



March 2, 2022

Linda Caflisch Adamske
Box 503
Camarillo, CA 93010

**Subject: Vapor Intrusion Sampling Results – 614 Oak Street, Baraboo, Wisconsin
BRRTS: 02-57-548538**

Dear Ms. Caflisch Adamske:

In accordance with your request, EnviroForensics, LLC is providing the results of environmental samples collected from your property located at 614 Oak Street in Baraboo, Wisconsin. The samples were collected between October 14, 2021 and February 3, 2022. The sampling activities are part of an environmental investigation being performed for the Badger Cleaners facility located at 616 Oak Street in Baraboo at the direction of the WDNR pursuant to the authority granted to it under State and Federal law. The chemicals of concern for the investigation are the dry cleaning solvent tetrachloroethene (PCE) and its associated breakdown products.

The Responsible Party is:

Badger Cleaners
616 Oak Street
Baraboo, WI

Sampling Results

Indoor Air:

Multiple indoor air samples were collected between October 14, 2021 and February 3, 2022. The purpose of the long-term monitoring was to evaluate previously observed concentrations and fluctuations in indoor air and potential trends influenced by the remedial system at the Badger Cleaners Site. The attached **Figure 1** presents the sample locations. The sample type, duration, and locations are listed in the table below:

Sample Identification	Location	Type	Duration
6492-614 Oak St-IA-B	Basement	Canister	8 hours
6492-614 Oak ST-IA-1	First Floor	Canister	8 hours
6492-OA-1	Outdoors	Canister	8 hours
6492-614 Oak ST-IA-1 (8 hr)	First Floor	Passive	8 hours
6492-614 Oak ST-IA-1 (7 day)	First Floor	Passive	7 days
6492-614 Oak ST-IA-1 (28 day)	First Floor	Passive	28 days

Indoor air sample results are summarized in **Table 1**. Results from the long-term evaluation show the results were **below** the Vapor Action Level (VAL) of 180 $\mu\text{g}/\text{m}^3$ for PCE and, 8.8 $\mu\text{g}/\text{m}^3$ for TCE in small commercial buildings.

Sub-Slab Vapor:

Multiple sub-slab vapor samples were collected between October 14, 2021 and February 3, 2022. The purpose of the long-term monitoring was to evaluate previously observed concentrations and fluctuations in sub-slab vapor and potential trends influenced by the remedial system at the Badger Cleaners Site. The sample type and durations are listed in the table below:

Sample Identification	Type	Duration
6492-614 Oak ST-SSV-1	Canister	Grab
6492-614 Oak ST-WSV-1	Canister	Grab
6492-614 Oak ST-SSV-7 day	Passive	7 days
6492-614 Oak ST-SSV-28 day	Passive	28 days

Sub-slab vapor results are summarized in **Table 1**. Results from this sampling event are **below** the vapor risk screening level (VRSL) of 5,800 $\mu\text{g}/\text{m}^3$ for PCE and 290 $\mu\text{g}/\text{m}^3$ for TCE in small commercial buildings.

The sampling locations are depicted on the attached **Figure 1**. The results of the vapor samples are summarized and compared to WDNR standards in the attached **Table 1**. A copy of the laboratory reports for the vapor samples can be provided upon request. To fulfill WDNR requirements, copies of the lab reports will be provided electronically. The results confirm that the remedial system is working to effectively mitigate the vapor intrusion risk to your property.



If you have any questions or concerns, please contact us at 262-510-0612 or by email at rhoverman@enviroforensics.com. The WDNR project manager, Trevor Bannister, can be reached at 608-275-3490. We greatly appreciate your help and patience with this matter.

Sincerely,
EnviroForensics, LLC

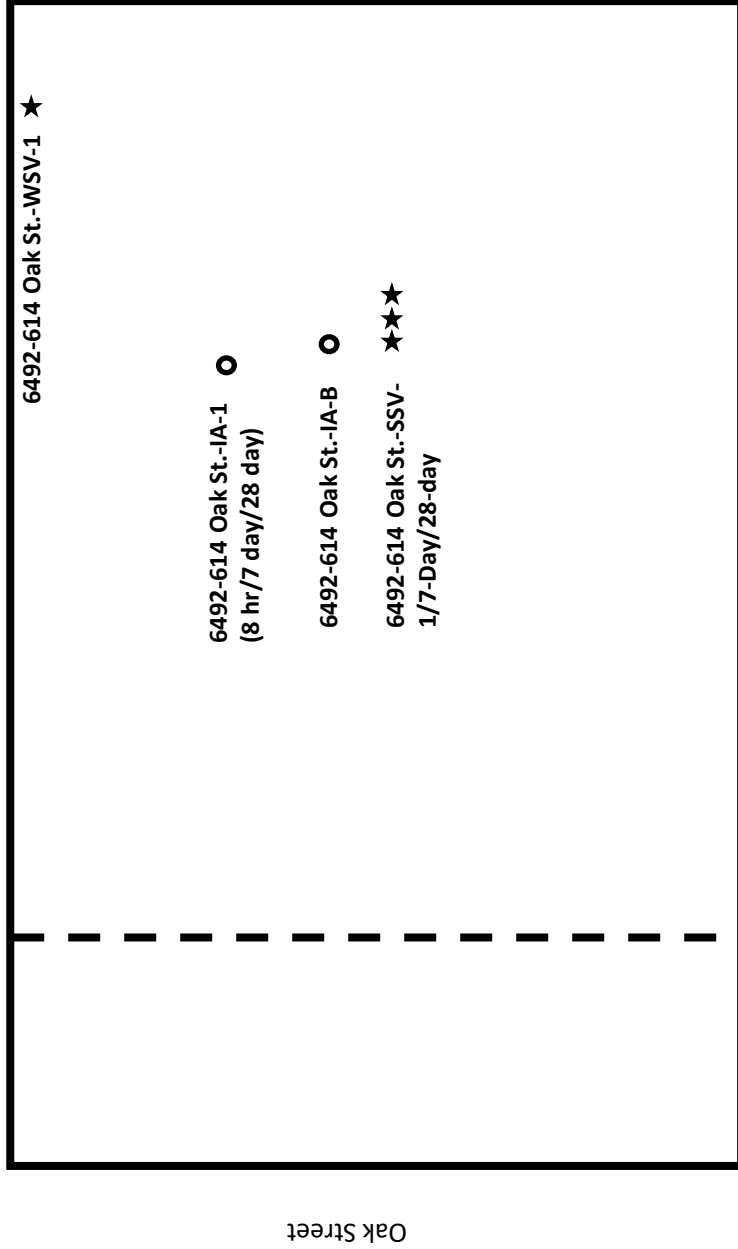
A handwritten signature in blue ink, appearing to read "Rob Hoverman".

Rob Hoverman, LPG
Senior Project Manager

Attachments: Figure 1 – Vapor Intrusion Sampling Locations
Table 1 – Vapor Intrusion Assessment Results Summary
Laboratory Analytical Report (WDNR File Copy Only)

Copy: Trevor Bannister, Wisconsin Department of Natural Resources

FIGURE 1
VAPOR INTRUSION SAMPLE LOCATIONS
614 Oak Street, Baraboo Wisconsin



Legend

- = Indoor/Outdoor Air Sample
- IA-B = Basement
- IA-1 = 1st Floor
- SSV-1 = Sub-Slab Vapor
- ★ = Sub-Slab Vapor Sampling Port Location
- = Interior Wall



6492-OA-1



TABLE 1
VAPOR INTRUSION ANALYTICAL RESULTS SUMMARY - 614 OAK STREET

Badger Cleaners
616 Oak Street, Baraboo, WI 53913

Sample Identification	Sample Location	Sample Type	Date Sampled	Mitigation	Tetrachloroethene	Trichloroethene
INDOOR/ OUTDOOR AIR						
Small Commercial Vapor Action Level					180	8.8
6492-614 Oak ST-IA-B	614 Oak Street	SUMMA	9/7/2017	No	383	<1.07
			12/6/2017	No	543	<1.07
			6/22/2020	Yes	7,890	<1.07
			8/26/2020	Yes	118	<1.07
			10/14/2021	Yes	130	<1.07
			11/11/2021	Yes	21	<1.07
2/3/2022		Yes	<3.19	<1.07		
6492-614 Oak ST-IA-1		SUMMA	9/7/2017	No	80.9	<1.07
			12/6/2017	No	331	<1.07
			6/22/2020	Yes	3,340	<1.07
			8/26/2020	Yes	108	<1.07
			10/14/2021	Yes	<3.19	<1.07
			11/11/2021	Yes	23.4	<1.07
2/3/2022		Yes	<3.19	<1.07		
6492-OA-1		SUMMA	9/7/2017	No	46.3	<1.07
			12/6/2017	No	28.8	<1.07
			6/22/2020	Yes	<3.19	<1.07
			8/26/2020	Yes	<3.19	<1.07
	10/14/2021		Yes	<3.19	<1.07	
	11/11/2021		Yes	<3.19	<1.07	
2/3/2022	Yes	<3.19	<1.07			
6492-614-Oak ST-IA-1 (8 hr)	Passive	10/14/2021	Yes	<9.35	<7.91	
		11/11/2021	Yes	<9.97	<8.43	
6492-614 Oak ST-IA-1 (7 day)	Passive	10/21/2021	Yes	<0.438	<0.371	
		10/28/2021	Yes	<0.453	<0.383	
		11/4/2021	Yes	<0.440	<0.372	
		11/11/2021	Yes	<0.460	<0.390	
		11/18/2021	Yes	167*	1.68	
6492-614 Oak ST-IA-1 (28 day)	Passive	11/11/2021	Yes	<0.460	<0.390	
		12/9/2021	Yes	87.5*	0.177	
		1/6/2022	Yes	1.26*	<0.0753	
		2/3/2022	Yes	0.991	<0.0946	

TABLE 1
VAPOR INTRUSION ANALYTICAL RESULTS SUMMARY - 614 OAK STREET

Badger Cleaners
616 Oak Street, Baraboo, WI 53913

Sample Identification	Sample Location	Sample Type	Date Sampled	Mitigation	Tetrachloroethene	Trichloroethene
SUB-SLAB VAPOR						
Small Commercial Vapor Risk Screening Level					5,800	290
6492-614 Oak ST-SSV-1	614 Oak Street	SUMMA	9/7/2017	No	56,300	54.8
			12/6/2017	No	197,000	29.0
			6/22/2020	Yes	32,000	4.5
			8/26/2020	Yes	5,720	<10.7
			10/14/2021	Yes	128	<10.7
			11/11/2021	Yes	214	<10.7
			2/3/2022	Yes	<31.9	<10.7
6492-614 Oak ST-WSV-1		SUMMA	10/14/2021	Yes	129	<10.7
			11/11/2021	Yes	82	<10.7
			2/3/2022	Yes	<31.9	<10.7
6492-614 Oak ST-SSV-7 day		Passive	10/21/2021	Yes	86.9	<3.01
			10/28/2021	Yes	105	<3.01
			11/4/2021	Yes	433*	<2.97
			11/11/2021	Yes	488 *	<2.95
6492-614 Oak ST-SSV-1-28 day	Passive	11/11/2021	Yes	570*	8.48	
		12/9/2021	Yes	373*	4.51	
		1/6/2022	Yes	209*	0.75	
		2/3/2022	Yes	12.5	<0.75	

Notes:

Results reported in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)

SUMMA samples analyzed according to EPA Method TO-15

Passive samples analyzed according to EPA Method TO-17

Results with a * symbol exceeded the laboratory upper detection limit

The Vapor Risk Screening/Action Levels are calculated in accordance with WDNR Publication RR-800 and subsequent guidance documents.

IA = Indoor Air

OA = Outdoor Air

SSV= Sub-slab vapor

Bolded values are above detection limits

Bolded and Orange shaded concentration exceed the applicable non-residential screening level



EnvisionAir
1441 Sadler Circle West Drive
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Mr. Rob Hoverman
Enviroforensics
N16 W. 23390 Stone Ridge Dr
Suite G
Waukesha, WI 53188

October 25, 2021

EnvisionAir Project Number: 2021-526
Client Project Name: 6492 – Badger Cleaners

Dear Mr. Hoverman,

Please find the attached analytical report for the samples received October 18, 2021. All test methods performed were fully compliant with local, state, and federal EPA methods unless otherwise noted. The project was analyzed as requested on the enclosed chain of custody record. Please review the comments section for additional information about your results or Quality Control data.

Feel free to contact me if you have any questions or comments regarding your analytical report or service.

Thank you for your business. EnvisionAir looks forward to working with you on your next project.

Yours Sincerely,

A handwritten signature in black ink that reads "David Norris". The signature is written in a cursive, flowing style.

David Norris
Project Manager
EnvisionAir, LLC



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Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2021-526

Sample Summary

Canister Pressure / Vacuum

<u>Laboratory Sample Number:</u>	<u>Sample Description:</u>	<u>Matrix:</u>	<u>START</u>	<u>START</u>	<u>End Date</u>	<u>End Time</u>	<u>Date</u>	<u>Time</u>	<u>Canister Pressure / Vacuum</u>		<u>Lab</u>
			<u>Collected:</u>	<u>Collected:</u>					<u>Initial Field</u>	<u>Final Field</u>	
			<u>Date</u>	<u>Time</u>					<u>(in. Hg)</u>	<u>(in. Hg)</u>	<u>Received</u>
21-2549	6492-614 OAK-IA-1	A	10/14/21	8:00	10/14/21	15:58	10/18/21	16:54	-28	-7	-7
21-2550	6492-614 OAK-IA-B	A	10/14/21	8:01	10/14/21	16:03	10/18/21	16:54	-28	-6	-6
21-2551	6492-614 OAK-OA	A	10/14/21	7:55	10/14/21	15:54	10/18/21	16:54	-28	-3	-3
21-2552	6492-614 OAK-SSV-1	A	10/14/21	17:09	10/14/21	17:14	10/18/21	16:54	-28	-3	-3
21-2553	6492-614 OAK-WSV-1	A	10/14/21	17:22	10/14/21	17:27	10/18/21	16:54	-27	-3	-3



EnvisionAir
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Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2021-526

Analytical Method: TO-15
Analytical Batch: 101821AIR

Client Sample ID: 6492-614 OAK-IA-1
EnvisionAir Sample Number: 21-2549
Sample Matrix: AIR

Sample Collection START Date/Time: 10/14/21 8:00
Sample Collection END Date/Time: 10/14/21 15:58
Sample Received Date/Time: 10/18/21 16:54

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 19.8	19.8	
Tetrachloroethene	< 3.19	3.19	
trans-1,2-Dichloroethene	< 39.6	39.6	
Trichloroethene	< 1.07	1.07	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	100%		
Analysis Date/Time:	10-19-21/12:54		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2021-526

Analytical Method: TO-15
Analytical Batch: 101821AIR

Client Sample ID: 6492-614 OAK-IA-B
EnvisionAir Sample Number: 21-2550
Sample Matrix: AIR

Sample Collection START Date/Time: 10/14/21 8:01
Sample Collection END Date/Time: 10/14/21 16:03
Sample Received Date/Time: 10/18/21 16:54

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 19.8	19.8	
Tetrachloroethene	130	3.19	
trans-1,2-Dichloroethene	< 39.6	39.6	
Trichloroethene	< 1.07	1.07	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	90%		
Analysis Date/Time:	10-19-21/13:29		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2021-526

Analytical Method: TO-15
Analytical Batch: 101821AIR

Client Sample ID: 6492-614 OAK-OA **Sample Collection START Date/Time:** 10/14/21 7:55
EnvisionAir Sample Number: 21-2551 **Sample Collection END Date/Time:** 10/14/21 15:54
Sample Matrix: AIR **Sample Received Date/Time:** 10/18/21 16:54

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 19.8	19.8	
Tetrachloroethene	< 3.19	3.19	
trans-1,2-Dichloroethene	< 39.6	39.6	
Trichloroethene	< 1.07	1.07	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	98%		
Analysis Date/Time:	10-19-21/14:04		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2021-526

Analytical Method: TO-15
Analytical Batch: 101821AIR

Client Sample ID: 6492-614 OAK-SSV-1
EnvisionAir Sample Number: 21-2552
Sample Matrix: AIR

Sample Collection START Date/Time: 10/14/21 17:09
Sample Collection END Date/Time: 10/14/21 17:14
Sample Received Date/Time: 10/18/21 16:54

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 198	198	
Tetrachloroethene	128	31.9	
trans-1,2-Dichloroethene	< 396	396	
Trichloroethene	< 10.7	10.7	
Vinyl Chloride	< 12.8	12.8	
4-bromofluorobenzene (surrogate)	105%		
Analysis Date/Time:	10-19-21/14:38		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2021-526

Analytical Method: TO-15
Analytical Batch: 101821AIR

Client Sample ID: 6492-614 OAK-WSV-1
EnvisionAir Sample Number: 21-2553
Sample Matrix: AIR

Sample Collection START Date/Time: 10/14/21 17:22
Sample Collection END Date/Time: 10/14/21 17:27
Sample Received Date/Time: 10/18/21 16:54

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 198	198	
Tetrachloroethene	129	31.9	
trans-1,2-Dichloroethene	< 396	396	
Trichloroethene	< 10.7	10.7	
Vinyl Chloride	< 12.8	12.8	
4-bromofluorobenzene (surrogate)	97%		
Analysis Date/Time:	10-19-21/15:11		
Analyst Initials	tjg		

TO-15 Quality Control Data

EnvisionAir Batch Number: 101821AIR

<u>Method Blank (MB):</u>	<u>MB Results (ppbv)</u>	<u>Reporting Limit (ppbv)</u>	<u>Flags</u>
cis-1,2-Dichloroethene	< 5	5	
Tetrachloroethene	< 0.47	0.47	
trans-1,2-Dichloroethene	< 10	10	
Trichloroethene	< 0.2	0.2	
Vinyl Chloride	< 0.5	0.5	
4-bromofluorobenzene (surrogate)	90%		
Analysis Date/Time:	10-19-21/08:39		
Analyst Initials	tjg		

<u>LCS/LCSD</u>	<u>LCS Results (ppbv)</u>	<u>LCSD Results (ppbv)</u>	<u>LCS/D Conc(ppbv)</u>	<u>LCS Rec.</u>	<u>LCSD Rec.</u>	<u>RPD</u>	<u>Flag</u>
Vinyl Chloride	10.1	10.9	10	101%	109%	7.6%	
trans-1,2-Dichloroethene	11.1	10	10	111%	100%	10.4%	
cis-1,2-Dichloroethene	9.63	9.16	10	96%	92%	5.0%	
Trichloroethene	8.8	9.78	10	88%	98%	10.5%	
Tetrachloroethene	10.1	9.78	10	101%	98%	3.2%	
4-bromofluorobenzene (surrogate)	100%	92%					
Analysis Date/Time:	10-19-21/07:27	10-19-21/08:05					
Analyst Initials	tjg	tjg					



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Comments

CHAIN OF CUSTODY RECORD

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2021-526

Page 1 of 1

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REQUESTED PARAMETERS

Client: ENVIRONMENTAL FORENSICS
 Report: Profferman @
 Address: enviroforensics.com
 Report To: Kate Profferman
 Phone: 762-290-4001
 Invoice Address: ACCOUNTS RECEIVABLE ENVIRONMENTAL FORENSICS.COM
 Desired TAT: (Please Circle One)
 1 day 2 days 3 days 5 days (5 bus-days)

P.O. Number:
 Project Name or Number: 6492
 Sampled by: R Brown
 QA/QC Required: (circle if applicable)
 Level III Level IV
 Reporting Units needed: (circle)
 ug/m³ mg/m³ PPBV PPMV

Media type:
 1LC = 1 Liter Canister
 6LC = 6 Liter Canister
 TB = Tedlar Bag
 TD = Thermal Description Tube

TO-15 Full List
 TO-15 Short List (Specify in notes)

Sampling Type:
 Soil-Gas:
 Sub-Slab:
 Indoor-Air:

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Air Sample ID	Media Type (See code above)	Coll. Date (Grab/Comp Start)	Coll. Time (Grab/Comp Start)	Coll. Date (Comp. End)	Coll. Time (Comp. End)	Canister Serial #	Flow Controller Serial #	Initial Field (in. Hg)	Final Field (in. Hg)	Lab Received (in. Hg)	EnvisionAir Sample Number
<u>6492-614 OAK-IA-1</u>	<u>6LC</u>	<u>10-14-21</u>	<u>800</u>	<u>10-14-21</u>	<u>1558</u>	<u>4663</u>	<u>07410</u>	<u>-28</u>	<u>-7</u>	<u>-7</u>	<u>21-2549</u>
<u>6492-614 OAK-IA-B</u>	<u>↓</u>	<u>↓</u>	<u>801</u>	<u>↓</u>	<u>1603</u>	<u>17901</u>	<u>07410</u>	<u>-28</u>	<u>-6</u>	<u>-4</u>	<u>21-2550</u>
<u>6492-614 OAK-OA</u>	<u>↓</u>	<u>↓</u>	<u>755</u>	<u>↓</u>	<u>1554</u>	<u>17897</u>	<u>07310</u>	<u>-28</u>	<u>-3</u>	<u>-3</u>	<u>21-2551</u>
<u>6492-614 OAK-SSV-1</u>	<u>↓</u>	<u>↓</u>	<u>1709</u>	<u>↓</u>	<u>1714</u>	<u>85857</u>	<u>0057</u>	<u>-28</u>	<u>-3</u>	<u>-3</u>	<u>21-2552</u>
<u>6492-614 OAK-SSV-1</u>	<u>↓</u>	<u>↓</u>	<u>1712</u>	<u>↓</u>	<u>1717</u>	<u>83679</u>	<u>00916</u>	<u>-27</u>	<u>-3</u>	<u>-3</u>	<u>21-2553</u>

Comments:

SHORT LIST: TCE, PCE, CDCE, TDBE, VC

Relinquished by:	Date	Time	Received by:	Date	Time
<u>TC TC</u>	<u>10-15-21</u>	<u>1700</u>	<u>TC TC</u>	<u>10-15-21</u>	<u>1700</u>
			<u>YOUNG</u>	<u>10-18-21</u>	<u>10:54</u>



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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 210108R01

Laboratory Work Order: 0005973

Project Description:

Badger Cleaners
Baraboo, WI

Client PO No.: 2021-0607

Prepared for:

Rob Hoverman

EnviroForensics

N16W23390 Stone Ridge Dr, Suite G

Waukesha, WI 53188

Ryan W. Schneider
Senior Project Manager

October 28, 2021

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
Interim Quality Manager

Table of Contents

Cover Page	1
Sample Summary	3
Case Narrative	4
Analytical Results	5
Detailed Analytical Results	6
0005973-01 - 6492-614 oak-IA-1 (8hr)	7
QC Summaries	8
Additional QC Information	15
Sample Result Calculations	16
Equation	16
LOD/MRL Calculation Table	17
Certifications	18
Notes and Definitions	19
Sample Management Records	20
Chain of Custody	21

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0005973 Reported: 10/28/2021
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Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0005973-01 Sampler Type:	6492-614 oak-IA-1 (8hr) Sorbent Tube	10/20/2021	TO-17 (Passive)	Air

Project Completeness

Samples Received: 1
Samples Analyzed: 1

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R01
Lab Work Order: 0005973
Reported: 10/28/2021

Case Narrative

Beacon Environmental provided thermally conditioned ChloroSorbers 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) for EPA Method TO-17

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

Calibration Verification

All continuing calibration verification (CCV) values are within $\pm 30\%$ 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 limit of detection (LOD) for each compound were observed in the Laboratory Method Blanks.

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** section.

Discussion

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

End of Case Narrative

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005973
Reported: 10/28/2021

Analytical Results

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005973
Reported: 10/28/2021

Detailed Analytical Results

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0005973 Reported: 10/28/2021
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Lab Sample ID: 0005973-01	6492-614 oak-IA-1 (8hr)	Method: TO-17 (Passive)
Air		

Analyte	CAS#	Result (µg/m ³)	Q	LOD (µg/m ³)	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<9.18	U	9.18	18.4	10/25/2021 12:46	A21102505.D
trans-1,2-Dichloroethene	156-60-5	<7.35	U	7.35	14.7	10/25/2021 12:46	A21102505.D
cis-1,2-Dichloroethene	156-59-2	<7.35	U	7.35	14.7	10/25/2021 12:46	A21102505.D
Trichloroethene	79-01-6	<7.91	U	7.91	15.8	10/25/2021 12:46	A21102505.D
Tetrachloroethene	127-18-4	<9.35	U	9.35	18.7	10/25/2021 12:46	A21102505.D
Analyte	CAS#	% Recovery	Recovery Limits	Q		Analyzed	File ID
Surrogate: 1,2-DCA-d4	17060-07-0	80.5%	70-130			10/25/2021 12:46	A21102505.D
Surrogate: Toluene-d8	2037-26-5	81.9%	70-130			10/25/2021 12:46	A21102505.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005973
Reported: 10/28/2021

QC Information/Summary

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005973
Reported: 10/28/2021

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

Sequence: B21J064 - Instrument: A System - File ID: A21102116.D
B21J064-ICB1 (Lab Blank/Initial Calibration Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<2.5	5	2.5	ng							U
trans-1,2-Dichloroethene	<2.5	5	2.5	ng							U
cis-1,2-Dichloroethene	<2.5	5	2.5	ng							U
Trichloroethene	<2.5	5	2.5	ng							U
Tetrachloroethene	<2.5	5	2.5	ng							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>17.5</i>			<i>ng</i>	<i>20.0</i>		<i>87.3</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>18.2</i>			<i>ng</i>	<i>20.0</i>		<i>90.9</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005973
Reported: 10/28/2021

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

Sequence: B21J060 - Batch: 21J0049 - Instrument: A System - File ID: A21102502.D
21J0049-BS1 (LCS, Calibration Source Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	9.26	5	2.5	ng	10.0		92.6	70-130			
trans-1,2-Dichloroethene	9.04	5	2.5	ng	10.0		90.4	70-130			
cis-1,2-Dichloroethene	9.43	5	2.5	ng	10.0		94.3	70-130			
Trichloroethene	9.81	5	2.5	ng	10.0		98.1	70-130			
Tetrachloroethene	10.1	5	2.5	ng	10.0		101	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>8.92</i>			<i>ng</i>	<i>10.0</i>		<i>89.2</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.41</i>			<i>ng</i>	<i>10.0</i>		<i>94.1</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005973
Reported: 10/28/2021

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

Sequence: B21J060 - Batch: 21J0049 - Instrument: A System - File ID: A21102503.D
21J0049-BLK1 (Lab Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<9.18	18.4	9.18	µg/m ³							U
trans-1,2-Dichloroethene	<7.35	14.7	7.35	µg/m ³							U
cis-1,2-Dichloroethene	<7.35	14.7	7.35	µg/m ³							U
Trichloroethene	<7.91	15.8	7.91	µg/m ³							U
Tetrachloroethene	<9.35	18.7	9.35	µg/m ³							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>18.4</i>			<i>ng</i>	<i>20.0</i>		<i>92.1</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>17.3</i>			<i>ng</i>	<i>20.0</i>		<i>86.6</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005973
Reported: 10/28/2021

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

Sequence: B21J060 - Instrument: A System - File ID: A21102504.D
B21J060-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	9.23	5	2.5	ng	10.0		92.3	70-130			
trans-1,2-Dichloroethene	9.24	5	2.5	ng	10.0		92.4	70-130			
cis-1,2-Dichloroethene	9.36	5	2.5	ng	10.0		93.6	70-130			
Trichloroethene	9.85	5	2.5	ng	10.0		98.5	70-130			
Tetrachloroethene	9.76	5	2.5	ng	10.0		97.6	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>8.75</i>			<i>ng</i>	<i>10.0</i>		<i>87.5</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.43</i>			<i>ng</i>	<i>10.0</i>		<i>94.3</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0005973 Reported: 10/28/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21J060 - Instrument: A System - File ID: A21102509.D

B21J060-CCV1 (LCS, Closing Calibration Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	9.67	5	2.5	ng	10.0		96.7	70-130			
trans-1,2-Dichloroethene	9.02	5	2.5	ng	10.0		90.2	70-130			
cis-1,2-Dichloroethene	9.25	5	2.5	ng	10.0		92.5	70-130			
Trichloroethene	9.79	5	2.5	ng	10.0		97.9	70-130			
Tetrachloroethene	10.0	5	2.5	ng	10.0		100	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.12</i>			<i>ng</i>	10.0		<i>91.2</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.31</i>			<i>ng</i>	10.0		<i>93.1</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0005973 Reported: 10/28/2021
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TO-17 (Passive) - LCS/LCSD Quality Control Summary

LCS: 21J0049-BS1 File ID: A21102502.D

Analyzed: 10/25/21 12:04

LCSD: B21J060-ICV1 File ID: A21102504.D

Analyzed: 10/25/21 11:16

Analyte	CAS#	LCS Result		Spike Level	LCSD Result		%REC Limits	RPD	
		(ng)	%REC Q		(ng)	%REC		RPD Limit	RPD Q
Vinyl Chloride	75-01-4	9.26	92.6	10	9.23	92.30	70-130	0.32	30
trans-1,2-Dichloroethene	156-60-5	9.04	90.4	10	9.24	92.40	70-130	2.19	30
cis-1,2-Dichloroethene	156-59-2	9.43	94.3	10	9.36	93.60	70-130	0.75	30
Trichloroethene	79-01-6	9.81	98.1	10	9.85	98.50	70-130	0.41	30
Tetrachloroethene	127-18-4	10.13	101.3	10	9.76	97.60	70-130	3.72	30

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005973
Reported: 10/28/2021

Additional QC Information

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005973
Reported: 10/28/2021

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: 0005973-01

Sample Name: 6492-614 oak-IA-1 (8hr)

̄ Temp (°C): 24.00

Vinyl Chloride	480	1.00	0.567	U	U	A21102505.D
trans-1,2-Dichloroethene	480	1.00	0.709	U	U	A21102505.D
cis-1,2-Dichloroethene	480	1.00	0.709	U	U	A21102505.D
Trichloroethene	480	1.00	0.658	U	U	A21102505.D
Tetrachloroethene	480	1.00	0.557	U	U	A21102505.D

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 (µg/m³)
 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

‡ Uptake rate determined using Graham's Law of Diffusion.

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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0005973 Reported: 10/28/2021
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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 (ng)		C Calculated (µg/m³)	
				LOQ	LOD	LOQ	LOD

Lab ID: 0005973-01	Sample Name: 6492-614 oak-IA-1 (8hr)	\bar{X} Temp (°C): 24.00					
Vinyl Chloride	480	1.00	0.567	5.0	2.50	18.4	9.18
trans-1,2-Dichloroethene	480	1.00	0.709	5.0	2.50	14.7	7.35
cis-1,2-Dichloroethene	480	1.00	0.709	5.0	2.50	14.7	7.35
Trichloroethene	480	1.00	0.658	5.0	2.50	15.8	7.91
Tetrachloroethene	480	1.00	0.557	5.0	2.50	18.7	9.35

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0005973 Reported: 10/28/2021
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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	01/31/2023	
DoD-ELAP	L20-532-R1	United States Department of Defense Environmental Laboratory Accreditation	12/31/2022	
ISO/IEC 17025:2017	L20-532	General Requirements for the competence of Testing and Calibration Laboratories	12/31/2022	
NY-NELAC	12097	New York Department of Health	04/01/2022	
Utah-NELAC	MD01091	Utah Department of Health	12/31/2021	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R01
Lab Work Order: 0005973
Reported: 10/28/2021

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:

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

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005973
Reported: 10/28/2021

Sample Management Records

PASSIVE AIR SAMPLING - SORBENT TUBE

CHAIN-OF-CUSTODY

Client Information		Project Manager: <u>Rob Hoverman</u>				Client PO:		INDOOR AIR AMBIENT AIR CRAWL SPACE SEWER GAS				
Company: <u>EnviroForensics</u>		Project Name: <u>Badger Cleaners</u>				Turn around time (check one): <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush (specify) ____ days						
Address: <u>916 W 23390 Stone Ridge Dr Suite G</u>		Location: <u>Baraboo, WI</u>				Analysis: <input checked="" type="checkbox"/> Method TO-17 <input type="checkbox"/> Method 325						
City / State / Zip: <u>Waukesha, WI 53188</u>		Submitted by: <u>R Brown</u>				Email: <u>rhoverman@enviroforensics.com</u>						
Phone: <u>262-290-4001</u>												
Location ID	Tube ID	Start Date	Start Time	Stop Date	Stop Time	Aver Temp (C)	Target Compounds					
<u>6492-614 oak-1A-1 (8hr)</u>	<u>1078721</u>	<u>10-14-21</u>	<u>800</u>	<u>10-14-21</u>	<u>1600</u>	<u>75</u> ^{RIS} <u>24</u>	<u>PCE, TCE, CDE, tDCE, VC</u>	<u>X</u>				
Special Notes / Instructions:												
Relinquished by (signature): <u>RLT</u>		Date / Time: <u>10-18-21 1600</u>				Received by (signature): <u>FedEx</u>		Date / Time: <u>10-18-21 1600</u>				
Relinquished by (signature):		Date / Time:				Received by (signature): <u>Stewart Thonley</u>		Date / Time: <u>10.20.2021 9:59</u>				
For Lab Use Only		Beacon Job No: <u>5973</u>				Beacon Proposal: <u>210108R01</u>						
Courier Name: <u>FedEx</u>		Shipment Condition: <u>✓</u>				Custody Seal Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> n/a		Custody Seal No: <u>-</u>				



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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 210108R01

Laboratory Work Order: 0005984

Project Description:

Badger Cleaners
Baraboo, WI

Client PO No.: 2021-0607

Prepared for:

Rob Hoverman

EnviroForensics

N16W23390 Stone Ridge Dr, Suite G

Waukesha, WI 53188

Ryan W. Schneider
Senior Project Manager

November 02, 2021

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
Interim Quality Manager

Table of Contents

Cover Page	1
Sample Summary	3
Case Narrative	4
Analytical Results	5
Detailed Analytical Results	6
0005984-01 - 6492-614 Oak-1A-1 (7 Day)	7
QC Summaries	8
Additional QC Information	15
Sample Result Calculations	16
Equation	16
LOD/MRL Calculation Table	17
Certifications	18
Notes and Definitions	19
Sample Management Records	20
Chain of Custody	21

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0005984 Reported: 11/02/2021
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Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0005984-01 Sampler Type:	6492-614 Oak-1A-1 (7 Day) Sorbent Tube	10/25/2021	TO-17 (Passive)	Indoor Air

Project Completeness

Samples Received: 1
Samples Analyzed: 1

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R01
Lab Work Order: 0005984
Reported: 11/02/2021

Case Narrative

Beacon Environmental provided thermally conditioned ChloroSorbers 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) for EPA Method TO-17

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

Calibration Verification

All continuing calibration verification (CCV) values are within $\pm 30\%$ 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 limit of detection (LOD) for each compound were observed in the Laboratory Method Blanks.

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** section.

Discussion

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

End of Case Narrative

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005984
Reported: 11/02/2021

Analytical Results

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005984
Reported: 11/02/2021

Detailed Analytical Results

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0005984 Reported: 11/02/2021
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Lab Sample ID: 0005984-01	6492-614 Oak-1A-1 (7 Day) Indoor Air	Method: TO-17 (Passive)
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Analyte	CAS#	Result (µg/m ³)	Q	LOD (µg/m ³)	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.431	U	0.431	0.861	10/25/2021 14:07	A21102508.D
trans-1,2-Dichloroethene	156-60-5	<0.344	U	0.344	0.689	10/25/2021 14:07	A21102508.D
cis-1,2-Dichloroethene	156-59-2	<0.344	U	0.344	0.689	10/25/2021 14:07	A21102508.D
Trichloroethene	79-01-6	<0.371	U	0.371	0.742	10/25/2021 14:07	A21102508.D
Tetrachloroethene	127-18-4	<0.438	U	0.438	0.877	10/25/2021 14:07	A21102508.D
Analyte	CAS#	% Recovery	Recovery Limits	Q		Analyzed	File ID
Surrogate: 1,2-DCA-d4	17060-07-0	79.4%	70-130			10/25/2021 14:07	A21102508.D
Surrogate: Toluene-d8	2037-26-5	77.0%	70-130			10/25/2021 14:07	A21102508.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005984
Reported: 11/02/2021

QC Information/Summary

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0005984 Reported: 11/02/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21J064 - Instrument: A System - File ID: A21102116.D

B21J064-ICB1 (Lab Blank/Initial Calibration Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<2.5	5	2.5	ng							U
trans-1,2-Dichloroethene	<2.5	5	2.5	ng							U
cis-1,2-Dichloroethene	<2.5	5	2.5	ng							U
Trichloroethene	<2.5	5	2.5	ng							U
Tetrachloroethene	<2.5	5	2.5	ng							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>17.5</i>			<i>ng</i>	<i>20.0</i>		<i>87.3</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>18.2</i>			<i>ng</i>	<i>20.0</i>		<i>90.9</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0005984 Reported: 11/02/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21J060 - Batch: 21J0049 - Instrument: A System - File ID: A21102502.D

21J0049-BS1 (LCS, Calibration Source Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	9.26	5	2.5	ng	10.0		92.6	70-130			
trans-1,2-Dichloroethene	9.04	5	2.5	ng	10.0		90.4	70-130			
cis-1,2-Dichloroethene	9.43	5	2.5	ng	10.0		94.3	70-130			
Trichloroethene	9.81	5	2.5	ng	10.0		98.1	70-130			
Tetrachloroethene	10.1	5	2.5	ng	10.0		101	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>8.92</i>			<i>ng</i>	<i>10.0</i>		<i>89.2</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.41</i>			<i>ng</i>	<i>10.0</i>		<i>94.1</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005984
Reported: 11/02/2021

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

Sequence: B21J060 - Batch: 21J0049 - Instrument: A System - File ID: A21102503.D
21J0049-BLK1 (Lab Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<0.431	0.861	0.431	µg/m ³							U
trans-1,2-Dichloroethene	<0.344	0.689	0.344	µg/m ³							U
cis-1,2-Dichloroethene	<0.344	0.689	0.344	µg/m ³							U
Trichloroethene	<0.371	0.742	0.371	µg/m ³							U
Tetrachloroethene	<0.438	0.877	0.438	µg/m ³							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>18.4</i>			<i>ng</i>	20.0		<i>92.1</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>17.3</i>			<i>ng</i>	20.0		<i>86.6</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005984
Reported: 11/02/2021

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

Sequence: B21J060 - Instrument: A System - File ID: A21102504.D
B21J060-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	9.23	5	2.5	ng	10.0		92.3	70-130			
trans-1,2-Dichloroethene	9.24	5	2.5	ng	10.0		92.4	70-130			
cis-1,2-Dichloroethene	9.36	5	2.5	ng	10.0		93.6	70-130			
Trichloroethene	9.85	5	2.5	ng	10.0		98.5	70-130			
Tetrachloroethene	9.76	5	2.5	ng	10.0		97.6	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>8.75</i>			<i>ng</i>	<i>10.0</i>		<i>87.5</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.43</i>			<i>ng</i>	<i>10.0</i>		<i>94.3</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005984
Reported: 11/02/2021

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

Sequence: B21J060 - Instrument: A System - File ID: A21102509.D

B21J060-CCV1 (LCS, Closing Calibration Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	9.67	5	2.5	ng	10.0		96.7	70-130			
trans-1,2-Dichloroethene	9.02	5	2.5	ng	10.0		90.2	70-130			
cis-1,2-Dichloroethene	9.25	5	2.5	ng	10.0		92.5	70-130			
Trichloroethene	9.79	5	2.5	ng	10.0		97.9	70-130			
Tetrachloroethene	10.0	5	2.5	ng	10.0		100	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.12</i>			<i>ng</i>	10.0		<i>91.2</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.31</i>			<i>ng</i>	10.0		<i>93.1</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0005984 Reported: 11/02/2021
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TO-17 (Passive) - LCS/LCSD Quality Control Summary

LCS: 21J0049-BS1 File ID: A21102502.D

Analyzed: 10/25/21 12:04

LCSD: B21J060-ICV1 File ID: A21102504.D

Analyzed: 10/25/21 11:16

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	9.26	92.6	10	9.23	92.30	70-130	0.32	30	
trans-1,2-Dichloroethene	156-60-5	9.04	90.4	10	9.24	92.40	70-130	2.19	30	
cis-1,2-Dichloroethene	156-59-2	9.43	94.3	10	9.36	93.60	70-130	0.75	30	
Trichloroethene	79-01-6	9.81	98.1	10	9.85	98.50	70-130	0.41	30	
Tetrachloroethene	127-18-4	10.13	101.3	10	9.76	97.60	70-130	3.72	30	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005984
Reported: 11/02/2021

Additional QC Information

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005984
Reported: 11/02/2021

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: 0005984-01

Sample Name: 6492-614 Oak-1A-1 (7 Day)

̄ Temp (°C): 23.00

Vinyl Chloride	10,257	1.00	0.566	U	U	A21102508.D
trans-1,2-Dichloroethene	10,257	1.00	0.708	U	U	A21102508.D
cis-1,2-Dichloroethene	10,257	1.00	0.708	U	U	A21102508.D
Trichloroethene	10,257	1.00	0.657	U	U	A21102508.D
Tetrachloroethene	10,257	1.00	0.556	U	U	A21102508.D

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 (µg/m³)
 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

‡ Uptake rate determined using Graham's Law of Diffusion.

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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0005984 Reported: 11/02/2021
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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 (ng)		C Calculated (µg/m³)	
				LOQ	LOD	LOQ	LOD

Lab ID: 0005984-01	Sample Name: 6492-614 Oak-1A-1 (7 Day)	̄ Temp (°C): 23.00
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Vinyl Chloride	10,257	1.00	0.566	5.0	2.50	0.861	0.431
trans-1,2-Dichloroethene	10,257	1.00	0.708	5.0	2.50	0.689	0.344
cis-1,2-Dichloroethene	10,257	1.00	0.708	5.0	2.50	0.689	0.344
Trichloroethene	10,257	1.00	0.657	5.0	2.50	0.742	0.371
Tetrachloroethene	10,257	1.00	0.556	5.0	2.50	0.877	0.438

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0005984 Reported: 11/02/2021
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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	01/31/2023	
DoD-ELAP	L20-532-R1	United States Department of Defense Environmental Laboratory Accreditation	12/31/2022	
ISO/IEC 17025:2017	L20-532	General Requirements for the competence of Testing and Calibration Laboratories	12/31/2022	
NY-NELAC	12097	New York Department of Health	04/01/2022	
Utah-NELAC	MD01091	Utah Department of Health	12/31/2021	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005984
Reported: 11/02/2021

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:

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

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0005984
Reported: 11/02/2021

Sample Management Records



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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 210108R02
Laboratory Work Order: 0005985R

Project Description:

Badger Cleaners
Baraboo, WI

Client PO No.: 2021-0607

Prepared for:

Rob Hoverman

EnviroForensics

N16W23390 Stone Ridge Dr, Suite G

Waukesha, WI 53188

Ryan W. Schneider
Senior Project Manager

November 05, 2021

Report amended to add concentrations results.

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
Interim Quality Manager

Table of Contents

Cover Page	1
Sample Summary	3
Case Narrative	4
Analytical Results	5
Summary of Compound Detections	6
Data Summary Table	8
Data Summary Table-Concentration	9
Detailed Analytical Results	10
- Mass	11
0005985-01 - 6492-614 Oak-SSV-7 Day	12
- Concentration	13
0005985-01 - 6492-614 Oak-SSV-7 Day	14
QC Summaries	15
Additional QC Information	18
Sample Result Calculations	19
Equation	19
MRL Calculation Table	20
Certifications	21
Notes and Definitions	22
Sample Management Records	23
Chain of Custody	24

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0005985 Reported: 11/05/2021
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Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0005985-01	6492-614 Oak-SSV-7 Day	10/25/2021	EPA 8260C	Soil Gas
Sampler Type: Beacon Passive Sampler				

Project Completeness

Samples Received: 1
Samples Analyzed: 1

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R02
Lab Work Order: 0005985
Reported: 11/05/2021

Case Narrative

U.S. EPA Method 8260C

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

Passive Soil-Gas Survey Notes

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

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

Reporting Limits

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

Project Details

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

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
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Beacon Proposal: 210108R02
Lab Work Order: 0005985
Reported: 11/05/2021

Analytical Results

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0005985
Reported: 11/05/2021

Summary of Compound Detections- Mass

Lab Sample ID: 0005985-01	6492-614 Oak-SSV-7 Day Soil Gas	Method: EPA 8260C
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Analyte	CAS#	Result (ng)	Q	RT	LOQ (ng)	File ID
Tetrachloroethene	127-18-4	346		8.013	10	Kb21102507.D

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0005985
Reported: 11/05/2021

Summary of Compound Detections- Concentration

Lab Sample ID: 0005985-01	6492-614 Oak-SSV-7 Day Soil Gas	Method: EPA 8260C
---------------------------	---	-------------------

Analyte	CAS#	Result (µg/m³)	Q	RT	LOQ (µg/m³)	File ID
Tetrachloroethene	127-18-4	86.9		8.013	2.51	Kb21102507.D

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0005985 Reported: 11/05/2021
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Data Summary Table- Mass

Compound	Frequency	LOQ (ng)	Max Value (ng)
Tetrachloroethene	1	10	346

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R02
Lab Work Order: 0005985
Reported: 11/05/2021*Data Summary Table- Concentration*

Compound	Frequency	LOQ ($\mu\text{g}/\text{m}^3$)	Max Value ($\mu\text{g}/\text{m}^3$)
Tetrachloroethene	1	2.51	86.9

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0005985
Reported: 11/05/2021

Detailed Analytical Results

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0005985
Reported: 11/05/2021

Detailed Analytical Results- Mass

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0005985 Reported: 11/05/2021
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Lab Sample ID: 0005985-01	6492-614 Oak-SSV-7 Day	Method: EPA 8260C
Soil Gas		

Analyte	CAS#	Result		LOQ (ng)	Analyzed	File ID
		(ng)	Q			
Vinyl Chloride	75-01-4	<10		10	10/25/2021 14:47	Kb21102507.D
trans-1,2-Dichloroethene	156-60-5	<10		10	10/25/2021 14:47	Kb21102507.D
cis-1,2-Dichloroethene	156-59-2	<10		10	10/25/2021 14:47	Kb21102507.D
Trichloroethene	79-01-6	<10		10	10/25/2021 14:47	Kb21102507.D
Tetrachloroethene	127-18-4	346		10	10/25/2021 14:47	Kb21102507.D

EnviroForensics
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Beacon Proposal: 210108R02
Lab Work Order: 0005985
Reported: 11/05/2021

Detailed Analytical Results- Concentration

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0005985 Reported: 11/05/2021
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Lab Sample ID: 0005985-01	6492-614 Oak-SSV-7 Day	Method: EPA 8260C
Soil Gas		

Analyte	CAS#	Result (µg/m ³)	Q	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<1.27		1.27	10/25/2021 14:47	Kb21102507.D
trans-1,2-Dichloroethene	156-60-5	<2.34		2.34	10/25/2021 14:47	Kb21102507.D
cis-1,2-Dichloroethene	156-59-2	<1.94		1.94	10/25/2021 14:47	Kb21102507.D
Trichloroethene	79-01-6	<3.12		3.12	10/25/2021 14:47	Kb21102507.D
Tetrachloroethene	127-18-4	86.9		2.51	10/25/2021 14:47	Kb21102507.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0005985
Reported: 11/05/2021

QC Information/Summary

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0005985 Reported: 11/05/2021
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Soil-Gas Sample Analysis by EPA Method 8260C - Quality Control Summary

21J0048-BLK1 (Lab Blank) File ID: Kb21102503.D

Analyzed: 10/25/21 11:22

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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0005985 Reported: 11/05/2021
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Soil-Gas Analysis by EPA 8260 - Data in Concentration - Quality Control Summary

21J0048-BLK1 (Lab Blank) File ID: Kb21102503.D

Analyzed: 10/25/21 11:22

Sampler: Beacon Passive Sampler		Result	LOQ	
Analyte	CAS#	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Q
Vinyl Chloride	75-01-4	<1.27	1.27	
trans-1,2-Dichloroethene	156-60-5	<2.34	2.34	
cis-1,2-Dichloroethene	156-59-2	<1.94	1.94	
Trichloroethene	79-01-6	<3.12	3.12	
Tetrachloroethene	127-18-4	<2.51	2.51	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0005985
Reported: 11/05/2021

Additional QC Information

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0005985 Reported: 11/05/2021
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Sample Result Calculation Summary (Concentration)

EPA 8260C

Analyte	t Sampling Time minutes	DF Dilution Factor	U Uptake Rate	M Initial Result ng	C Calculated Result µg/m ³	File ID
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Lab ID: 0005985-01 **Sample Name:** 6492-614 Oak-SSV-7 Day

Vinyl Chloride	9,720	1.00	0.810	U	U	Kb21102507.D
trans-1,2-Dichloroethene	9,720	1.00	0.440	U	U	Kb21102507.D
cis-1,2-Dichloroethene	9,720	1.00	0.530	U	U	Kb21102507.D
Trichloroethene	9,720	1.00	0.330	U	U	Kb21102507.D
Tetrachloroethene	9,720	1.00	0.410	346.34	86.9	Kb21102507.D

Calculations:

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

where: C = concentration (µg/m³)
 M = mass (ng)
 DF = dilution factor
 t = sampling time (minutes)
 U = compound specific uptake rate

§ Uptake rate determined using Graham's Law of Diffusion.

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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0005985 Reported: 11/05/2021
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Method Detection and Reporting Limit Calculations (Concentration)
EPA 8260C

Analyte	t Sampling Time minutes	DF Dilution Factor	U Uptake Rate	M Initial LOQ ng	C Calculated LOQ µg/m ³
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Lab ID: 0005985-01 **Sample Name:** 6492-614 Oak-SSV-7 Day

Vinyl Chloride	9,720	1.00	0.810	10.0	1.27
trans-1,2-Dichloroethene	9,720	1.00	0.440	10.0	2.34
cis-1,2-Dichloroethene	9,720	1.00	0.530	10.0	1.94
Trichloroethene	9,720	1.00	0.330	10.0	3.12
Tetrachloroethene	9,720	1.00	0.410	10.0	2.51

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0005985 Reported: 11/05/2021
---	--	--

Laboratory Certification List

Certification ID	Certification No.	Description	Expires	Project Required
Alaska CS-LAP	19-002	Alaska Department of Environmental Conservation	01/31/2023	
DoD-ELAP	L20-532-R1	United States Department of Defense Environmental Laboratory Accreditation	12/31/2022	
ISO/IEC 17025:2017	L20-532	General Requirements for the competence of Testing and Calibration Laboratories	12/31/2022	
NY-NELAC	12097	New York Department of Health	04/01/2022	
Utah-NELAC	MD01091	Utah Department of Health	12/31/2021	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0005985
Reported: 11/05/2021

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

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0005985
Reported: 11/05/2021

Sample Management Records

PASSIVE SOIL GAS SAMPLES
CHAIN-OF-CUSTODY

Project Information				Client Information			
Site Name: Badger cleaners		Company Name: Enviro Forensics		Project Manager: Rob Haverman			
Office Location: N16 W23390 Stone Ridge Dr Suite G1, Waukesha, WI 53188		Client PO:				Turn around time (check one):	
Site Location: 616 Oak St, Baraboo, WI		Submitted by: R Brown		<input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush (specify) _____ days			
Email: rhoverman@enviroforensics							
Field Sample ID	Start Date	Start Time	Stop Date	Stop Time	Sampling Hole Depth <input type="checkbox"/> cm <input checked="" type="checkbox"/> inches	Surface Type (Soil, Asphalt, Concrete, Gravel)	Optional Information (Location Description, Sample Condition, PID / FID Readings, etc)
6402-614 Oak - SSV - 7 day	10-14-21	1700	10-21-21	1100	12	concrete	
Special Instructions:							
Relinquished by (signature): RL		Date / Time: 10-21-21 1230		Received by (signature): FedEx		Date / Time: 10-21-21 1230	
Relinquished by (signature): FedEx		Date / Time: 10/25/2021 833		Received by (signature): Kelly Kelly		Date / Time: 10/25/2021 833	
For Lab Use Only		Beacon Job No: 5985		Beacon Proposal: 210108R02		Analytical Method:	
Courier Name: FedEx		Shipment Condition: Good		Custody Seal Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> n/a		Custody Seal No: MT	



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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 210108R02

Laboratory Work Order: 0006007

Project Description:

Badger Cleaners
Baraboo, WI

Client PO No.: 2021-0607

Prepared for:

Rob Hoverman

EnviroForensics

N16W23390 Stone Ridge Dr, Suite G

Waukesha, WI 53188

Ryan W. Schneider
Senior Project Manager

November 10, 2021

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
Interim Quality Manager

Table of Contents

Cover Page	1
Sample Summary	3
Case Narrative	4
Analytical Results	5
Summary of Compound Detections	6
Data Summary Table	8
Data Summary Table-Concentration	9
Detailed Analytical Results	10
- Mass	11
0006007-01 - 6492-6140AF-SSV-7Day	12
- Concentration	13
0006007-01 - 6492-6140AF-SSV-7Day	14
QC Summaries	15
Additional QC Information	18
Sample Result Calculations	19
Equation	19
MRL Calculation Table	20
Certifications	21
Notes and Definitions	22
Sample Management Records	23
Chain of Custody	24

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006007 Reported: 11/10/2021
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Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0006007-01 Sampler Type:	6492-6140AF-SSV-7Day Beacon Passive Sampler	11/02/2021	EPA 8260C	Soil Gas

Project Completeness

Samples Received: 1
Samples Analyzed: 1

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Case Narrative

U.S. EPA Method 8260C

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

Passive Soil-Gas Survey Notes

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

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

Reporting Limits

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

Project Details

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

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Analytical Results

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Summary of Compound Detections- Mass

Lab Sample ID: 0006007-01	6492-6140AF-SSV-7Day Soil Gas	Method: EPA 8260C
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Analyte	CAS#	Result (ng)	Q	RT	LOQ (ng)	File ID
Tetrachloroethene	127-18-4	435		8.195	10	Ac21110205.D

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Summary of Compound Detections- Concentration

Lab Sample ID: 0006007-01	6492-6140AF-SSV-7Day Soil Gas	Method: EPA 8260C
---------------------------	---	-------------------

Analyte	CAS#	Result (µg/m³)	Q	RT	LOQ (µg/m³)	File ID
Tetrachloroethene	127-18-4	105		8.195	2.42	Ac21110205.D

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006007 Reported: 11/10/2021
---	--	--

Data Summary Table- Mass

Compound	Frequency	LOQ (ng)	Max Value (ng)
Tetrachloroethene	1	10	435

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006007 Reported: 11/10/2021
---	--	--

Data Summary Table- Concentration

Compound	Frequency	LOQ ($\mu\text{g}/\text{m}^3$)	Max Value ($\mu\text{g}/\text{m}^3$)
Tetrachloroethene	1	2.42	105

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Detailed Analytical Results

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Detailed Analytical Results- Mass

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006007 Reported: 11/10/2021
---	--	--

Lab Sample ID: 0006007-01	6492-6140AF-SSV-7Day Soil Gas	Method: EPA 8260C
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Analyte	CAS#	Result		LOQ (ng)	Analyzed	File ID
		(ng)	Q			
Vinyl Chloride	75-01-4	<10		10	11/02/2021 15:41	Ac21110205.D
trans-1,2-Dichloroethene	156-60-5	<10		10	11/02/2021 15:41	Ac21110205.D
cis-1,2-Dichloroethene	156-59-2	<10		10	11/02/2021 15:41	Ac21110205.D
Trichloroethene	79-01-6	<10		10	11/02/2021 15:41	Ac21110205.D
Tetrachloroethene	127-18-4	435		10	11/02/2021 15:41	Ac21110205.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Detailed Analytical Results- Concentration

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006007 Reported: 11/10/2021
---	--	--

Lab Sample ID: 0006007-01	6492-6140AF-SSV-7Day	Method: EPA 8260C
Soil Gas		

Analyte	CAS#	Result (µg/m ³)	Q	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<1.23		1.23	11/02/2021 15:41	Ac21110205.D
trans-1,2-Dichloroethene	156-60-5	<2.26		2.26	11/02/2021 15:41	Ac21110205.D
cis-1,2-Dichloroethene	156-59-2	<1.88		1.88	11/02/2021 15:41	Ac21110205.D
Trichloroethene	79-01-6	<3.01		3.01	11/02/2021 15:41	Ac21110205.D
Tetrachloroethene	127-18-4	105		2.42	11/02/2021 15:41	Ac21110205.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

QC Information/Summary

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Soil-Gas Sample Analysis by EPA Method 8260C - Quality Control Summary
21K0010-BLK1 (Lab Blank) File ID: Ac21110203.D

Analyzed: 11/2/21 9:18

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

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

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

21K0010-BLK1 (Lab Blank) File ID: Ac21110203.D

Analyzed: 11/2/21 9:18

Sampler: Beacon Passive Sampler		Result	LOQ	
Analyte	CAS#	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Q
Vinyl Chloride	75-01-4	<1.23	1.23	
trans-1,2-Dichloroethene	156-60-5	<2.26	2.26	
cis-1,2-Dichloroethene	156-59-2	<1.88	1.88	
Trichloroethene	79-01-6	<3.01	3.01	
Tetrachloroethene	127-18-4	<2.43	2.43	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Additional QC Information

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Sample Result Calculation Summary (Concentration)
EPA 8260C

Analyte	t Sampling Time minutes	DF Dilution Factor	U Uptake Rate	M Initial Result ng	C Calculated Result µg/m ³	File ID
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Lab ID: 0006007-01

Sample Name: 6492-6140AF-SSV-7Day

Vinyl Chloride	10,058	1.00	0.810	U	U	Ac21110205.D
trans-1,2-Dichloroethene	10,058	1.00	0.440	U	U	Ac21110205.D
cis-1,2-Dichloroethene	10,058	1.00	0.530	U	U	Ac21110205.D
Trichloroethene	10,058	1.00	0.330	U	U	Ac21110205.D
Tetrachloroethene	10,058	1.00	0.410	434.58	105	Ac21110205.D

Calculations:

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

where: C = concentration (µg/m³)
 M = mass (ng)
 DF = dilution factor
 t = sampling time (minutes)
 U = compound specific uptake rate

‡ Uptake rate determined using Graham's Law of Diffusion.

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

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Method Detection and Reporting Limit Calculations (Concentration)
EPA 8260C

Analyte	t Sampling Time minutes	DF Dilution Factor	U Uptake Rate	M Initial LOQ ng	C Calculated LOQ µg/m ³
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Lab ID: 0006007-01

Sample Name: 6492-6140AF-SSV-7Day

Vinyl Chloride	10,058	1.00	0.810	10.0	1.23
trans-1,2-Dichloroethene	10,058	1.00	0.440	10.0	2.26
cis-1,2-Dichloroethene	10,058	1.00	0.530	10.0	1.88
Trichloroethene	10,058	1.00	0.330	10.0	3.01
Tetrachloroethene	10,058	1.00	0.410	10.0	2.42

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006007 Reported: 11/10/2021
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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	01/31/2023	
DoD-ELAP	L20-532-R1	United States Department of Defense Environmental Laboratory Accreditation	12/31/2022	
ISO/IEC 17025:2017	L20-532	General Requirements for the competence of Testing and Calibration Laboratories	12/31/2022	
NY-NELAC	12097	New York Department of Health	04/01/2022	
Utah-NELAC	MD01091	Utah Department of Health	12/31/2021	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

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

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Sample Management Records

Project Information		Client Information	
Site Name: <i>BADGER CLEANERS</i>	Company Name: <i>ENVIROFORENSICS LLC</i>	Project Manager: <i>R. HOVERMAN</i>	
Site Location: <i>BARABOO WI</i>	Office Location: <i>P16 W25540 STONE RIDGE DR WAUKESHA WI 53186</i>	Client PO: <i>2021-0607</i>	
	Submitted by:	Turn around time (check one):	
	Email: <i>rhoverman@enviroforensics.com</i>	<input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush (specify) _____ days	

Field Sample ID	Start Date	Start Time	Stop Date	Stop Time	Sampling Hole Depth		Surface Type (Soil, Asphalt, Concrete, Gravel)	Optional Information (Location Description, Sample Condition, PID / FID Readings, etc)
					<input type="checkbox"/> cm	<input checked="" type="checkbox"/> inches		
<i>6492-6140AF-SSV-7DAT</i>	<i>10/21/21</i>	<i>1107</i>	<i>10/28/21</i>	<i>1645</i>	<i>12</i>	<input checked="" type="checkbox"/>	<i>concrete</i>	

Special Instructions:

For Lab Use Only	Beacon Job No: <i>6007</i>	Beacon Proposal: <i>210108R02</i>	Analytical Method: <i>5260</i>
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Received by: *Peter Kelly* *11/2/2021*
1349 Pg *1* of *1*



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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 210108R01

Laboratory Work Order: 0006006

Project Description:

Badger Cleaners
Baraboo, WI

Client PO No.: 2021-0607

Prepared for:

Rob Hoverman

EnviroForensics

N16W23390 Stone Ridge Dr, Suite G

Waukesha, WI 53188

Ryan W. Schneider
Senior Project Manager

November 10, 2021

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
Interim Quality Manager

Table of Contents

Cover Page	1
Sample Summary	3
Case Narrative	4
Analytical Results	5
Detailed Analytical Results	6
0006006-01 - 6492-6140AK-1A-1-7Day	7
QC Summaries	8
Additional QC Information	15
Sample Result Calculations	16
Equation	16
LOD/MRL Calculation Table	17
Certifications	18
Notes and Definitions	19
Sample Management Records	20
Chain of Custody	21

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006006 Reported: 11/10/2021
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Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0006006-01 Sampler Type:	6492-6140AK-1A-1-7Day Sorbent Tube	11/02/2021	TO-17 (Passive)	Indoor Air

Project Completeness

Samples Received: 1
Samples Analyzed: 1

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R01
Lab Work Order: 0006006
Reported: 11/10/2021

Case Narrative

Beacon Environmental provided thermally conditioned ChloroSorbers 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) for EPA Method TO-17

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

Calibration Verification

All continuing calibration verification (CCV) values are within $\pm 30\%$ 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 limit of detection (LOD) for each compound were observed in the Laboratory Method Blanks.

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** section.

Discussion

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

End of Case Narrative

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006006
Reported: 11/10/2021

Analytical Results

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006006
Reported: 11/10/2021

Detailed Analytical Results

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006006 Reported: 11/10/2021
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Lab Sample ID: 0006006-01	6492-6140AK-1A-1-7Day Indoor Air	Method: TO-17 (Passive)
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Analyte	CAS#	Result (µg/m ³)	Q	LOD (µg/m ³)	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.445	U	0.445	0.889	11/03/2021 12:21	A21110305.D
trans-1,2-Dichloroethene	156-60-5	<0.356	U	0.356	0.711	11/03/2021 12:21	A21110305.D
cis-1,2-Dichloroethene	156-59-2	<0.356	U	0.356	0.711	11/03/2021 12:21	A21110305.D
Trichloroethene	79-01-6	<0.383	U	0.383	0.766	11/03/2021 12:21	A21110305.D
Tetrachloroethene	127-18-4	<0.453	U	0.453	0.905	11/03/2021 12:21	A21110305.D
Analyte	CAS#	% Recovery	Recovery Limits	Q		Analyzed	File ID
Surrogate: 1,2-DCA-d4	17060-07-0	77.2%	70-130			11/03/2021 12:21	A21110305.D
Surrogate: Toluene-d8	2037-26-5	87.2%	70-130			11/03/2021 12:21	A21110305.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006006
Reported: 11/10/2021

QC Information/Summary

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006006 Reported: 11/10/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21H032 - Instrument: A System - File ID: A21081017.D

B21H032-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	11.9	5	2.5	ng	10.0		119	70-130			
trans-1,2-Dichloroethene	10.1	5	2.5	ng	10.0		101	70-130			
cis-1,2-Dichloroethene	11.2	5	2.5	ng	10.0		112	70-130			
Trichloroethene	11.3	5	2.5	ng	10.0		113	70-130			
Tetrachloroethene	11.6	5	2.5	ng	10.0		116	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>11.3</i>			<i>ng</i>	10.0		<i>113</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.89</i>			<i>ng</i>	10.0		<i>98.9</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006006
Reported: 11/10/2021

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

Sequence: B21H032 - Instrument: A System - File ID: A21081020.D
B21H032-ICB1 (Lab Blank/Initial Calibration Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<2.5	5	2.5	ng							U
trans-1,2-Dichloroethene	<2.5	5	2.5	ng							U
cis-1,2-Dichloroethene	<2.5	5	2.5	ng							U
Trichloroethene	<2.5	5	2.5	ng							U
Tetrachloroethene	<2.5	5	2.5	ng							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>19.4</i>			<i>ng</i>	<i>20.0</i>		<i>97.2</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>19.3</i>			<i>ng</i>	<i>20.0</i>		<i>96.5</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006006 Reported: 11/10/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21K012 - Batch: 21K0012 - Instrument: A System - File ID: A21110302.D

21K0012-BS1 (LCS, Calibration Source Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.89	5	2.5	ng	10.0		88.9	70-130			
trans-1,2-Dichloroethene	9.08	5	2.5	ng	10.0		90.8	70-130			
cis-1,2-Dichloroethene	9.25	5	2.5	ng	10.0		92.5	70-130			
Trichloroethene	9.86	5	2.5	ng	10.0		98.6	70-130			
Tetrachloroethene	10.2	5	2.5	ng	10.0		102	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.23</i>			<i>ng</i>	<i>10.0</i>		<i>92.3</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.38</i>			<i>ng</i>	<i>10.0</i>		<i>93.8</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006006
Reported: 11/10/2021

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

Sequence: B21K012 - Batch: 21K0012 - Instrument: A System - File ID: A21110303.D
21K0012-BLK1 (Lab Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<0.445	0.889	0.445	µg/m ³							U
trans-1,2-Dichloroethene	<0.356	0.711	0.356	µg/m ³							U
cis-1,2-Dichloroethene	<0.356	0.711	0.356	µg/m ³							U
Trichloroethene	<0.383	0.766	0.383	µg/m ³							U
Tetrachloroethene	<0.453	0.906	0.453	µg/m ³							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>17.5</i>			<i>ng</i>	<i>20.0</i>		<i>87.5</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>18.1</i>			<i>ng</i>	<i>20.0</i>		<i>90.5</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006006
Reported: 11/10/2021

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

Sequence: B21K012 - Instrument: A System - File ID: A21110304.D
B21K012-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	3.10	5	2.5	ng	4.00		77.5	70-130			
trans-1,2-Dichloroethene	3.65	5	2.5	ng	4.00		91.3	70-130			
cis-1,2-Dichloroethene	3.68	5	2.5	ng	4.00		92.0	70-130			
Trichloroethene	3.95	5	2.5	ng	4.00		98.8	70-130			
Tetrachloroethene	4.00	5	2.5	ng	4.00		100	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>3.63</i>			<i>ng</i>	<i>4.00</i>		<i>90.8</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>3.86</i>			<i>ng</i>	<i>4.00</i>		<i>96.5</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006006 Reported: 11/10/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21K012 - Instrument: A System - File ID: A21110306.D

B21K012-CCV1 (LCS, Closing Calibration Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.80	5	2.5	ng	10.0		88.0	70-130			
trans-1,2-Dichloroethene	8.86	5	2.5	ng	10.0		88.6	70-130			
cis-1,2-Dichloroethene	9.14	5	2.5	ng	10.0		91.4	70-130			
Trichloroethene	9.60	5	2.5	ng	10.0		96.0	70-130			
Tetrachloroethene	10.2	5	2.5	ng	10.0		102	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.09</i>			<i>ng</i>	10.0		<i>90.9</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.21</i>			<i>ng</i>	10.0		<i>92.1</i>	<i>70-130</i>			

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006006
Reported: 11/10/2021

Additional QC Information

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006006
Reported: 11/10/2021

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: 0006006-01

Sample Name: 6492-6140AK-1A-1-7Day

Vinyl Chloride	10,040	1.00	0.560	U	U	A21110305.D
trans-1,2-Dichloroethene	10,040	1.00	0.700	U	U	A21110305.D
cis-1,2-Dichloroethene	10,040	1.00	0.700	U	U	A21110305.D
Trichloroethene	10,040	1.00	0.650	U	U	A21110305.D
Tetrachloroethene	10,040	1.00	0.550	U	U	A21110305.D

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 (µg/m³)
 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

‡ Uptake rate determined using Graham's Law of Diffusion.

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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006006 Reported: 11/10/2021
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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 (ng)		C Calculated (µg/m³)	
				LOQ	LOD	LOQ	LOD

Lab ID: 0006006-01 **Sample Name:** 6492-6140AK-1A-1-7Day

Vinyl Chloride	10,040	1.00	0.560	5.0	2.50	0.889	0.445
trans-1,2-Dichloroethene	10,040	1.00	0.700	5.0	2.50	0.711	0.356
cis-1,2-Dichloroethene	10,040	1.00	0.700	5.0	2.50	0.711	0.356
Trichloroethene	10,040	1.00	0.650	5.0	2.50	0.766	0.383
Tetrachloroethene	10,040	1.00	0.550	5.0	2.50	0.905	0.453

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006006 Reported: 11/10/2021
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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	01/31/2023	
DoD-ELAP	L20-532-R1	United States Department of Defense Environmental Laboratory Accreditation	12/31/2022	
ISO/IEC 17025:2017	L20-532	General Requirements for the competence of Testing and Calibration Laboratories	12/31/2022	
NY-NELAC	12097	New York Department of Health	04/01/2022	
Utah-NELAC	MD01091	Utah Department of Health	12/31/2021	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R01
Lab Work Order: 0006006
Reported: 11/10/2021

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:

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

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006006
Reported: 11/10/2021

Sample Management Records

Client Information		Project Manager: <u>R. HOVERMAN</u>		Client PO: <u>2021-0607</u>				INDOOR AIR	AMBIENT AIR	CRAWL SPACE	SEWER GAS
Company: <u>Enviro Forensics LLC</u>		Project Name: <u>BADGER CLEANERS</u>		Turn around time (check one): <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush (specify) _____ days							
Address: <u>N16 W23390 STONE RIDGE DR STE G</u>		Location: <u>BARRABOO, WI</u>		Analysis: <input checked="" type="checkbox"/> Method TO-17 <input type="checkbox"/> Method 325							
City / State / Zip: <u>WAUKESHA WI 53188</u>		Submitted by:									
Phone: _____		Email: <u>choverman@enviroforensics.com</u>									
Location ID	Tube ID	Start Date	Start Time	Stop Date	Stop Time	Aver Temp (C)	Target Compounds				
<u>6492-640AK-1A-1-7day</u>	<u>1118137</u>	<u>10/21/21</u>	<u>1105</u>	<u>10/28/21</u>	<u>1025</u>		<u>PCE, TCE, cDCE, EDCE, VC</u>	X			
Special Notes / Instructions:											
Relinquished by (signature): <u>[Signature]</u>		Date / Time: <u>10/29/21 1000</u>		Received by (signature): <u>FEDEX</u>		Date / Time:					
Relinquished by (signature): <u>FedEx</u>		Date / Time: <u>11/2/2021</u>		Received by (signature): <u>Peter Kelly</u>		Date / Time: <u>11/2/2021 1349</u>					
For Lab Use Only		Beacon Job No: <u>6006</u>		Beacon Proposal: <u>210108R01</u>							
Courier Name: <u>FedEx</u>		Shipment Condition: <u>Good</u>		Custody Seal Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> n/a		Custody Seal No: <u>NA</u>					



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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 210108R02

Laboratory Work Order: 0006007

Project Description:

Badger Cleaners
Baraboo, WI

Client PO No.: 2021-0607

Prepared for:

Rob Hoverman

EnviroForensics

N16W23390 Stone Ridge Dr, Suite G

Waukesha, WI 53188

Ryan W. Schneider
Senior Project Manager

November 10, 2021

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
Interim Quality Manager

Table of Contents

Cover Page	1
Sample Summary	3
Case Narrative	4
Analytical Results	5
Summary of Compound Detections	6
Data Summary Table	8
Data Summary Table-Concentration	9
Detailed Analytical Results	10
- Mass	11
0006007-01 - 6492-6140AF-SSV-7Day	12
- Concentration	13
0006007-01 - 6492-6140AF-SSV-7Day	14
QC Summaries	15
Additional QC Information	18
Sample Result Calculations	19
Equation	19
MRL Calculation Table	20
Certifications	21
Notes and Definitions	22
Sample Management Records	23
Chain of Custody	24

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006007 Reported: 11/10/2021
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Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0006007-01 Sampler Type:	6492-6140AF-SSV-7Day Beacon Passive Sampler	11/02/2021	EPA 8260C	Soil Gas

Project Completeness

Samples Received: 1
Samples Analyzed: 1

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Case Narrative

U.S. EPA Method 8260C

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

Passive Soil-Gas Survey Notes

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

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

Reporting Limits

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

Project Details

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

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Analytical Results

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Summary of Compound Detections- Mass

Lab Sample ID: 0006007-01	6492-6140AF-SSV-7Day Soil Gas	Method: EPA 8260C
---------------------------	---	-------------------

Analyte	CAS#	Result (ng)	Q	RT	LOQ (ng)	File ID
Tetrachloroethene	127-18-4	435		8.195	10	Ac21110205.D

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Summary of Compound Detections- Concentration

Lab Sample ID: 0006007-01	6492-6140AF-SSV-7Day Soil Gas	Method: EPA 8260C
---------------------------	---	-------------------

Analyte	CAS#	Result ($\mu\text{g}/\text{m}^3$)	Q	RT	LOQ ($\mu\text{g}/\text{m}^3$)	File ID
Tetrachloroethene	127-18-4	105		8.195	2.42	Ac21110205.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021*Data Summary Table- Mass*

Compound	Frequency	LOQ (ng)	Max Value (ng)
Tetrachloroethene	1	10	435

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006007 Reported: 11/10/2021
---	--	--

Data Summary Table- Concentration

Compound	Frequency	LOQ ($\mu\text{g}/\text{m}^3$)	Max Value ($\mu\text{g}/\text{m}^3$)
Tetrachloroethene	1	2.42	105

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Detailed Analytical Results

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Detailed Analytical Results- Mass

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006007 Reported: 11/10/2021
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Lab Sample ID: 0006007-01	6492-6140AF-SSV-7Day Soil Gas	Method: EPA 8260C
---------------------------	---	-------------------

Analyte	CAS#	Result		LOQ (ng)	Analyzed	File ID
		(ng)	Q			
Vinyl Chloride	75-01-4	<10		10	11/02/2021 15:41	Ac21110205.D
trans-1,2-Dichloroethene	156-60-5	<10		10	11/02/2021 15:41	Ac21110205.D
cis-1,2-Dichloroethene	156-59-2	<10		10	11/02/2021 15:41	Ac21110205.D
Trichloroethene	79-01-6	<10		10	11/02/2021 15:41	Ac21110205.D
Tetrachloroethene	127-18-4	435		10	11/02/2021 15:41	Ac21110205.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Detailed Analytical Results- Concentration

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006007 Reported: 11/10/2021
---	--	--

Lab Sample ID: 0006007-01	6492-6140AF-SSV-7Day	Method: EPA 8260C
Soil Gas		

Analyte	CAS#	Result (µg/m ³)	Q	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<1.23		1.23	11/02/2021 15:41	Ac21110205.D
trans-1,2-Dichloroethene	156-60-5	<2.26		2.26	11/02/2021 15:41	Ac21110205.D
cis-1,2-Dichloroethene	156-59-2	<1.88		1.88	11/02/2021 15:41	Ac21110205.D
Trichloroethene	79-01-6	<3.01		3.01	11/02/2021 15:41	Ac21110205.D
Tetrachloroethene	127-18-4	105		2.42	11/02/2021 15:41	Ac21110205.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

QC Information/Summary

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

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

21K0010-BLK1 (Lab Blank) File ID: Ac21110203.D

Analyzed: 11/2/21 9:18

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

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Soil-Gas Analysis by EPA 8260 - Data in Concentration - Quality Control Summary
21K0010-BLK1 (Lab Blank) File ID: Ac21110203.D

Analyzed: 11/2/21 9:18

Sampler: Beacon Passive Sampler		Result	LOQ	
Analyte	CAS#	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Q
Vinyl Chloride	75-01-4	<1.23	1.23	
trans-1,2-Dichloroethene	156-60-5	<2.26	2.26	
cis-1,2-Dichloroethene	156-59-2	<1.88	1.88	
Trichloroethene	79-01-6	<3.01	3.01	
Tetrachloroethene	127-18-4	<2.43	2.43	

EnviroForensics
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Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Additional QC Information

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Sample Result Calculation Summary (Concentration)
EPA 8260C

Analyte	t Sampling Time minutes	DF Dilution Factor	U Uptake Rate	M Initial Result ng	C Calculated Result µg/m ³	File ID
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Lab ID: 0006007-01

Sample Name: 6492-6140AF-SSV-7Day

Vinyl Chloride	10,058	1.00	0.810	U	U	Ac21110205.D
trans-1,2-Dichloroethene	10,058	1.00	0.440	U	U	Ac21110205.D
cis-1,2-Dichloroethene	10,058	1.00	0.530	U	U	Ac21110205.D
Trichloroethene	10,058	1.00	0.330	U	U	Ac21110205.D
Tetrachloroethene	10,058	1.00	0.410	434.58	105	Ac21110205.D

Calculations:

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

where: C = concentration (µg/m³)
 M = mass (ng)
 DF = dilution factor
 t = sampling time (minutes)
 U = compound specific uptake rate

‡ Uptake rate determined using Graham's Law of Diffusion.

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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006007 Reported: 11/10/2021
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Method Detection and Reporting Limit Calculations (Concentration)
EPA 8260C

Analyte	t Sampling Time minutes	DF Dilution Factor	U Uptake Rate	M Initial LOQ ng	C Calculated LOQ µg/m ³
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Lab ID: 0006007-01 **Sample Name:** 6492-6140AF-SSV-7Day

Vinyl Chloride	10,058	1.00	0.810	10.0	1.23
trans-1,2-Dichloroethene	10,058	1.00	0.440	10.0	2.26
cis-1,2-Dichloroethene	10,058	1.00	0.530	10.0	1.88
Trichloroethene	10,058	1.00	0.330	10.0	3.01
Tetrachloroethene	10,058	1.00	0.410	10.0	2.42

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006007 Reported: 11/10/2021
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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	01/31/2023	
DoD-ELAP	L20-532-R1	United States Department of Defense Environmental Laboratory Accreditation	12/31/2022	
ISO/IEC 17025:2017	L20-532	General Requirements for the competence of Testing and Calibration Laboratories	12/31/2022	
NY-NELAC	12097	New York Department of Health	04/01/2022	
Utah-NELAC	MD01091	Utah Department of Health	12/31/2021	

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Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

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

EnviroForensics
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006007
Reported: 11/10/2021

Sample Management Records

PASSIVE SOIL GAS SAMPLES CHAIN-OF-CUSTODY

Project Information		Client Information	
Site Name: <i>BADGER CLEANERS</i>	Company Name: <i>ENVIROFORENSICS LLC</i>	Project Manager: <i>R. HOWERMAN</i>	Client PO: <i>2021-0607</i>
Site Location: <i>BARABOO WI</i>	Office Location: <i>P16 W25390 STONE RIDGE DR WAUKESHA WI 53186</i>	Submitted by:	Turn around time (check one):
	Email: <i>rhowerman@enviroforensics.com</i>	<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> Rush (specify) _____ days

Field Sample ID	Start Date	Start Time	Stop Date	Stop Time	Sampling Hole Depth		Surface Type (Soil, Asphalt, Concrete, Gravel)	Optional Information (Location Description, Sample Condition, PID / FID Readings, etc)
					<input type="checkbox"/> cm	<input checked="" type="checkbox"/> inches		
<i>1892-6140RF-SSV-7DRT</i>	<i>10/21/21</i>	<i>1107</i>	<i>10/28/21</i>	<i>1645</i>		<i>12</i>	<i>concrete</i>	

Special Instructions:

For Lab Use Only	Beacon Job No: <i>6007</i>	Beacon Proposal: <i>210108R02</i>	Analytical Method: <i>8260</i>
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Received by: *Peter Kelly* 11/2/2021 1349 Pg 1 of 1



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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 210108R02

Laboratory Work Order: 0006014

Project Description:

Badger Cleaners
Baraboo, WI

Client PO No.: 2021-0607

Prepared for:

Rob Hoverman

EnviroForensics

N16W23390 Stone Ridge Dr, Suite G

Waukesha, WI 53188

Ryan W. Schneider
Senior Project Manager

November 17, 2021

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
Interim Quality Manager

Table of Contents

Cover Page	1
Sample Summary	3
Case Narrative	4
Analytical Results	5
Summary of Compound Detections	6
Data Summary Table	8
Data Summary Table-Concentration	9
Detailed Analytical Results	10
- Mass	11
0006014-01 - 6492-614 Oak - SSV - 7 day	12
- Concentration	13
0006014-01 - 6492-614 Oak - SSV - 7 day	14
QC Summaries	15
Additional QC Information	18
Sample Result Calculations	19
Equation	19
MRL Calculation Table	20
Certifications	21
Notes and Definitions	22
Sample Management Records	23
Chain of Custody	24

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006014 Reported: 11/17/2021
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Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0006014-01 Sampler Type:	6492-614 Oak - SSV - 7 day Beacon Passive Sampler	11/08/2021	EPA 8260C	Soil Gas

Project Completeness

Samples Received: 1
Samples Analyzed: 1

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R02
Lab Work Order: 0006014
Reported: 11/17/2021

Case Narrative

U.S. EPA Method 8260C

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

Passive Soil-Gas Survey Notes

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

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

Reporting Limits

The RLs represent a baseline above which results meet laboratory-determined limits of precision and accuracy. 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. Beacon determined uptake rates for a suite of compounds with the Beacon sampler for sampling in air. Beacon calculated the uptake rates for the remaining compounds using Graham's Law of Diffusion. The reported data includes LOQ limits.

Project Details

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

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006014
Reported: 11/17/2021

Analytical Results

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006014 Reported: 11/17/2021
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Summary of Compound Detections- Mass

Lab Sample ID: 0006014-01	6492-614 Oak - SSV - 7 day Soil Gas	Method: EPA 8260C
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Analyte	CAS#	Result (ng)	Q	RT	LOQ (ng)	File ID
Tetrachloroethene	127-18-4	1,810	D	8.013	95	Kb21110908.D

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006014 Reported: 11/17/2021
---	--	--

Summary of Compound Detections- Concentration

Lab Sample ID: 0006014-01	6492-614 Oak - SSV - 7 day Soil Gas	Method: EPA 8260C
---------------------------	---	-------------------

Analyte	CAS#	Result (µg/m³)	Q	RT	LOQ (µg/m³)	File ID
Tetrachloroethene	127-18-4	433	D	8.013	22.7	Kb21110908.D

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006014 Reported: 11/17/2021
---	--	--

Data Summary Table- Mass

Compound	Frequency	LOQ (ng)	Max Value (ng)
Tetrachloroethene	1	95	1,810

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006014 Reported: 11/17/2021
---	--	--

Data Summary Table- Concentration

Compound	Frequency	LOQ ($\mu\text{g}/\text{m}^3$)	Max Value ($\mu\text{g}/\text{m}^3$)
Tetrachloroethene	1	22.7	433

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
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Site Name: Badger Cleaners
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Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006014
Reported: 11/17/2021

Detailed Analytical Results

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
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Beacon Proposal: 210108R02
Lab Work Order: 0006014
Reported: 11/17/2021

Detailed Analytical Results- Mass

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006014 Reported: 11/17/2021
---	--	--

Lab Sample ID: 0006014-01	6492-614 Oak - SSV - 7 day	Method: EPA 8260C
Soil Gas		

Analyte	CAS#	Result		LOQ (ng)	Analyzed	File ID
		(ng)	Q			
Vinyl Chloride	75-01-4	<10		10	11/09/2021 10:29	Kb21110905.D
trans-1,2-Dichloroethene	156-60-5	<10		10	11/09/2021 10:29	Kb21110905.D
cis-1,2-Dichloroethene	156-59-2	<10		10	11/09/2021 10:29	Kb21110905.D
Trichloroethene	79-01-6	<10		10	11/09/2021 10:29	Kb21110905.D
Tetrachloroethene	127-18-4	1,810	D	95	11/09/2021 11:28	Kb21110908.D

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Lab Work Order: 0006014
Reported: 11/17/2021

Detailed Analytical Results- Concentration

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006014 Reported: 11/17/2021
---	--	--

Lab Sample ID: 0006014-01	6492-614 Oak - SSV - 7 day	Method: EPA 8260C
Soil Gas		

Analyte	CAS#	Result ($\mu\text{g}/\text{m}^3$)	Q	LOQ ($\mu\text{g}/\text{m}^3$)	Analyzed	File ID
Vinyl Chloride	75-01-4	<1.21		1.21	11/09/2021 10:29	Kb21110905.D
trans-1,2-Dichloroethene	156-60-5	<2.23		2.23	11/09/2021 10:29	Kb21110905.D
cis-1,2-Dichloroethene	156-59-2	<1.85		1.85	11/09/2021 10:29	Kb21110905.D
Trichloroethene	79-01-6	<2.97		2.97	11/09/2021 10:29	Kb21110905.D
Tetrachloroethene	127-18-4	433	D	22.7	11/09/2021 11:28	Kb21110908.D

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Site Name: Badger Cleaners
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Beacon Proposal: 210108R02
Lab Work Order: 0006014
Reported: 11/17/2021

QC Information/Summary

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006014 Reported: 11/17/2021
---	--	--

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

21K0026-BLK1 (Lab Blank) File ID: Kb21110903.D

Analyzed: 11/9/21 8:13

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

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006014
Reported: 11/17/2021

Soil-Gas Analysis by EPA 8260 - Data in Concentration - Quality Control Summary
21K0026-BLK1 (Lab Blank) File ID: Kb21110903.D

Analyzed: 11/9/21 8:13

Sampler: Beacon Passive Sampler		Result	LOQ	
Analyte	CAS#	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Q
Vinyl Chloride	75-01-4	<1.21	1.21	
trans-1,2-Dichloroethene	156-60-5	<2.23	2.23	
cis-1,2-Dichloroethene	156-59-2	<1.85	1.85	
Trichloroethene	79-01-6	<2.97	2.97	
Tetrachloroethene	127-18-4	<2.39	2.39	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006014
Reported: 11/17/2021

Additional QC Information

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006014
Reported: 11/17/2021

Sample Result Calculation Summary (Concentration)
EPA 8260C

Analyte	t Sampling Time minutes	DF Dilution Factor	U Uptake Rate	M Initial Result ng	C Calculated Result µg/m ³	File ID
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Lab ID: 0006014-01 **Sample Name:** 6492-614 Oak - SSV - 7 day

Vinyl Chloride	10,210	1.00	0.810	U	U	Kb21110905.D
trans-1,2-Dichloroethene	10,210	1.00	0.440	U	U	Kb21110905.D
cis-1,2-Dichloroethene	10,210	1.00	0.530	U	U	Kb21110905.D
Trichloroethene	10,210	1.00	0.330	U	U	Kb21110905.D
Tetrachloroethene	10,210	9.50	0.410	190.78	433	Kb21110908.D

Calculations:

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

where: C = concentration (µg/m³)
 M = mass (ng)
 DF = dilution factor
 t = sampling time (minutes)
 U = compound specific uptake rate

‡ Uptake rate determined using Graham's Law of Diffusion.

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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006014 Reported: 11/17/2021
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Method Detection and Reporting Limit Calculations (Concentration)

EPA 8260C

Analyte	t Sampling Time minutes	DF Dilution Factor	U Uptake Rate	M Initial LOQ ng	C Calculated LOQ µg/m ³
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Lab ID: 0006014-01 **Sample Name:** 6492-614 Oak - SSV - 7 day

Vinyl Chloride	10,210	1.00	0.810	10.0	1.21
trans-1,2-Dichloroethene	10,210	1.00	0.440	10.0	2.23
cis-1,2-Dichloroethene	10,210	1.00	0.530	10.0	1.85
Trichloroethene	10,210	1.00	0.330	10.0	2.97
Tetrachloroethene	10,210	9.50	0.410	10.0	22.7

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006014 Reported: 11/17/2021
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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	01/31/2023	
DoD-ELAP	L20-532-R1	United States Department of Defense Environmental Laboratory Accreditation	12/31/2022	
ISO/IEC 17025:2017	L20-532	General Requirements for the competence of Testing and Calibration Laboratories	12/31/2022	
NY-NELAC	12097	New York Department of Health	04/01/2022	
Utah-NELAC	MD010912021-9	Utah Department of Health	12/31/2022	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006014
Reported: 11/17/2021

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.

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006014
Reported: 11/17/2021

Sample Management Records



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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 210108R01

Laboratory Work Order: 0006013

Project Description:

Badger Cleaners
Baraboo, WI

Client PO No.: 2021-0607

Prepared for:

Rob Hoverman

EnviroForensics

N16W23390 Stone Ridge Dr, Suite G

Waukesha, WI 53188

Ryan W. Schneider
Senior Project Manager

November 17, 2021

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
Interim Quality Manager

Table of Contents

Cover Page	1
Sample Summary	3
Case Narrative	4
Analytical Results	5
Detailed Analytical Results	6
0006013-01 - 6492 - 6140AK-IA-1 (7 day)	7
QC Summaries	8
Additional QC Information	16
Sample Result Calculations	17
Equation	17
LOD/MRL Calculation Table	18
Certifications	19
Notes and Definitions	20
Sample Management Records	21
Chain of Custody	22

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006013 Reported: 11/17/2021
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Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0006013-01 Sampler Type:	6492 - 6140AK-IA-1 (7 day) Sorbent Tube	11/08/2021	TO-17 (Passive)	Indoor Air

Project Completeness

Samples Received: 1
Samples Analyzed: 1

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R01
Lab Work Order: 0006013
Reported: 11/17/2021

Case Narrative

Beacon Environmental provided thermally conditioned ChloroSorbers 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) for EPA Method TO-17

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

Calibration Verification

All continuing calibration verification (CCV) values are within $\pm 30\%$ 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 limit of detection (LOD) for each compound were observed in the Laboratory Method Blanks.

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** section.

Discussion

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

End of Case Narrative

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006013
Reported: 11/17/2021

Analytical Results

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006013
Reported: 11/17/2021

Detailed Analytical Results

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006013 Reported: 11/17/2021
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Lab Sample ID: 0006013-01	6492 - 6140AK-IA-1 (7 day) Indoor Air	Method: TO-17 (Passive)
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Analyte	CAS#	Result (µg/m ³)	Q	LOD (µg/m ³)	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.432	U	0.432	0.864	11/10/2021 12:46	A21111005.D
trans-1,2-Dichloroethene	156-60-5	<0.346	U	0.346	0.691	11/10/2021 12:46	A21111005.D
cis-1,2-Dichloroethene	156-59-2	<0.346	U	0.346	0.691	11/10/2021 12:46	A21111005.D
Trichloroethene	79-01-6	<0.372	U	0.372	0.744	11/10/2021 12:46	A21111005.D
Tetrachloroethene	127-18-4	<0.440	U	0.440	0.880	11/10/2021 12:46	A21111005.D
Analyte	CAS#	% Recovery	Recovery Limits	Q		Analyzed	File ID
Surrogate: 1,2-DCA-d4	17060-07-0	91.2%	70-130			11/10/2021 12:46	A21111005.D
Surrogate: Toluene-d8	2037-26-5	86.4%	70-130			11/10/2021 12:46	A21111005.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006013
Reported: 11/17/2021

QC Information/Summary

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006013 Reported: 11/17/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21K032 - Batch: 21K0030 - Instrument: A System - File ID: A21111002.D

21K0030-BS1 (LCS, Calibration Source Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.91	5	2.5	ng	10.0		89.1	70-130			
trans-1,2-Dichloroethene	9.52	5	2.5	ng	10.0		95.2	70-130			
cis-1,2-Dichloroethene	9.88	5	2.5	ng	10.0		98.8	70-130			
Trichloroethene	9.32	5	2.5	ng	10.0		93.2	70-130			
Tetrachloroethene	9.55	5	2.5	ng	10.0		95.5	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>10.1</i>			<i>ng</i>	10.0		<i>101</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.49</i>			<i>ng</i>	10.0		<i>94.9</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006013 Reported: 11/17/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21K032 - Batch: 21K0030 - Instrument: A System - File ID: A21111003.D

21K0030-BLK1 (Lab Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<0.432	0.864	0.432	µg/m ³							U
trans-1,2-Dichloroethene	<0.346	0.691	0.346	µg/m ³							U
cis-1,2-Dichloroethene	<0.346	0.691	0.346	µg/m ³							U
Trichloroethene	<0.372	0.744	0.372	µg/m ³							U
Tetrachloroethene	<0.440	0.880	0.440	µg/m ³							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>17.9</i>			<i>ng</i>	<i>20.0</i>		<i>89.5</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>18.4</i>			<i>ng</i>	<i>20.0</i>		<i>92.0</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006013
Reported: 11/17/2021

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

Sequence: B21K032 - Instrument: A System - File ID: A21111004.D
B21K032-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.88	5	2.5	ng	10.0		88.8	70-130			
trans-1,2-Dichloroethene	9.36	5	2.5	ng	10.0		93.6	70-130			
cis-1,2-Dichloroethene	9.65	5	2.5	ng	10.0		96.5	70-130			
Trichloroethene	9.36	5	2.5	ng	10.0		93.6	70-130			
Tetrachloroethene	9.36	5	2.5	ng	10.0		93.6	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>10.1</i>			<i>ng</i>	10.0		<i>101</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.61</i>			<i>ng</i>	10.0		<i>96.1</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006013
Reported: 11/17/2021

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

Sequence: B21K032 - Instrument: A System - File ID: A21111006.D
B21K032-CCV1 (LCS, Closing Calibration Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	9.41	5	2.5	ng	10.0		94.1	70-130			
trans-1,2-Dichloroethene	9.30	5	2.5	ng	10.0		93.0	70-130			
cis-1,2-Dichloroethene	9.66	5	2.5	ng	10.0		96.6	70-130			
Trichloroethene	9.33	5	2.5	ng	10.0		93.3	70-130			
Tetrachloroethene	9.62	5	2.5	ng	10.0		96.2	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>10.1</i>			<i>ng</i>	10.0		<i>101</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.54</i>			<i>ng</i>	10.0		<i>95.4</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006013
Reported: 11/17/2021

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

Sequence: B21K033 - Instrument: A System - File ID: Ab21110913.D
B21K033-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	9.78	5	2.5	ng	10.0		97.8	70-130			
trans-1,2-Dichloroethene	9.38	5	2.5	ng	10.0		93.8	70-130			
cis-1,2-Dichloroethene	9.70	5	2.5	ng	10.0		97.0	70-130			
Trichloroethene	9.43	5	2.5	ng	10.0		94.3	70-130			
Tetrachloroethene	9.45	5	2.5	ng	10.0		94.5	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.13</i>			<i>ng</i>	10.0		<i>91.3</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.58</i>			<i>ng</i>	10.0		<i>95.8</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006013 Reported: 11/17/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21K033 - Instrument: A System - File ID: Ab21110916.D

B21K033-ICB1 (Lab Blank/Initial Calibration Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<2.5	5	2.5	ng							U
trans-1,2-Dichloroethene	<2.5	5	2.5	ng							U
cis-1,2-Dichloroethene	<2.5	5	2.5	ng							U
Trichloroethene	<2.5	5	2.5	ng							U
Tetrachloroethene	<2.5	5	2.5	ng							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>17.6</i>			<i>ng</i>	<i>20.0</i>		<i>88.2</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>19.0</i>			<i>ng</i>	<i>20.0</i>		<i>94.9</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006013 Reported: 11/17/2021
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TO-17 (Passive) - LCS/LCSD Quality Control Summary

LCS: 21K0030-BS1 File ID: A21111002.D

Analyzed: 11/10/21 12:16

LCSD: B21K032-ICV1 File ID: A21111004.D

Analyzed: 11/10/21 11:28

Analyte	CAS#	LCS Result		Spike Level	LCSD Result		%REC Limits	RPD	
		(ng)	%REC Q		(ng)	%REC		RPD Limit	RPD Q
Vinyl Chloride	75-01-4	8.91	89.1	10	8.88	88.80	70-130	0.34	30
trans-1,2-Dichloroethene	156-60-5	9.52	95.2	10	9.36	93.60	70-130	1.69	30
cis-1,2-Dichloroethene	156-59-2	9.88	98.8	10	9.65	96.50	70-130	2.36	30
Trichloroethene	79-01-6	9.32	93.2	10	9.36	93.60	70-130	0.43	30
Tetrachloroethene	127-18-4	9.55	95.5	10	9.36	93.60	70-130	2.01	30

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006013
Reported: 11/17/2021

Additional QC Information

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006013
Reported: 11/17/2021

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: 0006013-01

Sample Name: 6492 - 6140AK-IA-1 (7 day)

̄ Temp (°C): 23.00

Vinyl Chloride	10,225	1.00	0.566	U	U	A21111005.D
trans-1,2-Dichloroethene	10,225	1.00	0.708	U	U	A21111005.D
cis-1,2-Dichloroethene	10,225	1.00	0.708	U	U	A21111005.D
Trichloroethene	10,225	1.00	0.657	U	U	A21111005.D
Tetrachloroethene	10,225	1.00	0.556	U	U	A21111005.D

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 (µg/m³)
 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

‡ Uptake rate determined using Graham's Law of Diffusion.

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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006013 Reported: 11/17/2021
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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 (ng)		C Calculated (µg/m³)	
				LOQ	LOD	LOQ	LOD

Lab ID: 0006013-01	Sample Name: 6492 - 6140AK-IA-1 (7 day)	̄ Temp (°C): 23.00
---------------------------	--	---------------------------

Vinyl Chloride	10,225	1.00	0.566	5.0	2.50	0.864	0.432
trans-1,2-Dichloroethene	10,225	1.00	0.708	5.0	2.50	0.691	0.346
cis-1,2-Dichloroethene	10,225	1.00	0.708	5.0	2.50	0.691	0.346
Trichloroethene	10,225	1.00	0.657	5.0	2.50	0.744	0.372
Tetrachloroethene	10,225	1.00	0.556	5.0	2.50	0.880	0.440

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006013 Reported: 11/17/2021
---	--	--

Laboratory Certification List

Certification ID	Certification No.	Description	Expires	Project Required
Alaska CS-LAP	19-002	Alaska Department of Environmental Conservation	01/31/2023	
DoD-ELAP	L20-532-R1	United States Department of Defense Environmental Laboratory Accreditation	12/31/2022	
ISO/IEC 17025:2017	L20-532	General Requirements for the competence of Testing and Calibration Laboratories	12/31/2022	
NY-NELAC	12097	New York Department of Health	04/01/2022	
Utah-NELAC	MD010912021-9	Utah Department of Health	12/31/2022	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R01
Lab Work Order: 0006013
Reported: 11/17/2021

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:

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

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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006013
Reported: 11/17/2021

Sample Management Records

PASSIVE AIR SAMPLING - SORBENT TUBE

CHAIN-OF-CUSTODY

Client Information		Project Manager: <u>R. HOVERMAN</u>		Client PO: <u>2021-0607</u>		INDOOR AIR	AMBIENT AIR	CRAWL SPACE	SEWER GAS				
Company: <u>ENVIRO FORENSICS LLC</u>		Project Name: <u>BADGER CLEANERS</u>		Turn around time (check one): <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush (specify) ___ days									
Address: <u>N16 W23390 STONE RIDGE DR STEG</u>		Location: <u>BABCOO, WI</u>		Analysis: <input checked="" type="checkbox"/> Method TO-17 <input type="checkbox"/> Method 325									
City / State / Zip: <u>WAUKESHA WI 53188</u>		Submitted by: <u>R BROWN</u>		Email: <u>rhoverman@enviroforensics.com</u>									
Phone:	Location ID		Tube ID	Start Date	Start Time	Stop Date	Stop Time	Aver Temp (C)	Target Compounds				
	<u>6492-6140AK-1A-1</u> <u>(7 day)</u>	<u>1141708</u>	<u>10-28-21</u>	<u>1025</u>	<u>11-4-21</u>	<u>1250</u>	<u>23°</u>	<u>PCE, TCE, CDE, EDE, VC</u>	<u>X</u>				
Special Notes / Instructions:													
Relinquished by (signature): <u>[Signature]</u>		Date / Time: <u>11-4-21/1345</u>		Received by (signature): <u>FedEx</u>		Date / Time: <u>11-4-21 / 1345</u>							
Relinquished by (signature):		Date / Time:		Received by (signature): <u>[Signature]</u>		Date / Time: <u>11.8.2021 / 15:39</u>							
For Lab Use Only		Beacon Job No: <u>6013</u>		Beacon Proposal: <u>210108R01</u>									
Courier Name: <u>FedEx</u>		Shipment Condition: <input checked="" type="checkbox"/>		Custody Seal Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> n/a		Custody Seal No: <u>-</u>							



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Fax: 317-351-0882
www.envision-air.com

Mr. Rob Hoverman
Enviroforensics
N16 W. 23390 Stone Ridge Dr
Suite G
Waukesha, WI 53188

November 23, 2021

EnvisionAir Project Number: 2021-557
Client Project Name: 6492

Dear Mr. Hoverman,

Please find the attached analytical report for the samples received November 15, 2021. All test methods performed were fully compliant with local, state, and federal EPA methods unless otherwise noted. The project was analyzed as requested on the enclosed chain of custody record. Please review the comments section for additional information about your results or Quality Control data.

Feel free to contact me if you have any questions or comments regarding your analytical report or service.

Thank you for your business. EnvisionAir looks forward to working with you on your next project.

Yours Sincerely,

A handwritten signature in black ink that reads "David Norris".

David Norris
Project Manager
EnvisionAir, LLC



EnvisionAir
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 Indianapolis, IN 46239
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 Fax: 317-351-0882
 www.envision-air.com

Client Name: ENVIROFORENSICS
Project ID: 6492
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2021-557

Sample Summary

Canister Pressure / Vacuum

<u>Laboratory Sample Number:</u>	<u>Sample Description:</u>	<u>Matrix:</u>	<u>START</u>	<u>START</u>	<u>End Date</u>	<u>End Time</u>	<u>Date</u>	<u>Time</u>	<u>Initial Field</u>	<u>Final Field</u>	<u>Lab</u>
			<u>Date</u>	<u>Time</u>							<u>Collected:</u>
21-2653	6492-OA-1	A	11/11/21	8:25	11/11/21	16:45	11/15/21	15:15	-30	-13	13
21-2654	6492-614 OAK-IA-1	A	11/11/21	9:15	11/11/21	16:54	11/15/21	15:15	-30	-9	-9
21-2655	6492-614 OAK-IA-B	A	11/11/21	9:16	11/11/21	16:50	11/15/21	15:15	-27.5	-12.5	-12
21-2656	6492-618 OAK-IA-1	A	11/11/21	8:55	11/11/21	15:31	11/15/21	15:15	-28	-9	-9
21-2657	6492-618 OAK-IA-B	A	11/11/21	8:58	11/11/21	15:53	11/15/21	15:15	-30	-9	-9
21-2658	6492-614 OAK-SSV-1	A	11/11/21	12:08	11/11/21	12:16	11/15/21	15:15	-30	-2	-2
21-2659	6492-614 OAK-WSV-1	A	11/11/21	12:26	11/11/21	12:34	11/15/21	15:15	-29	-4.5	-4.5
21-2660	6492-618 OAK-SSV-1	A	11/11/21	11:09	11/11/21	11:15	11/15/21	15:15	-26.5	-3	-3



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Client Name: ENVIROFORENSICS

Project ID: 6492

Client Project Manager: ROB HOVERMAN

EnvisionAir Project Number: 2021-557

Analytical Method: TO-15
Analytical Batch: 111721AIR

Client Sample ID: 6492-OA-1

EnvisionAir Sample Number: 21-2653
Sample Matrix: AIR

Sample Collection START Date/Time: 11/11/21 8:25
Sample Collection END Date/Time: 11/11/21 16:45
Sample Received Date/Time: 11/15/21 15:15

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 19.8	19.8	
Tetrachloroethene	< 3.19	3.19	
trans-1,2-Dichloroethene	< 39.6	39.6	
Trichloroethene	< 1.07	1.07	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	103%		
Analysis Date/Time:	11-17-21/18:49		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS

Project ID: 6492

Client Project Manager: ROB HOVERMAN

EnvisionAir Project Number: 2021-557

Analytical Method: TO-15
Analytical Batch: 111721AIR

Client Sample ID: 6492-614 OAK-IA-1

Sample Collection START Date/Time: 11/11/21 9:15
Sample Collection END Date/Time: 11/11/21 16:54
Sample Received Date/Time: 11/15/21 15:15

EnvisionAir Sample Number: 21-2654
Sample Matrix: AIR

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 19.8	19.8	
Tetrachloroethene	23.4	3.19	
trans-1,2-Dichloroethene	< 39.6	39.6	
Trichloroethene	< 1.07	1.07	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	106%		
Analysis Date/Time:	11-17-21/19:33		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS

Project ID: 6492

Client Project Manager: ROB HOVERMAN

EnvisionAir Project Number: 2021-557

Analytical Method: TO-15
Analytical Batch: 111721AIR

Client Sample ID: 6492-614 OAK-IA-B

Sample Collection START Date/Time: 11/11/21 9:16
Sample Collection END Date/Time: 11/11/21 16:50
Sample Received Date/Time: 11/15/21 15:15

EnvisionAir Sample Number: 21-2655
Sample Matrix: AIR

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 19.8	19.8	
Tetrachloroethene	21.0	3.19	
trans-1,2-Dichloroethene	< 39.6	39.6	
Trichloroethene	< 1.07	1.07	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	97%		
Analysis Date/Time:	11-17-21/20:16		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS

Project ID: 6492

Client Project Manager: ROB HOVERMAN

EnvisionAir Project Number: 2021-557

Analytical Method: TO-15
Analytical Batch: 111721AIR

Client Sample ID: 6492-618 OAK-IA-1

Sample Collection START Date/Time: 11/11/21 8:55
Sample Collection END Date/Time: 11/11/21 15:31
Sample Received Date/Time: 11/15/21 15:15

EnvisionAir Sample Number: 21-2656
Sample Matrix: AIR

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 19.8	19.8	
Tetrachloroethene	5.36	3.19	
trans-1,2-Dichloroethene	< 39.6	39.6	
Trichloroethene	< 1.07	1.07	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	99%		
Analysis Date/Time:	11-17-21/20:58		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS

Project ID: 6492

Client Project Manager: ROB HOVERMAN

EnvisionAir Project Number: 2021-557

Analytical Method: TO-15
Analytical Batch: 111721AIR

Client Sample ID: 6492-618 OAK-IA-B

Sample Collection START Date/Time: 11/11/21 8:58
Sample Collection END Date/Time: 11/11/21 15:53
Sample Received Date/Time: 11/15/21 15:15

EnvisionAir Sample Number: 21-2657
Sample Matrix: AIR

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 19.8	19.8	
Tetrachloroethene	4.00	3.19	
trans-1,2-Dichloroethene	< 39.6	39.6	
Trichloroethene	< 1.07	1.07	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	104%		
Analysis Date/Time:	11-17-21/21:41		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS

Project ID: 6492

Client Project Manager: ROB HOVERMAN

EnvisionAir Project Number: 2021-557

Analytical Method: TO-15
Analytical Batch: 111721AIR

Client Sample ID: 6492-614 OAK-SSV-1

Sample Collection START Date/Time: 11/11/21 12:08

Sample Collection END Date/Time: 11/11/21 12:16

EnvisionAir Sample Number: 21-2658

Sample Received Date/Time: 11/15/21 15:15

Sample Matrix: AIR

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 198	198	
Tetrachloroethene	214	31.9	
trans-1,2-Dichloroethene	< 396	396	
Trichloroethene	< 10.7	10.7	
Vinyl Chloride	< 12.8	12.8	
4-bromofluorobenzene (surrogate)	103%		
Analysis Date/Time:	11-18-21/04:50		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS

Project ID: 6492

Client Project Manager: ROB HOVERMAN

EnvisionAir Project Number: 2021-557

Analytical Method: TO-15
Analytical Batch: 111721AIR

Client Sample ID: 6492-614 OAK-WSV-1

Sample Collection START Date/Time: 11/11/21 12:26

Sample Collection END Date/Time: 11/11/21 12:34

EnvisionAir Sample Number: 21-2659

Sample Received Date/Time: 11/15/21 15:15

Sample Matrix: AIR

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 198	198	
Tetrachloroethene	82.1	31.9	
trans-1,2-Dichloroethene	< 396	396	
Trichloroethene	< 10.7	10.7	
Vinyl Chloride	< 12.8	12.8	
4-bromofluorobenzene (surrogate)	98%		
Analysis Date/Time:	11-18-21/05:30		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS

Project ID: 6492

Client Project Manager: ROB HOVERMAN

EnvisionAir Project Number: 2021-557

Analytical Method: TO-15
Analytical Batch: 111721AIR

Client Sample ID: 6492-618 OAK-SSV-1

Sample Collection START Date/Time: 11/11/21 11:09
Sample Collection END Date/Time: 11/11/21 11:15
Sample Received Date/Time: 11/15/21 15:15

EnvisionAir Sample Number: 21-2660
Sample Matrix: AIR

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 198	198	
Tetrachloroethene	282	31.9	
trans-1,2-Dichloroethene	< 396	396	
Trichloroethene	< 10.7	10.7	
Vinyl Chloride	< 12.8	12.8	
4-bromofluorobenzene (surrogate)	101%		
Analysis Date/Time:	11-18-21/06:11		
Analyst Initials	tjg		



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Analytical Report

TO-15 Quality Control Data

EnvisionAir Batch Number: 111721AIR

<u>Method Blank (MB):</u>	<u>MB Results (ppbv)</u>	<u>Reporting Limit (ppbv)</u>	<u>Flags</u>
cis-1,2-Dichloroethene	< 5	5	
Tetrachloroethene	< 0.47	0.47	
trans-1,2-Dichloroethene	< 10	10	
Trichloroethene	< 0.2	0.2	
Vinyl Chloride	< 0.5	0.5	
4-bromofluorobenzene (surrogate)	94%		
Analysis Date/Time:	11-17-21/13:31		
Analyst Initials	tjg		

<u>LCS/LCSD</u>	<u>LCS Results (ppbv)</u>	<u>LCSD Results (ppbv)</u>	<u>LCS/D Conc(ppbv)</u>	<u>LCS Rec.</u>	<u>LCSD Rec.</u>	<u>RPD</u>	<u>Flag</u>
Vinyl Chloride	10.6	10.9	10	106%	109%	2.8%	
trans-1,2-Dichloroethene	11	10.5	10	110%	105%	4.7%	
cis-1,2-Dichloroethene	9.57	9.14	10	96%	91%	4.6%	
Trichloroethene	9.54	9.67	10	95%	97%	1.4%	
Tetrachloroethene	9.51	9.57	10	95%	96%	0.6%	
4-bromofluorobenzene (surrogate)	95%	109%					
Analysis Date/Time:	11-17-21/12:06	11-17-21/12:54					
Analyst Initials	tjg	tjg					



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Flag Number

1

Comments

Reporting limit is supported by MDL. TJG

CHAIN OF CUSTODY RECORD

EnvisionAir | 1441 Sadlier Circle West Drive | Indianapolis, IN 46239 | Phone: (317) 351-0885 | Fax: (317) 351-0882

REQUESTED PARAMETERS

Client: Enviro Forensics
 Report # WV03390 State Road
 Address: St G Waverly, WI 53183
 Report To: R. Hovsemann
 Phone: 414 630 0060
 Invoice Address:
 Reporting Units needed: (circle)
100/m³ mg/m³ PPBV PPMV
 Media type: 11C = 1 Liter Canister
 61C = 6 Liter Canister
 TD = Thermal Description Tube

TO-15 Full List
 TO-15 Short List (Specify in notes)

Sampling Type:
 Soil-Gas:
 Sub-Slab:
 Indoor-Air:

Canister Pressure / Vacuum
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Air Sample ID	Media Type (Assay)	Coll. Date (Start/Comp)	Coll. Time (Start/Comp)	Coll. Date (Comp. End)	Coll. Time (Comp. End)	Canister Serial #	Flow Controller Serial #	Initial Field (in. Hg)	Final Field (in. Hg)	Lab Received (in. Hg)	EnvisionAir Sample Number
6492-04-1	GLC	11/14/21	825	11/14/21	1645	91443	05007	-30	-13	21.2653	
6492-614 Oak-1A-1			915		1654	15564	05007	-30	-9	21.2654	
6492-614 Oak-1A-8			916		1650	11072	05249	-27.5	-12.5	21.2655	
6492-618 Oak-1A-1			955		1531	11079	07435	-28	-9	21.2656	
6492-618 Oak-1A-8			858		1538	17894	03078	-30	-9	21.2657	
6492-614 Oak-SSV-1	LC		1268		1216	520 ²⁴ 220 11/14/21	0064	-30	-2	21.2658	
6492-614 Oak-MSV-1			1226		1234	2315	0060	-29	-4.5	21.2659	
6492-618 Oak-SSV-1			1109		1115	2210	0032	-26.5	-3	21.2660	

Comments: SHORT LIST PCE, TCE, DCE, VC

Relinquished by:	Date	Time	Received by:	Date	Time
<u>[Signature]</u>	11/12/21	0843	<u>[Signature]</u>	11/12/21	
				11-15-21	15:15



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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 210108R01

Laboratory Work Order: 0006023

Project Description:

Badger Cleaners
Baraboo, WI

Client PO No.: 2021-0607

Prepared for:

Rob Hoverman

EnviroForensics

N16W23390 Stone Ridge Dr, Suite G

Waukesha, WI 53188

Ryan W. Schneider
Senior Project Manager

November 23, 2021

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
Interim Quality Manager

Table of Contents

Cover Page	1
Sample Summary	3
Case Narrative	4
Analytical Results	5
Detailed Analytical Results	6
0006023-01 - 6492-614OAK-IA-1 (28 Day)	7
0006023-02 - 6492-614OAK-IA-1 (7 Day)	8
0006023-03 - 6492-614OAK-IA-1 (8 hr)	9
QC Summaries	10
Additional QC Information	19
Sample Result Calculations	20
Equation	20
LOD/MRL Calculation Table	21
Certifications	22
Notes and Definitions	23
Sample Management Records	24
Chain of Custody	25

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006023 Reported: 11/23/2021
---	--	--

Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0006023-01 Sampler Type: Sorbent Tube	6492-614OAK-IA-1 (28 Day)	11/15/2021	TO-17 (Passive)	Indoor Air
0006023-02 Sampler Type: Sorbent Tube	6492-614OAK-IA-1 (7 Day)	11/15/2021	TO-17 (Passive)	Indoor Air
0006023-03 Sampler Type: Sorbent Tube	6492-614OAK-IA-1 (8 hr)	11/15/2021	TO-17 (Passive)	Indoor Air

Project Completeness

Samples Received: 3
Samples Analyzed: 3

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R01
Lab Work Order: 0006023
Reported: 11/23/2021

Case Narrative

Beacon Environmental provided thermally conditioned ChloroSorbers 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) for EPA Method TO-17

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

Calibration Verification

All continuing calibration verification (CCV) values are within $\pm 30\%$ 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 limit of detection (LOD) for each compound were observed in the Laboratory Method Blanks.

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** section.

Discussion

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

End of Case Narrative

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006023
Reported: 11/23/2021

Analytical Results

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006023
Reported: 11/23/2021

Detailed Analytical Results

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006023 Reported: 11/23/2021
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Lab Sample ID: 0006023-01	6492-614OAK-IA-1 (28 Day) Indoor Air	Method: TO-17 (Passive)
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Analyte	CAS#	Result (µg/m ³)	Q	LOD (µg/m ³)	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.112	U	0.112	0.224	11/16/2021 14:46	A21111611.D
trans-1,2-Dichloroethene	156-60-5	<0.0896	U	0.0896	0.179	11/16/2021 14:46	A21111611.D
cis-1,2-Dichloroethene	156-59-2	<0.0896	U	0.0896	0.179	11/16/2021 14:46	A21111611.D
Trichloroethene	79-01-6	<0.0965	U	0.0965	0.193	11/16/2021 14:46	A21111611.D
Tetrachloroethene	127-18-4	<0.114	U	0.114	0.228	11/16/2021 14:46	A21111611.D
Analyte	CAS#	% Recovery	Recovery Limits	Q		Analyzed	File ID
Surrogate: 1,2-DCA-d4	17060-07-0	84.1%	70-130			11/16/2021 14:46	A21111611.D
Surrogate: Toluene-d8	2037-26-5	81.3%	70-130			11/16/2021 14:46	A21111611.D

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006023 Reported: 11/23/2021
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Lab Sample ID: 0006023-02	6492-614OAK-IA-1 (7 Day) Indoor Air	Method: TO-17 (Passive)
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Analyte	CAS#	Result (µg/m ³)	Q	LOD (µg/m ³)	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.452	U	0.452	0.905	11/16/2021 14:19	A21111612.D
trans-1,2-Dichloroethene	156-60-5	<0.362	U	0.362	0.724	11/16/2021 14:19	A21111612.D
cis-1,2-Dichloroethene	156-59-2	<0.362	U	0.362	0.724	11/16/2021 14:19	A21111612.D
Trichloroethene	79-01-6	<0.390	U	0.390	0.779	11/16/2021 14:19	A21111612.D
Tetrachloroethene	127-18-4	<0.460	U	0.460	0.921	11/16/2021 14:19	A21111612.D
Analyte	CAS#	% Recovery	Recovery Limits	Q		Analyzed	File ID
Surrogate: 1,2-DCA-d4	17060-07-0	90.4%	70-130			11/16/2021 14:19	A21111612.D
Surrogate: Toluene-d8	2037-26-5	84.3%	70-130			11/16/2021 14:19	A21111612.D

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006023 Reported: 11/23/2021
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Lab Sample ID: 0006023-03	6492-614OAK-IA-1 (8 hr) Indoor Air	Method: TO-17 (Passive)
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Analyte	CAS#	Result (µg/m ³)	Q	LOD (µg/m ³)	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<9.79	U	9.79	19.6	11/16/2021 13:52	A21111613.D
trans-1,2-Dichloroethene	156-60-5	<7.83	U	7.83	15.7	11/16/2021 13:52	A21111613.D
cis-1,2-Dichloroethene	156-59-2	<7.83	U	7.83	15.7	11/16/2021 13:52	A21111613.D
Trichloroethene	79-01-6	<8.43	U	8.43	16.9	11/16/2021 13:52	A21111613.D
Tetrachloroethene	127-18-4	<9.97	U	9.97	19.9	11/16/2021 13:52	A21111613.D
Analyte	CAS#	% Recovery	Recovery Limits	Q		Analyzed	File ID
Surrogate: 1,2-DCA-d4	17060-07-0	94.8%	70-130			11/16/2021 13:52	A21111613.D
Surrogate: Toluene-d8	2037-26-5	87.7%	70-130			11/16/2021 13:52	A21111613.D

EnviroForensics
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Lab Work Order: 0006023
Reported: 11/23/2021

QC Information/Summary

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006023 Reported: 11/23/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21K047 - Batch: 21K0041 - Instrument: A System - File ID: A21111602.D

21K0041-BS1 (LCS, Calibration Source Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.03	5	2.5	ng	10.0		80.3	70-130			
trans-1,2-Dichloroethene	9.80	5	2.5	ng	10.0		98.0	70-130			
cis-1,2-Dichloroethene	10.1	5	2.5	ng	10.0		101	70-130			
Trichloroethene	9.37	5	2.5	ng	10.0		93.7	70-130			
Tetrachloroethene	9.82	5	2.5	ng	10.0		98.2	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>10.5</i>			<i>ng</i>	10.0		<i>105</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.70</i>			<i>ng</i>	10.0		<i>97.0</i>	<i>70-130</i>			

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Beacon Proposal: 210108R01
Lab Work Order: 0006023
Reported: 11/23/2021

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

Sequence: B21K047 - Batch: 21K0041 - Instrument: A System - File ID: A21111603.D
21K0041-BLK1 (Lab Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<0.112	0.224	0.112	µg/m ³							U
trans-1,2-Dichloroethene	<0.090	0.179	0.090	µg/m ³							U
cis-1,2-Dichloroethene	<0.090	0.179	0.090	µg/m ³							U
Trichloroethene	<0.097	0.193	0.097	µg/m ³							U
Tetrachloroethene	<0.114	0.228	0.114	µg/m ³							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>17.5</i>			<i>ng</i>	<i>20.0</i>		<i>87.4</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>19.0</i>			<i>ng</i>	<i>20.0</i>		<i>94.9</i>	<i>70-130</i>			

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Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006023
Reported: 11/23/2021

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

Sequence: B21K047 - Instrument: A System - File ID: A2111604.D
B21K047-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.23	5	2.5	ng	10.0		82.3	70-130			
trans-1,2-Dichloroethene	9.57	5	2.5	ng	10.0		95.7	70-130			
cis-1,2-Dichloroethene	9.94	5	2.5	ng	10.0		99.4	70-130			
Trichloroethene	9.40	5	2.5	ng	10.0		94.0	70-130			
Tetrachloroethene	9.92	5	2.5	ng	10.0		99.2	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>10.2</i>			<i>ng</i>	10.0		<i>102</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.67</i>			<i>ng</i>	10.0		<i>96.7</i>	<i>70-130</i>			

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Beacon Proposal: 210108R01
Lab Work Order: 0006023
Reported: 11/23/2021

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

Sequence: B21K047 - Instrument: A System - File ID: A21111615.D
B21K047-CCV1 (LCS, Closing Calibration Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.80	5	2.5	ng	10.0		88.0	70-130			
trans-1,2-Dichloroethene	9.78	5	2.5	ng	10.0		97.8	70-130			
cis-1,2-Dichloroethene	9.88	5	2.5	ng	10.0		98.8	70-130			
Trichloroethene	9.42	5	2.5	ng	10.0		94.2	70-130			
Tetrachloroethene	9.55	5	2.5	ng	10.0		95.5	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>10.1</i>			<i>ng</i>	10.0		<i>101</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.62</i>			<i>ng</i>	10.0		<i>96.2</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006023 Reported: 11/23/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21K047 - Instrument: A System - File ID: A21111616ccb.D

B21K047-CCB1 (Lab Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<2.5	5	2.5	ng							U
trans-1,2-Dichloroethene	<2.5	5	2.5	ng							U
cis-1,2-Dichloroethene	<2.5	5	2.5	ng							U
Trichloroethene	<2.5	5	2.5	ng							U
Tetrachloroethene	<2.5	5	2.5	ng							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>17.9</i>			<i>ng</i>	<i>20.0</i>		<i>89.4</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>18.2</i>			<i>ng</i>	<i>20.0</i>		<i>90.8</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006023 Reported: 11/23/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21K033 - Instrument: A System - File ID: Ab21110913.D

B21K033-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	9.78	5	2.5	ng	10.0		97.8	70-130			
trans-1,2-Dichloroethene	9.38	5	2.5	ng	10.0		93.8	70-130			
cis-1,2-Dichloroethene	9.70	5	2.5	ng	10.0		97.0	70-130			
Trichloroethene	9.43	5	2.5	ng	10.0		94.3	70-130			
Tetrachloroethene	9.45	5	2.5	ng	10.0		94.5	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.13</i>			<i>ng</i>	10.0		<i>91.3</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.58</i>			<i>ng</i>	10.0		<i>95.8</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006023 Reported: 11/23/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21K033 - Instrument: A System - File ID: Ab21110916.D

B21K033-ICB1 (Lab Blank/Initial Calibration Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<2.5	5	2.5	ng							U
trans-1,2-Dichloroethene	<2.5	5	2.5	ng							U
cis-1,2-Dichloroethene	<2.5	5	2.5	ng							U
Trichloroethene	<2.5	5	2.5	ng							U
Tetrachloroethene	<2.5	5	2.5	ng							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>17.6</i>			<i>ng</i>	<i>20.0</i>		<i>88.2</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>19.0</i>			<i>ng</i>	<i>20.0</i>		<i>94.9</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006023 Reported: 11/23/2021
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TO-17 (Passive) - LCS/LCSD Quality Control Summary

LCS: 21K0041-BS1 File ID: A21111602.D

Analyzed: 11/16/21 10:17

LCSD: B21K047-ICV1 File ID: A21111604.D

Analyzed: 11/16/21 9:29

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	8.03	80.3	10	8.23	82.30	70-130	2.46	30	
trans-1,2-Dichloroethene	156-60-5	9.80	98	10	9.57	95.70	70-130	2.37	30	
cis-1,2-Dichloroethene	156-59-2	10.14	101.4	10	9.94	99.40	70-130	1.99	30	
Trichloroethene	79-01-6	9.37	93.7	10	9.4	94.00	70-130	0.32	30	
Tetrachloroethene	127-18-4	9.82	98.2	10	9.92	99.20	70-130	1.01	30	

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Site Name: Badger Cleaners
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Lab Work Order: 0006023
Reported: 11/23/2021

Additional QC Information

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006023 Reported: 11/23/2021
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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
Lab ID: 0006023-01 Sample Name: 6492-614OAK-IA-1 (28 Day)						
Vinyl Chloride	39,870	1.00	0.560	U	U	A21111611.D
trans-1,2-Dichloroethene	39,870	1.00	0.700	U	U	A21111611.D
cis-1,2-Dichloroethene	39,870	1.00	0.700	U	U	A21111611.D
Trichloroethene	39,870	1.00	0.650	U	U	A21111611.D
Tetrachloroethene	39,870	1.00	0.550	U	U	A21111611.D

Lab ID: 0006023-02 Sample Name: 6492-614OAK-IA-1 (7 Day)						
Vinyl Chloride	9,871	1.00	0.560	U	U	A21111612.D
trans-1,2-Dichloroethene	9,871	1.00	0.700	U	U	A21111612.D
cis-1,2-Dichloroethene	9,871	1.00	0.700	U	U	A21111612.D
Trichloroethene	9,871	1.00	0.650	U	U	A21111612.D
Tetrachloroethene	9,871	1.00	0.550	U	U	A21111612.D

Lab ID: 0006023-03 Sample Name: 6492-614OAK-IA-1 (8 hr)						
Vinyl Chloride	456	1.00	0.560	U	U	A21111613.D
trans-1,2-Dichloroethene	456	1.00	0.700	U	U	A21111613.D
cis-1,2-Dichloroethene	456	1.00	0.700	U	U	A21111613.D
Trichloroethene	456	1.00	0.650	U	U	A21111613.D
Tetrachloroethene	456	1.00	0.550	U	U	A21111613.D

Calculations:

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

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

- where: C = concentration (µg/m³)
 M = mass (ng)
 DF = dilution factor
 Uc = uptake rate (ml/min), corrected
 t = sampling time (minutes)
 U = compound specific uptake rate
 Tu = uptake rate study temperature
 Ts = sample average temperature

Note: Tu is 16.65°C

‡ Uptake rate determined using Graham's Law of Diffusion.

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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006023 Reported: 11/23/2021
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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 (ng)		C Calculated (µg/m³)	
				LOQ	LOD	LOQ	LOD

Lab ID: 0006023-01		Sample Name: 6492-614OAK-IA-1 (28 Day)					
Vinyl Chloride	39,870	1.00	0.560	5.0	2.50	0.224	0.112
trans-1,2-Dichloroethene	39,870	1.00	0.700	5.0	2.50	0.179	0.0896
cis-1,2-Dichloroethene	39,870	1.00	0.700	5.0	2.50	0.179	0.0896
Trichloroethene	39,870	1.00	0.650	5.0	2.50	0.193	0.0965
Tetrachloroethene	39,870	1.00	0.550	5.0	2.50	0.228	0.114

Lab ID: 0006023-02		Sample Name: 6492-614OAK-IA-1 (7 Day)					
Vinyl Chloride	9,871	1.00	0.560	5.0	2.50	0.905	0.452
trans-1,2-Dichloroethene	9,871	1.00	0.700	5.0	2.50	0.724	0.362
cis-1,2-Dichloroethene	9,871	1.00	0.700	5.0	2.50	0.724	0.362
Trichloroethene	9,871	1.00	0.650	5.0	2.50	0.779	0.390
Tetrachloroethene	9,871	1.00	0.550	5.0	2.50	0.921	0.460

Lab ID: 0006023-03		Sample Name: 6492-614OAK-IA-1 (8 hr)					
Vinyl Chloride	456	1.00	0.560	5.0	2.50	19.6	9.79
trans-1,2-Dichloroethene	456	1.00	0.700	5.0	2.50	15.7	7.83
cis-1,2-Dichloroethene	456	1.00	0.700	5.0	2.50	15.7	7.83
Trichloroethene	456	1.00	0.650	5.0	2.50	16.9	8.43
Tetrachloroethene	456	1.00	0.550	5.0	2.50	19.9	9.97

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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	01/31/2023	
DoD-ELAP	L20-532-R1	United States Department of Defense Environmental Laboratory Accreditation	12/31/2022	
ISO/IEC 17025:2017	L20-532	General Requirements for the competence of Testing and Calibration Laboratories	12/31/2022	
NY-NELAC	12097	New York Department of Health	04/01/2022	
Utah-NELAC	MD010912021-9	Utah Department of Health	12/31/2022	

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Lab Work Order: 0006023
Reported: 11/23/2021

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:

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

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Beacon Proposal: 210108R01
Lab Work Order: 0006023
Reported: 11/23/2021

Sample Management Records

Client Information		Project Manager: <u>P. HOVERMAN</u>		Client PO: <u>2021-0607</u>		INDOOR AIR	AMBIENT AIR	CRAWL SPACE	SEWER GAS												
Company: <u>ENVIRO FORENSICS LLC</u>		Project Name: <u>BADGER CLEANERS</u>		Turn around time (check one): <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush (specify) ___ days																	
Address: <u>N16 W33390 STONE RIDGE DR STE 4</u>		Location: <u>BARRABOO, WI</u>		Analysis: <input checked="" type="checkbox"/> Method TO-17 <input type="checkbox"/> Method 325																	
City / State / Zip: <u>WAUKESHA WI 53188</u>		Submitted by:		Email: <u>choverman@enviroforensics.com</u>																	
Phone: .		Location ID		Tube ID		Start Date		Start Time		Stop Date		Stop Time		Aver Temp (C)		Target Compounds					
<u>6492-6140AK-1A-1 (230am)</u>		<u>1078690</u>		<u>10-14-21</u>		<u>1700</u>		<u>11/11/21</u>		<u>930</u>		<u>+6:44 AM 11/12/21</u>		<u>PCE, TCE, CDCE, EDCE & VC</u>		<u>X</u>					
<u>6492-6140AK-1A-1 (7am)</u>		<u>1141798</u>		<u>11/4/21</u>		<u>1255</u>		<u>↓</u>		<u>926</u>		<u>↓</u>		<u>↓</u>		<u>↓</u>					
<u>6492-6140AK-1A-1 (8hr)</u>		<u>1141485</u>		<u>11/11/21</u>		<u>920</u>		<u>↓</u>		<u>1656</u>		<u>↓</u>		<u>↓</u>		<u>↓</u>					
Special Notes / Instructions:																					
Relinquished by (signature): <u>[Signature]</u>				Date / Time: <u>11/12/21 930</u>				Received by (signature): <u>FED EX</u>				Date / Time: <u>11/12/21</u>									
Relinquished by (signature): <u>FedEx</u>				Date / Time: <u>11/15/2021</u>				Received by (signature): <u>[Signature]</u>				Date / Time: <u>11/15/2021 1102</u>									
For Lab Use Only				Beacon Job No: <u>6023</u>				Beacon Proposal: <u>210108R01</u>													
Courier Name: <u>FedEx</u>				Shipment Condition: <u>Good</u>				Custody Seal Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> n/a				Custody Seal No: <u>NA</u>									



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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 210108R02

Laboratory Work Order: 0006024

Project Description:

Badger Cleaners
Baraboo, WI

Client PO No.: 2021-0607

Prepared for:

Rob Hoverman

EnviroForensics

N16W23390 Stone Ridge Dr, Suite G

Waukesha, WI 53188

Ryan W. Schneider
Senior Project Manager

November 23, 2021

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
Interim Quality Manager

Table of Contents

Cover Page	1
Sample Summary	3
Case Narrative	4
Analytical Results	5
Summary of Compound Detections	6
Data Summary Table	8
Data Summary Table-Concentration	9
Detailed Analytical Results	10
- Mass	11
0006024-01 - 6492-614OAK-SSV-1 (7 day)	12
0006024-02 - 6492-614OAK-SSV-1 (28 day)	13
- Concentration	14
0006024-01 - 6492-614OAK-SSV-1 (7 day)	15
0006024-02 - 6492-614OAK-SSV-1 (28 day)	16
QC Summaries	17
Additional QC Information	22
Sample Result Calculations	23
Equation	23
MRL Calculation Table	24
Certifications	25
Notes and Definitions	26
Sample Management Records	27
Chain of Custody	28

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006024 Reported: 11/23/2021
---	--	--

Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0006024-01 Sampler Type:	6492-614OAK-SSV-1 (7 day) Beacon Passive Sampler	11/15/2021	EPA 8260C	Soil Gas
0006024-02 Sampler Type:	6492-614OAK-SSV-1 (28 day) Beacon Passive Sampler	11/15/2021	EPA 8260C	Soil Gas

Project Completeness

Samples Received: 2
Samples Analyzed: 2

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R02
Lab Work Order: 0006024
Reported: 11/23/2021

Case Narrative

U.S. EPA Method 8260C

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

Passive Soil-Gas Survey Notes

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

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

Reporting Limits

The RLs represent a baseline above which results meet laboratory-determined limits of precision and accuracy. 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. Beacon determined uptake rates for a suite of compounds with the Beacon sampler for sampling in air. Beacon calculated the uptake rates for the remaining compounds using Graham's Law of Diffusion. The reported data includes LOQ limits.

Project Details

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

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
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Beacon Proposal: 210108R02
Lab Work Order: 0006024
Reported: 11/23/2021

Analytical Results

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006024 Reported: 11/23/2021
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Summary of Compound Detections- Mass

Lab Sample ID: 0006024-01	6492-614OAK-SSV-1 (7 day) Soil Gas	Method: EPA 8260C
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Analyte	CAS#	Result (ng)	Q	RT	LOQ (ng)	File ID
Tetrachloroethene	127-18-4	2,060	D	8.016	96	K21111605.D

Lab Sample ID: 0006024-02	6492-614OAK-SSV-1 (28 day) Soil Gas	Method: EPA 8260C
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Analyte	CAS#	Result (ng)	Q	RT	LOQ (ng)	File ID
Trichloroethene	79-01-6	113		5.463	10	K21111507.D
Tetrachloroethene	127-18-4	9,420	D	8.016	96	K21111606.D

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Beacon Proposal: 210108R02
Lab Work Order: 0006024
Reported: 11/23/2021

Summary of Compound Detections- Concentration

Lab Sample ID: 0006024-01	6492-614OAK-SSV-1 (7 day)	Method: EPA 8260C
Soil Gas		

Analyte	CAS#	Result ($\mu\text{g}/\text{m}^3$)	Q	RT	LOQ ($\mu\text{g}/\text{m}^3$)	File ID
Tetrachloroethene	127-18-4	488	D	8.016	22.7	K21111605.D

Lab Sample ID: 0006024-02	6492-614OAK-SSV-1 (28 day)	Method: EPA 8260C
Soil Gas		

Analyte	CAS#	Result ($\mu\text{g}/\text{m}^3$)	Q	RT	LOQ ($\mu\text{g}/\text{m}^3$)	File ID
Trichloroethene	79-01-6	8.48		5.463	0.75	K21111507.D
Tetrachloroethene	127-18-4	570	D	8.016	5.80	K21111606.D

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Beacon Proposal: 210108R02
Lab Work Order: 0006024
Reported: 11/23/2021

Data Summary Table- Mass

Compound	Frequency	LOQ (ng)	Max Value (ng)
Trichloroethene	1	10	113
Tetrachloroethene	2	96	9,420

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
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Project Manager: Rob Hoverman**Beacon Proposal:** 210108R02
Lab Work Order: 0006024
Reported: 11/23/2021*Data Summary Table- Concentration*

Compound	Frequency	LOQ ($\mu\text{g}/\text{m}^3$)	Max Value ($\mu\text{g}/\text{m}^3$)
Trichloroethene	1	0.750	8.48
Tetrachloroethene	2	5.80	570

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Detailed Analytical Results

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
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Site Name: Badger Cleaners
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Lab Work Order: 0006024
Reported: 11/23/2021

Detailed Analytical Results- Mass

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006024 Reported: 11/23/2021
---	--	--

Lab Sample ID: 0006024-01	6492-614OAK-SSV-1 (7 day)	Method: EPA 8260C
Soil Gas		

Analyte	CAS#	Result		LOQ (ng)	Analyzed	File ID
		(ng)	Q			
Vinyl Chloride	75-01-4	<10		10	11/15/2021 16:45	K21111505.D
trans-1,2-Dichloroethene	156-60-5	<10		10	11/15/2021 16:45	K21111505.D
cis-1,2-Dichloroethene	156-59-2	<10		10	11/15/2021 16:45	K21111505.D
Trichloroethene	79-01-6	<10		10	11/15/2021 16:45	K21111505.D
Tetrachloroethene	127-18-4	2,060	D	96	11/16/2021 10:07	K21111605.D

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006024 Reported: 11/23/2021
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Lab Sample ID: 0006024-02	6492-614OAK-SSV-1 (28 day)	Method: EPA 8260C
Soil Gas		

Analyte	CAS#	Result		LOQ (ng)	Analyzed	File ID
		(ng)	Q			
Vinyl Chloride	75-01-4	<10		10	11/15/2021 17:37	K21111507.D
trans-1,2-Dichloroethene	156-60-5	<10		10	11/15/2021 17:37	K21111507.D
cis-1,2-Dichloroethene	156-59-2	<10		10	11/15/2021 17:37	K21111507.D
Trichloroethene	79-01-6	113		10	11/15/2021 17:37	K21111507.D
Tetrachloroethene	127-18-4	9,420	D	96	11/16/2021 10:33	K21111606.D

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Beacon Proposal: 210108R02
Lab Work Order: 0006024
Reported: 11/23/2021

Detailed Analytical Results- Concentration

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006024 Reported: 11/23/2021
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Lab Sample ID: 0006024-01	6492-614OAK-SSV-1 (7 day)	Method: EPA 8260C
Soil Gas		

Analyte	CAS#	Result ($\mu\text{g}/\text{m}^3$)	Q	LOQ ($\mu\text{g}/\text{m}^3$)	Analyzed	File ID
Vinyl Chloride	75-01-4	<1.20		1.20	11/15/2021 16:45	K21111505.D
trans-1,2-Dichloroethene	156-60-5	<2.21		2.21	11/15/2021 16:45	K21111505.D
cis-1,2-Dichloroethene	156-59-2	<1.84		1.84	11/15/2021 16:45	K21111505.D
Trichloroethene	79-01-6	<2.95		2.95	11/15/2021 16:45	K21111505.D
Tetrachloroethene	127-18-4	488	D	22.7	11/16/2021 10:07	K21111605.D

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006024 Reported: 11/23/2021
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Lab Sample ID: 0006024-02	6492-614OAK-SSV-1 (28 day)	Method: EPA 8260C
Soil Gas		

Analyte	CAS#	Result (µg/m ³)	Q	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.31		0.31	11/15/2021 17:37	K21111507.D
trans-1,2-Dichloroethene	156-60-5	<0.56		0.56	11/15/2021 17:37	K21111507.D
cis-1,2-Dichloroethene	156-59-2	<0.47		0.47	11/15/2021 17:37	K21111507.D
Trichloroethene	79-01-6	8.48		0.75	11/15/2021 17:37	K21111507.D
Tetrachloroethene	127-18-4	570	D	5.80	11/16/2021 10:33	K21111606.D

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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006024
Reported: 11/23/2021

QC Information/Summary

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006024
Reported: 11/23/2021

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

21K0039-BLK1 (Lab Blank) File ID: K21111503.D

Analyzed: 11/15/21 15:50

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

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Lab Work Order: 0006024
Reported: 11/23/2021

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

21K0040-BLK1 (Lab Blank) File ID: K21111603.D

Analyzed: 11/16/21 9:06

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

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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006024
Reported: 11/23/2021

Soil-Gas Analysis by EPA 8260 - Data in Concentration - Quality Control Summary
21K0039-BLK1 (Lab Blank) File ID: K21111503.D

Analyzed: 11/15/21 15:50

Sampler: Beacon Passive Sampler		Result	LOQ	
Analyte	CAS#	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Q
Vinyl Chloride	75-01-4	<0.307	0.307	
trans-1,2-Dichloroethene	156-60-5	<0.564	0.564	
cis-1,2-Dichloroethene	156-59-2	<0.469	0.469	
Trichloroethene	79-01-6	<0.753	0.753	
Tetrachloroethene	127-18-4	<0.606	0.606	

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Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006024
Reported: 11/23/2021

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

21K0040-BLK1 (Lab Blank) File ID: K21111603.D

Analyzed: 11/16/21 9:06

Sampler: Beacon Passive Sampler		Result	LOQ	
Analyte	CAS#	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Q
Vinyl Chloride	75-01-4	<0.307	0.307	
trans-1,2-Dichloroethene	156-60-5	<0.564	0.564	
cis-1,2-Dichloroethene	156-59-2	<0.469	0.469	
Trichloroethene	79-01-6	<0.753	0.753	
Tetrachloroethene	127-18-4	<0.606	0.606	

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Beacon Proposal: 210108R02
Lab Work Order: 0006024
Reported: 11/23/2021

Additional QC Information

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006024 Reported: 11/23/2021
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Sample Result Calculation Summary (Concentration)
EPA 8260C

Analyte	t Sampling Time minutes	DF Dilution Factor	U Uptake Rate	M Initial Result ng	C Calculated Result µg/m ³	File ID
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Lab ID: 0006024-01 **Sample Name:** 6492-614OAK-SSV-1 (7 day)

Vinyl Chloride	10,281	1.00	0.810	U	U	K21111505.D
trans-1,2-Dichloroethene	10,281	1.00	0.440	U	U	K21111505.D
cis-1,2-Dichloroethene	10,281	1.00	0.530	U	U	K21111505.D
Trichloroethene	10,281	1.00	0.330	U	U	K21111505.D
Tetrachloroethene	10,281	9.57	0.410	214.84	488	K21111605.D

Lab ID: 0006024-02 **Sample Name:** 6492-614OAK-SSV-1 (28 day)

Vinyl Chloride	40,271	1.00	0.810	U	U	K21111507.D
trans-1,2-Dichloroethene	40,271	1.00	0.440	U	U	K21111507.D
cis-1,2-Dichloroethene	40,271	1.00	0.530	U	U	K21111507.D
Trichloroethene	40,271	1.00	0.330	112.69	8.48	K21111507.D
Tetrachloroethene	40,271	9.57	0.410	984.06	570	K21111606.D

Calculations:

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

where: C = concentration (µg/m³)
 M = mass (ng)
 DF = dilution factor
 t = sampling time (minutes)
 U = compound specific uptake rate

§ Uptake rate determined using Graham's Law of Diffusion.

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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006024 Reported: 11/23/2021
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Method Detection and Reporting Limit Calculations (Concentration)
EPA 8260C

Analyte	t Sampling Time minutes	DF Dilution Factor	U Uptake Rate	M Initial LOQ ng	C Calculated LOQ µg/m ³
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Lab ID: 0006024-01 **Sample Name:** 6492-614OAK-SSV-1 (7 day)

Vinyl Chloride	10,281	1.00	0.810	10.0	1.20
trans-1,2-Dichloroethene	10,281	1.00	0.440	10.0	2.21
cis-1,2-Dichloroethene	10,281	1.00	0.530	10.0	1.84
Trichloroethene	10,281	1.00	0.330	10.0	2.95
Tetrachloroethene	10,281	9.57	0.410	10.0	22.7

Lab ID: 0006024-02 **Sample Name:** 6492-614OAK-SSV-1 (28 day)

Vinyl Chloride	40,271	1.00	0.810	10.0	0.31
trans-1,2-Dichloroethene	40,271	1.00	0.440	10.0	0.56
cis-1,2-Dichloroethene	40,271	1.00	0.530	10.0	0.47
Trichloroethene	40,271	1.00	0.330	10.0	0.75
Tetrachloroethene	40,271	9.57	0.410	10.0	5.80

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006024 Reported: 11/23/2021
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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	01/31/2023	
DoD-ELAP	L20-532-R1	United States Department of Defense Environmental Laboratory Accreditation	12/31/2022	
ISO/IEC 17025:2017	L20-532	General Requirements for the competence of Testing and Calibration Laboratories	12/31/2022	
NY-NELAC	12097	New York Department of Health	04/01/2022	
Utah-NELAC	MD010912021-9	Utah Department of Health	12/31/2022	

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Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R02
Lab Work Order: 0006024
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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.

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N16W23390 Stone Ridge Dr, Suite G
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006024
Reported: 11/23/2021

Sample Management Records



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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 210108R01

Laboratory Work Order: 0006042

Project Description:

Badger Cleaners
Baraboo, WI

Client PO No.: 2021-0607

Prepared for:

Rob Hoverman

EnviroForensics

N16W23390 Stone Ridge Dr, Suite G

Waukesha, WI 53188

Ryan W. Schneider
Senior Project Manager

December 07, 2021

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
Interim Quality Manager

Table of Contents

Cover Page	1
Sample Summary	3
Case Narrative	4
Analytical Results	5
Summary of Compound Detections	6
Data Summary Table-Concentration	7
Detailed Analytical Results	8
0006042-01 - 6492-614OAK-IA-1 (7 Day)	9
QC Summaries	10
Additional QC Information	20
Sample Result Calculations	21
Equation	21
LOD/MRL Calculation Table	22
Certifications	23
Notes and Definitions	24
Sample Management Records	25
Chain of Custody	26

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006042 Reported: 12/07/2021
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Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0006042-01 Sampler Type:	6492-614OAK-IA-1 (7 Day) Sorbent Tube	11/29/2021	TO-17 (Passive)	Indoor Air

Project Completeness

Samples Received: 1
Samples Analyzed: 1

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006042
Reported: 12/07/2021

Case Narrative

Beacon Environmental provided thermally conditioned ChloroSorbers 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) for EPA Method TO-17

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

Calibration Verification

All continuing calibration verification (CCV) values are within $\pm 30\%$ 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 limit of detection (LOD) for each compound were observed in the Laboratory Method Blanks.

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** section.

Discussion

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

End of Case Narrative

EnviroForensics
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006042
Reported: 12/07/2021

Analytical Results

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006042
Reported: 12/07/2021

Summary of Compound Detections- Concentration

Lab Sample ID: 0006042-01	6492-614OAK-IA-1 (7 Day) Indoor Air	Method: TO-17 (Passive)
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Analyte	CAS#	Result (µg/m ³)	Q	RT	LOQ (µg/m ³)	LOD (µg/m ³)	File ID
Trichloroethene	79-01-6	1.68		5.967	0.747	0.374	A21112906.D
Tetrachloroethene	127-18-4	167	D	8.195	32.5	16.2	A21112918.D

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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006042
Reported: 12/07/2021

Data Summary Table- Concentration

Compound	Frequency	LOD ($\mu\text{g}/\text{m}^3$)	Max Value ($\mu\text{g}/\text{m}^3$)
Trichloroethene	1	0.374	1.68
Tetrachloroethene	1	16.2	167

EnviroForensics
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006042
Reported: 12/07/2021

Detailed Analytical Results

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006042 Reported: 12/07/2021
---	--	--

Lab Sample ID: 0006042-01	6492-614OAK-IA-1 (7 Day)	Method: TO-17 (Passive)
Indoor Air		

Analyte	CAS#	Result (µg/m ³)	Q	LOD (µg/m ³)	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.434	U	0.434	0.867	11/29/2021 15:13	A21112906.D
trans-1,2-Dichloroethene	156-60-5	<0.347	U	0.347	0.694	11/29/2021 15:13	A21112906.D
cis-1,2-Dichloroethene	156-59-2	<0.347	U	0.347	0.694	11/29/2021 15:13	A21112906.D
Trichloroethene	79-01-6	1.68		0.374	0.747	11/29/2021 15:13	A21112906.D
Tetrachloroethene	127-18-4	167	D	16.2	32.5	11/30/2021 07:00	A21112918.D
Analyte	CAS#	% Recovery	Recovery Limits	Q		Analyzed	File ID
Surrogate: 1,2-DCA-d4	17060-07-0	92.4%	70-130			11/30/2021 07:00	A21112918.D
Surrogate: 1,2-DCA-d4	17060-07-0	98.2%	70-130			11/29/2021 15:13	A21112906.D
Surrogate: Toluene-d8	2037-26-5	91.1%	70-130			11/30/2021 07:00	A21112918.D
Surrogate: Toluene-d8	2037-26-5	93.7%	70-130			11/29/2021 15:13	A21112906.D

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Site Name: Badger Cleaners
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Beacon Proposal: 210108R01
Lab Work Order: 0006042
Reported: 12/07/2021

QC Information/Summary

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006042
Reported: 12/07/2021

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

Sequence: B21K075 - Batch: 21K0066 - Instrument: A System - File ID: A21112903.D
21K0066-BS1 (LCS, Calibration Source Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.14	5	2.5	ng	10.0		81.4	70-130			
trans-1,2-Dichloroethene	9.51	5	2.5	ng	10.0		95.1	70-130			
cis-1,2-Dichloroethene	9.84	5	2.5	ng	10.0		98.4	70-130			
Trichloroethene	9.37	5	2.5	ng	10.0		93.7	70-130			
Tetrachloroethene	9.71	5	2.5	ng	10.0		97.1	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>10.1</i>			<i>ng</i>	10.0		<i>101</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>10.3</i>			<i>ng</i>	10.0		<i>103</i>	<i>70-130</i>			

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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006042
Reported: 12/07/2021

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

Sequence: B21K075 - Batch: 21K0066 - Instrument: A System - File ID: A21112904.D
21K0066-BLK1 (Lab Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<0.434	0.867	0.434	µg/m ³							U
trans-1,2-Dichloroethene	<0.347	0.694	0.347	µg/m ³							U
cis-1,2-Dichloroethene	<0.347	0.694	0.347	µg/m ³							U
Trichloroethene	<0.374	0.747	0.374	µg/m ³							U
Tetrachloroethene	<0.442	0.883	0.442	µg/m ³							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>19.1</i>			<i>ng</i>	<i>20.0</i>		<i>95.3</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>19.1</i>			<i>ng</i>	<i>20.0</i>		<i>95.7</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006042 Reported: 12/07/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21K075 - Instrument: A System - File ID: A21112905.D

B21K075-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.45	5	2.5	ng	10.0		84.5	70-130			
trans-1,2-Dichloroethene	9.55	5	2.5	ng	10.0		95.5	70-130			
cis-1,2-Dichloroethene	9.85	5	2.5	ng	10.0		98.5	70-130			
Trichloroethene	9.25	5	2.5	ng	10.0		92.5	70-130			
Tetrachloroethene	9.61	5	2.5	ng	10.0		96.1	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.80</i>			<i>ng</i>	10.0		<i>98.0</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>10.2</i>			<i>ng</i>	10.0		<i>102</i>	<i>70-130</i>			

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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006042
Reported: 12/07/2021

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

Sequence: B21K075 - Instrument: A System - File ID: A21112907.D
B21K075-CCV1 (LCS, Closing Calibration Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.15	5	2.5	ng	10.0		81.5	70-130			
trans-1,2-Dichloroethene	9.74	5	2.5	ng	10.0		97.4	70-130			
cis-1,2-Dichloroethene	9.91	5	2.5	ng	10.0		99.1	70-130			
Trichloroethene	9.35	5	2.5	ng	10.0		93.5	70-130			
Tetrachloroethene	12.1	5	2.5	ng	10.0		121	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.16</i>			<i>ng</i>	10.0		<i>91.6</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>10.3</i>			<i>ng</i>	10.0		<i>103</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006042 Reported: 12/07/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21K075 - Instrument: A System - File ID: A21112913.D

B21K075-CCV2 (Continuing Calibration Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.05	5	2.5	ng	10.0		80.5	70-130			
trans-1,2-Dichloroethene	9.62	5	2.5	ng	10.0		96.2	70-130			
cis-1,2-Dichloroethene	10.0	5	2.5	ng	10.0		100	70-130			
Trichloroethene	9.43	5	2.5	ng	10.0		94.3	70-130			
Tetrachloroethene	9.84	5	2.5	ng	10.0		98.4	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.85</i>			<i>ng</i>	<i>10.0</i>		<i>98.5</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>10.5</i>			<i>ng</i>	<i>10.0</i>		<i>105</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006042
Reported: 12/07/2021

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

Sequence: B21K075 - Instrument: A System - File ID: A21112919.D
B21K075-CCV3 (Continuing Calibration Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.24	5	2.5	ng	10.0		82.4	70-130			
trans-1,2-Dichloroethene	9.66	5	2.5	ng	10.0		96.6	70-130			
cis-1,2-Dichloroethene	9.96	5	2.5	ng	10.0		99.6	70-130			
Trichloroethene	9.42	5	2.5	ng	10.0		94.2	70-130			
Tetrachloroethene	9.64	5	2.5	ng	10.0		96.4	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.50</i>			<i>ng</i>	10.0		<i>95.0</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>10.4</i>			<i>ng</i>	10.0		<i>104</i>	<i>70-130</i>			

EnviroForensics
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006042
Reported: 12/07/2021

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

Sequence: B21K033 - Instrument: A System - File ID: Ab21110913.D
B21K033-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	9.78	5	2.5	ng	10.0		97.8	70-130			
trans-1,2-Dichloroethene	9.38	5	2.5	ng	10.0		93.8	70-130			
cis-1,2-Dichloroethene	9.70	5	2.5	ng	10.0		97.0	70-130			
Trichloroethene	9.43	5	2.5	ng	10.0		94.3	70-130			
Tetrachloroethene	9.45	5	2.5	ng	10.0		94.5	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.13</i>			<i>ng</i>	10.0		<i>91.3</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.58</i>			<i>ng</i>	10.0		<i>95.8</i>	<i>70-130</i>			

EnviroForensics
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006042
Reported: 12/07/2021

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

Sequence: B21K033 - Instrument: A System - File ID: Ab21110916.D
B21K033-ICB1 (Lab Blank/Initial Calibration Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<2.5	5	2.5	ng							U
trans-1,2-Dichloroethene	<2.5	5	2.5	ng							U
cis-1,2-Dichloroethene	<2.5	5	2.5	ng							U
Trichloroethene	<2.5	5	2.5	ng							U
Tetrachloroethene	<2.5	5	2.5	ng							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>17.6</i>			<i>ng</i>	<i>20.0</i>		<i>88.2</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>19.0</i>			<i>ng</i>	<i>20.0</i>		<i>94.9</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006042 Reported: 12/07/2021
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TO-17 (Passive) - LCS/LCSD Quality Control Summary

LCS: 21K0066-BS1 File ID: A21112903.D

Analyzed: 11/29/21 14:34

LCSD: B21K075-ICV1 File ID: A21112905.D

Analyzed: 11/29/21 13:46

Analyte	CAS#	LCS Result		Spike Level	LCSD Result		%REC Limits	RPD	
		(ng)	%REC Q		(ng)	%REC		RPD Limit	RPD Q
Vinyl Chloride	75-01-4	8.14	81.4	10	8.45	84.50	70-130	3.74	30
trans-1,2-Dichloroethene	156-60-5	9.51	95.1	10	9.55	95.50	70-130	0.42	30
cis-1,2-Dichloroethene	156-59-2	9.84	98.4	10	9.85	98.50	70-130	0.10	30
Trichloroethene	79-01-6	9.37	93.7	10	9.25	92.50	70-130	1.29	30
Tetrachloroethene	127-18-4	9.71	97.1	10	9.61	96.10	70-130	1.04	30

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N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
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Beacon Proposal: 210108R01
Lab Work Order: 0006042
Reported: 12/07/2021

Additional QC Information

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006042 Reported: 12/07/2021
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Sample Result Calculation Summary (Concentration)
TO-17 (Passive)

Analyte	t Sampling Time minutes	DF Dilution Factor	Uc Uptake Rate	M Initial Result ng	C Calculated Result µg/m³	File ID
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Lab ID: 0006042-01 **Sample Name:** 6492-614OAK-IA-1 (7 Day) **̄ Temp (°C):** 23.00

Vinyl Chloride	10,183	1.00	0.566	U	U	A21112906.D
trans-1,2-Dichloroethene	10,183	1.00	0.708	U	U	A21112906.D
cis-1,2-Dichloroethene	10,183	1.00	0.708	U	U	A21112906.D
Trichloroethene	10,183	1.00	0.657	11.24	1.68	A21112906.D
Tetrachloroethene	10,183	36.80	0.556	25.73	167	A21112918.D

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 (µg/m³)
M = mass (ng)
DF = dilution factor
Uc = uptake rate (ml/min), corrected
t = sampling time (minutes)
U = compound specific uptake rate
Tu = uptake rate study temperature
Ts = sample average temperature

Note: Tu is 16.65°C

‡ Uptake rate determined using Graham’s Law of Diffusion.

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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006042 Reported: 12/07/2021
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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 (ng)		C Calculated (µg/m³)	
				LOQ	LOD	LOQ	LOD

Lab ID: 0006042-01	Sample Name: 6492-614OAK-IA-1 (7 Day)	̄ Temp (°C): 23.00
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Vinyl Chloride	10,183	1.00	0.566	5.0	2.50	0.867	0.434
trans-1,2-Dichloroethene	10,183	1.00	0.708	5.0	2.50	0.694	0.347
cis-1,2-Dichloroethene	10,183	1.00	0.708	5.0	2.50	0.694	0.347
Trichloroethene	10,183	1.00	0.657	5.0	2.50	0.747	0.374
Tetrachloroethene	10,183	36.80	0.556	5.0	2.50	32.5	16.2

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Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006042
Reported: 12/07/2021

Laboratory Certification List

Certification ID	Certification No.	Description	Expires	Project Required
Alaska CS-LAP	19-002	Alaska Department of Environmental Conservation	01/31/2023	
DoD-ELAP	L20-532-R1	United States Department of Defense Environmental Laboratory Accreditation	12/31/2022	
ISO/IEC 17025:2017	L20-532	General Requirements for the competence of Testing and Calibration Laboratories	12/31/2022	
NY-NELAC	12097	New York Department of Health	04/01/2022	
Utah-NELAC	MD010912021-9	Utah Department of Health	12/31/2022	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R01
Lab Work Order: 0006042
Reported: 12/07/2021

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

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006042
Reported: 12/07/2021

Sample Management Records



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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 210108R01

Laboratory Work Order: 0006085

Project Description:

Badger Cleaners
Baraboo, WI

Client PO No.: 2021-0607

Prepared for:

Rob Hoverman

EnviroForensics

N16W23390 Stone Ridge Dr, Suite G

Waukesha, WI 53188

Ryan W. Schneider
Senior Project Manager

December 22, 2021

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
Interim Quality Manager

Table of Contents

Cover Page	1
Sample Summary	3
Case Narrative	4
Analytical Results	5
Summary of Compound Detections	6
Data Summary Table-Concentration	7
Detailed Analytical Results	8
0006085-01 - 6492-614OAK-1A-1 (28 day)	9
QC Summaries	10
Additional QC Information	18
Sample Result Calculations	19
Equation	19
LOD/MRL Calculation Table	20
Certifications	21
Notes and Definitions	22
Sample Management Records	23
Chain of Custody	24

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006085 Reported: 12/22/2021
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Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0006085-01 Sampler Type:	6492-614OAK-1A-1 (28 day) Sorbent Tube	12/21/2021	TO-17 (Passive)	Indoor Air

Project Completeness

Samples Received: 1
Samples Analyzed: 1

EnviroForensicsN16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners**Site Location:** Baraboo, WI**Project Manager:** Rob Hoverman**Beacon Proposal:** 210108R01**Lab Work Order:** 0006085**Reported:** 12/22/2021

Case Narrative

Beacon Environmental provided thermally conditioned ChloroSorbers 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) for EPA Method TO-17

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

Calibration Verification

All continuing calibration verification (CCV) values are within $\pm 30\%$ 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 limit of detection (LOD) for each compound were observed in the Laboratory Method Blanks unless noted in the **Case Narrative**.

Laboratory Control Samples

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

Discussion

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

End of Case Narrative

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006085
Reported: 12/22/2021

Analytical Results

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006085 Reported: 12/22/2021
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Summary of Compound Detections- Concentration

Lab Sample ID: 0006085-01	6492-614OAK-1A-1 (28 day) Indoor Air	Method: TO-17 (Passive)
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Analyte	CAS#	Result (µg/m³)	Q	RT	LOQ (µg/m³)	LOD (µg/m³)	File ID
Trichloroethene	79-01-6	0.177	J	5.968	0.189	0.0943	A21122105.D
Tetrachloroethene	127-18-4	87.5	D	8.193	13.7	6.87	A21122113.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006085
Reported: 12/22/2021

Data Summary Table- Concentration

Compound	Frequency	LOD ($\mu\text{g}/\text{m}^3$)	Max Value ($\mu\text{g}/\text{m}^3$)
Trichloroethene	1	0.094	0.177
Tetrachloroethene	1	6.87	87.5

EnviroForensics
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
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Beacon Proposal: 210108R01
Lab Work Order: 0006085
Reported: 12/22/2021

Detailed Analytical Results

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006085 Reported: 12/22/2021
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Lab Sample ID: 0006085-01	6492-614OAK-1A-1 (28 day)	Method: TO-17 (Passive)
Indoor Air		

Analyte	CAS#	Result (µg/m ³)	Q	LOD (µg/m ³)	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.109	U	0.109	0.219	12/21/2021 11:55	A21122105.D
trans-1,2-Dichloroethene	156-60-5	<0.0876	U	0.0876	0.175	12/21/2021 11:55	A21122105.D
cis-1,2-Dichloroethene	156-59-2	<0.0876	U	0.0876	0.175	12/21/2021 11:55	A21122105.D
Trichloroethene	79-01-6	0.177	J	0.0943	0.189	12/21/2021 11:55	A21122105.D
Tetrachloroethene	127-18-4	87.5	D	6.87	13.7	12/21/2021 16:46	A21122113.D

Analyte	CAS#	% Recovery	Recovery Limits	Q	Analyzed	File ID
Surrogate: 1,2-DCA-d4	17060-07-0	98.9%	70-130		12/21/2021 16:46	A21122113.D
Surrogate: 1,2-DCA-d4	17060-07-0	101%	70-130		12/21/2021 11:55	A21122105.D
Surrogate: Toluene-d8	2037-26-5	103%	70-130		12/21/2021 16:46	A21122113.D
Surrogate: Toluene-d8	2037-26-5	107%	70-130		12/21/2021 11:55	A21122105.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006085
Reported: 12/22/2021

QC Information/Summary

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006085 Reported: 12/22/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21L057 - Batch: 21L0055 - Instrument: A System - File ID: A21122102.D

21L0055-BS1 (LCS, Calibration Source Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.15	5	2.5	ng	10.0		81.5	70-130			
trans-1,2-Dichloroethene	9.95	5	2.5	ng	10.0		99.5	70-130			
cis-1,2-Dichloroethene	10.1	5	2.5	ng	10.0		101	70-130			
Trichloroethene	9.37	5	2.5	ng	10.0		93.7	70-130			
Tetrachloroethene	9.30	5	2.5	ng	10.0		93.0	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.51</i>			<i>ng</i>	10.0		<i>95.1</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>10.4</i>			<i>ng</i>	10.0		<i>104</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006085 Reported: 12/22/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21L057 - Batch: 21L0055 - Instrument: A System - File ID: A21122103.D

21L0055-BLK1 (Lab Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<0.110	0.219	0.110	µg/m ³							U
trans-1,2-Dichloroethene	<0.088	0.175	0.088	µg/m ³							U
cis-1,2-Dichloroethene	<0.088	0.175	0.088	µg/m ³							U
Trichloroethene	<0.094	0.189	0.094	µg/m ³							U
Tetrachloroethene	<0.112	0.223	0.112	µg/m ³							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>20.0</i>			<i>ng</i>	<i>20.0</i>		<i>100</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>20.3</i>			<i>ng</i>	<i>20.0</i>		<i>102</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006085 Reported: 12/22/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21L057 - Instrument: A System - File ID: A21122104.D

B21L057-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.07	5	2.5	ng	10.0		80.7	70-130			
trans-1,2-Dichloroethene	9.71	5	2.5	ng	10.0		97.1	70-130			
cis-1,2-Dichloroethene	9.83	5	2.5	ng	10.0		98.3	70-130			
Trichloroethene	9.25	5	2.5	ng	10.0		92.5	70-130			
Tetrachloroethene	9.53	5	2.5	ng	10.0		95.3	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>10.4</i>			<i>ng</i>	10.0		<i>104</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>10.6</i>			<i>ng</i>	10.0		<i>106</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006085
Reported: 12/22/2021

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

Sequence: B21L057 - Instrument: A System - File ID: A21122114.D
B21L057-CCV1 (LCS, Closing Calibration Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.19	5	2.5	ng	10.0		81.9	70-130			
trans-1,2-Dichloroethene	10.2	5	2.5	ng	10.0		102	70-130			
cis-1,2-Dichloroethene	10.4	5	2.5	ng	10.0		104	70-130			
Trichloroethene	9.59	5	2.5	ng	10.0		95.9	70-130			
Tetrachloroethene	9.61	5	2.5	ng	10.0		96.1	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>10.6</i>			<i>ng</i>	10.0		<i>106</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>10.2</i>			<i>ng</i>	10.0		<i>102</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006085 Reported: 12/22/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21K033 - Instrument: A System - File ID: Ab21110913.D

B21K033-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	9.78	5	2.5	ng	10.0		97.8	70-130			
trans-1,2-Dichloroethene	9.38	5	2.5	ng	10.0		93.8	70-130			
cis-1,2-Dichloroethene	9.70	5	2.5	ng	10.0		97.0	70-130			
Trichloroethene	9.43	5	2.5	ng	10.0		94.3	70-130			
Tetrachloroethene	9.45	5	2.5	ng	10.0		94.5	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.13</i>			<i>ng</i>	10.0		<i>91.3</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.58</i>			<i>ng</i>	10.0		<i>95.8</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006085 Reported: 12/22/2021
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21K033 - Instrument: A System - File ID: Ab21110916.D

B21K033-ICB1 (Lab Blank/Initial Calibration Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<2.5	5	2.5	ng							U
trans-1,2-Dichloroethene	<2.5	5	2.5	ng							U
cis-1,2-Dichloroethene	<2.5	5	2.5	ng							U
Trichloroethene	<2.5	5	2.5	ng							U
Tetrachloroethene	<2.5	5	2.5	ng							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>17.6</i>			<i>ng</i>	<i>20.0</i>		<i>88.2</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>19.0</i>			<i>ng</i>	<i>20.0</i>		<i>94.9</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006085
Reported: 12/22/2021

TO-17 (Passive) - LCS/LCSD Quality Control Summary
LCS: 21L0055-BS1 File ID: A21122102.D

Analyzed: 12/21/21 11:19

LCSD: B21L057-ICV1 File ID: A21122104.D

Analyzed: 12/21/21 10:31

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	8.15	81.5	10	8.07	80.70	70-130	0.99	30	
trans-1,2-Dichloroethene	156-60-5	9.95	99.5	10	9.71	97.10	70-130	2.44	30	
cis-1,2-Dichloroethene	156-59-2	10.09	100.9	10	9.83	98.30	70-130	2.61	30	
Trichloroethene	79-01-6	9.37	93.7	10	9.25	92.50	70-130	1.29	30	
Tetrachloroethene	127-18-4	9.30	93	10	9.53	95.30	70-130	2.44	30	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006085
Reported: 12/22/2021

Additional QC Information

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006085
Reported: 12/22/2021

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: 0006085-01

Sample Name: 6492-614OAK-1A-1 (28 day)

̄ Temp (°C): 23.00

Vinyl Chloride	40,343	1.00	0.566	U	U	A21122105.D
trans-1,2-Dichloroethene	40,343	1.00	0.708	U	U	A21122105.D
cis-1,2-Dichloroethene	40,343	1.00	0.708	U	U	A21122105.D
Trichloroethene	40,343	1.00	0.657	4.68	0.177	A21122105.D
Tetrachloroethene	40,343	61.65	0.556	31.85	87.5	A21122113.D

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 (µg/m³)
 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

‡ Uptake rate determined using Graham's Law of Diffusion.

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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006085 Reported: 12/22/2021
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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 (ng)		C Calculated (µg/m³)	
				LOQ	LOD	LOQ	LOD

Lab ID: 0006085-01	Sample Name: 6492-614OAK-1A-1 (28 day)	̄ Temp (°C): 23.00					
Vinyl Chloride	40,343	1.00	0.566	5.0	2.50	0.219	0.109
trans-1,2-Dichloroethene	40,343	1.00	0.708	5.0	2.50	0.175	0.0876
cis-1,2-Dichloroethene	40,343	1.00	0.708	5.0	2.50	0.175	0.0876
Trichloroethene	40,343	1.00	0.657	5.0	2.50	0.189	0.0943
Tetrachloroethene	40,343	61.65	0.556	5.0	2.50	13.7	6.87

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006085 Reported: 12/22/2021
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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	01/31/2023	
DoD-ELAP	L20-532-R1	United States Department of Defense Environmental Laboratory Accreditation	12/31/2022	
ISO/IEC 17025:2017	L20-532	General Requirements for the competence of Testing and Calibration Laboratories	12/31/2022	
NY-NELAC	12097	New York Department of Health	04/01/2022	
Utah-NELAC	MD010912021-9	Utah Department of Health	12/31/2022	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R01
Lab Work Order: 0006085
Reported: 12/22/2021

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

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006085
Reported: 12/22/2021

Sample Management Records



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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 210108R02

Laboratory Work Order: 0006113

Project Description:

Badger Cleaners
Baraboo, WI

Client PO No.: 2021-0607

Prepared for:

Rob Hoverman

EnviroForensics

N16W23390 Stone Ridge Dr, Suite G

Waukesha, WI 53188

Ryan W. Schneider
Senior Project Manager

January 19, 2022

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, except samples were analyzed within a 24-hour tune window. 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
Interim Quality Manager

Table of Contents

Cover Page	1
Sample Summary	3
Case Narrative	4
Analytical Results	5
Summary of Compound Detections	6
Data Summary Table	8
Data Summary Table-Concentration	9
Detailed Analytical Results	10
- Mass	11
0006113-01 - 6492-614 OAK-SSV-1 (28 day)	12
- Concentration	13
0006113-01 - 6492-614 OAK-SSV-1 (28 day)	14
QC Summaries	15
Additional QC Information	18
Sample Result Calculations	19
Equation	19
MRL Calculation Table	20
Certifications	21
Notes and Definitions	22
Sample Management Records	23
Chain of Custody	24

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006113 Reported: 01/19/2022
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Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0006113-01	6492-614 OAK-SSV-1 (28 day)	01/11/2022	EPA 8260C	Soil Gas
Sampler Type: Beacon Passive Sampler				

Project Completeness

Samples Received: 1
Samples Analyzed: 1

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R02
Lab Work Order: 0006113
Reported: 01/19/2022

Case Narrative

U.S. EPA Method 8260C

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

Passive Soil-Gas Survey Notes

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

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

Reporting Limits

The RLs represent a baseline above which results meet laboratory-determined limits of precision and accuracy. 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. Beacon determined uptake rates for a suite of compounds with the Beacon sampler for sampling in air. Beacon calculated the uptake rates for the remaining compounds using Graham's Law of Diffusion. The reported data includes LOQ limits.

Project Details

Samples were received in proper condition and laboratory control parameters were met unless otherwise noted below. The work performed was in accordance with ISO/IEC 17025:2017, except samples were analyzed within a 24-hour tune window.

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006113
Reported: 01/19/2022

Analytical Results

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006113
Reported: 01/19/2022

Summary of Compound Detections- Mass

Lab Sample ID: 0006113-01	6492-614 OAK-SSV-1 (28 day) Soil Gas	Method: EPA 8260C
---------------------------	--	-------------------

Analyte	CAS#	Result (ng)	Q	RT	LOQ (ng)	File ID
Trichloroethene	79-01-6	10		3.293	10	S22011114.D
Tetrachloroethene	127-18-4	3,470	D	4.868	140	S22011125.D

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006113 Reported: 01/19/2022
---	--	--

Summary of Compound Detections- Concentration

Lab Sample ID: 0006113-01	6492-614 OAK-SSV-1 (28 day) Soil Gas	Method: EPA 8260C
---------------------------	--	-------------------

Analyte	CAS#	Result (µg/m³)	Q	RT	LOQ (µg/m³)	File ID
Trichloroethene	79-01-6	0.75		3.293	0.75	S22011114.D
Tetrachloroethene	127-18-4	209	D	4.868	8.44	S22011125.D

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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006113
Reported: 01/19/2022

Data Summary Table- Mass

Compound	Frequency	LOQ (ng)	Max Value (ng)
Trichloroethene	1	10	10
Tetrachloroethene	1	140	3,470

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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006113
Reported: 01/19/2022

Data Summary Table- Concentration

Compound	Frequency	LOQ ($\mu\text{g}/\text{m}^3$)	Max Value ($\mu\text{g}/\text{m}^3$)
Trichloroethene	1	0.750	0.750
Tetrachloroethene	1	8.44	209

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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006113
Reported: 01/19/2022

Detailed Analytical Results

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006113
Reported: 01/19/2022

Detailed Analytical Results- Mass

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006113 Reported: 01/19/2022
---	--	--

Lab Sample ID: 0006113-01	6492-614 OAK-SSV-1 (28 day)	Method: EPA 8260C
Soil Gas		

Analyte	CAS#	Result		LOQ (ng)	Analyzed	File ID
		(ng)	Q			
Vinyl Chloride	75-01-4	<10		10	01/11/2022 22:34	S22011114.D
trans-1,2-Dichloroethene	156-60-5	<10		10	01/11/2022 22:34	S22011114.D
cis-1,2-Dichloroethene	156-59-2	<10		10	01/11/2022 22:34	S22011114.D
Trichloroethene	79-01-6	10		10	01/11/2022 22:34	S22011114.D
Tetrachloroethene	127-18-4	3,470	D	140	01/12/2022 14:31	S22011125.D

EnviroForensics
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006113
Reported: 01/19/2022

Detailed Analytical Results- Concentration

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006113 Reported: 01/19/2022
---	--	--

Lab Sample ID: 0006113-01	6492-614 OAK-SSV-1 (28 day) Soil Gas	Method: EPA 8260C
---------------------------	--	-------------------

Analyte	CAS#	Result (µg/m ³)	Q	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.31		0.31	01/11/2022 22:34	S22011114.D
trans-1,2-Dichloroethene	156-60-5	<0.56		0.56	01/11/2022 22:34	S22011114.D
cis-1,2-Dichloroethene	156-59-2	<0.47		0.47	01/11/2022 22:34	S22011114.D
Trichloroethene	79-01-6	0.75		0.75	01/11/2022 22:34	S22011114.D
Tetrachloroethene	127-18-4	209	D	8.44	01/12/2022 14:31	S22011125.D

EnviroForensics
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006113
Reported: 01/19/2022

QC Information/Summary

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006113 Reported: 01/19/2022
---	--	--

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

22A0026-BLK1 (Lab Blank) File ID: S22011103.D

Analyzed: 1/11/22 17:58

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

EnviroForensics
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006113
Reported: 01/19/2022

Soil-Gas Analysis by EPA 8260 - Data in Concentration - Quality Control Summary
22A0026-BLK1 (Lab Blank) File ID: S22011103.D

Analyzed: 1/11/22 17:58

Sampler: Beacon Passive Sampler		Result	LOQ	
Analyte	CAS#	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Q
Vinyl Chloride	75-01-4	<0.305	0.305	
trans-1,2-Dichloroethene	156-60-5	<0.562	0.562	
cis-1,2-Dichloroethene	156-59-2	<0.466	0.466	
Trichloroethene	79-01-6	<0.749	0.749	
Tetrachloroethene	127-18-4	<0.603	0.603	

EnviroForensics
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006113
Reported: 01/19/2022

Additional QC Information

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006113
Reported: 01/19/2022

Sample Result Calculation Summary (Concentration)
EPA 8260C

Analyte	t Sampling Time minutes	DF Dilution Factor	U Uptake Rate	M Initial Result ng	C Calculated Result µg/m ³	File ID
---------	-------------------------------	--------------------------	---------------------	---------------------------	---	---------

Lab ID: 0006113-01 **Sample Name:** 6492-614 OAK-SSV-1 (28 day)

Vinyl Chloride	40,460	1.00	0.810	U	U	S22011114.D
trans-1,2-Dichloroethene	40,460	1.00	0.440	U	U	S22011114.D
cis-1,2-Dichloroethene	40,460	1.00	0.530	U	U	S22011114.D
Trichloroethene	40,460	1.00	0.330	10.04	0.75	S22011114.D
Tetrachloroethene	40,460	14.00	0.410	247.82	209	S22011125.D

Calculations:

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

where: C = concentration (µg/m³)
 M = mass (ng)
 DF = dilution factor
 t = sampling time (minutes)
 U = compound specific uptake rate

‡ Uptake rate determined using Graham's Law of Diffusion.

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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006113 Reported: 01/19/2022
---	--	--

Method Detection and Reporting Limit Calculations (Concentration)
EPA 8260C

Analyte	t Sampling Time minutes	DF Dilution Factor	U Uptake Rate	M Initial LOQ ng	C Calculated LOQ µg/m ³
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Lab ID: 0006113-01 **Sample Name:** 6492-614 OAK-SSV-1 (28 day)

Vinyl Chloride	40,460	1.00	0.810	10.0	0.31
trans-1,2-Dichloroethene	40,460	1.00	0.440	10.0	0.56
cis-1,2-Dichloroethene	40,460	1.00	0.530	10.0	0.47
Trichloroethene	40,460	1.00	0.330	10.0	0.75
Tetrachloroethene	40,460	14.00	0.410	10.0	8.44

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006113 Reported: 01/19/2022
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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	01/31/2023	
DoD-ELAP	L20-532-R1	United States Department of Defense Environmental Laboratory Accreditation	12/31/2022	
ISO/IEC 17025:2017	L20-532	General Requirements for the competence of Testing and Calibration Laboratories	12/31/2022	
NEFAP	72690/L20-533	TNI National Environmental Field Activities Program (NEFAP)	12/31/2022	
NY-NELAC	12097	New York Department of Health	04/01/2022	
Utah-NELAC	MD010912021-9	Utah Department of Health	12/31/2022	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006113
Reported: 01/19/2022

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.

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006113
Reported: 01/19/2022

Sample Management Records



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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 210108R01

Laboratory Work Order: 0006112

Project Description:

Badger Cleaners
Baraboo, WI

Client PO No.: 2021-0607

Prepared for:

Rob Hoverman

EnviroForensics

N16W23390 Stone Ridge Dr, Suite G

Waukesha, WI 53188

Ryan W. Schneider
Senior Project Manager

January 19, 2022

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
Interim Quality Manager

Table of Contents

Cover Page	1
Sample Summary	3
Case Narrative	4
Analytical Results	5
Summary of Compound Detections	6
Data Summary Table-Concentration	7
Detailed Analytical Results	8
0006112-01 - 6492-614 OAK-1A-1 (28 day)	9
QC Summaries	10
Additional QC Information	18
Sample Result Calculations	19
Equation	19
LOD/MRL Calculation Table	20
Certifications	21
Notes and Definitions	22
Sample Management Records	23
Chain of Custody	24

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006112 Reported: 01/19/2022
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Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0006112-01 Sampler Type:	6492-614 OAK-1A-1 (28 day) Sorbent Tube	01/11/2022	TO-17 (Passive)	Indoor Air

Project Completeness

Samples Received: 1
Samples Analyzed: 1

EnviroForensicsN16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners**Site Location:** Baraboo, WI**Project Manager:** Rob Hoverman**Beacon Proposal:** 210108R01**Lab Work Order:** 0006112**Reported:** 01/19/2022

Case Narrative

Beacon Environmental provided thermally conditioned ChloroSorbers 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) for EPA Method TO-17

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

Calibration Verification

All continuing calibration verification (CCV) values are within $\pm 30\%$ 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 limit of detection (LOD) for each compound were observed in the Laboratory Method Blanks unless noted in the **Case Narrative**.

Laboratory Control Samples

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

Discussion

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

End of Case Narrative

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006112
Reported: 01/19/2022

Analytical Results

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006112 Reported: 01/19/2022
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Summary of Compound Detections- Concentration

Lab Sample ID: 0006112-01	6492-614 OAK-1A-1 (28 day) Indoor Air	Method: TO-17 (Passive)
---------------------------	---	-------------------------

Analyte	CAS#	Result (µg/m³)	Q	RT	LOQ (µg/m³)	LOD (µg/m³)	File ID
Tetrachloroethene	127-18-4	1.26		8.193	0.178	0.0890	Ab22011309.D

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006112 Reported: 01/19/2022
---	--	--

Data Summary Table- Concentration

Compound	Frequency	LOD ($\mu\text{g}/\text{m}^3$)	Max Value ($\mu\text{g}/\text{m}^3$)
Tetrachloroethene	1	0.089	1.26

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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006112
Reported: 01/19/2022

Detailed Analytical Results

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006112 Reported: 01/19/2022
---	--	--

Lab Sample ID: 0006112-01	6492-614 OAK-1A-1 (28 day) Indoor Air	Method: TO-17 (Passive)
---------------------------	---	-------------------------

Analyte	CAS#	Result (µg/m ³)	Q	LOD (µg/m ³)	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.0874	U	0.0874	0.175	01/13/2022 13:58	Ab22011309.D
trans-1,2-Dichloroethene	156-60-5	<0.0699	U	0.0699	0.140	01/13/2022 13:58	Ab22011309.D
cis-1,2-Dichloroethene	156-59-2	<0.0699	U	0.0699	0.140	01/13/2022 13:58	Ab22011309.D
Trichloroethene	79-01-6	<0.0753	U	0.0753	0.151	01/13/2022 13:58	Ab22011309.D
Tetrachloroethene	127-18-4	1.26		0.0890	0.178	01/13/2022 13:58	Ab22011309.D

Analyte	CAS#	% Recovery	Recovery Limits	Q	Analyzed	File ID
Surrogate: 1,2-DCA-d4	17060-07-0	101%	70-130		01/13/2022 13:58	Ab22011309.D
Surrogate: Toluene-d8	2037-26-5	102%	70-130		01/13/2022 13:58	Ab22011309.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
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Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006112
Reported: 01/19/2022

QC Information/Summary

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006112 Reported: 01/19/2022
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21K033 - Instrument: A System - File ID: Ab21110913.D

B21K033-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	9.78	5	2.5	ng	10.0		97.8	70-130			
trans-1,2-Dichloroethene	9.38	5	2.5	ng	10.0		93.8	70-130			
cis-1,2-Dichloroethene	9.70	5	2.5	ng	10.0		97.0	70-130			
Trichloroethene	9.43	5	2.5	ng	10.0		94.3	70-130			
Tetrachloroethene	9.45	5	2.5	ng	10.0		94.5	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.13</i>			<i>ng</i>	10.0		<i>91.3</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.58</i>			<i>ng</i>	10.0		<i>95.8</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006112 Reported: 01/19/2022
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B21K033 - Instrument: A System - File ID: Ab21110916.D

B21K033-ICB1 (Lab Blank/Initial Calibration Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<2.5	5	2.5	ng							U
trans-1,2-Dichloroethene	<2.5	5	2.5	ng							U
cis-1,2-Dichloroethene	<2.5	5	2.5	ng							U
Trichloroethene	<2.5	5	2.5	ng							U
Tetrachloroethene	<2.5	5	2.5	ng							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>17.6</i>			<i>ng</i>	<i>20.0</i>		<i>88.2</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>19.0</i>			<i>ng</i>	<i>20.0</i>		<i>94.9</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006112
Reported: 01/19/2022

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

Sequence: B22A031 - Batch: 22A0031 - Instrument: A System - File ID: Ab22011302.D
22A0031-BS1 (LCS, Calibration Source Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	9.75	5	2.5	ng	10.0		97.5	70-130			
trans-1,2-Dichloroethene	10.0	5	2.5	ng	10.0		100	70-130			
cis-1,2-Dichloroethene	10.2	5	2.5	ng	10.0		102	70-130			
Trichloroethene	9.32	5	2.5	ng	10.0		93.2	70-130			
Tetrachloroethene	9.35	5	2.5	ng	10.0		93.5	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>10.1</i>			<i>ng</i>	10.0		<i>101</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>10.4</i>			<i>ng</i>	10.0		<i>104</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006112 Reported: 01/19/2022
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B22A031 - Batch: 22A0031 - Instrument: A System - File ID: Ab22011303.D

22A0031-BLK1 (Lab Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<0.087	0.175	0.087	µg/m ³							U
trans-1,2-Dichloroethene	<0.070	0.140	0.070	µg/m ³							U
cis-1,2-Dichloroethene	<0.070	0.140	0.070	µg/m ³							U
Trichloroethene	<0.075	0.151	0.075	µg/m ³							U
Tetrachloroethene	<0.089	0.178	0.089	µg/m ³							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>18.6</i>			<i>ng</i>	<i>20.0</i>		<i>93.2</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>20.0</i>			<i>ng</i>	<i>20.0</i>		<i>99.8</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006112
Reported: 01/19/2022

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

Sequence: B22A031 - Instrument: A System - File ID: Ab22011304.D
B22A031-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.78	5	2.5	ng	10.0		87.8	70-130			
trans-1,2-Dichloroethene	10.0	5	2.5	ng	10.0		100	70-130			
cis-1,2-Dichloroethene	10.1	5	2.5	ng	10.0		101	70-130			
Trichloroethene	9.21	5	2.5	ng	10.0		92.1	70-130			
Tetrachloroethene	9.30	5	2.5	ng	10.0		93.0	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>10.2</i>			<i>ng</i>	10.0		<i>102</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>10.3</i>			<i>ng</i>	10.0		<i>103</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006112
Reported: 01/19/2022

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

Sequence: B22A031 - Instrument: A System - File ID: Ab22011310.D
B22A031-CCV1 (LCS, Closing Calibration Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	9.48	5	2.5	ng	10.0		94.8	70-130			
trans-1,2-Dichloroethene	9.92	5	2.5	ng	10.0		99.2	70-130			
cis-1,2-Dichloroethene	10.1	5	2.5	ng	10.0		101	70-130			
Trichloroethene	9.44	5	2.5	ng	10.0		94.4	70-130			
Tetrachloroethene	9.68	5	2.5	ng	10.0		96.8	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>10.3</i>			<i>ng</i>	10.0		<i>103</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>10.4</i>			<i>ng</i>	10.0		<i>104</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006112 Reported: 01/19/2022
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TO-17 (Passive) - LCS/LCSD Quality Control Summary

LCS: 22A0031-BS1 File ID: Ab22011302.D

Analyzed: 1/13/22 10:27

LCSD: B22A031-ICV1 File ID: Ab22011304.D

Analyzed: 1/13/22 9:39

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	9.75	97.5	10	8.78	87.80	70-130	10.47	30	
trans-1,2-Dichloroethene	156-60-5	10.03	100.3	10	10	100.00	70-130	0.30	30	
cis-1,2-Dichloroethene	156-59-2	10.23	102.3	10	10.14	101.00	70-130	0.88	30	
Trichloroethene	79-01-6	9.32	93.2	10	9.21	92.10	70-130	1.19	30	
Tetrachloroethene	127-18-4	9.35	93.5	10	9.3	93.00	70-130	0.54	30	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006112
Reported: 01/19/2022

Additional QC Information

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006112
Reported: 01/19/2022

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: 0006112-01

Sample Name: 6492-614 OAK-1A-1 (28 day)

̄ Temp (°C): 23.00

Vinyl Chloride	50,545	1.00	0.566	U	U	Ab22011309.D
trans-1,2-Dichloroethene	50,545	1.00	0.708	U	U	Ab22011309.D
cis-1,2-Dichloroethene	50,545	1.00	0.708	U	U	Ab22011309.D
Trichloroethene	50,545	1.00	0.657	U	U	Ab22011309.D
Tetrachloroethene	50,545	1.00	0.556	35.37	1.26	Ab22011309.D

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 (µg/m³)
 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

‡ Uptake rate determined using Graham's Law of Diffusion.

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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006112 Reported: 01/19/2022
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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 (ng)		C Calculated (µg/m³)	
				LOQ	LOD	LOQ	LOD

Lab ID: 0006112-01	Sample Name: 6492-614 OAK-1A-1 (28 day)	̄ Temp (°C): 23.00
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Vinyl Chloride	50,545	1.00	0.566	5.0	2.50	0.175	0.0874
trans-1,2-Dichloroethene	50,545	1.00	0.708	5.0	2.50	0.140	0.0699
cis-1,2-Dichloroethene	50,545	1.00	0.708	5.0	2.50	0.140	0.0699
Trichloroethene	50,545	1.00	0.657	5.0	2.50	0.151	0.0753
Tetrachloroethene	50,545	1.00	0.556	5.0	2.50	0.178	0.0890

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006112 Reported: 01/19/2022
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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	01/31/2023	
DoD-ELAP	L20-532-R1	United States Department of Defense Environmental Laboratory Accreditation	12/31/2022	
ISO/IEC 17025:2017	L20-532	General Requirements for the competence of Testing and Calibration Laboratories	12/31/2022	
NEFAP	72690/L20-533	TNI National Environmental Field Activities Program (NEFAP)	12/31/2022	
NY-NELAC	12097	New York Department of Health	04/01/2022	
Utah-NELAC	MD010912021-9	Utah Department of Health	12/31/2022	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R01
Lab Work Order: 0006112
Reported: 01/19/2022

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:

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

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006112
Reported: 01/19/2022

Sample Management Records



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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 210108R01

Laboratory Work Order: 0006166

Project Description:

Badger Cleaners
Baraboo, WI

Client PO No.: 2021-0607

Prepared for:

Rob Hoverman

EnviroForensics

N16W23390 Stone Ridge Dr, Suite G

Waukesha, WI 53188

Ryan W. Schneider
Senior Project Manager

February 18, 2022

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

Steven C. Thornley
Laboratory Director

Peter B. Kelly
Quality Manager

Table of Contents

Cover Page	1
Sample Summary	3
Case Narrative	4
Analytical Results	5
Summary of Compound Detections	6
Data Summary Table-Concentration	7
Detailed Analytical Results	8
0006166-01 - 6492-614oak-IA-1 (28 day)	9
QC Summaries	10
Additional QC Information	18
Sample Result Calculations	19
Equation	19
LOD/MRL Calculation Table	20
Certifications	21
Notes and Definitions	22
Sample Management Records	23
Chain of Custody	24

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R01
Lab Work Order: 0006166
Reported: 02/18/2022**Sample Summary**

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0006166-01 Sampler Type:	6492-614oak-IA-1 (28 day) Sorbent Tube	02/09/2022	TO-17 (Passive)	Indoor Air

Project Completeness**Samples Received:** 1**Samples Analyzed:** 1

EnviroForensicsN16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners**Site Location:** Baraboo, WI**Project Manager:** Rob Hoverman**Beacon Proposal:** 210108R01**Lab Work Order:** 0006166**Reported:** 02/18/2022

Case Narrative

Beacon Environmental provided thermally conditioned ChloroSorbers 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) for EPA Method TO-17

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

Calibration Verification

All continuing calibration verification (CCV) values are within $\pm 30\%$ 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 limit of detection (LOD) for each compound were observed in the Laboratory Method Blanks unless noted in the **Case Narrative**.

Laboratory Control Samples

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

Discussion

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

End of Case Narrative

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006166
Reported: 02/18/2022

Analytical Results

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006166 Reported: 02/18/2022
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Summary of Compound Detections- Concentration

Lab Sample ID: 0006166-01	6492-614oak-IA-1 (28 day) Indoor Air	Method: TO-17 (Passive)
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Analyte	CAS#	Result (µg/m³)	Q	RT	LOQ (µg/m³)	LOD (µg/m³)	File ID
Tetrachloroethene	127-18-4	0.991		8.193	0.224	0.112	A22021005.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R01
Lab Work Order: 0006166
Reported: 02/18/2022***Data Summary Table- Concentration***

Compound	Frequency	LOD ($\mu\text{g}/\text{m}^3$)	Max Value ($\mu\text{g}/\text{m}^3$)
Tetrachloroethene	1	0.112	0.991

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006166
Reported: 02/18/2022

Detailed Analytical Results

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006166 Reported: 02/18/2022
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Lab Sample ID: 0006166-01	6492-614oak-IA-1 (28 day) Indoor Air	Method: TO-17 (Passive)
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Analyte	CAS#	Result (µg/m ³)	Q	LOD (µg/m ³)	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.110	U	0.110	0.220	02/10/2022 11:40	A22021005.D
trans-1,2-Dichloroethene	156-60-5	<0.0879	U	0.0879	0.176	02/10/2022 11:40	A22021005.D
cis-1,2-Dichloroethene	156-59-2	<0.0879	U	0.0879	0.176	02/10/2022 11:40	A22021005.D
Trichloroethene	79-01-6	<0.0946	U	0.0946	0.189	02/10/2022 11:40	A22021005.D
Tetrachloroethene	127-18-4	0.991		0.112	0.224	02/10/2022 11:40	A22021005.D

Analyte	CAS#	% Recovery	Recovery Limits	Q	Analyzed	File ID
Surrogate: 1,2-DCA-d4	17060-07-0	94.8%	70-130		02/10/2022 11:40	A22021005.D
Surrogate: Toluene-d8	2037-26-5	91.5%	70-130		02/10/2022 11:40	A22021005.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006166
Reported: 02/18/2022

QC Information/Summary

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006166
Reported: 02/18/2022

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

Sequence: B22B018 - Batch: 22B0015 - Instrument: A System - File ID: A22021002.D
22B0015-BS1 (LCS, Calibration Source Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.60	5	2.5	ng	10.0		86.0	70-130			
trans-1,2-Dichloroethene	9.46	5	2.5	ng	10.0		94.6	70-130			
cis-1,2-Dichloroethene	9.56	5	2.5	ng	10.0		95.6	70-130			
Trichloroethene	9.56	5	2.5	ng	10.0		95.6	70-130			
Tetrachloroethene	9.55	5	2.5	ng	10.0		95.5	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.41</i>			<i>ng</i>	10.0		<i>94.1</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.12</i>			<i>ng</i>	10.0		<i>91.2</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006166 Reported: 02/18/2022
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B22B018 - Batch: 22B0015 - Instrument: A System - File ID: A22021003.D

22B0015-BLK1 (Lab Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<0.110	0.220	0.110	µg/m ³							U
trans-1,2-Dichloroethene	<0.088	0.176	0.088	µg/m ³							U
cis-1,2-Dichloroethene	<0.088	0.176	0.088	µg/m ³							U
Trichloroethene	<0.095	0.189	0.095	µg/m ³							U
Tetrachloroethene	<0.112	0.224	0.112	µg/m ³							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>17.2</i>			<i>ng</i>	<i>20.0</i>		<i>86.2</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>18.0</i>			<i>ng</i>	<i>20.0</i>		<i>90.0</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006166 Reported: 02/18/2022
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B22B018 - Instrument: A System - File ID: A22021004.D

B22B018-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.61	5	2.5	ng	10.0		86.1	70-130			
trans-1,2-Dichloroethene	9.35	5	2.5	ng	10.0		93.5	70-130			
cis-1,2-Dichloroethene	9.44	5	2.5	ng	10.0		94.4	70-130			
Trichloroethene	9.38	5	2.5	ng	10.0		93.8	70-130			
Tetrachloroethene	9.43	5	2.5	ng	10.0		94.3	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.16</i>			<i>ng</i>	10.0		<i>91.6</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.19</i>			<i>ng</i>	10.0		<i>91.9</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006166 Reported: 02/18/2022
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Trace Organics in Air by EPA TO-17 Using Beacon ChloroSorber Tube - Quality Control Summary

Sequence: B22B018 - Instrument: A System - File ID: A22021006.D

B22B018-CCV1 (LCS, Closing Calibration Verification)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.09	5	2.5	ng	10.0		80.9	70-130			
trans-1,2-Dichloroethene	9.42	5	2.5	ng	10.0		94.2	70-130			
cis-1,2-Dichloroethene	9.49	5	2.5	ng	10.0		94.9	70-130			
Trichloroethene	9.47	5	2.5	ng	10.0		94.7	70-130			
Tetrachloroethene	9.53	5	2.5	ng	10.0		95.3	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.61</i>			<i>ng</i>	10.0		<i>96.1</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.19</i>			<i>ng</i>	10.0		<i>91.9</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006166
Reported: 02/18/2022

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

Sequence: B22A065 - Instrument: A System - File ID: Ab22012113.D
B22A065-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	8.73	5	2.5	ng	10.0		87.3	70-130			
trans-1,2-Dichloroethene	9.39	5	2.5	ng	10.0		93.9	70-130			
cis-1,2-Dichloroethene	9.73	5	2.5	ng	10.0		97.3	70-130			
Trichloroethene	9.69	5	2.5	ng	10.0		96.9	70-130			
Tetrachloroethene	9.84	5	2.5	ng	10.0		98.4	70-130			
<i>Surrogate: 1,2-DCA-d4</i>	<i>9.59</i>			<i>ng</i>	10.0		<i>95.9</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>9.53</i>			<i>ng</i>	10.0		<i>95.3</i>	<i>70-130</i>			

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006166
Reported: 02/18/2022

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

Sequence: B22A065 - Instrument: A System - File ID: Ab22012116.D
B22A065-ICB1 (Lab Blank/Initial Calibration Blank)

Analyte	Result	LOQ	LOD	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<2.5	5	2.5	ng							U
trans-1,2-Dichloroethene	<2.5	5	2.5	ng							U
cis-1,2-Dichloroethene	<2.5	5	2.5	ng							U
Trichloroethene	<2.5	5	2.5	ng							U
Tetrachloroethene	<2.5	5	2.5	ng							U
<i>Surrogate: 1,2-DCA-d4</i>	<i>18.1</i>			<i>ng</i>	<i>20.0</i>		<i>90.4</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>18.7</i>			<i>ng</i>	<i>20.0</i>		<i>93.6</i>	<i>70-130</i>			

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006166 Reported: 02/18/2022
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TO-17 (Passive) - LCS/LCSD Quality Control Summary

LCS: 22B0015-BS1 File ID: A22021002.D

Analyzed: 2/10/22 10:51

LCSD: B22B018-ICV1 File ID: A22021004.D

Analyzed: 2/10/22 10:03

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	8.60	86	10	8.61	86.10	70-130	0.12	30	
trans-1,2-Dichloroethene	156-60-5	9.46	94.6	10	9.35	93.50	70-130	1.17	30	
cis-1,2-Dichloroethene	156-59-2	9.56	95.6	10	9.44	94.40	70-130	1.26	30	
Trichloroethene	79-01-6	9.56	95.6	10	9.38	93.80	70-130	1.90	30	
Tetrachloroethene	127-18-4	9.55	95.5	10	9.43	94.30	70-130	1.26	30	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006166
Reported: 02/18/2022

Additional QC Information

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006166
Reported: 02/18/2022

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: 0006166-01

Sample Name: 6492-614oak-IA-1 (28 day)

̄ Temp (°C): 23.00

Vinyl Chloride	40,198	1.00	0.566	U	U	A22021005.D
trans-1,2-Dichloroethene	40,198	1.00	0.708	U	U	A22021005.D
cis-1,2-Dichloroethene	40,198	1.00	0.708	U	U	A22021005.D
Trichloroethene	40,198	1.00	0.657	U	U	A22021005.D
Tetrachloroethene	40,198	1.00	0.556	22.14	0.991	A22021005.D

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 (µg/m³)
 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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006166 Reported: 02/18/2022
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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 (ng)		C Calculated (µg/m³)	
				LOQ	LOD	LOQ	LOD

Lab ID: 0006166-01	Sample Name: 6492-614oak-IA-1 (28 day)	\bar{X} Temp (°C): 23.00					
Vinyl Chloride	40,198	1.00	0.566	5.0	2.50	0.220	0.110
trans-1,2-Dichloroethene	40,198	1.00	0.708	5.0	2.50	0.176	0.0879
cis-1,2-Dichloroethene	40,198	1.00	0.708	5.0	2.50	0.176	0.0879
Trichloroethene	40,198	1.00	0.657	5.0	2.50	0.189	0.0946
Tetrachloroethene	40,198	1.00	0.556	5.0	2.50	0.224	0.112

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R01 Lab Work Order: 0006166 Reported: 02/18/2022
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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	01/31/2023	
DoD-ELAP	L20-532-R1	United States Department of Defense Environmental Laboratory Accreditation	12/31/2022	
ISO/IEC 17025:2017	L20-532	General Requirements for the competence of Testing and Calibration Laboratories	12/31/2022	
NEFAP	72690/L20-533	TNI National Environmental Field Activities Program (NEFAP)	12/31/2022	
NY-NELAC	12097	New York Department of Health	04/01/2022	
Utah-NELAC	MD010912021-9	Utah Department of Health	12/31/2022	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006166
Reported: 02/18/2022

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:

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

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R01
Lab Work Order: 0006166
Reported: 02/18/2022

Sample Management Records



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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 210108R02

Laboratory Work Order: 0006165

Project Description:

Badger Cleaners
Baraboo, WI

Client PO No.: 2021-0607

Prepared for:

Rob Hoverman

EnviroForensics

N16W23390 Stone Ridge Dr, Suite G

Waukesha, WI 53188

Ryan W. Schneider
Senior Project Manager

February 18, 2022

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

Steven C. Thornley
Laboratory Director

Peter B. Kelly
Quality Manager

Table of Contents

Cover Page	1
Sample Summary	3
Case Narrative	4
Analytical Results	5
Summary of Compound Detections	6
Data Summary Table	8
Data Summary Table-Concentration	9
Detailed Analytical Results	10
- Mass	11
0006165-01 - Trip 1	12
0006165-02 - Trip 2	13
0006165-03 - 6492-614Oak-SSV-1 (28 day)	14
- Concentration	15
0006165-01 - Trip 1	16
0006165-02 - Trip 2	17
0006165-03 - 6492-614Oak-SSV-1 (28 day)	18
QC Summaries	19
Additional QC Information	22
Sample Result Calculations	23
Equation	23
MRL Calculation Table	24
Certifications	25
Notes and Definitions	26
Sample Management Records	27
Chain of Custody	28

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006165 Reported: 02/18/2022
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Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0006165-01 Sampler Type:	Trip 1 Beacon Passive Sampler	02/09/2022	EPA 8260C	Air
0006165-02 Sampler Type:	Trip 2 Beacon Passive Sampler	02/09/2022	EPA 8260C	Air
0006165-03 Sampler Type:	6492-614Oak-SSV-1 (28 day) Beacon Passive Sampler	02/09/2022	EPA 8260C	Soil Gas

Project Completeness

Samples Received: 3
Samples Analyzed: 3

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006165
Reported: 02/18/2022

Case Narrative

U.S. EPA Method 8260C

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

Passive Soil-Gas Survey Notes

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

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

Reporting Limits

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

Project Details

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

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006165
Reported: 02/18/2022

Analytical Results

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006165 Reported: 02/18/2022
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Summary of Compound Detections- Mass

Lab Sample ID: 0006165-01	Trip 1 Air	Method: EPA 8260C
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Analyte	CAS#	Result (ng)	Q	RT	LOQ (ng)	File ID
Tetrachloroethene	127-18-4	13		8.013	10	K22021008.D

Lab Sample ID: 0006165-03	6492-614Oak-SSV-1 (28 day) Soil Gas	Method: EPA 8260C
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Analyte	CAS#	Result (ng)	Q	RT	LOQ (ng)	File ID
Tetrachloroethene	127-18-4	206		8.013	10	K22021007.D

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006165 Reported: 02/18/2022
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Summary of Compound Detections- Concentration

Lab Sample ID: 0006165-01	Trip 1 Air	Method: EPA 8260C
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Analyte	CAS#	Result (µg/m³)	Q	RT	LOQ (µg/m³)	File ID
Tetrachloroethene	127-18-4	0.81		8.013	0.61	K22021008.D

Lab Sample ID: 0006165-03	6492-614Oak-SSV-1 (28 day) Soil Gas	Method: EPA 8260C
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Analyte	CAS#	Result (µg/m³)	Q	RT	LOQ (µg/m³)	File ID
Tetrachloroethene	127-18-4	12.5		8.013	0.61	K22021007.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188**Site Name:** Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman**Beacon Proposal:** 210108R02
Lab Work Order: 0006165
Reported: 02/18/2022*Data Summary Table- Mass*

Compound	Frequency	LOQ (ng)	Max Value (ng)
Tetrachloroethene	1	10	206

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006165
Reported: 02/18/2022

Data Summary Table- Concentration

Compound	Frequency	LOQ ($\mu\text{g}/\text{m}^3$)	Max Value ($\mu\text{g}/\text{m}^3$)
Tetrachloroethene	1	0.610	12.5

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006165
Reported: 02/18/2022

Detailed Analytical Results

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006165
Reported: 02/18/2022

Detailed Analytical Results- Mass

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006165 Reported: 02/18/2022
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Lab Sample ID: 0006165-01	Trip 1	Method: EPA 8260C
	Air	

Analyte	CAS#	Result (ng) Q	LOQ (ng)	Analyzed	File ID
Vinyl Chloride	75-01-4	<10	10	02/10/2022 13:16	K22021008.D
trans-1,2-Dichloroethene	156-60-5	<10	10	02/10/2022 13:16	K22021008.D
cis-1,2-Dichloroethene	156-59-2	<10	10	02/10/2022 13:16	K22021008.D
Trichloroethene	79-01-6	<10	10	02/10/2022 13:16	K22021008.D
Tetrachloroethene	127-18-4	13	10	02/10/2022 13:16	K22021008.D

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006165 Reported: 02/18/2022
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Lab Sample ID: 0006165-02	Trip 2	Method: EPA 8260C
	Air	

Analyte	CAS#	Result		LOQ (ng)	Analyzed	File ID
		(ng)	Q			
Vinyl Chloride	75-01-4	<10		10	02/10/2022 12:14	K22021006.D
trans-1,2-Dichloroethene	156-60-5	<10		10	02/10/2022 12:14	K22021006.D
cis-1,2-Dichloroethene	156-59-2	<10		10	02/10/2022 12:14	K22021006.D
Trichloroethene	79-01-6	<10		10	02/10/2022 12:14	K22021006.D
Tetrachloroethene	127-18-4	<10		10	02/10/2022 12:14	K22021006.D

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006165 Reported: 02/18/2022
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Lab Sample ID: 0006165-03	6492-614Oak-SSV-1 (28 day)	Method: EPA 8260C
Soil Gas		

Analyte	CAS#	Result		LOQ (ng)	Analyzed	File ID
		(ng)	Q			
Vinyl Chloride	75-01-4	<10		10	02/10/2022 12:41	K22021007.D
trans-1,2-Dichloroethene	156-60-5	<10		10	02/10/2022 12:41	K22021007.D
cis-1,2-Dichloroethene	156-59-2	<10		10	02/10/2022 12:41	K22021007.D
Trichloroethene	79-01-6	<10		10	02/10/2022 12:41	K22021007.D
Tetrachloroethene	127-18-4		206	10	02/10/2022 12:41	K22021007.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006165
Reported: 02/18/2022

Detailed Analytical Results- Concentration

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006165 Reported: 02/18/2022
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Lab Sample ID: 0006165-01	Trip 1	Method: EPA 8260C
	Air	

Analyte	CAS#	Result (µg/m ³)	Q	LOQ (µg/m ³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.31		0.31	02/10/2022 13:16	K22021008.D
trans-1,2-Dichloroethene	156-60-5	<0.57		0.57	02/10/2022 13:16	K22021008.D
cis-1,2-Dichloroethene	156-59-2	<0.47		0.47	02/10/2022 13:16	K22021008.D
Trichloroethene	79-01-6	<0.75		0.75	02/10/2022 13:16	K22021008.D
Tetrachloroethene	127-18-4	0.81		0.61	02/10/2022 13:16	K22021008.D

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006165 Reported: 02/18/2022
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Lab Sample ID: 0006165-02	Trip 2	Method: EPA 8260C
	Air	

Analyte	CAS#	Result ($\mu\text{g}/\text{m}^3$)	Q	LOQ ($\mu\text{g}/\text{m}^3$)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.31		0.31	02/10/2022 12:14	K22021006.D
trans-1,2-Dichloroethene	156-60-5	<0.57		0.57	02/10/2022 12:14	K22021006.D
cis-1,2-Dichloroethene	156-59-2	<0.47		0.47	02/10/2022 12:14	K22021006.D
Trichloroethene	79-01-6	<0.75		0.75	02/10/2022 12:14	K22021006.D
Tetrachloroethene	127-18-4	<0.61		0.61	02/10/2022 12:14	K22021006.D

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006165 Reported: 02/18/2022
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Lab Sample ID: 0006165-03	6492-614Oak-SSV-1 (28 day) Soil Gas	Method: EPA 8260C
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Analyte	CAS#	Result ($\mu\text{g}/\text{m}^3$)	Q	LOQ ($\mu\text{g}/\text{m}^3$)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.31		0.31	02/10/2022 12:41	K22021007.D
trans-1,2-Dichloroethene	156-60-5	<0.57		0.57	02/10/2022 12:41	K22021007.D
cis-1,2-Dichloroethene	156-59-2	<0.47		0.47	02/10/2022 12:41	K22021007.D
Trichloroethene	79-01-6	<0.75		0.75	02/10/2022 12:41	K22021007.D
Tetrachloroethene	127-18-4	12.5		0.61	02/10/2022 12:41	K22021007.D

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006165
Reported: 02/18/2022

QC Information/Summary

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006165 Reported: 02/18/2022
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Soil-Gas Sample Analysis by EPA Method 8260C - Quality Control Summary

22B0016-BLK1 (Lab Blank) File ID: K22021003.D Analyzed: 2/10/22 10:48

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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006165 Reported: 02/18/2022
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Soil-Gas Analysis by EPA 8260 - Data in Concentration - Quality Control Summary

22B0016-BLK1 (Lab Blank) File ID: K22021003.D

Analyzed: 2/10/22 10:48

Sampler: Beacon Passive Sampler		Result	LOQ	
Analyte	CAS#	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Q
Vinyl Chloride	75-01-4	<0.307	0.307	
trans-1,2-Dichloroethene	156-60-5	<0.566	0.566	
cis-1,2-Dichloroethene	156-59-2	<0.470	0.470	
Trichloroethene	79-01-6	<0.755	0.755	
Tetrachloroethene	127-18-4	<0.607	0.607	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006165
Reported: 02/18/2022

Additional QC Information

EnviroForensics
 N16W23390 Stone Ridge Dr, Suite G
 Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006165
Reported: 02/18/2022

Sample Result Calculation Summary (Concentration)
EPA 8260C

Analyte	t Sampling Time minutes	DF Dilution Factor	U Uptake Rate	M Initial Result ng	C Calculated Result µg/m ³	File ID
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Lab ID: 0006165-01 **Sample Name:** Trip 1

Vinyl Chloride	40,165	1.00	0.810	U	U	K22021008.D
trans-1,2-Dichloroethene	40,165	1.00	0.440	U	U	K22021008.D
cis-1,2-Dichloroethene	40,165	1.00	0.530	U	U	K22021008.D
Trichloroethene	40,165	1.00	0.330	U	U	K22021008.D
Tetrachloroethene	40,165	1.00	0.410	13.42	0.81	K22021008.D

Lab ID: 0006165-02 **Sample Name:** Trip 2

Vinyl Chloride	40,165	1.00	0.810	U	U	K22021006.D
trans-1,2-Dichloroethene	40,165	1.00	0.440	U	U	K22021006.D
cis-1,2-Dichloroethene	40,165	1.00	0.530	U	U	K22021006.D
Trichloroethene	40,165	1.00	0.330	U	U	K22021006.D
Tetrachloroethene	40,165	1.00	0.410	U	U	K22021006.D

Lab ID: 0006165-03 **Sample Name:** 6492-614Oak-SSV-1 (28 day)

Vinyl Chloride	40,165	1.00	0.810	U	U	K22021007.D
trans-1,2-Dichloroethene	40,165	1.00	0.440	U	U	K22021007.D
cis-1,2-Dichloroethene	40,165	1.00	0.530	U	U	K22021007.D
Trichloroethene	40,165	1.00	0.330	U	U	K22021007.D
Tetrachloroethene	40,165	1.00	0.410	206.28	12.5	K22021007.D

Calculations:

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

where: C = concentration (µg/m³)
 M = mass (ng)
 DF = dilution factor
 t = sampling time (minutes)
 U = compound specific uptake rate

§ Uptake rate determined using Graham's Law of Diffusion.

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

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006165 Reported: 02/18/2022
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Method Detection and Reporting Limit Calculations (Concentration)
EPA 8260C

Analyte	t Sampling Time minutes	DF Dilution Factor	U Uptake Rate	M Initial LOQ ng	C Calculated LOQ µg/m ³
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Lab ID: 0006165-01 **Sample Name:** Trip 1

Vinyl Chloride	40,165	1.00	0.810	10.0	0.31
trans-1,2-Dichloroethene	40,165	1.00	0.440	10.0	0.57
cis-1,2-Dichloroethene	40,165	1.00	0.530	10.0	0.47
Trichloroethene	40,165	1.00	0.330	10.0	0.75
Tetrachloroethene	40,165	1.00	0.410	10.0	0.61

Lab ID: 0006165-02 **Sample Name:** Trip 2

Vinyl Chloride	40,165	1.00	0.810	10.0	0.31
trans-1,2-Dichloroethene	40,165	1.00	0.440	10.0	0.57
cis-1,2-Dichloroethene	40,165	1.00	0.530	10.0	0.47
Trichloroethene	40,165	1.00	0.330	10.0	0.75
Tetrachloroethene	40,165	1.00	0.410	10.0	0.61

Lab ID: 0006165-03 **Sample Name:** 6492-614Oak-SSV-1 (28 day)

Vinyl Chloride	40,165	1.00	0.810	10.0	0.31
trans-1,2-Dichloroethene	40,165	1.00	0.440	10.0	0.57
cis-1,2-Dichloroethene	40,165	1.00	0.530	10.0	0.47
Trichloroethene	40,165	1.00	0.330	10.0	0.75
Tetrachloroethene	40,165	1.00	0.410	10.0	0.61

EnviroForensics N16W23390 Stone Ridge Dr, Suite G Waukesha, WI 53188	Site Name: Badger Cleaners Site Location: Baraboo, WI Project Manager: Rob Hoverman	Beacon Proposal: 210108R02 Lab Work Order: 0006165 Reported: 02/18/2022
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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	01/31/2023	
DoD-ELAP	L20-532-R1	United States Department of Defense Environmental Laboratory Accreditation	12/31/2022	
ISO/IEC 17025:2017	L20-532	General Requirements for the competence of Testing and Calibration Laboratories	12/31/2022	
NEFAP	72690/L20-533	TNI National Environmental Field Activities Program (NEFAP)	12/31/2022	
NY-NELAC	12097	New York Department of Health	04/01/2022	
Utah-NELAC	MD010912021-9	Utah Department of Health	12/31/2022	

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006165
Reported: 02/18/2022

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

EnviroForensics
N16W23390 Stone Ridge Dr, Suite G
Waukesha, WI 53188

Site Name: Badger Cleaners
Site Location: Baraboo, WI
Project Manager: Rob Hoverman

Beacon Proposal: 210108R02
Lab Work Order: 0006165
Reported: 02/18/2022

Sample Management Records



EnvisionAir
1441 Sadler Circle West Drive
Indianapolis, IN 46239
Ph: 317-351-0885
Fax: 317-351-0882
www.envision-air.com

Mr. Rob Hoverman
Enviroforensics
N16 W. 23390 Stone Ridge Dr
Suite G
Waukesha, WI 53188

February 17, 2022

EnvisionAir Project Number: 2022-95
Client Project Name: 6492 – Badger Cleaners

Dear Mr. Hoverman,

Please find the attached analytical report for the samples received February 7, 2022. All test methods performed were fully compliant with local, state, and federal EPA methods unless otherwise noted. The project was analyzed as requested on the enclosed chain of custody record. Please review the comments section for additional information about your results or Quality Control data.

Feel free to contact me if you have any questions or comments regarding your analytical report or service.

Thank you for your business. EnvisionAir looks forward to working with you on your next project.

Yours Sincerely,

A handwritten signature in black ink that reads "David Norris".

David Norris
Project Manager
EnvisionAir, LLC



EnvisionAir
 1441 Sadlier Circle West Drive
 Indianapolis, IN 46239
 Ph: 317-351-0885
 Fax: 317-351-0882
 www.envision-air.com

Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2022-95

Sample Summary

Canister Pressure / Vacuum

<u>Laboratory Sample Number:</u>	<u>Sample Description:</u>	<u>Matrix:</u>	<u>START</u>	<u>START</u>	<u>End Date</u>	<u>End Time</u>	<u>Date</u>	<u>Time</u>	<u>Initial Field</u>	<u>Final Field</u>	<u>Lab</u>
			<u>Collected:</u>	<u>Collected:</u>							<u>Collected:</u>
22-533	6492-614-OAK-IA-1	A	2/3/22	8:20	2/3/22	16:26	2/7/22	16:00	-28	-17	-17
22-534	6492-614-OAK-IA-B	A	2/3/22	8:22	2/3/22	16:25	2/7/22	16:00	-26	-6	-6
22-535	6492-614-OAK-SSV-1	A	2/3/22	9:40	2/3/22	9:44	2/7/22	16:00	-28	-3	-3
22-536	6492-614-OAK-WSV-1	A	2/3/22	9:57	2/3/22	10:03	2/7/22	16:00	-27	-3	-3
22-537	6492-OA	A	2/3/22	8:10	2/3/22	16:11	2/7/22	16:00	-26	-4	-4



EnvisionAir
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www.envision-air.com

Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2022-95

Analytical Method: TO-15
Analytical Batch: 021022AIR

Client Sample ID: 6492-614 OAK-IA-1
EnvisionAir Sample Number: 22-533
Sample Matrix: AIR

Sample Collection START Date/Time: 2/3/22 8:20
Sample Collection END Date/Time: 2/3/22 16:26
Sample Received Date/Time: 2/7/22 16:00

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 19.8	19.8	
Tetrachloroethene	< 3.19	3.19	
trans-1,2-Dichloroethene	< 39.6	39.6	
Trichloroethene	< 1.07	1.07	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	101%		
Analysis Date/Time:	2-10-22/17:40		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2022-95

Analytical Method: TO-15
Analytical Batch: 021022AIR

Client Sample ID: 6492-614 OAK-IA-B
EnvisionAir Sample Number: 22-534
Sample Matrix: AIR

Sample Collection START Date/Time: 2/3/22 8:22
Sample Collection END Date/Time: 2/3/22 16:25
Sample Received Date/Time: 2/7/22 16:00

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 19.8	19.8	
Tetrachloroethene	< 3.19	3.19	
trans-1,2-Dichloroethene	< 39.6	39.6	
Trichloroethene	< 1.07	1.07	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	97%		
Analysis Date/Time:	2-10-22/18:23		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2022-95

Analytical Method: TO-15
Analytical Batch: 021022AIR

Client Sample ID: 6492-614 OAK-SSV-1
EnvisionAir Sample Number: 22-535
Sample Matrix: AIR

Sample Collection START Date/Time: 2/3/22 9:40
Sample Collection END Date/Time: 2/3/22 9:44
Sample Received Date/Time: 2/7/22 16:00

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 198	198	
Tetrachloroethene	< 31.9	31.9	
trans-1,2-Dichloroethene	< 396	396	
Trichloroethene	< 10.7	10.7	
Vinyl Chloride	< 12.8	12.8	
4-bromofluorobenzene (surrogate)	96%		
Analysis Date/Time:	2-11-22/00:03		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2022-95

Analytical Method: TO-15
Analytical Batch: 021022AIR

Client Sample ID: 6492-614 OAK-WSV-1
EnvisionAir Sample Number: 22-536
Sample Matrix: AIR

Sample Collection START Date/Time: 2/3/22 9:57
Sample Collection END Date/Time: 2/3/22 10:03
Sample Received Date/Time: 2/7/22 16:00

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 198	198	
Tetrachloroethene	< 31.9	31.9	
trans-1,2-Dichloroethene	< 396	396	
Trichloroethene	< 10.7	10.7	
Vinyl Chloride	< 12.8	12.8	
4-bromofluorobenzene (surrogate)	101%		
Analysis Date/Time:	2-11-22/00:46		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2022-95

Analytical Method: TO-15
Analytical Batch: 021022AIR

Client Sample ID: 6492-OA
EnvisionAir Sample Number: 22-537
Sample Matrix: AIR

Sample Collection START Date/Time: 2/3/22 8:10
Sample Collection END Date/Time: 2/3/22 16:11
Sample Received Date/Time: 2/7/22 16:00

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 19.8	19.8	
Tetrachloroethene	< 3.19	3.19	
trans-1,2-Dichloroethene	< 39.6	39.6	
Trichloroethene	< 1.07	1.07	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	106%		
Analysis Date/Time:	2-10-22/16:58		
Analyst Initials	tjg		

TO-15 Quality Control Data

EnvisionAir Batch Number: 021022AIR

<u>Method Blank (MB):</u>	<u>MB Results (ppbv)</u>	<u>Reporting Limit (ppbv)</u>	<u>Flags</u>
cis-1,2-Dichloroethene	< 5	5	
Tetrachloroethene	< 0.47	0.47	
trans-1,2-Dichloroethene	< 10	10	
Trichloroethene	< 0.2	0.2	
Vinyl Chloride	< 0.5	0.5	
4-bromofluorobenzene (surrogate)	96%		
Analysis Date/Time:	2-10-22/16:21		
Analyst Initials	tjg		

<u>LCS/LCSD</u>	<u>LCS Results (ppbv)</u>	<u>LCSD Results (ppbv)</u>	<u>LCS/D Conc(ppbv)</u>	<u>LCS Rec.</u>	<u>LCSD Rec.</u>	<u>RPD</u>	<u>Flag</u>
Vinyl Chloride	9.08	11.3	10	91%	113%	21.8%	1
trans-1,2-Dichloroethene	9.69	9.65	10	97%	97%	0.4%	
cis-1,2-Dichloroethene	10.4	10.4	10	104%	104%	0.0%	
Trichloroethene	10.7	9.2	10	107%	92%	15.1%	
Tetrachloroethene	9.96	9.02	10	100%	90%	9.9%	
4-bromofluorobenzene (surrogate)	101%	94%					
Analysis Date/Time:	2-10-22/14:55	2-10-22/15:44					
Analyst Initials	tjg	tjg					



EnvisionAir
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Flag Number

1

Comments

RPD is biased high, but recoveries are within control. TJG 2/14/22

CHAIN OF CUSTODY RECORD

EnvisionAir | 1441 Sadlier Circle West Drive | Indianapolis, IN 46239 | Phone: (317) 351-0885 | Fax: (317) 351-0882

Client: EnviroForensics P.O. Number: 2022-0070
 Report: phoerfman@ Project Name or Number: 6492-
 Address: enviroforensics.com Badger Cleaners

Report To: Rob Hoerfman Sampled by: R Brown
 Phone: 662-290-4001 QA/QC Required: (circle if applicable)
 Level III Level IV

Invoice Address: ACCOUNTS Reporting Units needed: (circle)
enviroforensics.com ug/m³ mg/m³ PPBV PPMV
 Desired TAT: (Please Circle One) 1 day 2 days 3 days Std (5 bus, days)

Media type: 1LC = 1 Liter Canister
6LC = 6 Liter Canister
TD = Thermal Desorption Tube

REQUESTED PARAMETERS

TO-15 Full List
 TO-15 Short List (Specify in notes)

Sampling Type:
 Soil-Gas:
 Sub-Slab:
 Indoor-Air:



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Air Sample ID	Media Type (see code above)	Coll. Date (Grab/Camp Start)	Coll. Time (Grab/Camp Start)	Coll. Date (Comp. End)	Coll. Time (Comp. End)	Canister Serial #	Flow Controller Serial #	Initial Field (in. Hg)	Final Field (in. Hg)	Lab Received (in. Hg)	EnvisionAir Sample Number
6492-614 Oak-1A-1	6LC	23-22	810	23-22	1626	20671	07460	-28	-17	-17	22-533
6492-614 Oak-1A-3	6LC		822		1625	16096	05248	-26	-6	-6	22-534
6492-614 Oak-SSV-1	1LC		940		944	83837	0091	-28	-3	-3	22-535
6492-614 Oak-SSV-1	1LC		957		1003	83736	0126	-27	-3	-3	22-536
6492-0A	6LC		810		1611	4688	05254	-26	-4	-4	22-537

Comments:

SHORT LIST: PCE, TCE, CDCE, EDCE, VC

Relinquished by:	Date	Time	Received by:	Date	Time
<u>RL</u>	<u>2-4-22</u>	<u>1600</u>	<u>FEDER</u>	<u>2-4-22</u>	<u>1600</u>
			<u>YDRAULTON</u>	<u>2-7-22</u>	<u>16:00</u>



March 2, 2022

Erin Zirbel and Jerimiah Losic
616 Oak Street
Baraboo, WI 53913

**Subject: Vapor Intrusion Sampling Results – 614 Oak Street, Baraboo, Wisconsin
BRRTS: 02-57-548538**

Dear Ms. Zirbel and Mr. Losic:

In accordance with your request, EnviroForensics, LLC is providing the results of environmental samples collected from your property located at 616 Oak Street in Baraboo, Wisconsin. The samples were collected on February 3, 2022. The sampling activities are part of an environmental investigation being performed for the Badger Cleaners facility located at 616 Oak Street in Baraboo at the direction of the WDNR pursuant to the authority granted to it under State and Federal law. The chemicals of concern for the investigation are the dry cleaning solvent tetrachloroethene (PCE) and its associated breakdown products.

The Responsible Party is:

Badger Cleaners
616 Oak Street
Baraboo, WI

The purpose of the monitoring was to evaluate previously observed concentrations and fluctuations in indoor air and potential trends influenced by the remedial system at the Badger Cleaners Site.

Sampling Results

Indoor Air:

Two indoor air samples 6492-616 Oak St.-IA-1-1A and 6492-618 Oak St.-IA-1-1b were collected from within the former press room and the location of the former dry cleaning machine. 6492-618 Oak St.-IA-B and 6492-618 Oak St.-IA-1 did not contain any chemicals of concern above

Document: 6492-2315
EnviroForensics, LLC
N16 W23390 Stone Ridge Drive, Suite G
Waukesha, WI 53188
Phone: 262-290-4001 • Fax 317.972.7875

March 2, 2022

laboratory detection limits.

The sampling locations are depicted on the attached **Figure 1**. The results of the vapor samples are summarized and compared to WDNR standards on the attached **Table 1**. A copy of the laboratory report that relates to the vapor samples is also attached. The results confirm that the remedial system is working to effectively mitigate the vapor intrusion risk to your property.

If you have any questions or concerns, please contact us at 262-510-0612 or by email at rhoverman@enviroforensics.com. The WDNR project manager, Trevor Bannister, can be reached at 608-275-3490. We greatly appreciate your help and patience with this matter.

Sincerely,

EnviroForensics, LLC

A handwritten signature in blue ink, appearing to read "Rob Hoverman".

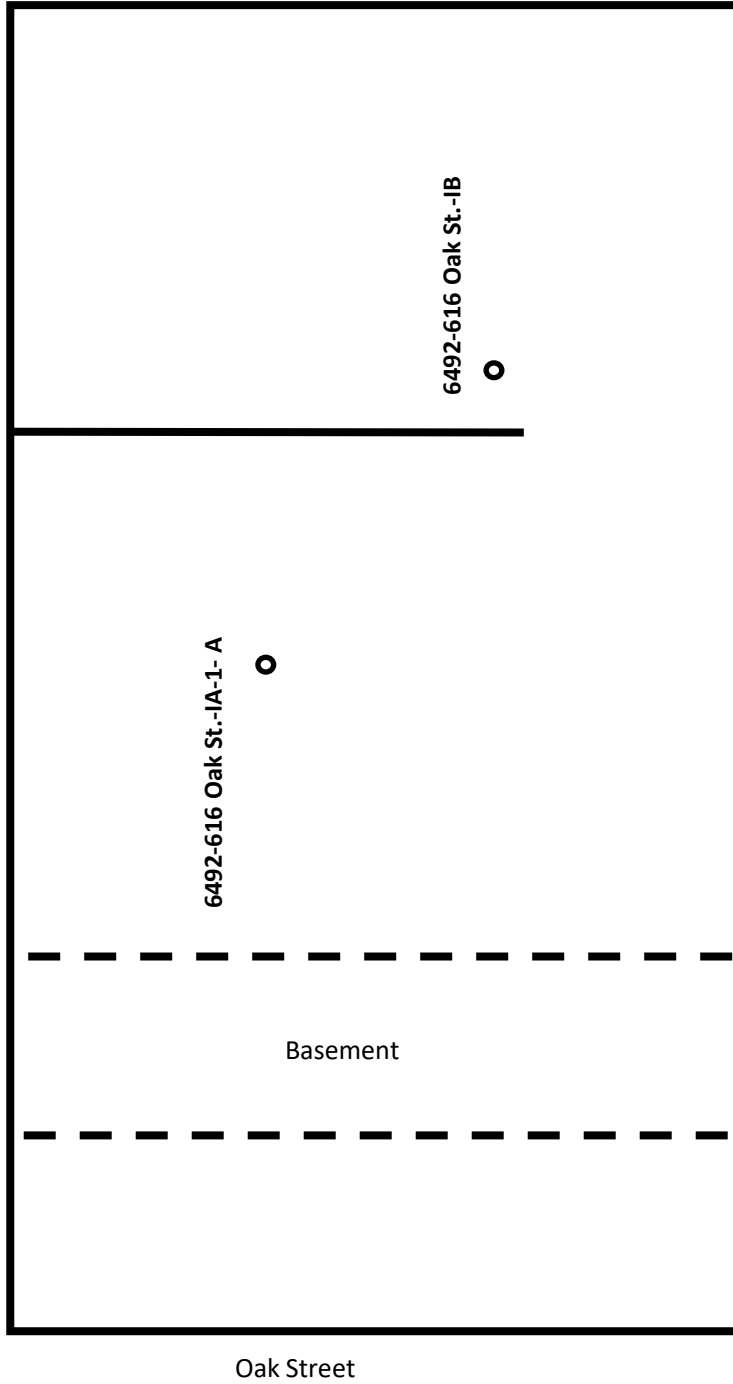
Rob Hoverman, LPG

Senior Project Manager

Attachments: Figure 1 – Vapor Intrusion Sampling Locations
Table 1 – Vapor Intrusion Assessment Results Summary
Laboratory Analytical Report

Copy: Trevor Bannister, Wisconsin Department of Natural Resources

FIGURE 1
VAPOR INTRUSION SAMPLE LOCATIONS
616 Oak Street, Baraboo Wisconsin



6492-OA-1



Legend



● = Indoor/Outdoor Air Sample
IA-1 = 1st Floor

TABLE 1
VAPOR INTRUSION ANALYTICAL RESULTS SUMMARY - 616 OAK STREET

Badger Cleaners
616 Oak Street, Baraboo, WI 53913

Sample Identification	Sample Location	Date Sampled	Mitigation	Tetrachloroethene	Trichloroethene
INDOOR/ OUTDOOR AIR					
Small Commercial Vapor Action Level				180	8.8
6492-616 Oak St-IA-1-1A	Press Room	12/19/2017	No	1,900	<1.07
		10/21/2021	Yes	55.1	<1.07
		2/3/2022	Yes	<3.19	<1.07
6492-616 Oak St-IA-1-1B	Dry-Cleaning Machine	12/19/2017	No	7,520	<1.07
		10/21/2021	Yes	601	<1.07
		2/3/2022	Yes	<3.19	<1.07

Notes:

Results reported in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)

Samples analyzed according to EPA Method TO-15

The Vapor Risk Screening/Action Levels are calculated in accordance with WDNR Publication RR-800 and subsequent guidance documents.

IA = Indoor Air

OA = Outdoor Air

SSV= Sub-slab vapor

Bolded values are above detection limits

Bolded and Orange shaded concentration exceed the applicable non-residential screening level

NA = Not Analyzed



EnvisionAir
1441 Sadler Circle West Drive
Indianapolis, IN 46239
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Fax: 317-351-0882
www.envision-air.com

Mr. Rob Hoverman
Enviroforensics
N16 W. 23390 Stone Ridge Dr
Suite G
Waukesha, WI 53188

February 17, 2022

EnvisionAir Project Number: 2022-97
Client Project Name: 6492 – Badger Cleaners

Dear Mr. Hoverman,

Please find the attached analytical report for the samples received February 7, 2022. All test methods performed were fully compliant with local, state, and federal EPA methods unless otherwise noted. The project was analyzed as requested on the enclosed chain of custody record. Please review the comments section for additional information about your results or Quality Control data.

Feel free to contact me if you have any questions or comments regarding your analytical report or service.

Thank you for your business. EnvisionAir looks forward to working with you on your next project.

Yours Sincerely,

A handwritten signature in black ink that reads "David Norris".

David Norris
Project Manager
EnvisionAir, LLC



EnvisionAir
 1441 Sadlier Circle West Drive
 Indianapolis, IN 46239
 Ph: 317-351-0885
 Fax: 317-351-0882
 www.envision-air.com

Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2022-97

Sample Summary

Canister Pressure / Vacuum

<u>Laboratory Sample Number:</u>	<u>Sample Description:</u>	<u>Matrix:</u>	<u>START</u>	<u>START</u>	<u>End Date</u>	<u>End Time</u>	<u>Date</u>	<u>Time</u>	<u>Initial Field</u>	<u>Final Field</u>	<u>Lab</u>
			<u>Date</u>	<u>Time</u>							
22-541	6492-616 OAK-IA-1-1A	A	2/3/22	8:15	2/3/22	16:15	2/7/22	16:00	-26	-8	-8
22-542	6492-616 OAK-IA-1-1B	A	2/3/22	8:12	2/3/22	16:18	2/7/22	16:00	-28	-10	-10



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Fax: 317-351-0882
www.envision-air.com

Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2022-97

Analytical Method: TO-15
Analytical Batch: 021022AIR

Client Sample ID: 6492-616 OAK-IA-1
EnvisionAir Sample Number: 22-541
Sample Matrix: AIR

Sample Collection START Date/Time: 2/3/22 8:15
Sample Collection END Date/Time: 2/3/22 16:15
Sample Received Date/Time: 2/7/22 16:00

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 19.8	19.8	
Tetrachloroethene	< 3.19	3.19	
trans-1,2-Dichloroethene	< 39.6	39.6	
Trichloroethene	< 1.07	1.07	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	102%		
Analysis Date/Time:	2-10-22/21:10		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2022-97

Analytical Method: TO-15
Analytical Batch: 021022AIR

Client Sample ID: 6492-616 OAK-IA-1-1B
EnvisionAir Sample Number: 22-542
Sample Matrix: AIR

Sample Collection START Date/Time: 2/3/22 8:12
Sample Collection END Date/Time: 2/3/22 16:18
Sample Received Date/Time: 2/7/22 16:00

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 19.8	19.8	
Tetrachloroethene	< 3.19	3.19	
trans-1,2-Dichloroethene	< 39.6	39.6	
Trichloroethene	< 1.07	1.07	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	102%		
Analysis Date/Time:	2-10-22/21:54		
Analyst Initials	tjg		

TO-15 Quality Control Data

EnvisionAir Batch Number: 021022AIR

<u>Method Blank (MB):</u>	<u>MB Results (ppbv)</u>	<u>Reporting Limit (ppbv)</u>	<u>Flags</u>
cis-1,2-Dichloroethene	< 5	5	
Tetrachloroethene	< 0.47	0.47	
trans-1,2-Dichloroethene	< 10	10	
Trichloroethene	< 0.2	0.2	
Vinyl Chloride	< 0.5	0.5	
4-bromofluorobenzene (surrogate)	96%		
Analysis Date/Time:	2-10-22/16:21		
Analyst Initials	tjg		

<u>LCS/LCSD</u>	<u>LCS Results (ppbv)</u>	<u>LCSD Results (ppbv)</u>	<u>LCS/D Conc(ppbv)</u>	<u>LCS Rec.</u>	<u>LCSD Rec.</u>	<u>RPD</u>	<u>Flag</u>
Vinyl Chloride	9.08	11.3	10	91%	113%	21.8%	1
trans-1,2-Dichloroethene	9.69	9.65	10	97%	97%	0.4%	
cis-1,2-Dichloroethene	10.4	10.4	10	104%	104%	0.0%	
Trichloroethene	10.7	9.2	10	107%	92%	15.1%	
Tetrachloroethene	9.96	9.02	10	100%	90%	9.9%	
4-bromofluorobenzene (surrogate)	101%	94%					
Analysis Date/Time:	2-10-22/14:55	2-10-22/15:44					
Analyst Initials	tjg	tjg					



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www.envision-air.com

Flag Number

1

Comments

RPD is biased high, but recoveries are within control. TJG 2/14/22

CHAIN OF CUSTODY RECORD

EnvisionAir | 1441 Sadlier Circle West Drive | Indianapolis, IN 46239 | Phone: (317) 351-0885 | Fax: (317) 351-0882

Client: ENVIO FORENSIS P.O. Number: 2022-0001 ~~0010~~ ~~0001~~ RS

Report: roverman@envioforensics.com Project Name or Number: 6492
 Address: envioforensics.com Budget Cleaners

Report To: Kob Hoberman Sampled by: R Brown
 Phone: 762-290-4001 QA/QC Required: (circle if applicable)
 Level III Level IV

Invoice Address: Occochee
envioforensics.com Reporting Units needed: (circle)
ug/m³ mg/m³ PPBV PPMV

Desired TAT: (Please Circle One)
 1 day 2 days 3 days Std (5 bus. days)
 Media type: 11C = 1 Liter Canister
61C = 6 Liter Canister
TB = Thermal Desorption Tube

REQUESTED PARAMETERS

TO-15 Full List
 TO-15 Short List (Specify in notes)

Sampling Type:
 Soil-Gas:
 Sub-Slab:
 Indoor-Air:



www.envision-air.com

Air Sample ID	Media Type (see code above)	Coll. Date (Grab/Camp Start)	Coll. Time (Grab/Camp Start)	Coll. Date (Comp. End)	Coll. Time (Comp. End)	Canister Serial #	Flow Controller Serial #	Initial Field (In. Hg)	Final Field (In. Hg)	Lab Received (In. Hg)	EnvisionAir Sample Number
6492-6160AK-1A-1-1A	61C	2-3-22	815	2-3-22	1615	15561	07352	-26	-8	-8	22-541
6492-6160AK-1A-1-1B	61C	2-3-22	812	2-3-22	1618	11691	07439	-28	-10	-10	22-542
6492-6160AK-1A-1-1C	61C	2-3-22	810	2-3-22	1611	4688	05254	-26	-4	RS	

Comments:

Short list: PCE, TCE, DCE, FDCE, VC

Relinquished by:	Date	Time	Received by:	Date	Time
<u>RS</u>	<u>2-4-22</u>	<u>1600</u>	<u>SEDEX</u>	<u>2-4-22</u>	<u>1600</u>
			<u>Y. DAWDTON</u>	<u>2-7-22</u>	<u>1600</u>



March 2, 2022

Denise Dreszman
Sage-Louise Holdings, LLC
618 Oak Street
Baraboo, WI 53913

**Subject: Vapor Intrusion Sampling Results – 614 Oak Street, Baraboo, Wisconsin
BRRTS: 02-57-548538**

Dear Ms. Dreszman:

In accordance with your request, EnviroForensics, LLC is providing the results of environmental samples collected from your property located at 618 Oak Street in Baraboo, Wisconsin. The samples were collected on February 3, 2022. The sampling activities are part of an environmental investigation being performed for the Badger Cleaners facility located at 616 Oak Street in Baraboo at the direction of the WDNR pursuant to the authority granted to it under State and Federal law. The chemicals of concern for the investigation are the dry cleaning solvent tetrachloroethene (PCE) and its associated breakdown products.

The Responsible Party is:

Badger Cleaners
616 Oak Street
Baraboo, WI

Sampling Results

Indoor Air:

Two indoor air samples 6492-618 Oak St.-IA-B and 6492-618 Oak St.-IA-1 were collected from within the basement and first floor, respectively. 6492-618 Oak St.-IA-B and 6492-618 Oak St.-IA-1 did not contain any chemicals of concern above laboratory detection limits.

Sub-Slab Vapor:

One (1) sub-slab vapor sample designated 6492-618 Oak St.-SSV-1 was collected from beneath the basement floor of your building. The sub-slab vapor sample did not contain any chemicals of concern above the laboratory detection limits.

The sampling locations are depicted on the attached **Figure 1**. The results of the vapor samples are summarized and compared to WDNR standards on the attached **Table 1**. A copy of the laboratory report that relates to the vapor samples is also attached.

If you have any questions or concerns, please contact us at 262-510-0612 or by email at rhoverman@enviroforensics.com. The WDNR project manager, Trevor Bannister, can be reached at 608-275-3490. We greatly appreciate your help and patience with this matter.

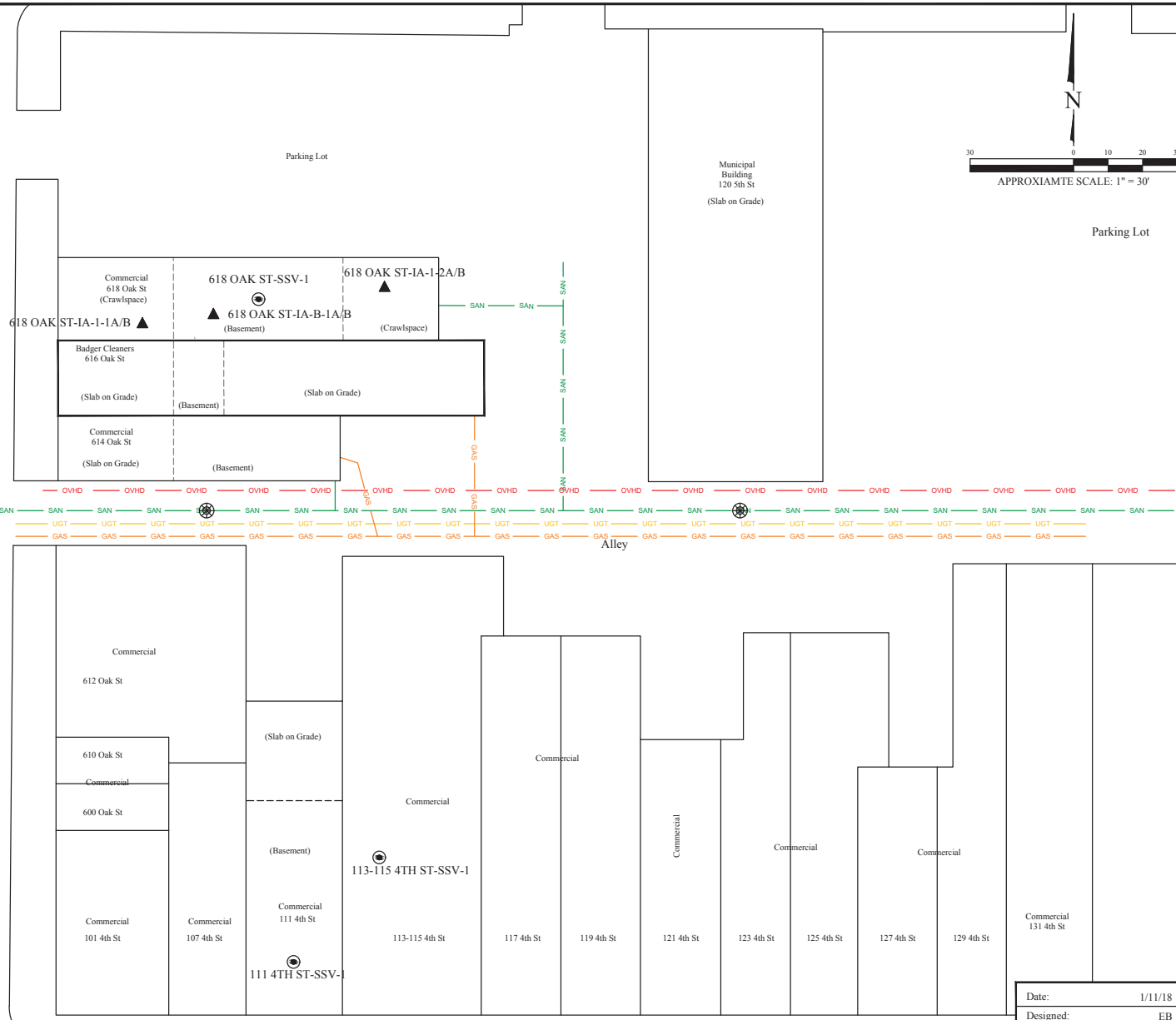
Sincerely,
EnviroForensics, LLC

A handwritten signature in blue ink, appearing to read "Rob Hoverman".

Rob Hoverman, LPG
Senior Project Manager

Attachments: Figure 1 – Vapor Intrusion Sampling Locations
Table 1 – Vapor Intrusion Assessment Results Summary
Laboratory Analytical Report

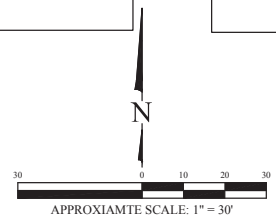
Copy: Trevor Bannister, Wisconsin Department of Natural Resources



Legend

- GAS — Underground gas utility line
- SAN — Underground sanitary utility line
- UGT — Fiber optics line
- OVHD — Over head electrical utility line

- SSV-1 Sub-slab sample location
- IA-1 Indoor air sample



VAPOR INTRUSION ASSESSMENT MAP	
Badger Cleaners 616 Oak Street Baraboo, Wisconsin	
	Figure 1
825 North Capital Avenue • Indianapolis, IN 46204 EnviroForensics.com	Project 6492

Date:	1/11/18
Designed:	EB
Drawn:	EB
Checked:	RH
DWG file:	6492-0512

TABLE 1
VAPOR INTRUSION ANALYTICAL RESULTS SUMMARY - 618 OAK STREET
 Badger Cleaners
 616 Oak Street, Baraboo, WI 53913

Sample Identification	Date Sampled	Mitigation	Tetrachloroethene	Trichloroethene	Chloroform	Ethylbenzene	Xylenes (Total)
INDOOR/ OUTDOOR AIR							
Small Commercial Vapor Action Level			180	8.8	20	49	440
6492-618 Oak ST-IA-B	08/21/17	No	378	<1.07	<0.83	<8.68	<86.8
	11/13/17	Yes	11,100	<1.07	<0.83	71.3	1,251
	06/19/18		549	<1.07	<0.83	<8.68	<86.8
	11/11/21	Yes*	4.00	<1.07	NA	NA	NA
	02/03/22	Yes*	<3.19	<1.07	NA	NA	NA
6492-618 Oak ST-IA-1	08/21/17	No	298	<1.07	<0.83	<8.68	<86.8
	11/13/17	Yes	7,620	<1.07	1.03	<8.68	49.4
	06/19/18		940	<1.07	<0.83	<8.68	<86.8
	11/11/21	Yes*	5.36	<1.07	NA	NA	NA
	02/03/22	Yes*	<3.19	<1.07	NA	NA	NA
6492-OA-1	08/21/17	Not Applicable	8.75	<1.07	<0.83	<8.68	<86.8
	11/13/17		<3.19	<1.07	<0.83	<8.68	<86.8
	06/19/18		<3.19	<1.07	<0.83	<8.68	<86.8
	11/11/21		<3.19	<1.07	NA	NA	NA
SUB-SLAB VAPOR							
Small Commercial Vapor Risk Screening Level			5,800	290	670	1,600	15,000
6492-618 Oak ST-SSV-1	08/21/17	No	27,400	<10.7	<8.30	<86.8	<868
	11/11/21	Yes	282	<10.7	NA	NA	NA
	02/03/22	Yes*	<31.9	<10.7	NA	NA	NA
STACK VAPOR							
6492-618 Oak St-Stack-1	12/22/2017	Yes	8,630	<10.7	<10.7	<8.30	<868
	12/22/2017	Yes	1,250	24.2	24.2	<8.30	<868
6492-618 Oak St-Stack-2	12/19/2017	Yes	46,900	<10.7	<10.7	<8.30	<868
	6/19/2018	Yes	24,100	39.2	39.2	<8.30	<868

* Vapor mitigation turned off in October 2021, mitigation managed by active SVE system.

Notes:

Results reported in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)
 Samples analyzed according to EPA Method TO-15
 The Vapor Risk Screening/Action Levels are calculated in accordance with WDNR
 Publication RR-800 and subsequent guidance documents.
 IA = Indoor Air
 OA = Outdoor Air
 SSV= Sub-slab vapor
 NA= Not Analyzed
Bolded values are above detection limits

Bolded and Orange shaded concentration exceed the applicable non-residential screening level



EnvisionAir
1441 Sadler Circle West Drive
Indianapolis, IN 46239
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www.envision-air.com

Mr. Rob Hoverman
Enviroforensics
N16 W. 23390 Stone Ridge Dr
Suite G
Waukesha, WI 53188

February 17, 2022

EnvisionAir Project Number: 2022-96
Client Project Name: 6492 – Badger Cleaners

Dear Mr. Hoverman,

Please find the attached analytical report for the samples received February 7, 2022. All test methods performed were fully compliant with local, state, and federal EPA methods unless otherwise noted. The project was analyzed as requested on the enclosed chain of custody record. Please review the comments section for additional information about your results or Quality Control data.

Feel free to contact me if you have any questions or comments regarding your analytical report or service.

Thank you for your business. EnvisionAir looks forward to working with you on your next project.

Yours Sincerely,

A handwritten signature in black ink that reads "David Norris".

David Norris
Project Manager
EnvisionAir, LLC



EnvisionAir
 1441 Sadlier Circle West Drive
 Indianapolis, IN 46239
 Ph: 317-351-0885
 Fax: 317-351-0882
 www.envision-air.com

Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2022-96

Sample Summary

Canister Pressure / Vacuum

<u>Laboratory Sample Number:</u>	<u>Sample Description:</u>	<u>Matrix:</u>	<u>START</u>	<u>START</u>	<u>End Date</u>	<u>End Time</u>	<u>Date</u>	<u>Time</u>	<u>Canister Pressure / Vacuum</u>		<u>Lab</u>
			<u>Date</u>	<u>Time</u>					<u>Initial Field</u>	<u>Final Field</u>	
			<u>Collected:</u>	<u>Collected:</u>	<u>Collected:</u>	<u>Collected:</u>	<u>Received:</u>	<u>Received</u>	<u>(in. Hg)</u>	<u>(in. Hg)</u>	<u>(in. Hg)</u>
22-538	6492-618 OAK-IA-1	A	2/3/22	8:26	2/3/22	16:20	2/7/22	16:00	-28	-17	-17
22-539	6492-618 OAK-IA-B	A	2/3/22	8:28	2/3/22	16:28	2/7/22	16:00	-26	-5	-5
22-540	6492-618 OAK-SSV-1	A	2/3/22	15:50	2/3/22	15:54	2/7/22	16:00	-28	-4	-4



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www.envision-air.com

Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2022-96

Analytical Method: TO-15
Analytical Batch: 021022AIR

Client Sample ID: 6492-618 OAK-IA-1
EnvisionAir Sample Number: 22-538
Sample Matrix: AIR

Sample Collection START Date/Time: 2/3/22 8:26
Sample Collection END Date/Time: 2/3/22 16:20
Sample Received Date/Time: 2/7/22 16:00

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 19.8	19.8	
Tetrachloroethene	< 3.19	3.19	
trans-1,2-Dichloroethene	< 39.6	39.6	
Trichloroethene	< 1.07	1.07	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	106%		
Analysis Date/Time:	2-10-22/19:07		
Analyst Initials	tjg		



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 Fax: 317-351-0882
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Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2022-96

Analytical Method: TO-15
Analytical Batch: 021022AIR

Client Sample ID: 6492-618 OAK-IA-B
EnvisionAir Sample Number: 22-539
Sample Matrix: AIR

Sample Collection START Date/Time: 2/3/22 8:28
Sample Collection END Date/Time: 2/3/22 16:28
Sample Received Date/Time: 2/7/22 16:00

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 19.8	19.8	
Tetrachloroethene	< 3.19	3.19	
trans-1,2-Dichloroethene	< 39.6	39.6	
Trichloroethene	< 1.07	1.07	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	105%		
Analysis Date/Time:	2-10-22/20:25		
Analyst Initials	tjg		



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Client Name: ENVIROFORENSICS
Project ID: 6492 BADGER CLEANERS
Client Project Manager: ROB HOVERMAN
EnvisionAir Project Number: 2022-96

Analytical Method: TO-15
Analytical Batch: 021022AIR

Client Sample ID: 6492-618 OAK-SSV-1
EnvisionAir Sample Number: 22-540
Sample Matrix: AIR

Sample Collection START Date/Time: 2/3/22 15:50
Sample Collection END Date/Time: 2/3/22 15:54
Sample Received Date/Time: 2/7/22 16:00

<u>Compounds</u>	<u>Sample Results ug/m³</u>	<u>Reporting Limit ug/m³</u>	<u>Flag</u>
cis-1,2-Dichloroethene	< 198	198	
Tetrachloroethene	< 31.9	31.9	
trans-1,2-Dichloroethene	< 396	396	
Trichloroethene	< 10.7	10.7	
Vinyl Chloride	< 12.8	12.8	
4-bromofluorobenzene (surrogate)	95%		
Analysis Date/Time:	2-11-22/02:17		
Analyst Initials	tjg		

TO-15 Quality Control Data

EnvisionAir Batch Number: 021022AIR

<u>Method Blank (MB):</u>	<u>MB Results (ppbv)</u>	<u>Reporting Limit (ppbv)</u>	<u>Flags</u>
cis-1,2-Dichloroethene	< 5	5	
Tetrachloroethene	< 0.47	0.47	
trans-1,2-Dichloroethene	< 10	10	
Trichloroethene	< 0.2	0.2	
Vinyl Chloride	< 0.5	0.5	
4-bromofluorobenzene (surrogate)	96%		
Analysis Date/Time:	2-10-22/16:21		
Analyst Initials	tjg		

<u>LCS/LCSD</u>	<u>LCS Results (ppbv)</u>	<u>LCSD Results (ppbv)</u>	<u>LCS/D Conc(ppbv)</u>	<u>LCS Rec.</u>	<u>LCSD Rec.</u>	<u>RPD</u>	<u>Flag</u>
Vinyl Chloride	9.08	11.3	10	91%	113%	21.8%	1
trans-1,2-Dichloroethene	9.69	9.65	10	97%	97%	0.4%	
cis-1,2-Dichloroethene	10.4	10.4	10	104%	104%	0.0%	
Trichloroethene	10.7	9.2	10	107%	92%	15.1%	
Tetrachloroethene	9.96	9.02	10	100%	90%	9.9%	
4-bromofluorobenzene (surrogate)	101%	94%					
Analysis Date/Time:	2-10-22/14:55	2-10-22/15:44					
Analyst Initials	tjg	tjg					



EnvisionAir
1441 Sadler Circle West Drive
Indianapolis, IN 46239
Ph: 317-351-0885
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www.envision-air.com

Flag Number

1

Comments

RPD is biased high, but recoveries are within control. TJG 2/14/22

CHAIN OF CUSTODY RECORD

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REQUESTED PARAMETERS



Sampling Type:
 Soil-Gas:
 Sub-Slab:
 Indoor-Air:

www.envision-air.com
 Canister Pressure / Vacuum

TO-15 Full List
 TO-15 Short List (Specify in notes)

Air Sample ID	Media Type <small>(see code above)</small>	Coll. Date <small>(Grab/Comp Start)</small>	Coll. Time <small>(Grab/Comp Start)</small>	Coll. Date <small>(Comp. End)</small>	Coll. Time <small>(Comp. End)</small>	Canister Serial #	Flow Controller Serial #	Initial Field (in. Hg)	Final Field (in. Hg)	Lab Received (in. Hg)	EnvisionAir Sample Number
6492-618 OAK-1A-1	6LC	2-3-22	826	2-3-22	1630	1413	07621	-28	-17	47	22538
6492-618 OAK-1A-B	6LC	↓	828	↓	1628	11079	07449	-26	-5	-5	22539
6492-618 OAK-SSV-1	1LC	↓	1530	↓	1554	2093	0056	-28	-4	-4	22540

Comments:

Short List: TCE, PCE, DCE, TBCE, VC

Relinquished by:	Date	Time	Received by:	Date	Time
<i>[Signature]</i>	2-4-22	1600	Feeler	2-4-22	1600
<i>[Signature]</i>			K. Davidson	2-7-22	16:00