September 8, 2023

Harry Ardono
120 N Locust Street
Reedsburg, WI 53959

SUBJECT: Vapor Sampling Results - Contaminants Not Detected
PROPERTY: Reedsburg Cleaners, 120 N. Locust Street (PSI A); BRRTS # 02-57-001682

Dear Harry Ardono,

Included are the findings of a recent investigation on your property conducted by Bay West, LLC (Bay West) an environmental consultant hired by the Wisconsin Department of Natural Resources (WDNR).

Background:
As you are aware, this investigation was conducted because of the potential for contaminant vapors from the nearby Reedsburg Cleaners property identified above to migrate through soil, accumulate beneath the foundation of your home, and possibly enter your indoor air. The contaminant of concern at the Reedsburg Cleaners property is tetrachloroethylene (PCE) and trichloroethylene (TCE). The history of this site and the potential concerns to neighboring residents were described in detail in the original letter sent to your home.

Sampling:
On July 18, 2023, Bay West deployed passive air sampling devices at each floor of your residence and installed one passive vapor sampler below the concrete floor of your basement for the collection of indoor air and sub-slab soil vapor samples. On August 1, 2023, the sample devices were retrieved then submitted to Beacon Environmental, where it underwent laboratory analysis for five contaminants, including PCE, TCE, cis-1,2-dichloroethene (DCE), trans-1,2-dichloroethene (DCE) and vinyl chloride (VC).

Your Test Results:
Attached are copies of the laboratory report for your passive vapor sub-slab and indoor air samples. The results of this 1st round of sampling shows that contaminants of concern were not detected. There does not appear to be a risk of PCE and TCE vapor entering your home at this time. In order to confirm the results, we will contact you to schedule another sampling visit in the near future.

We appreciate the opportunity to assist you with this vapor investigation effort. Please feel free to contact us if you have any questions about these results.

Sincerely,

Tarek Aboueid
Environmental Scientist
651.724.9757
taboueid@baywest.com

Jason Kunze
Senior Project Manager
651.291.3438
Jkunze@baywest.com

Copy: Rob Hoverman, PG, WDNR, 414.497.0896, Robert.Hoverman@wisconsin.gov
Jeff Ackerman, WDNR PM, 608.275.3323, jeff.ackerman@wisconsin.gov
Jeramiah Yee, Wisconsin Dept of Health Services, 608-266-1865, dhsdphoperations@dhs.wisconsin.gov

Attachments:

TABLE
Table – Tabulated vapor analytical results with the sample dates, sample type (sub-slab or indoor air), and location.

FIGURES
Figure 1 – Property Location Map
Figure 2 – Building Map showing sampling locations.

APPENDIX
Appendix A – Access Agreement
Appendix B – Laboratory Analytical Results with Chain of Custody
Appendix C – Vapor Sampling Field Checklist and Photolog
Appendix D – Understanding Chemical Vapor Testing Results (DNR PUB-RR-977)

TABLE

Table 1A
Indoor Air Sub-Slab Analytical Results

157001460 – Reedsburg Cleaners
120 N. Locust Street, Reedsburg, WI
Property Sample Identifier (PSI) - A

Location		VAL Residential	VRSL Residential	120 N Locust Street			
Sample ID				08A_IA1_02_20230801	08A_IA2_03_20230801	08A_IAB_01_20230801	08A_SSV_01_20230801
Date Sampled				7/18 to 8/1/2023	7/18 to 8/1/2023	7/18 to 8/1/2023	7/18 to 8/1/2023
Volatile Organic Compounds (method EPA TO-17)							
cis-1,2-Dichloroethene	156-59-2	42	1400	< 0.929	< 0.929	< 0.928	< 0.935
tetrachloroethene (PCE)	127-18-4	42	1400	< 1.20	< 1.20	< 1.20	< 1.21
trans-1,2-Dichloroethene	156-60-5	42	1400	< 1.12	< 1.12	< 1.12	< 1.13
trichloroethene (TCE)	79-01-6	2.1	70	< 1.49	< 1.49	< 1.49	< 1.50
vinyl chloride	75-01-4	1.7	56	< 0.608	< 0.608	< 0.607	< 0.612

Notes:

All results are in micrograms per cubic meter ($\mu g/m^3$)
USEPA VISL – United States Environmental Protection Agency Vapor Intrusion Screening Level
WIDNR – Wisconsin Department of Natural Resources
VAL – WIDNR Vapor Action Level, calculated using USEPA VISLs published May 2023
VRSL – WIDNR Vapor Risk Screening Level, calculated using USEPA VISLs published May 2023
— – No USEPA VISL established
< – Less than the laboratory Reporting Limit (RL)
Bold – Analyte detected
Grey – Result exceeds the Residential VAL
Orange – Result exceeds the Residential VRSL

FIGURES

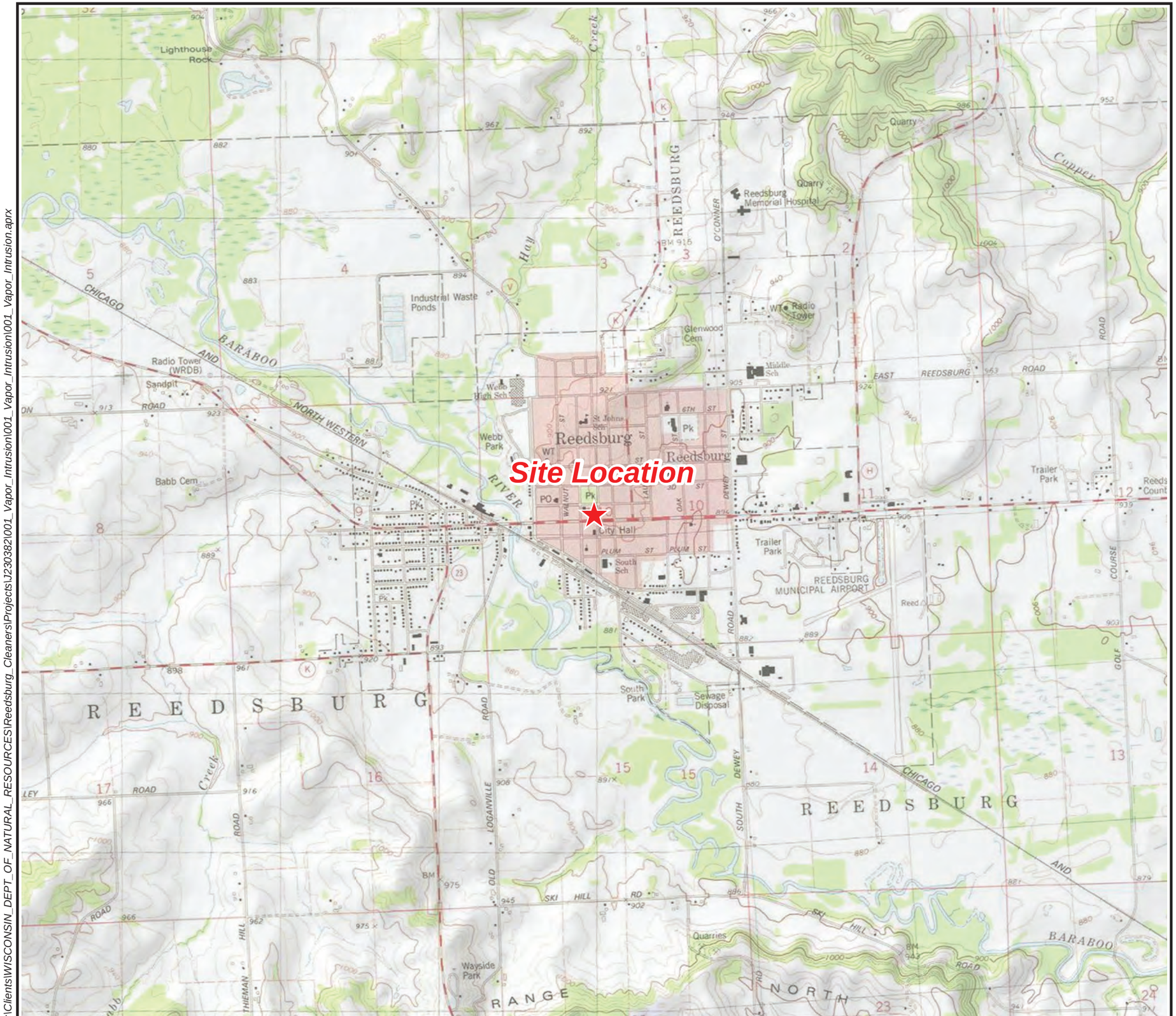

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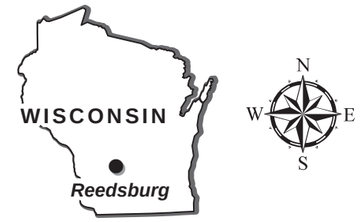
Figure 1

Site Location Map

Reedsburg Cleaners
WDNR ERP Case #: 02-57-001682
WDNR PS Act. ID: VIZC_REEDSBURG

Reedsburg, WI 53959



Map Projection: NAD 1983 UTM Zone 15 N, Meters
Basemap: ESRI USA Topo Maps WMS

0 2,000 4,000 Feet
0 600 1,200 Meters

1:24,000

★ Site Location

Bay West
Customer-Focused Environmental & Industrial Solutions

Drawn By: N.J. Date Drawn/Revised:8/28/2023 Project No.J230382

Figure 2

Site Map

Reedsburg Cleaners
WDNR ERP Case #: 02-57-001682
WDNR PS Act. ID: VIZC_REEDSBURG

Reedsburg, WI 53959

Map Projection: NAD 1983 UTM Zone 15N, Meters
Basemap: WI DNR Aerial Imagery WMS, 10/14/2022

0 100 200 Feet
0 20 40 60 Meters

Manhole
SS Sanitary Sewers
120 N Locust St (PSI A)
125 N Locust St (PSI B)
335 E Main St (PSI C)
ROW (PSI R)
349 E Main St (Source)
Parcel Boundaries

Bay West
Customer-Focused Environmental & Industrial Solutions

Drawn By: N.J. Date Drawn/Revised:8/28/2023 Project No.J230382

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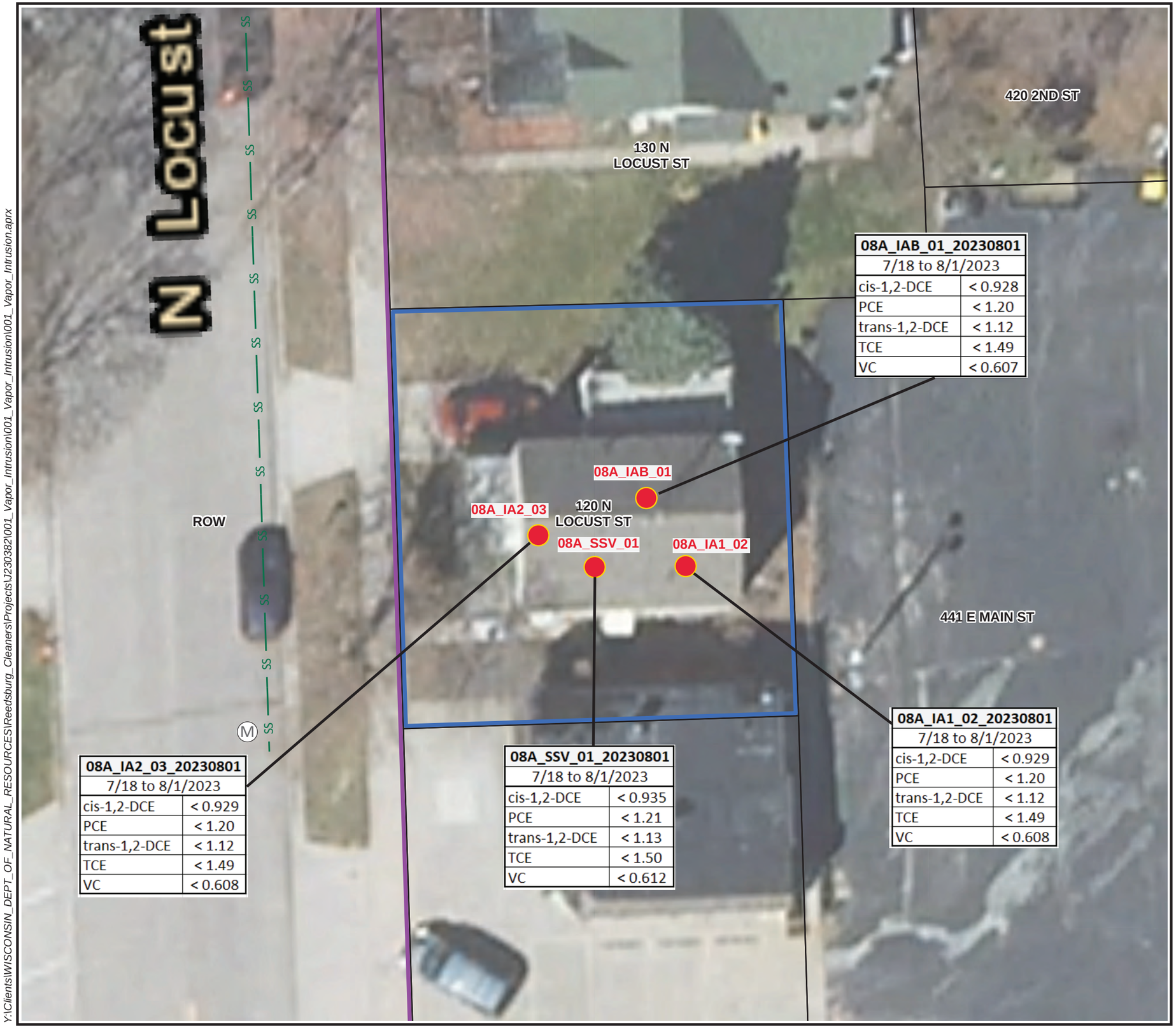

Y:\Clients\WISCONSIN_DEPT_OF_NATURAL_RESOURCES\Reedsburg_Cleaners\Projects\J230382\001_Vapor_Intrusion\001_Vapor_Intrusion.aprx

Figure 2A

Site Map

Reedsburg Cleaners
WDNR ERP Case #: 02-57-001682
WDNR PS Act. ID: VIZC_REEDSBURG

120 N Locust Street
Reedsburg, WI 53959

Map Projection: NAD 1983 UTM Zone 15N, Meters
Basemap: WI DNR Aerial Imagery WMS, 10/14/2022

0 10 20 30 40 Feet
0 5 10 Meters

Manhole
SS Sanitary Sewer
120 N Locust St (PSI A)
ROW (PSI R)
Parcel Boundaries

Features

Passive Vapor Sample Location

Notes:
All results are in micrograms per cubic meter ($\mu g/m^3$)
< – Less than the laboratory Reporting Limit (RL)
Bold – Analyte detected
Grey – Result exceeds the Residential VAL
Orange – Result exceeds the Residential VRSL

Bay West
Customer-Focused Environmental & Industrial Solutions

Drawn By: N.J. Date Drawn/Revised:8/28/2023 Project No.J230382

APPENDIX A

Wisconsin Department of Natural Resources
ACCESS PERMISSION AGREEMENT

WISCONSIN DNR
MILWAUKEE SERVICE CENTER
RECEIVED
MAY 08 REC'D

I, Lee Gnatzig (Print Name) hereby give permission to the Wisconsin Department of Natural Resources (DNR) and its employees, duly authorized representatives, agents and contractors, to enter upon and have access at reasonable times to the home/business located at

(ADDRESS) 120 N Locust

and that is owned by Lee 'Roxanne Gnatzig (Print as Listed on Title / County GIS).

The property is located in the SE 1/4 of the NW 1/4 of Sec 10, T12N, R04E , Sauk County, Wisconsin. The access permission is for the following purposes: The DNR may perform an investigation of the home/business for vapor migration from trichloroethylene (TCE) and tetrachloroethylene (PCE) located in groundwater, associated with the Reedsburg Cleaners Site, BRRTS #02-57-001682 located near your property. This permission allows the DNR or its authorized representative to:

(1) *Install and maintain sub-slab vapor probe(s) into the foundation of the home or business.*
(2) *Collect at least three (3) separate vapor samples from the sub-slab probe(s) at different times of the year.*
(3) *Collect indoor air samples on each level of the home or business and within the sealed sump headspace, if applicable.*
(4) *Collect water sample(s) from the sump, if applicable.*
(5) *Abandon the vapor probe(s) when no longer needed.*

The permission that is granted shall remain in effect for one year from the signature date when the vapor investigation work is expected to be complete. If an extension is necessary to complete the work, DNR will inform you in writing.

The property owner agrees not to damage or interfere with the use of any sub-slab probe installed as permitted herein.

IN WITNESS WHEREOF:

Lee Gnatzig
Signature of Property Owner Representative

5-3-23
Signature Date

Lee Gnatzig
Print Name, Title

LeeGNATZIG@Gmail.com
Email address

Box 101 Reedsburg, WI 53959
Mailing Address of Owner

6089635266
Area Code and Telephone Number

TENANT(S) / LESSEE(S) by UNIT NUMBER, ETC.

Hana Arono
Name of Tenant(s)/Lessee(s)

608 415 2046
Tenant(s) phone number

Tenant(s) email address

Mail or email correspondence regarding this site to:

Department of Natural Resources
ATTN: Rob Hoverman
1027 West St. Paul Avenue
Milwaukee, WI 53233-2641

Robert.Hoverman@wisconsin.gov
Phone: 414.497.0896

APPENDIX B

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

CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 230427H01

Laboratory Work Order: 0007114

Project Description:
0257001682
Reedsburg, WI

Prepared for:
Jason Kunze
Bay West LLC
5 Empire Drive
St. Paul, MN 55103

Ryan W. Schneider
Senior Project Manager

August 14, 2023

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

Steven C. Thornley
Laboratory Director

Peter B. Kelly
Quality Manager

Table of Contents

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

CERTIFICATE OF ANALYSIS

Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0007114-01	08A_SSV_01_20230801	08/03/2023	TO-17 (Passive)	Soil Gas
Sampler Type:	Beacon Passive Sampler			

Project Completeness

Samples Received: 1
Samples Analyzed: 1

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Case Narrative

U.S. EPA Method TO-17

All samples were analyzed using thermal desorption-gas chromatography/mass spectrometry (TD-GC/MS) instrumentation following U.S. EPA Method TO-17, with laboratory results provided in nanograms (ng) and micrograms per cubic meter (µg/m³). Laboratory QA/QC procedures included internal standards, surrogates, and blanks based on EPA Method TO-17. 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.

Discussion

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

End of Case Narrative

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Analytical Results

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St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Detailed Analytical Results

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Detailed Analytical Results- Mass

BEACON ENVIRONMENTAL

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CERTIFICATE OF ANALYSIS

Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Lab Sample ID: 0007114-01

08A_SSV_01_20230801

Soil Gas

Method: TO-17 (Passive)

Analyte	CAS#	Result (ng)	Q	LOQ (ng)	Analyzed	File ID
Vinyl Chloride	75-01-4	<10.0		10.0	08/07/2023 16:41	Ka23080709.D
trans-1,2-Dichloroethene	156-60-5	<10.0		10.0	08/07/2023 16:41	Ka23080709.D
cis-1,2-Dichloroethene	156-59-2	<10.0		10.0	08/07/2023 16:41	Ka23080709.D
Trichloroethene	79-01-6	<10.0		10.0	08/07/2023 16:41	Ka23080709.D
Tetrachloroethene	127-18-4	<10.0		10.0	08/07/2023 16:41	Ka23080709.D

Analyte	*CAS#*	*% Recovery*	*Recovery Limits*	*Q*	*Analyzed*	*File ID*
Surrogate: 1,2-DCA-d4	17060-07-0	*96.3%*	*70-130*		*08/07/2023 16:41*	*Ka23080709.D*
Surrogate: Toluene-d8	2037-26-5	*96.2%*	*70-130*		*08/07/2023 16:41*	*Ka23080709.D*
Surrogate: Bromofluorobenzene	460-00-4	*90.4%*	*70-130*		*08/07/2023 16:41*	*Ka23080709.D*

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Detailed Analytical Results- Concentration

BEACON ENVIRONMENTAL

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CERTIFICATE OF ANALYSIS

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5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Lab Sample ID: 0007114-01

08A_SSV_01_20230801

Soil Gas

Method: TO-17 (Passive)

Analyte	CAS#	Result (µg/m³)	Q	LOQ (µg/m³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.612		0.612	08/07/2023 16:41	Ka23080709.D
trans-1,2-Dichloroethene	156-60-5	<1.13		1.13	08/07/2023 16:41	Ka23080709.D
cis-1,2-Dichloroethene	156-59-2	<0.935		0.935	08/07/2023 16:41	Ka23080709.D
Trichloroethene	79-01-6	<1.50		1.50	08/07/2023 16:41	Ka23080709.D
Tetrachloroethene	127-18-4	<1.21		1.21	08/07/2023 16:41	Ka23080709.D

Analyte	*CAS#*	*% Recovery*	*Recovery Limits*	*Q*	*Analyzed*	*File ID*
Surrogate: 1,2-DCA-d4	17060-07-0	*96.3%*	*70-130*		*08/07/2023 16:41*	*Ka23080709.D*
Surrogate: Toluene-d8	2037-26-5	*96.2%*	*70-130*		*08/07/2023 16:41*	*Ka23080709.D*
Surrogate: Bromofluorobenzene	460-00-4	*90.4%*	*70-130*		*08/07/2023 16:41*	*Ka23080709.D*

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

QC Information/Summary

2203A Commerce Road, Suite 1
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5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23G105 - Instrument: K System - File ID: Ka23072721.D

B23G105-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	51.5	10	ng	50.0		103	70-130			
trans-1,2-Dichloroethene	50.4	10	ng	50.0		101	70-130			
cis-1,2-Dichloroethene	49.4	10	ng	50.0		98.8	70-130			
Trichloroethene	49.4	10	ng	50.0		98.8	70-130			
Tetrachloroethene	48.2	10	ng	50.0		96.4	70-130			
Surrogate: 1,2-DCA-d4	*49.2*		*ng*	50.0		*98.3*	*70-130*			
Surrogate: Toluene-d8	*50.4*		*ng*	50.0		*101*	*70-130*			
Surrogate: Bromofluorobenzene	*45.4*		*ng*	50.0		*90.8*	*70-130*			

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23G105 - Instrument: K System - File ID: Ka23072724.D

B23G105-ICB1 (Lab Blank/Initial Calibration Blank)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<5	10	ng							U
trans-1,2-Dichloroethene	<5	10	ng							U
cis-1,2-Dichloroethene	<5	10	ng							U
Trichloroethene	<5	10	ng							U
Tetrachloroethene	<5	10	ng							U
Surrogate: 1,2-DCA-d4	*100*		*ng*	100		*100*	*70-130*			
Surrogate: Toluene-d8	*103*		*ng*	100		*103*	*70-130*			
Surrogate: Bromofluorobenzene	*88.2*		*ng*	100		*88.2*	*70-130*			

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Forest Hill, MD 21050 USA
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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23H016 - Batch: 23H0012 - Instrument: K System - File ID: Ka23080702.D

23H0012-BS1 (LCS, Calibration Source Verification)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	39.0	10	ng	50.0		77.9	70-130			
trans-1,2-Dichloroethene	46.8	10	ng	50.0		93.7	70-130			
cis-1,2-Dichloroethene	46.7	10	ng	50.0		93.5	70-130			
Trichloroethene	46.1	10	ng	50.0		92.2	70-130			
Tetrachloroethene	46.6	10	ng	50.0		93.3	70-130			
Surrogate: 1,2-DCA-d4	*49.5*		*ng*	50.0		*98.9*	*70-130*			
Surrogate: Toluene-d8	*50.3*		*ng*	50.0		*101*	*70-130*			
Surrogate: Bromofluorobenzene	*44.9*		*ng*	50.0		*89.8*	*70-130*			

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Forest Hill, MD 21050 USA
1.410.838.8780

Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23H016 - Instrument: K System - File ID: Ka23080704.D

B23H016-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	43.9	10	ng	50.0		87.8	70-130			
trans-1,2-Dichloroethene	49.8	10	ng	50.0		99.6	70-130			
cis-1,2-Dichloroethene	48.9	10	ng	50.0		97.9	70-130			
Trichloroethene	47.8	10	ng	50.0		95.5	70-130			
Tetrachloroethene	48.4	10	ng	50.0		96.9	70-130			
Surrogate: 1,2-DCA-d4	*50.2*		*ng*	50.0		*100*	*70-130*			
Surrogate: Toluene-d8	*50.7*		*ng*	50.0		*101*	*70-130*			
Surrogate: Bromofluorobenzene	*43.8*		*ng*	50.0		*87.5*	*70-130*			

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Forest Hill, MD 21050 USA
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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23H016 - Batch: 23H0012 - Instrument: K System - File ID: Ka23080705.D

23H0012-BLK1 (Lab Blank)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<0.612	0.612	µg/m³							U
trans-1,2-Dichloroethene	<1.13	1.13	µg/m³							U
cis-1,2-Dichloroethene	<0.935	0.935	µg/m³							U
Trichloroethene	<1.50	1.50	µg/m³							U
Tetrachloroethene	<1.21	1.21	µg/m³							U
Surrogate: 1,2-DCA-d4	*101*		*ng*	100		*101*	*70-130*			
Surrogate: Toluene-d8	*106*		*ng*	100		*106*	*70-130*			
Surrogate: Bromofluorobenzene	*85.2*		*ng*	100		*85.2*	*70-130*			

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23H016 - Batch: 23H0012 - Instrument: K System - File ID: Ka23080705.D

23H0012-BLK1 (Lab Blank)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<5.0	10	ng							U
trans-1,2-Dichloroethene	<5.0	10	ng							U
cis-1,2-Dichloroethene	<5.0	10	ng							U
Trichloroethene	<5.0	10	ng							U
Tetrachloroethene	<5.0	10	ng							U
Surrogate: 1,2-DCA-d4	*101*		*ng*	100		*101*	*70-130*			
Surrogate: Toluene-d8	*106*		*ng*	100		*106*	*70-130*			
Surrogate: Bromofluorobenzene	*85.2*		*ng*	100		*85.2*	*70-130*			

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23H016 - Instrument: K System - File ID: Ka23080714.D

B23H016-CCV1 (LCS, Closing Calibration Verification)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	36.3	10	ng	50.0		72.6	70-130			
trans-1,2-Dichloroethene	49.6	10	ng	50.0		99.1	70-130			
cis-1,2-Dichloroethene	47.9	10	ng	50.0		95.8	70-130			
Trichloroethene	46.7	10	ng	50.0		93.3	70-130			
Tetrachloroethene	45.1	10	ng	50.0		90.2	70-130			
Surrogate: 1,2-DCA-d4	*51.2*		*ng*	50.0		*102*	*70-130*			
Surrogate: Toluene-d8	*50.5*		*ng*	50.0		*101*	*70-130*			
Surrogate: Bromofluorobenzene	*44.9*		*ng*	50.0		*89.7*	*70-130*			

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23H016 - Instrument: K System - File ID: Ka23080715.D

B23H016-CCB1 (Lab Blank)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<5	10	ng							U
trans-1,2-Dichloroethene	<5	10	ng							U
cis-1,2-Dichloroethene	<5	10	ng							U
Trichloroethene	<5	10	ng							U
Tetrachloroethene	<5	10	ng							U
Surrogate: 1,2-DCA-d4	*104*		*ng*	100		*104*	*70-130*			
Surrogate: Toluene-d8	*104*		*ng*	100		*104*	*70-130*			
Surrogate: Bromofluorobenzene	*86.3*		*ng*	100		*86.3*	*70-130*			

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23H016 - Instrument: K System - File ID: Ka23080724.D

B23H016-CCB2 (Lab Blank)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<5	10	ng							U
trans-1,2-Dichloroethene	<5	10	ng							U
cis-1,2-Dichloroethene	<5	10	ng							U
Trichloroethene	<5	10	ng							U
Tetrachloroethene	<5	10	ng							U
Surrogate: 1,2-DCA-d4	*107*		*ng*	100		*107*	*70-130*			
Surrogate: Toluene-d8	*103*		*ng*	100		*103*	*70-130*			
Surrogate: Bromofluorobenzene	*88.2*		*ng*	100		*88.2*	*70-130*			

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

LCS: 23H0012-BS1 File ID: Ka23080702.D Analyzed: 8/7/23 12:49

LCSD: B23H016-ICV1 File ID: Ka23080704.D Analyzed: 8/7/23 11:59

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	38.97	77.94		50	43.92	87.80	70-130	11.94	30	
trans-1,2-Dichloroethene	156-60-5	46.84	93.68		50	49.8	99.60	70-130	6.13	30	
cis-1,2-Dichloroethene	156-59-2	46.73	93.46		50	48.93	97.90	70-130	4.60	30	
Trichloroethene	79-01-6	46.11	92.22		50	47.76	95.50	70-130	3.52	30	
Tetrachloroethene	127-18-4	46.63	93.26		50	48.44	96.90	70-130	3.81	30	

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Additional QC Information

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Sample Result Calculation Summary (Concentration)

TO-17 (Passive)

Analyte	t Sampling Time minutes	DF Dilution Factor	Uc Uptake Rate	M Initial Result ng	C Calculated Result µg/m³	File ID
Lab ID: 0007114-01 **Sample Name:** 08A_SSV_01_20230801						
Vinyl Chloride	20,170	1.00	0.810	U	U	Ka23080709.D
trans-1,2-Dichloroethene	20,170	1.00	0.440	U	U	Ka23080709.D
cis-1,2-Dichloroethene	20,170	1.00	0.530	U	U	Ka23080709.D
Trichloroethene	20,170	1.00	0.330	U	U	Ka23080709.D
Tetrachloroethene	20,170	1.00	0.410	U	U	Ka23080709.D

Calculations:

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

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

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

Note: Tu is 16.65°C

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

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5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Method Detection and Reporting Limit Calculations (Concentration)

TO-17 (Passive)

Lab ID: 0007114-01 **Sample Name:** 08A_SSV_01_20230801

Analyte	**t** Sampling Time minutes	**DF** Dilution Factor	**Uc** Uptake Rate	**M** Initial LOQ ng	**C** Calculated LOQ µg/m³
Vinyl Chloride	20,170	1.00	0.810	10.0	0.612
trans-1,2-Dichloroethene	20,170	1.00	0.440	10.0	1.13
cis-1,2-Dichloroethene	20,170	1.00	0.530	10.0	0.935
Trichloroethene	20,170	1.00	0.330	10.0	1.50
Tetrachloroethene	20,170	1.00	0.410	10.0	1.21

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5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Laboratory Certification List

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

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CERTIFICATE OF ANALYSIS

Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Qualifiers/Notes and Definitions

General Definitions:

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

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5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007114
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Sample Management Records

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or email help@beacon-usa.com

PASSIVE SOIL GAS SAMPLES | CHAIN-OF-CUSTODY

Project Information	Client Information	
Site Name: Reedsburg Cleaners (ERP 0257001682)	Company Name: Bay West LLC	Project Manager: Jason Kunze (jkunze@baywest.com)
	Office Location: 5 Empire Drive, St. Paul, MN 55103	Client PO: J230382 / PO1309
Site Location: 120 N. Locust Street (PSI A)	Submitted by: Anders Santelman	Turn around time (check one): ■ Normal ☐ Rush (specify) ____ days
	Email: asantelman@baywest.com	

Field Sample ID	Start Date	Start Time	Stop Date	Stop Time	Sampling Hole Depth ☐ cm ☐ inches	Surface Type (Soil, Asphalt, Concrete, Gravel)	Optional Information (Location Description, Sample Condition, PID / FID Readings, etc)
08A_SSV_01_20230801	7/18/23	0926	8/1/23	0936	5 inches	Concrete	A_SSV_01

Special Instructions: Analytes: PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride

Relinquished by (signature):	Date / Time: 08.02.2023 / 1000	Received by (signature):	Date / Time: 8/3/23 12:42
Relinquished by (signature):	Date / Time:	Received by (signature):	Date / Time:
For Lab Use Only	Beacon Job No: 7114	Beacon Proposal: 230427H01	Analytical Method:
Courier Name: FedEx	Shipment Condition: Good	Custody Seal Intact: ☒ Yes ☐ No ☐ n/a	Custody Seal No: 5504084

Pg ___ of ___

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CERTIFICATE OF ANALYSIS

Beacon Proposal No.: 230427H01

Laboratory Work Order: 0007115

Project Description:

0257001682

Reedsburg, WI

Prepared for:

Jason Kunze

Bay West LLC

5 Empire Drive

St. Paul, MN 55103

Ryan W. Schneider
Senior Project Manager

August 14, 2023

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

Steven C. Thornley
Laboratory Director

Peter B. Kelly
Quality Manager

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CERTIFICATE OF ANALYSIS

Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Sample Summary

Lab Sample ID	Client Sample ID	Received	Analysis	Matrix
0007115-01	08A_IAB_01_20230801	08/03/2023	TO-17 (Passive)	Indoor Air
Sampler Type:	Beacon Passive Sampler			
0007115-02	08A_IA1_02_20230801	08/03/2023	TO-17 (Passive)	Indoor Air
Sampler Type:	Beacon Passive Sampler			
0007115-03	08A_IA2_03_20230801	08/03/2023	TO-17 (Passive)	Indoor Air
Sampler Type:	Beacon Passive Sampler			

Project Completeness

Samples Received: 3
Samples Analyzed: 3

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5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Case Narrative

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

Beacon reports results and reporting limits to three significant digits.

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

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

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

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

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

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

End of Case Narrative

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
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St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Analytical Results

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
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Detailed Analytical Results

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CERTIFICATE OF ANALYSIS

Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Lab Sample ID: 0007115-01

08A_IAB_01_20230801

Indoor Air

Method: TO-17 (Passive)

Analyte	CAS#	Result (µg/m³)	Q	LOQ (µg/m³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.607		0.607	08/07/2023 17:11	Ka23080710.D
trans-1,2-Dichloroethene	156-60-5	<1.12		1.12	08/07/2023 17:11	Ka23080710.D
cis-1,2-Dichloroethene	156-59-2	<0.928		0.928	08/07/2023 17:11	Ka23080710.D
Trichloroethene	79-01-6	<1.49		1.49	08/07/2023 17:11	Ka23080710.D
Tetrachloroethene	127-18-4	<1.20		1.20	08/07/2023 17:11	Ka23080710.D

Analyte	*CAS#*	*% Recovery*	*Recovery Limits*	*Q*	*Analyzed*	*File ID*
Surrogate: 1,2-DCA-d4	17060-07-0	*100%*	*70-130*		*08/07/2023 17:11*	*Ka23080710.D*
Surrogate: Toluene-d8	2037-26-5	*96.8%*	*70-130*		*08/07/2023 17:11*	*Ka23080710.D*
Surrogate: Bromofluorobenzene	460-00-4	*92.1%*	*70-130*		*08/07/2023 17:11*	*Ka23080710.D*

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CERTIFICATE OF ANALYSIS

Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Lab Sample ID: 0007115-02

08A_IA1_02_20230801

Indoor Air

Method: TO-17 (Passive)

Analyte	CAS#	Result (µg/m³)	Q	LOQ (µg/m³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.608		0.608	08/07/2023 19:19	Ka23080711.D
trans-1,2-Dichloroethene	156-60-5	<1.12		1.12	08/07/2023 19:19	Ka23080711.D
cis-1,2-Dichloroethene	156-59-2	<0.929		0.929	08/07/2023 19:19	Ka23080711.D
Trichloroethene	79-01-6	<1.49		1.49	08/07/2023 19:19	Ka23080711.D
Tetrachloroethene	127-18-4	<1.20		1.20	08/07/2023 19:19	Ka23080711.D

Analyte	*CAS#*	*% Recovery*	*Recovery Limits*	*Q*	*Analyzed*	*File ID*
Surrogate: 1,2-DCA-d4	17060-07-0	*97.9%*	*70-130*		*08/07/2023 19:19*	*Ka23080711.D*
Surrogate: Toluene-d8	2037-26-5	*97.8%*	*70-130*		*08/07/2023 19:19*	*Ka23080711.D*
Surrogate: Bromofluorobenzene	460-00-4	*93.8%*	*70-130*		*08/07/2023 19:19*	*Ka23080711.D*

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CERTIFICATE OF ANALYSIS

Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Lab Sample ID: 0007115-03

08A_IA2_03_20230801

Indoor Air

Method: TO-17 (Passive)

Analyte	CAS#	Result (µg/m³)	Q	LOQ (µg/m³)	Analyzed	File ID
Vinyl Chloride	75-01-4	<0.608		0.608	08/07/2023 19:48	Ka23080712.D
trans-1,2-Dichloroethene	156-60-5	<1.12		1.12	08/07/2023 19:48	Ka23080712.D
cis-1,2-Dichloroethene	156-59-2	<0.929		0.929	08/07/2023 19:48	Ka23080712.D
Trichloroethene	79-01-6	<1.49		1.49	08/07/2023 19:48	Ka23080712.D
Tetrachloroethene	127-18-4	<1.20		1.20	08/07/2023 19:48	Ka23080712.D

Analyte	*CAS#*	*% Recovery*	*Recovery Limits*	*Q*	*Analyzed*	*File ID*
Surrogate: 1,2-DCA-d4	17060-07-0	*98.5%*	*70-130*		*08/07/2023 19:48*	*Ka23080712.D*
Surrogate: Toluene-d8	2037-26-5	*95.3%*	*70-130*		*08/07/2023 19:48*	*Ka23080712.D*
Surrogate: Bromofluorobenzene	460-00-4	*93.1%*	*70-130*		*08/07/2023 19:48*	*Ka23080712.D*

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

QC Information/Summary

BEACON ENVIRONMENTAL

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CERTIFICATE OF ANALYSIS

Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23G105 - Instrument: K System - File ID: Ka23072721.D

B23G105-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	51.5	10	ng	50.0		103	70-130			
trans-1,2-Dichloroethene	50.4	10	ng	50.0		101	70-130			
cis-1,2-Dichloroethene	49.4	10	ng	50.0		98.8	70-130			
Trichloroethene	49.4	10	ng	50.0		98.8	70-130			
Tetrachloroethene	48.2	10	ng	50.0		96.4	70-130			
Surrogate: 1,2-DCA-d4	*49.2*		*ng*	50.0		*98.3*	*70-130*			
Surrogate: Toluene-d8	*50.4*		*ng*	50.0		*101*	*70-130*			
Surrogate: Bromofluorobenzene	*45.4*		*ng*	50.0		*90.8*	*70-130*			

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CERTIFICATE OF ANALYSIS

Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23G105 - Instrument: K System - File ID: Ka23072724.D

B23G105-ICB1 (Lab Blank/Initial Calibration Blank)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<5	10	ng							U
trans-1,2-Dichloroethene	<5	10	ng							U
cis-1,2-Dichloroethene	<5	10	ng							U
Trichloroethene	<5	10	ng							U
Tetrachloroethene	<5	10	ng							U
Surrogate: 1,2-DCA-d4	*100*		*ng*	100		*100*	*70-130*			
Surrogate: Toluene-d8	*103*		*ng*	100		*103*	*70-130*			
Surrogate: Bromofluorobenzene	*88.2*		*ng*	100		*88.2*	*70-130*			

BEACON ENVIRONMENTAL

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Forest Hill, MD 21050 USA
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CERTIFICATE OF ANALYSIS

Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23H016 - Batch: 23H0012 - Instrument: K System - File ID: Ka23080702.D

23H0012-BS1 (LCS, Calibration Source Verification)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	39.0	10	ng	50.0		77.9	70-130			
trans-1,2-Dichloroethene	46.8	10	ng	50.0		93.7	70-130			
cis-1,2-Dichloroethene	46.7	10	ng	50.0		93.5	70-130			
Trichloroethene	46.1	10	ng	50.0		92.2	70-130			
Tetrachloroethene	46.6	10	ng	50.0		93.3	70-130			
Surrogate: 1,2-DCA-d4	*49.5*		*ng*	50.0		*98.9*	*70-130*			
Surrogate: Toluene-d8	*50.3*		*ng*	50.0		*101*	*70-130*			
Surrogate: Bromofluorobenzene	*44.9*		*ng*	50.0		*89.8*	*70-130*			

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23H016 - Instrument: K System - File ID: Ka23080704.D

B23H016-ICV1 (LCSD/Second Source Verification/CALV)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	43.9	10	ng	50.0		87.8	70-130			
trans-1,2-Dichloroethene	49.8	10	ng	50.0		99.6	70-130			
cis-1,2-Dichloroethene	48.9	10	ng	50.0		97.9	70-130			
Trichloroethene	47.8	10	ng	50.0		95.5	70-130			
Tetrachloroethene	48.4	10	ng	50.0		96.9	70-130			
Surrogate: 1,2-DCA-d4	*50.2*		*ng*	50.0		*100*	*70-130*			
Surrogate: Toluene-d8	*50.7*		*ng*	50.0		*101*	*70-130*			
Surrogate: Bromofluorobenzene	*43.8*		*ng*	50.0		*87.5*	*70-130*			

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23H016 - Batch: 23H0012 - Instrument: K System - File ID: Ka23080705.D

23H0012-BLK1 (Lab Blank)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<0.607	0.607	µg/m³							U
trans-1,2-Dichloroethene	<1.12	1.12	µg/m³							U
cis-1,2-Dichloroethene	<0.928	0.928	µg/m³							U
Trichloroethene	<1.49	1.49	µg/m³							U
Tetrachloroethene	<1.20	1.20	µg/m³							U
Surrogate: 1,2-DCA-d4	*101*		*ng*	100		*101*	*70-130*			
Surrogate: Toluene-d8	*106*		*ng*	100		*106*	*70-130*			
Surrogate: Bromofluorobenzene	*85.2*		*ng*	100		*85.2*	*70-130*			

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23H016 - Instrument: K System - File ID: Ka23080714.D

B23H016-CCV1 (LCS, Closing Calibration Verification)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	36.3	10	ng	50.0		72.6	70-130			
trans-1,2-Dichloroethene	49.6	10	ng	50.0		99.1	70-130			
cis-1,2-Dichloroethene	47.9	10	ng	50.0		95.8	70-130			
Trichloroethene	46.7	10	ng	50.0		93.3	70-130			
Tetrachloroethene	45.1	10	ng	50.0		90.2	70-130			
Surrogate: 1,2-DCA-d4	*51.2*		*ng*	50.0		*102*	*70-130*			
Surrogate: Toluene-d8	*50.5*		*ng*	50.0		*101*	*70-130*			
Surrogate: Bromofluorobenzene	*44.9*		*ng*	50.0		*89.7*	*70-130*			

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23H016 - Instrument: K System - File ID: Ka23080715.D

B23H016-CCB1 (Lab Blank)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<5	10	ng							U
trans-1,2-Dichloroethene	<5	10	ng							U
cis-1,2-Dichloroethene	<5	10	ng							U
Trichloroethene	<5	10	ng							U
Tetrachloroethene	<5	10	ng							U
Surrogate: 1,2-DCA-d4	*104*		*ng*	100		*104*	*70-130*			
Surrogate: Toluene-d8	*104*		*ng*	100		*104*	*70-130*			
Surrogate: Bromofluorobenzene	*86.3*		*ng*	100		*86.3*	*70-130*			

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23H016 - Instrument: K System - File ID: Ka23080723.D

B23H016-CCV2 (Continuing Calibration Verification)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	35.0	10	ng	50.0		70.0	70-130			
trans-1,2-Dichloroethene	48.5	10	ng	50.0		96.9	70-130			
cis-1,2-Dichloroethene	48.6	10	ng	50.0		97.2	70-130			
Trichloroethene	46.9	10	ng	50.0		93.7	70-130			
Tetrachloroethene	47.2	10	ng	50.0		94.4	70-130			
Surrogate: 1,2-DCA-d4	*53.2*		*ng*	50.0		*106*	*70-130*			
Surrogate: Toluene-d8	*50.9*		*ng*	50.0		*102*	*70-130*			
Surrogate: Bromofluorobenzene	*45.1*		*ng*	50.0		*90.1*	*70-130*			

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

Sequence: B23H016 - Instrument: K System - File ID: Ka23080724.D

B23H016-CCB2 (Lab Blank)

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl Chloride	<5	10	ng							U
trans-1,2-Dichloroethene	<5	10	ng							U
cis-1,2-Dichloroethene	<5	10	ng							U
Trichloroethene	<5	10	ng							U
Tetrachloroethene	<5	10	ng							U
Surrogate: 1,2-DCA-d4	*107*		*ng*	100		*107*	*70-130*			
Surrogate: Toluene-d8	*103*		*ng*	100		*103*	*70-130*			
Surrogate: Bromofluorobenzene	*88.2*		*ng*	100		*88.2*	*70-130*			

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

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

LCS: 23H0012-BS1 File ID: Ka23080702.D Analyzed: 8/7/23 12:49

LCSD: B23H016-ICV1 File ID: Ka23080704.D Analyzed: 8/7/23 11:59

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	38.97	77.94		50	43.92	87.80	70-130	11.94	30	
trans-1,2-Dichloroethene	156-60-5	46.84	93.68		50	49.8	99.60	70-130	6.13	30	
cis-1,2-Dichloroethene	156-59-2	46.73	93.46		50	48.93	97.90	70-130	4.60	30	
Trichloroethene	79-01-6	46.11	92.22		50	47.76	95.50	70-130	3.52	30	
Tetrachloroethene	127-18-4	46.63	93.26		50	48.44	96.90	70-130	3.81	30	

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Additional QC Information

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Sample Result Calculation Summary (Concentration)

TO-17 (Passive)

Analyte	t Sampling Time minutes	DF Dilution Factor	Uc Uptake Rate	M Initial Result ng	C Calculated Result µg/m³	File ID
Lab ID: 0007115-01 **Sample Name:** 08A_IAB_01_20230801					**x̄ Temp (°C):** 21.66	
Vinyl Chloride	20,156	1.00	0.817	U	U	Ka23080710.D
trans-1,2-Dichloroethene	20,156	1.00	0.444	U	U	Ka23080710.D
cis-1,2-Dichloroethene	20,156	1.00	0.535	U	U	Ka23080710.D
Trichloroethene	20,156	1.00	0.333	U	U	Ka23080710.D
Tetrachloroethene	20,156	1.00	0.414	U	U	Ka23080710.D
Lab ID: 0007115-02 **Sample Name:** 08A_IA1_02_20230801					**x̄ Temp (°C):** 21.66	
Vinyl Chloride	20,140	1.00	0.817	U	U	Ka23080711.D
trans-1,2-Dichloroethene	20,140	1.00	0.444	U	U	Ka23080711.D
cis-1,2-Dichloroethene	20,140	1.00	0.535	U	U	Ka23080711.D
Trichloroethene	20,140	1.00	0.333	U	U	Ka23080711.D
Tetrachloroethene	20,140	1.00	0.414	U	U	Ka23080711.D
Lab ID: 0007115-03 **Sample Name:** 08A_IA2_03_20230801					**x̄ Temp (°C):** 21.66	
Vinyl Chloride	20,132	1.00	0.817	U	U	Ka23080712.D
trans-1,2-Dichloroethene	20,132	1.00	0.444	U	U	Ka23080712.D
cis-1,2-Dichloroethene	20,132	1.00	0.535	U	U	Ka23080712.D
Trichloroethene	20,132	1.00	0.333	U	U	Ka23080712.D
Tetrachloroethene	20,132	1.00	0.414	U	U	Ka23080712.D

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Calculations:

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

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

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

Note: Tu is 16.65°C

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

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Method Detection and Reporting Limit Calculations (Concentration)

TO-17 (Passive)

Analyte	t Sampling Time minutes	DF Dilution Factor	Uc Uptake Rate	M Initial LOQ ng	C Calculated LOQ µg/m³
Lab ID: 0007115-01 **Sample Name:** 08A_IAB_01_20230801					**x̄ Temp (°C):** 21.66
Vinyl Chloride	20,156	1.00	0.817	10.0	0.607
trans-1,2-Dichloroethene	20,156	1.00	0.444	10.0	1.12
cis-1,2-Dichloroethene	20,156	1.00	0.535	10.0	0.928
Trichloroethene	20,156	1.00	0.333	10.0	1.49
Tetrachloroethene	20,156	1.00	0.414	10.0	1.20
Lab ID: 0007115-02 **Sample Name:** 08A_IA1_02_20230801					**x̄ Temp (°C):** 21.66
Vinyl Chloride	20,140	1.00	0.817	10.0	0.608
trans-1,2-Dichloroethene	20,140	1.00	0.444	10.0	1.12
cis-1,2-Dichloroethene	20,140	1.00	0.535	10.0	0.929
Trichloroethene	20,140	1.00	0.333	10.0	1.49
Tetrachloroethene	20,140	1.00	0.414	10.0	1.20
Lab ID: 0007115-03 **Sample Name:** 08A_IA2_03_20230801					**x̄ Temp (°C):** 21.66
Vinyl Chloride	20,132	1.00	0.817	10.0	0.608
trans-1,2-Dichloroethene	20,132	1.00	0.444	10.0	1.12
cis-1,2-Dichloroethene	20,132	1.00	0.535	10.0	0.929
Trichloroethene	20,132	1.00	0.333	10.0	1.49
Tetrachloroethene	20,132	1.00	0.414	10.0	1.20

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Laboratory Certification List

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

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Qualifiers/Notes and Definitions

General Definitions:

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

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Bay West LLC	**Site Name:** 0257001682	**Beacon Proposal:** 230427H01
5 Empire Drive	**Site Location:** Reedsburg, WI	**Lab Work Order:** 0007115
St. Paul, MN 55103	**Project Manager:** Jason Kunze	**Reported:** 08/14/2023

Sample Management Records

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

PASSIVE AIR SAMPLING – BEACON SAMPLER | CHAIN-OF-CUSTODY

Client Information		Project Manager: Jason Kunze (jkunze@baywest.com)	Client PO: J230382 / PO1309
Company:	Bay West LLC	Project Name: Reedsburg Cleaners (ERP 0257001682)	Turn around time (check one): ■ Normal ☐ Rush (specify) ____ days
Address:	5 Empire Dr.	Location: 120 N Locust St. (PSI A)	
City / State / Zip:	St. Paul, MN, 55103	Submitted by: Anders Santelman	Analysis: ■ Method TO-17 ☐ Method 8260C
Phone:	651-724-9757	Email: asantelman@baywest.com	

Location ID	Start Date	Start Time	Stop Date	Stop Time	Aver Temp (C)	Notes	INDOOR AIR	AMBIENT AIR	CRAWL SPACE	SEWER GAS
08A_IAB_01_20230801	7/18/2023	0932	8/1/2023	0928	21.66	A_IAB_01	X			
08A_IA1_02_20230801	7/18/2023	0944	8/1/2023	0924	21.66	A_IA1_02	X			
08A_IA2_03_20230801	7/18/2023	0947	8/1/2023	0919	21.66	A_IA2_03	X			

Special Notes / Instructions: Analytes: PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride

Relinquished by (signature):	Date / Time: 08.02.2023 / 1000	Received by (signature): Nicole Kuf	Date / Time: 8/3/23 12:42
Relinquished by (signature):	Date / Time:	Received by (signature):	Date / Time:
For Lab Use Only	Beacon Job No: 7115	Beacon Proposal: 230427H01 ~~& 230427H02~~	
Courier Name: Fed Ex	Shipment Condition: Good	Custody Seal Intact: ☒ Yes ☐ No ☐ n/a	Custody Seal No: 5504084

APPENDIX C

Bay West LLC
5 Empire Drive
St. Paul, MN 55103
(651) 291-0456

PASSIVE VAPOR SAMPLING INFORMATION

Project Information

Project Name: Reedsburg Cleaners
Bay West Job #: J230382
Bay West Sampler Name(s) Anders Santelman
Weather Conditions 80 and sunny

Project Information

Property Address: 120 N Locust St, Reedsburg Wisconsin
Property Owner Name: Lee Gnatzig
Property Type: Single Family Residential, currently rented

Sub-Slab Installation information

Concrete Slab Thickness: 5 inches
Type of Sub-slab installed: Poured
Time of Sub-Slab Installation: 910
Time for Sub-Slab Vapor Equilibration: 910 to 930
Water based or leak test performed and passed? **Y** or N
General Indoor Air PID (ppm) Reading: 0.0

#1

Sample ID: 08A_SSV_01_20230801
Passive Sampler Type: Passive Sub-Slab Vapor Sampler
Sample Location: Sub-Slab (basement
Duration of Test: 2 weeks
Analysis: PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride
Laboratory: Beacon

Start (or Grab) Sample
Date: 7/18/2023
Time: 0926
Static Pressure: 0.6 Pa
PID (ppm): 5.0

End (or Grab) Sample
Date: 8/01/2023
Time: 0936
Static Pressure: 0.6 Pa
PID (ppm): 7.8


Photo 1: Tools used to drill SS

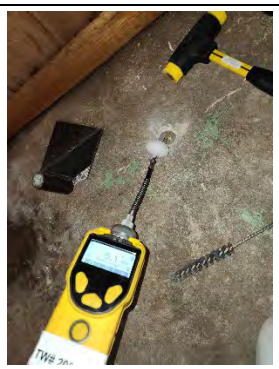
Photo 2: Taking PID readings


Photo 3: Sampler Setup


Photo 4: SS as left

Bay West LLC
5 Empire Drive
St. Paul, MN 55103
(651) 291-0456

#2

Sample ID: 08A_IAB_01_20230801 Passive Sampler Type: Passive Indoor Air Sampler Sample Location: Basement Duration of Test: 2 weeks Analysis: PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride Laboratory: Beacon **Start (or Grab) Sample** Date: 7/18/2023 Time: 0932 Static Pressure: NA PID (ppm): 0.0 **End (or Grab) Sample** Date: 8/01/2023 Time: 0928 Static Pressure: NA PID (ppm): 0.9 Floor recently cleaned, causing elevated PID	 Photo 1: Basement Ambient	Photo 2: _____
	Photo 3: _____	Photo 4: _____

#3

Sample ID: 08A_IA1_02_20230801 Passive Sampler Type: Passive Indoor Air Sampler Sample Location: First Floor Duration of Test: 2 weeks Analysis: PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride Laboratory: Beacon **Start (or Grab) Sample** Date: 7/18/2023 Time: 0944 Static Pressure: NA PID (ppm): 0.0 **End (or Grab) Sample** Date: 8/01/2023 Time: 0924 Static Pressure: NA PID (ppm): 0.3	Photo 1: 1st floor ambient	Photo 2: _____
	Photo 3: _____	Photo 4: _____

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#4

Sample ID: 08A_IA2_03_20230801
Passive Sampler Type: Passive Indoor Air Sampler
Sample Location: Second Floor
Duration of Test: 2 weeks
Analysis: PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride
Laboratory: Beacon

Start (or Grab) Sample
Date: 7/18/2023
Time: 0947
Static Pressure: NA
PID (ppm): 0.0

End (or Grab) Sample
Date: 8/01/2023
Time: 0947
Static Pressure: NA
PID (ppm): 0.2

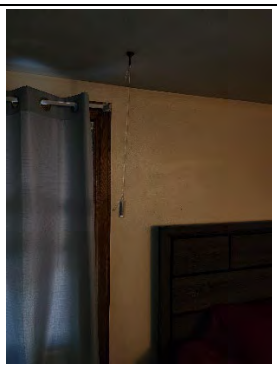


Photo 1: 2nd floor ambient

Photo 2: _____

Photo 3: _____

Photo 4: _____

120 N Locust Street

Main Area

Main Area

120 N Locust Street

Main Area

Main Area

120 N Locust Street

Laundry

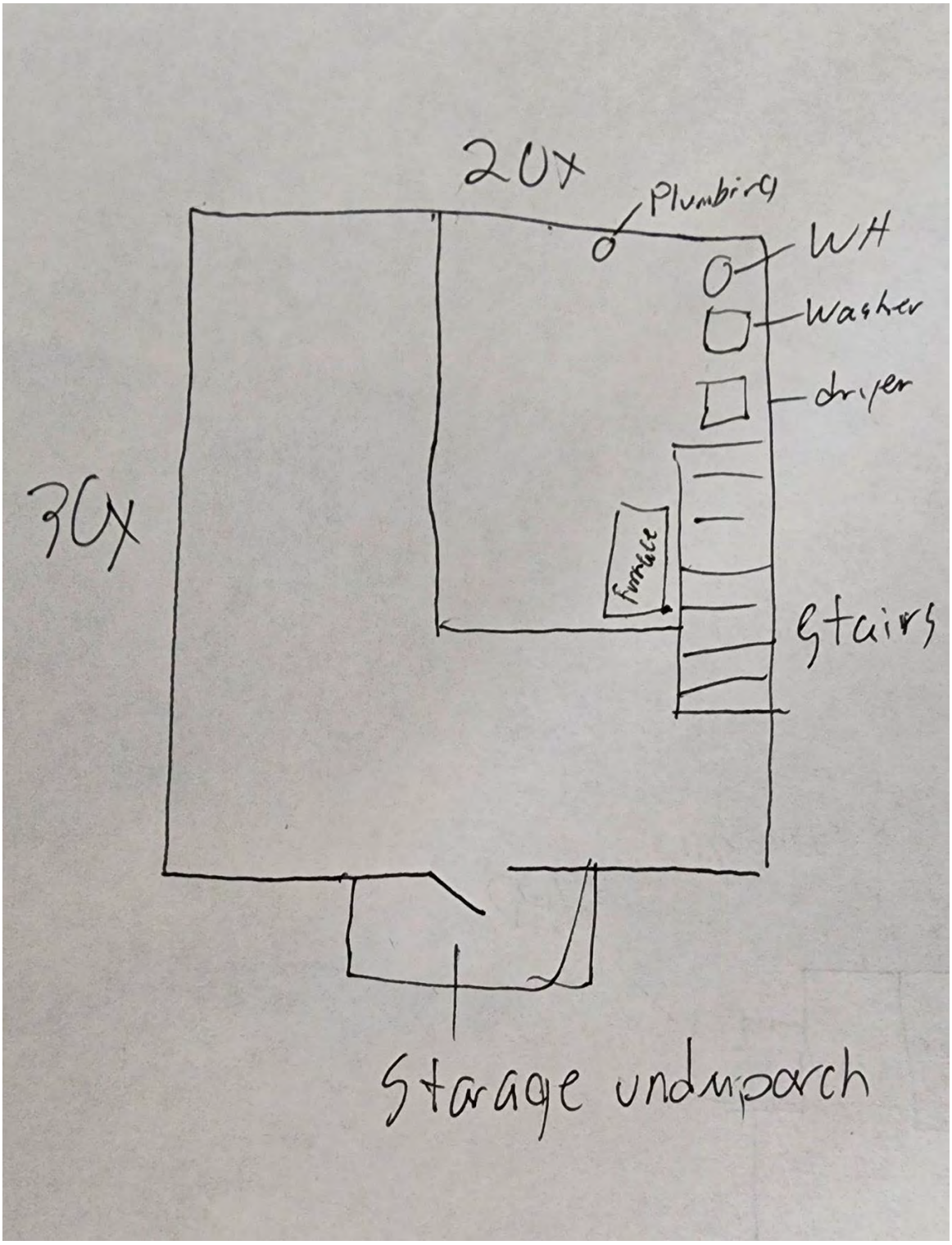
Furnace

Water heater and sewer pipe

Backroom sewer pipe

Pipe by stairs

Under porch storage, door not accessible.



Simple basement sketch

APPENDIX D

Understanding Chemical Vapor Intrusion Testing Results

RR-977 October 2014

From the Lab to You

Chemical vapor samples were taken from underneath your house or building and possibly indoors as well. These samples have been tested by a certified laboratory and a report was issued. The Wisconsin Department of Natural Resources (DNR) uses these test results to determine if people in the building are being exposed to chemical vapors coming from nearby contaminated soil or groundwater, and to decide what, if any, action is needed to prevent this exposure.

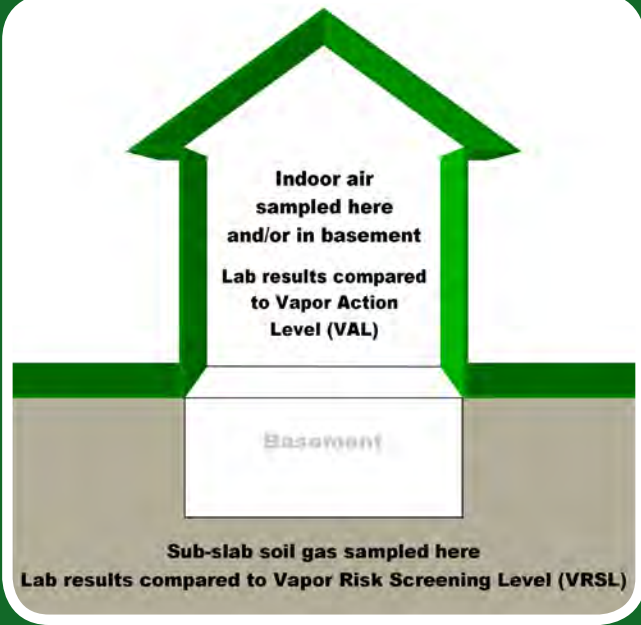
Indoor Air Testing Results

If indoor air samples were collected in your house or building, test results from the lab will be compared to the state Vapor Action Level (VAL) for chemicals of concern. The VAL is a chemical compound's numerical value that represents a health hazard risk to no more than 1 in 100,000 people during a lifetime of exposure. If test results show chemical concentrations in your air below the VAL then adverse health effects are extremely rare, even if you were to breathe the chemical at this concentration for your entire life.

Test results showing chemical concentrations in the air at or above the VAL prompt DNR to recommend that exposure to these chemical vapors be reduced. If test results show concentrations significantly above the VAL, or more than one type of chemical vapor is identified in your indoor air, the risk from exposure increases. If the concentration of any indoor chemical vapor greatly exceeds the VAL, DNR is concerned about even short-term exposure and will typically require immediate action to address the problem.

The VAL for each chemical is set by scientific research. It is protective of all people, including those who are most susceptible to adverse health effects.

If test results identify chemicals in your air that are not present in nearby soil or groundwater contamination, it is likely that these vapors are coming from some product or activity in or near your house or building. Many everyday consumer products (e.g., cleaners, solvents, polish, adhesives, lubricants, aerosols, insect repellants, etc.); combustion processes (e.g., smoking, home heating); fuels in attached garages; dry cleaned clothing or draperies; and occupant activities (e.g., craft hobbies), also release chemical vapors into the air.



The air and soil gas samples from your property are tested at a laboratory. Chemical concentrations are measured and the results are compared to state health-risk numbers.

Sub-slab Soil Gas Testing Results

Soil gas samples were collected from the ground beneath the concrete slab of your building foundation or basement. The lab measured the concentrations of various chemicals in these samples. DNR compares these measurements to the state Vapor Risk Screening Level (VRSL), which identifies the concentration of a chemical in soil gas that scientific research suggests can be a health risk if vapor enters a building. If soil gas measurements exceed the VRSL for a chemical of concern, action to reduce exposure is strongly recommended.

The VRSL is a higher number (higher chemical concentration) than the VAL because it is presumed that concrete building foundations and basement walls will prevent most soil gas from entering a building. Further, any soil gas that does enter a building through cracks, holes, sump pumps, drains, etc., will be diluted to some extent by the indoor air. So, people inside will not be breathing air that includes the full concentration of chemical vapors that exist in the ground.

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P.O. Box 7921, Madison, WI 53707
dnr.wi.gov, search "Brownfields"

DNR generally relies on the test results of the sub-slab soil gas samples when determining what, if any, action should be taken related to chemical vapors coming from nearby soil or groundwater contamination. Indoor air quality is highly variable, and it is difficult to make a definitive decision about vapor intrusion based on indoor air sampling alone.

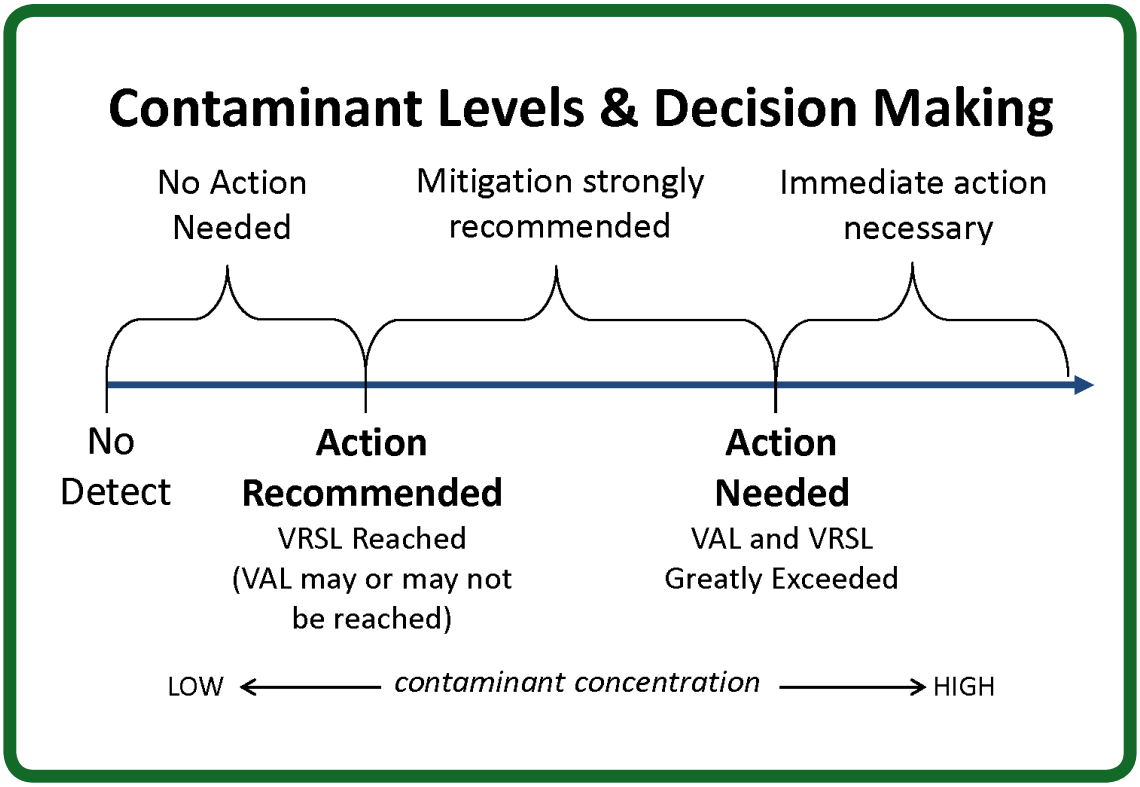
Follow-Up Actions

If your test results are less than a VAL for indoor air, or a VRSL for sub-slab soil gas, then the air in the house or building should not present a health concern. Follow-up sampling and testing may be necessary to confirm the results, but no other action is typically suggested.

When test results show soil gas chemical concentrations above a VRSL, both DNR and the Wisconsin Department of Health Services recommend that owners take action to reduce potential exposure. This typically involves installing a vapor mitigation system that vents chemical vapors from beneath your home or building to the outdoors, similar to a radon mitigation system.

If indoor air concentrations exceed a VAL, but sub-slab concentrations are less than a VRSL, then the chemical vapors are most likely coming from indoor sources. Steps should be taken by the house or building owner to identify the products and practices causing the problem and implement appropriate remedies.

If soil gas mitigation is recommended, a representative of the party who is responsible for the soil or groundwater contamination will contact you to discuss your options.



A Note about Measurement Units: The lab report may include some unfamiliar technical language. The most important point to note is whether or not the test result for a specific chemical exceeds a VAL or VRSL, which are also sometimes referred to, generically, as "screening levels."

The concentration of gaseous pollutants in air is typically described in two different ways: 1) as units of mass per volume, where µg/m3 represents micrograms of gaseous pollutant per cubic meter of ambient air; and 2) as parts per billion by volume (ppbv), where the volume of a gaseous pollutant is compared to a set volume of ambient air. These are the numbers that are compared to the VAL and VRSL.

For more information, visit **dnr.wi.gov/topic/Brownfields/Vapor.html**

This document contains information about certain state statutes and administrative rules but does not necessarily include all of the details found in the statutes and rules. Readers should consult the actual language of the statutes and rules to answer specific questions. The Wisconsin Department of Natural Resources provides equal opportunity in its employment, programs, services, and functions under an Affirmative Action Plan. If you have any questions, please write to Equal Opportunity Office, Department of Interior, Washington, D.C. 20240. This publication is available in alternative format upon request. Please call 608-267-3543 for more information.