobenzene</i>	<i>49.9</i>		<i>ng</i>	<i>50.0</i>		<i>99.8</i>	<i>70-130</i>			

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Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Organics in Air by EPA TO-17 Using Beacon Sampler - Quality Control Summary

Sequence: B23E060 - Batch: 23E0042 - Instrument: K System - File ID: Ka23052603.D
23E0042-BLK1 (Lab Blank)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<0.611	0.611	µg/m ³							U
trans-1,2-Dichloroethene	<1.13	1.13	µg/m ³							U
cis-1,2-Dichloroethene	<0.934	0.934	µg/m ³							U
Trichloroethene	<1.50	1.50	µg/m ³							U
Tetrachloroethene	<1.21	1.21	µg/m ³							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>98.7</i>		<i>ng</i>	<i>100</i>		<i>98.7</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>101</i>		<i>ng</i>	<i>100</i>		<i>101</i>	<i>70-130</i>			
<i>Surrogate: Bromofluorobenzene</i>	<i>95.9</i>		<i>ng</i>	<i>100</i>		<i>95.9</i>	<i>70-130</i>			

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Site Location: Appleton, WI
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Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Organics in Air by EPA TO-17 Using Beacon Sampler - Quality Control Summary

Sequence: B23E060 - Instrument: K System - File ID: Ka23052604.D
B23E060-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	53.5	10	ng	50.0		107	70-130			
trans-1,2-Dichloroethene	54.0	10	ng	50.0		108	70-130			
cis-1,2-Dichloroethene	50.8	10	ng	50.0		102	70-130			
Trichloroethene	49.2	10	ng	50.0		98.4	70-130			
Tetrachloroethene	49.3	10	ng	50.0		98.6	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>48.3</i>		<i>ng</i>	<i>50.0</i>		<i>96.7</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>51.1</i>		<i>ng</i>	<i>50.0</i>		<i>102</i>	<i>70-130</i>			
<i>Surrogate: Bromofluorobenzene</i>	<i>48.1</i>		<i>ng</i>	<i>50.0</i>		<i>96.2</i>	<i>70-130</i>			

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Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Organics in Air by EPA TO-17 Using Beacon Sampler - Quality Control Summary

Sequence: B23E060 - Instrument: K System - File ID: Ka23052611.D
B23E060-CCV1 (LCS, Closing Calibration Verification)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	47.3	10	ng	50.0		94.6	70-130			
trans-1,2-Dichloroethene	51.9	10	ng	50.0		104	70-130			
cis-1,2-Dichloroethene	49.5	10	ng	50.0		99.0	70-130			
Trichloroethene	49.2	10	ng	50.0		98.4	70-130			
Tetrachloroethene	47.3	10	ng	50.0		94.5	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>49.2</i>		<i>ng</i>	<i>50.0</i>		<i>98.3</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>49.9</i>		<i>ng</i>	<i>50.0</i>		<i>99.9</i>	<i>70-130</i>			
<i>Surrogate: Bromofluorobenzene</i>	<i>50.6</i>		<i>ng</i>	<i>50.0</i>		<i>101</i>	<i>70-130</i>			

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Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Organics in Air by EPA TO-17 Using Beacon Sampler - Quality Control Summary

Sequence: B23E060 - Instrument: K System - File ID: Ka23052612.D
B23E060-CCB1 (Lab Blank)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<5	10	ng							U
trans-1,2-Dichloroethene	<5	10	ng							U
cis-1,2-Dichloroethene	<5	10	ng							U
Trichloroethene	<5	10	ng							U
Tetrachloroethene	<5	10	ng							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>97.5</i>		<i>ng</i>	<i>100</i>		<i>97.5</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>96.8</i>		<i>ng</i>	<i>100</i>		<i>96.8</i>	<i>70-130</i>			
<i>Surrogate: Bromofluorobenzene</i>	<i>97.5</i>		<i>ng</i>	<i>100</i>		<i>97.5</i>	<i>70-130</i>			

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Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Organics in Air by EPA TO-17 Using Beacon Sampler - Quality Control Summary

Sequence: B23E060 - Instrument: K System - File ID: Ka23052617.D
B23E060-CCV2 (Continuing Calibration Verification)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	42.7	10	ng	50.0		85.4	70-130			
trans-1,2-Dichloroethene	50.2	10	ng	50.0		100	70-130			
cis-1,2-Dichloroethene	48.7	10	ng	50.0		97.3	70-130			
Trichloroethene	50.1	10	ng	50.0		100	70-130			
Tetrachloroethene	47.6	10	ng	50.0		95.2	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>47.9</i>		<i>ng</i>	<i>50.0</i>		<i>95.7</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>49.2</i>		<i>ng</i>	<i>50.0</i>		<i>98.3</i>	<i>70-130</i>			
<i>Surrogate: Bromofluorobenzene</i>	<i>51.7</i>		<i>ng</i>	<i>50.0</i>		<i>103</i>	<i>70-130</i>			

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Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Organics in Air by EPA TO-17 Using Beacon Sampler - Quality Control Summary

Sequence: B23E060 - Instrument: K System - File ID: Ka23052618.D
B23E060-CCB2 (Lab Blank)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<5	10	ng							U
trans-1,2-Dichloroethene	<5	10	ng							U
cis-1,2-Dichloroethene	<5	10	ng							U
Trichloroethene	<5	10	ng							U
Tetrachloroethene	<5	10	ng							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>98.1</i>		<i>ng</i>	<i>100</i>		<i>98.1</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>98.5</i>		<i>ng</i>	<i>100</i>		<i>98.5</i>	<i>70-130</i>			
<i>Surrogate: Bromofluorobenzene</i>	<i>99.4</i>		<i>ng</i>	<i>100</i>		<i>99.4</i>	<i>70-130</i>			

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Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Organics in Air by EPA TO-17 Using Beacon Sampler - Quality Control Summary

Sequence: B23E065 - Batch: 23E0047 - Instrument: K System - File ID: Ka23053002.D

23E0047-BS1 (LCS, Calibration Source Verification)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	39.4	10	ng	50.0		78.9	70-130			
trans-1,2-Dichloroethene	52.4	10	ng	50.0		105	70-130			
cis-1,2-Dichloroethene	50.1	10	ng	50.0		100	70-130			
Trichloroethene	50.1	10	ng	50.0		100	70-130			
Tetrachloroethene	46.7	10	ng	50.0		93.5	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>49.1</i>		<i>ng</i>	<i>50.0</i>		<i>98.2</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>50.6</i>		<i>ng</i>	<i>50.0</i>		<i>101</i>	<i>70-130</i>			
<i>Surrogate: Bromofluorobenzene</i>	<i>51.4</i>		<i>ng</i>	<i>50.0</i>		<i>103</i>	<i>70-130</i>			

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Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Organics in Air by EPA TO-17 Using Beacon Sampler - Quality Control Summary

Sequence: B23E065 - Instrument: K System - File ID: Ka23053004.D
B23E065-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	50.2	10	ng	50.0		100	70-130			
trans-1,2-Dichloroethene	53.4	10	ng	50.0		107	70-130			
cis-1,2-Dichloroethene	51.7	10	ng	50.0		103	70-130			
Trichloroethene	51.0	10	ng	50.0		102	70-130			
Tetrachloroethene	48.7	10	ng	50.0		97.4	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>48.2</i>		<i>ng</i>	<i>50.0</i>		<i>96.3</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>50.1</i>		<i>ng</i>	<i>50.0</i>		<i>100</i>	<i>70-130</i>			
<i>Surrogate: Bromofluorobenzene</i>	<i>50.0</i>		<i>ng</i>	<i>50.0</i>		<i>99.9</i>	<i>70-130</i>			

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Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Organics in Air by EPA TO-17 Using Beacon Sampler - Quality Control Summary

Sequence: B23E065 - Batch: 23E0047 - Instrument: K System - File ID: Ka23053005.D
23E0047-BLK1 (Lab Blank)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<0.611	0.611	µg/m ³							U
trans-1,2-Dichloroethene	<1.13	1.13	µg/m ³							U
cis-1,2-Dichloroethene	<0.934	0.934	µg/m ³							U
Trichloroethene	<1.50	1.50	µg/m ³							U
Tetrachloroethene	<1.21	1.21	µg/m ³							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>98.1</i>		<i>ng</i>	<i>100</i>		<i>98.1</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>104</i>		<i>ng</i>	<i>100</i>		<i>104</i>	<i>70-130</i>			
<i>Surrogate: Bromofluorobenzene</i>	<i>98.1</i>		<i>ng</i>	<i>100</i>		<i>98.1</i>	<i>70-130</i>			

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Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Organics in Air by EPA TO-17 Using Beacon Sampler - Quality Control Summary

Sequence: B23E065 - Instrument: K System - File ID: Ka23053007.D
B23E065-CCV1 (LCS, Closing Calibration Verification)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	48.7	10	ng	50.0		97.5	70-130			
trans-1,2-Dichloroethene	49.3	10	ng	50.0		98.7	70-130			
cis-1,2-Dichloroethene	48.5	10	ng	50.0		96.9	70-130			
Trichloroethene	49.3	10	ng	50.0		98.5	70-130			
Tetrachloroethene	47.0	10	ng	50.0		94.0	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>48.4</i>		<i>ng</i>	<i>50.0</i>		<i>96.8</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>49.6</i>		<i>ng</i>	<i>50.0</i>		<i>99.2</i>	<i>70-130</i>			
<i>Surrogate: Bromofluorobenzene</i>	<i>49.5</i>		<i>ng</i>	<i>50.0</i>		<i>99.0</i>	<i>70-130</i>			

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Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

Organics in Air by EPA TO-17 Using Beacon Sampler - Quality Control Summary

Sequence: B23E065 - Instrument: K System - File ID: Ka23053008.D
B23E065-CCB1 (Lab Blank)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<5	10	ng							U
trans-1,2-Dichloroethene	<5	10	ng							U
cis-1,2-Dichloroethene	<5	10	ng							U
Trichloroethene	<5	10	ng							U
Tetrachloroethene	<5	10	ng							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>97.4</i>		<i>ng</i>	<i>100</i>		<i>97.4</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>101</i>		<i>ng</i>	<i>100</i>		<i>101</i>	<i>70-130</i>			
<i>Surrogate: Bromofluorobenzene</i>	<i>98.5</i>		<i>ng</i>	<i>100</i>		<i>98.5</i>	<i>70-130</i>			

SCS Engineers
 2830 Dairy Drive
 Madison, WI 53718-6751

Site Name: So's Dry Cleaner (Former)
Site Location: Appleton, WI
Project Manager: Jacob Krause

Beacon Proposal: 230503R01
Lab Work Order: 0006994
Reported: 06/06/2023

TO-17 (Passive) - LCS/LCSD RPD Quality Control Summary
LCS: 23E0042-BS1 File ID: Ka23052602.D

Analyzed: 5/26/23 10:15

LCSD: B23E060-ICV1 File ID: Ka23052604.D

Analyzed: 5/26/23 9:27

Analyte	CAS#	LCS Result (ng)	%REC Q	Spike Level (ng)	LCSD Result (ng)	%REC	%REC Limits	RPD	RPD Limit	Q
Vinyl Chloride	75-01-4	47.06	94.12	50	53.49	107.00	70-130	12.79	30	
trans-1,2-Dichloroethene	156-60-5	52.56	105.12	50	53.97	108.00	70-130	2.65	30	
cis-1,2-Dichloroethene	156-59-2	49.61	99.22	50	50.79	102.00	70-130	2.35	30	
Trichloroethene	79-01-6	48.16	96.32	50	49.2	98.40	70-130	2.14	30	
Tetrachloroethene	127-18-4	48.86	97.72	50	49.3	98.60	70-130	0.90	30	

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Reported: 06/06/2023

TO-17 (Passive) - LCS/LCSD RPD Quality Control Summary
LCS: 23E0047-BS1 **File ID:** Ka23053002.D
LCSD: B23E065-ICV1 **File ID:** Ka23053004.D

 Analyzed: 5/30/23 12:14
 Analyzed: 5/30/23 11:25

Analyte	CAS#	LCS Result (ng)	%REC Q	Spike Level (ng)	LCSD Result (ng)	%REC	%REC Limits	RPD	RPD Limit	Q
Vinyl Chloride	75-01-4	39.44	78.88	50	50.18	100.00	70-130	23.97	30	
trans-1,2-Dichloroethene	156-60-5	52.43	104.86	50	53.36	107.00	70-130	1.76	30	
cis-1,2-Dichloroethene	156-59-2	50.14	100.28	50	51.69	103.00	70-130	3.04	30	
Trichloroethene	79-01-6	50.08	100.16	50	51.01	102.00	70-130	1.84	30	
Tetrachloroethene	127-18-4	46.74	93.48	50	48.68	97.40	70-130	4.07	30	

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Additional QC Information

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Site Name: So's Dry Cleaner (Former)
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Lab Work Order: 0006994
Reported: 06/06/2023

Sample Result Calculation Summary (Concentration)
TO-17 (Passive)

Analyte	t Sampling Time minutes	DF Dilution Factor	Uc Uptake Rate	M Initial Result ng	C Calculated Result µg/m ³	File ID
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Lab ID: 0006994-01 **Sample Name:** Trip Blank

Vinyl Chloride	20,202	1.00	0.810	U	U	Ka23052613.D
trans-1,2-Dichloroethene	20,202	1.00	0.440	U	U	Ka23052613.D
cis-1,2-Dichloroethene	20,202	1.00	0.530	U	U	Ka23052613.D
Trichloroethene	20,202	1.00	0.330	U	U	Ka23052613.D
Tetrachloroethene	20,202	1.00	0.410	U	U	Ka23052613.D

Lab ID: 0006994-02 **Sample Name:** 02R_SSG01_20230523

Vinyl Chloride	20,145	1.00	0.810	U	U	Ka23052614.D
trans-1,2-Dichloroethene	20,145	1.00	0.440	12.97	1.46	Ka23052614.D
cis-1,2-Dichloroethene	20,145	1.00	0.530	141.68	13.3	Ka23052614.D
Trichloroethene	20,145	1.00	0.330	81.64	12.3	Ka23052614.D
Tetrachloroethene	20,145	1.00	0.410	2498.35	302	Ka23052614.D

Lab ID: 0006994-03 **Sample Name:** 02R_SSG02_20230523

Vinyl Chloride	20,202	1.00	0.810	U	U	Ka23052615.D
trans-1,2-Dichloroethene	20,202	1.00	0.440	15.16	1.71	Ka23052615.D
cis-1,2-Dichloroethene	20,202	1.00	0.530	185.84	17.4	Ka23052615.D
Trichloroethene	20,202	1.00	0.330	132.19	19.8	Ka23052615.D
Tetrachloroethene	20,202	1.00	0.410	4215.09	509	Ka23052615.D

Lab ID: 0006994-04 **Sample Name:** 02R_SSG03_20230523

Vinyl Chloride	20,175	1.00	0.810	U	U	Ka23052616.D
trans-1,2-Dichloroethene	20,175	1.00	0.440	25.94	2.92	Ka23052616.D
cis-1,2-Dichloroethene	20,175	1.00	0.530	270.77	25.3	Ka23052616.D
Trichloroethene	20,175	1.00	0.330	188.01	28.2	Ka23052616.D
Tetrachloroethene	20,175	10.01	0.410	630.62	763	Ka23053006.D

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Lab Work Order: 0006994
Reported: 06/06/2023

Calculations:

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

$$U_c = U * \left(\frac{T_s + 273.15}{T_u + 273.15} \right)^{1/2}$$

where: C = concentration ($\mu\text{g}/\text{m}^3$)
M = mass (ng)
DF = dilution factor
U_c = uptake rate (ml/min), corrected
t = sampling time (minutes)
U = compound specific uptake rate
T_u = uptake rate study temperature
T_s = sample average temperature

Note: T_u is 16.65°C

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

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Method Detection and Reporting Limit Calculations (Concentration)
TO-17 (Passive)

Analyte	t Sampling Time minutes	DF Dilution Factor	Uc Uptake Rate	M Initial LOQ ng	C Calculated LOQ µg/m ³
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Lab ID: 0006994-01 **Sample Name:** Trip Blank

Vinyl Chloride	20,202	1.00	0.810	10.0	0.611
trans-1,2-Dichloroethene	20,202	1.00	0.440	10.0	1.13
cis-1,2-Dichloroethene	20,202	1.00	0.530	10.0	0.934
Trichloroethene	20,202	1.00	0.330	10.0	1.50
Tetrachloroethene	20,202	1.00	0.410	10.0	1.21

Lab ID: 0006994-02 **Sample Name:** 02R_SSG01_20230523

Vinyl Chloride	20,145	1.00	0.810	10.0	0.613
trans-1,2-Dichloroethene	20,145	1.00	0.440	10.0	1.13
cis-1,2-Dichloroethene	20,145	1.00	0.530	10.0	0.937
Trichloroethene	20,145	1.00	0.330	10.0	1.50
Tetrachloroethene	20,145	1.00	0.410	10.0	1.21

Lab ID: 0006994-03 **Sample Name:** 02R_SSG02_20230523

Vinyl Chloride	20,202	1.00	0.810	10.0	0.611
trans-1,2-Dichloroethene	20,202	1.00	0.440	10.0	1.13
cis-1,2-Dichloroethene	20,202	1.00	0.530	10.0	0.934
Trichloroethene	20,202	1.00	0.330	10.0	1.50
Tetrachloroethene	20,202	1.00	0.410	10.0	1.21

Lab ID: 0006994-04 **Sample Name:** 02R_SSG03_20230523

Vinyl Chloride	20,175	1.00	0.810	10.0	0.612
trans-1,2-Dichloroethene	20,175	1.00	0.440	10.0	1.13
cis-1,2-Dichloroethene	20,175	1.00	0.530	10.0	0.935
Trichloroethene	20,175	1.00	0.330	10.0	1.50
Tetrachloroethene	20,175	10.01	0.410	10.0	12.1

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Laboratory Certification List

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

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Qualifiers/Notes and Definitions

General Definitions:

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

Sample/Sample Receipt Qualifiers and Notes:

D	Dilution required to report within calibration Limits.
I3	Internal Standard recovery was below laboratory and method acceptance limits, associated results with detections are biased high.

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Sample Management Records

Client Information					Project Manager: <i>Robert Hayden</i>		Client PO:		INDOOR AIR	AMBIENT AIR	CRAWL SPACE	SEWER GAS
Company: <i>SCS Engineers</i>					Project Name: <i>So's Dry Cleaner</i>		Turn around time (check one): <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush (specify) ___ days					
Address: <i>2830 Dairy Drive</i>					Location: <i>Appleton, WI</i>		Analysis: <i>TOL listed on order form</i>					
City / State / Zip: <i>Madison, WI 53718</i>					Submitted by: <i>Jacob Krause</i>		<input checked="" type="checkbox"/> Method TO-17 <input type="checkbox"/> Method 8260C					
Phone: <i>608-212-3995</i>					Email: <i>jkrause@scsengineers.com</i>							
Location ID	Start Date	Start Time	Stop Date	Stop Time	Aver Temp (C)	Notes						
<i>02R-SSG-01-20230523</i>	<i>5-9-23</i>	<i>10:14</i>	<i>5-23-23</i>	<i>09:59</i>							<i>X</i>	
<i>02R-SSG-02-20230523</i>	<i>↓</i>	<i>09:24</i>	<i>↓</i>	<i>10:06</i>							<i>X</i>	
<i>02R-SSG-03-20230523</i>	<i>↓</i>	<i>09:56</i>	<i>↓</i>	<i>10:11</i>							<i>X</i>	
<i>Trip Blank</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>NAK 5/25/23</i>						
Special Notes / Instructions: <i>SCS Proj # 25222269.03</i>												
Relinquished by (signature): <i>J. Terne</i>					Date / Time: <i>5-24-23 0840</i>		Received by (signature): <i>Nicole Krifer</i>			Date / Time: <i>5/25/23 11:28</i>		
Relinquished by (signature):					Date / Time:		Received by (signature):			Date / Time:		
For Lab Use Only					Beacon Job No: <i>6994</i>		Beacon Proposal: <i>230503R01</i>					
Courier Name: <i>FedEx</i>					Shipment Condition: <i>Good</i>		Custody Seal Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> n/a			Custody Seal No: <i>4769917</i>		