From:	Welch, Tim <tim.welch@terracon.com></tim.welch@terracon.com>
Sent:	Wednesday, March 8, 2023 11:27 AM
То:	Schultz, Josie M - DNR
Cc:	Hedman, Curtis J - DHS; Dr. Neziri; Benjamin Brand
Subject:	OHM-Green Bay Ambient Air Results Notifications
Attachments:	1235-East Spa S Military Results Notification_03082023.pdf; 1219 S Military
	Results Notification_03082023.pdf

CAUTION: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Morning Josie,

The attached ambient air analytical results notifications were sent to Jim's and East Spa tenants. Note that the Wakanda tenant space (1239) had water damage and is not occupied. Regards,

Timothy P. Welch, P.G.

Senior Project Manager I Environmental



4900 South Pennsylvania Avenue, Suite 100 Cudahy, Wisconsin 53110 D (414) 209.7634 I M (262) 617.6809 Tim.Welch@ terracon.com I Terracon.com

Terracon provides environmental, facilities, geotechnical, and materials consulting engineering services delivered with responsiveness, resourcefulness, and reliability.

Private and confidential as detailed here (<u>www.terracon.com/disclaimer</u>). If you cannot access the hyperlink, please e-mail sender.



March 8, 2023

Mr. Ed Dombrowski Jim's Music 1219 South Military Avenue Green Bay, Wisconsin 54304

#### Re: Sample Results Notification – February 2023 WDNR BRRTS No. 02-05-217270 Terracon Project No. 58217038

Dear Mr. Dombrowski,

In accordance with Wisconsin Administrative Code (WAC) Chapter NR 716.14, and on behalf of the responsible party, Innovative Properties Group, Terracon Consultants, Inc. (Terracon) is providing this letter to present the results of indoor ambient air samples collected from the Jim's Music tenant space. The air samples were collected as part of the ongoing environmental investigation of the One Hour Martinizing site located at 1233 South Military Avenue, Green Bay, Wisconsin. The contaminants of concern are the dry cleaning solvent tetrachloroethene (PCE), and its breakdown products. The responsible party contact information is as follows:

Innovative Properties Group c/o Kelly & Brand, Attorneys at Law, LLC 303 Pearl Avenue, Suite A P.O. Box 384 Oshkosh, WI 54903-0384 (920) 230-2100

Three indoor air samples were collected from Jim's Music on February 2, 2023. Two samples designated "AMB-Jim's Teaching Center (1219)" and "AMB-Jim's Music Lesson (1231)" were collected on the first floor, and one sample designated "AMB-Basement (1219)" was collected in the basement. The samples were collected in vacuum canisters over an 8-hour period.

The results of the indoor air sample analysis are summarized and compared to regulatory standards in the attached Table 1. The laboratory report associated with the samples is also attached. PCE and trichloroethene (TCE) were detected in each indoor air sample. The PCE concentrations ranged from 404 to 1,120 micrograms per cubic meter ( $\mu$ g/m<sup>3</sup>), with the highest concentration detected in the first floor lesson area. All of these PCE concentrations exceed the vapor action level (VAL) for small commercial buildings established by the Wisconsin Department of Natural Resources (WDNR) of 180  $\mu$ g/m<sup>3</sup>. The TCE concentrations ranged from 2.4 to 4.5  $\mu$ g/m<sup>3</sup>, which are less than the VAL of 8.8  $\mu$ g/m<sup>3</sup>. No other contaminants of concern were detected in the air samples.

the Jim's Music building.

In accordance with WAC Chapter NR 714.05 (5), you may request in writing that the WDNR project manager keep you informed of approvals or rejections of the response actions undertaken at the One Hour Martinizing site. The WDNR project manager contact information is as follows:



#### Sample Results Notification – February 2023

1219 South Military Ave 
Green Bay, Wisconsin March 8, 2023 
Terracon Project No. 58217038

Josie Schultz Wisconsin Department of Natural Resources 2984 Shawano Avenue Green Bay, Wisconsin 54313 (920) 366-5685 josie.schultz@wisconsin.gov

If you have questions on how breathing these vapors may affect your health, the Wisconsin Department of Health Services (WDHS) contact information is as follows:

Curtis Hedman, Ph.D. Bureau of Environmental and Occupational Health Division of Public Health, Wisconsin Department of Health Services 1 W Wilson St, Rm 150 Madison, WI 53701 <u>Curtis.hedman@dhs.wisconsin.gov</u> Phone: 608-266-6677

If you have any questions, please contact me directly at (414) 209-7634, via email to <u>tim.welch@terracon.com</u>, or contact our office at (414) 423-0255.

Sincerely,

TindfMahl

Timothy P. Welch, P.G. Senior Project Manager

Attachments –	Table 1
	Laboratory Analytical Report – February 10, 2023
	What is Vapor Intrusion, RR892
	Understanding Chemical VI Sampling Results, RR977
Copy to:	Dr. Neziri, Innovative Properties Group
	Benjamin Brand, Kelly & Brand, Attorneys at Law, LLC
	Josie Schultz, WDNR
	Curtis Hedman, WDHS

				Table	1					
		Vapor	Analytical T	est Results Sun	nmary for Ambien	t Air CVOCs				
			Martinizir	ng Dry Cleaning 1233 South Milit	and Laundry Serv arv Avenue	ice				
			-	Green Bay, W	lisconsin					
			Те	rracon Project N	No. 58217038					
							C	VOCs (µg/m	n³)	
						U		thene		
	Table Vapor Analytical Test Results Sum Martinizing Dry Cleaning 1233 South Milit Green Bay, W Terracon Project I       ample ID     Sampling Location     First Floor/ Basement     Sample Date     Sampling Method       AA1     Jim's Music Retail (Front/West)     First Floor     3/4/2020     6-Liter Summa Canister       AA2     Jim's Music Retail (Front/West)     First Floor     3/4/2020     6-Liter Summa Canister       AA2     Jim's Music Retail (Back/East)     First Floor     3/4/2020     6-Liter Summa Canister       AA2     Jim's Music Retail (Back/East)     First Floor     3/4/2020     6-Liter Summa Canister       AA4     Jim's Music Retail     North Basement     8/25/2021     6-Liter Summa Canister       AMB-1     Jim's Music Retail (Front/West)     First Floor     12/30/2022     6-Liter Summa Canister       AMB-1     Jim's Music Retail (Basement)     First Floor     12/30/2022     6-Liter Summa Canister       AMB-1     Jim's Music Retail (Basement)     First Floor     12/30/2022     6-Liter Summa Canister       AMB-3     Jim's Music Retail (Basement)     Basement     12/30/2022     6-Liter Summa Canister       AA3     Jim's Music Lesson     First Floor     12/30/2022     6-Liter Summa Canister       AA3     Jim's Music Lesson     First Floor     12/30/2022     6-Liter Summa Canister		then	sne	oroe	е	Ð			
			Table         Vapor Analytical Test Results Su         Martinizing Dry Cleanin         1233 South Mil Green Bay, Terracon Project         t Floor/       Sample Date       Sampling Method         3/4/2020       6-Liter Summa Canister         3/4/2020       6-Liter Summa Canister         5/20/2020       6-Liter Summa Canister         3/4/2020       6-Liter Summa Canister         3/4/2020       6-Liter Summa Canister         st Floor       3/4/2020       6-Liter Summa Canister         3/4/2020       6-Liter Summa Canister         st Floor       12/30/2022       6-Liter Summa Canister         sement       12/30/2022       6-Liter Summa Canister         st Floor       12/30/2022       6-Liter Summa Canister         sement       12/30/2022       6-Liter Summa Canister         st Floor       12/20/2020       6-Liter Summa Canister         st Floor       12/20/2020       6-Liter Summa Canister         st Floor       12/20/2020       6-Liter Summa Canister         st Floor       12/30/2022       6-Liter Summa Canister         st Floor       12/30/2022       6-Liter Summa Canister         st Floor       12/30/2022       6-Liter Summa Canister <th></th> <th></th> <th>oroe</th> <th>bethe</th> <th>Dichl</th> <th>2- ethe</th> <th>lorid</th>			oroe	bethe	Dichl	2- ethe	lorid
Table 1           Vapor Analytical Test Results Summary for Ambient Air CVOCs Martinizing Dry Cleaning and Laundry Service 2233 South Millary Avenue Green Bay, Wisconin Terracon Project No. 58217038           sample ID         Sampling Location         First Floor/ Basement         Sample Data         Sampling Sample ID         Sampling Location         First Floor/ Basement         Sample Data         Sampling Time Calibrated Sampling Time         gg gg gg gg gg gg gg gg gg gg gg gg gg	hlore	1,2-1	nloro	/I Ch						
Sample ID	Napor Analytical Tiest Results Sum Martinizing Dry Cleaning is 2233 South Milki Green Bay, Willing Green Bay, Willing Green Bay, Willing Method         ample ID       Sampling Location       First Floor/ Basement       Sampling Date       Sampling Wethod         AA1       Jim's Music Retail (Front/West)       First Floor       3/4/2020       6-Liter Summa Ganister         AA1       Jim's Music Retail (Front/West)       First Floor       3/4/2020       6-Liter Summa Ganister         AA1       Jim's Music Retail (Back/East)       First Floor       3/4/2020       6-Liter Summa Ganister         AA2       Jim's Music Retail (Back/East)       First Floor       3/4/2020       6-Liter Summa Canister         AA4       Jim's Music Retail (Bacsment)       First Floor       3/4/2020       6-Liter Summa Canister         AMB-1       Jim's Music Retail (Basement)       First Floor       12/30/2022       6-Liter Summa Canister         AMB-1       Jim's Music Retail (Basement)       First Floor       12/30/2022       6-Liter Summa Canister         AMB-1       Jim's Music Retail (Basement)       First Floor       12/30/2022       6-Liter Summa Canister         AMB-1       Jim's Music Retail (Basement)       Basement       12/30/2022       6-Liter Summa Canister         AMB-2       Jim's Music Lesson       First Floor       3/4	Calibrated Sampling Time	Tetr	Tric	Cis-	Dict	Viny			
			Jim's Mu	sic & Teaching Ce	enter (1219 Military	/)				
			3/4/2020	Canister	8-Hour	338	1.4	<0.793	<0.793	<0.511
AA1	(Front/West)	First Floor	4/2/2020	6-Liter Summa Canister	30-minute	555 / 365	1.9	0.65 J	<0.52	<0.23
			5/20/2020	6-Liter Summa Canister	8-Hour	940	1.4	<0.19	<0.27	<0.15
AA2	Jim's Music Retail (Back/East)	First Floor	Table 1         Vapor Analytical Test Results Summal         Martinizing Dry Cleaning and 1233 South Military Green Bay, Wisco Terracon Project No. 5         Sample Basement       Sampling Method         Jam's Music & Tacching Center Basement         3/4/2020       6-Liter Summa Canister       5/20/2020         First Filoor       3/4/2020       6-Liter Summa Canister       Canister         First Filoor       3/4/2020       6-Liter Summa Canister       2         First Filoor       3/4/2020       6-Liter Summa Canister       2         The Basement       8/25/2021       6-Liter Summa Canister       2         First Filoor       12/30/2022       6-Liter Summa Canister       2         Basement       8/25/2021       6-Liter Summa Canister       2         First Filoor       12/30/2022       6-Liter Summa Canister       2         Basement       3/4/2020       6-Liter Summa Canister       2         First Filoor       12/30/2022       6-Liter Summa Canister       2         Basement       3/4/2020       6-Liter Summa Canister       2         First Filoor       12/30/2022       6-Liter Summa Canister       2         First Filoor       2/2/2023       6-Li		8-hour	411	1.93	<0.793	<0.793	<0.511
	Table 1 Vapor Analytical Test Results Summe Martinizing DTy Classifier and South Milling DTy Classifier and Green Bay, Wisc Terracon Project No.           e ID         Sampling Location         First Floor Basement         Sample Date         Sampling Location Project No.           1         Jim's Music Retail (Front/West)         First Floor         3/4/2020         6-Liter Summa Canister           2         Jim's Music Retail (Front/West)         First Floor         3/4/2020         6-Liter Summa Canister           4         Jim's Music Retail (Back/East)         First Floor         3/4/2020         6-Liter Summa Canister           1         Jim's Music Retail (Back/East)         First Floor         3/4/2020         6-Liter Summa Canister           2         Jim's Music Retail (Basement)         First Floor         3/4/2020         6-Liter Summa Canister           1         Jim's Music Retail (Front/West)         First Floor         12/30/2022         6-Liter Summa Canister           1         Jim's Music Retail (Basement)         Basement         3/2/2020         6-Liter Summa Canister           3         Jim's Music Retail (Basement)         Basement         12/30/2022         6-Liter Summa Canister           3         Jim's Music Retail (Basement)         Basement         2/2/2023         6-Liter Summa Canister           3 <t< td=""><td>8-Hour</td><td>382</td><td>2.18</td><td>&lt;0.793</td><td>&lt;0.793</td><td>&lt;0.511</td></t<>			8-Hour	382	2.18	<0.793	<0.793	<0.511	
AA4	Jim's Music Retail	North Basement	4/2/2020	6-Liter Summa Canister	30-minute	1,230	3.6	1.40 J	<0.50	<0.22
			5/20/2020	6-Liter Summa Canister	8-Hour	861	0.77	<0.17	<0.52	<0.14
AMB-1	Jim's Music Retail (Basement)	Basement	8/25/2021	6-Liter Summa Canister	8-hour	685	2.4	<0.30	1.9	<0.13
AMB-Jims Teaching	Jim's Music Retail (Front/West)	First Floor	12/30/2022	6-Liter Summa Canister	8-hour	1,350	2.2	<0.34	<0.67	<0.15
Center (1219)	Jim's Music Retail (Front/West)	First Floor	2/2/2023	6-Liter Summa Canister	8-hour	751	2.4	<0.31	<0.60	<0.14
AMB- Basement	Jim's Music Retail (Basement)	Basement	12/30/2022	6-Liter Summa Canister	8-hour	<i>931</i> 3.5		<0.34	<0.67	<0.15
(1219)	Jim's Music Retail (Basement)	Basement	2/2/2023	6-Liter Summa Canister	8-hour	404	4.5	<0.30	<0.58	<0.13
			Jim	's Music Lesson (	(1231 Military)			T		
			3/4/2020	6-Liter Summa Canister	8-Hour	827/983	6.23	2.0	<0.793	<0.511
AA3	Jim's Music Lesson	First Floor	4/2/2020	6-Liter Summa Canister	30-minute	2,510	4.3	1.7	<0.50	<0.22
			5/20/2020	6-Liter Summa Canister	8-Hour	4,390	1.1	<0.17	<0.25	<0.14
AA5	Jim's Music Lesson	South Basement	3/4/2020	6-Liter Summa Canister	8-hour	807 / 909	15.2	4.84	<0.793	<0.511
AMB-2	Jim's Music Lesson	Basement	8/25/2021	6-Liter Summa Canister	8-hour	1,990	4.6	<0.25	0.91J	<0.13
AMB-Jims	Jim's Music Lesson	First Floor	12/30/2022	6-Liter Summa Canister	8-hour	2,040	3.5	<0.34	<0.67	<0.15
(1231)	Jim's Music Lesson	First Floor	2/2/2023	6-Liter Summa Canister	8-hour	1,120	3.5	<0.31	<0.60	<0.14
	Resider	ntial Indoor Air V			µg/m³	42	2.1	42	42	1.7
	Small Commer	industrial Building T	r Air VAL	1	$\mu g/m^3$	180	8.8 8.8	180	180 180	28 28
Notes: Results express VAL = Vapor A CVOCs = Chlor J= Estimated c " < " Indicates <sup>1</sup> VAL given as http://www.ep and modifed fo <b>Bold</b> = Exceed <i>Italicized</i> = Fy	sed in micrograms per ction Level inated Volatile Organic oncentration at or abo not detected at or abo the lesser of 1:100,00 a.gov/re3hwmd/risk/h r Wisconsin Vapor Intr lance of Residential In ceedance of Small-Cor	cubic meter (µg/m cubic meter (µg/m compounds ve the limit of dete ove the LOD 0 lifetime cancer ris uman/rb-concentra usion Guidance PUI door Air VAL nmercial Building T	<sup>3</sup> ) ction (LOD) an sk or noncance atio_table/Gene B-RR-800 lifeti ndoor Air VAI	- Ind below the Limit of Pric_Tables/index.h me cancer risk (1:1	n <u>Parrie</u> of Quantitation (LOQ) L value in generic U.S htm 100,000) (November	) 5 EPA Tables a 2022)	at the web a	address:		
<u>Underlined</u> = E	Exceedance of Large Co	ommercial/Industri	al Building Ind	oor Air VAL						



February 10, 2023

Tim Welch Terracon WI 9856 S. 57th. St. Franklin, WI 53132

RE: Project: 58217038 OHM Pace Project No.: 10641837

Dear Tim Welch:

Enclosed are the analytical results for sample(s) received by the laboratory on February 03, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network: • Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kigh Hegher

Kirsten Hogberg kirsten.hogberg@pacelabs.com (612)607-1700 Project Manager

Enclosures

cc: Ryan Johnson, Terracon





Pace Analytical Services, LLC 1700 Elm Street Minneapolis, MN 55414 (612)607-1700

#### CERTIFICATIONS

Project: 58217038 OHM

Pace Project No.: 10641837

#### Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414 1800 Elm Street SE, Minneapolis, MN 55414--Satellite Air Lab A2LA Certification #: 2926.01\* Alabama Certification #: 40770 Alaska Contaminated Sites Certification #: 17-009\* Alaska DW Certification #: MN00064 Arizona Certification #: AZ0014\* Arkansas DW Certification #: MN00064 Arkansas WW Certification #: 88-0680 California Certification #: 2929 Colorado Certification #: MN00064 Connecticut Certification #: PH-0256 EPA Region 8 Tribal Water Systems+Wyoming DW Certification #: via MN 027-053-137 Florida Certification #: E87605\* Georgia Certification #: 959 GMP+ Certification #: GMP050884 Hawaii Certification #: MN00064 Idaho Certification #: MN00064 Illinois Certification #: 200011 Indiana Certification #: C-MN-01 Iowa Certification #: 368 Kansas Certification #: E-10167 Kentucky DW Certification #: 90062 Kentucky WW Certification #: 90062 Louisiana DEQ Certification #: AI-03086\* Louisiana DW Certification #: MN00064 Maine Certification #: MN00064\* Maryland Certification #: 322 Michigan Certification #: 9909 Minnesota Certification #: 027-053-137\* Minnesota Dept of Ag Approval: via MN 027-053-137 Minnesota Petrofund Registration #: 1240\* Mississippi Certification #: MN00064

Missouri Certification #: 10100 Montana Certification #: CERT0092 Nebraska Certification #: NE-OS-18-06 Nevada Certification #: MN00064 New Hampshire Certification #: 2081\* New Jersey Certification #: MN002 New York Certification #: 11647\* North Carolina DW Certification #: 27700 North Carolina WW Certification #: 530 North Dakota Certification (A2LA) #: R-036 North Dakota Certification (MN) #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification (1700) #: CL101 Ohio VAP Certification (1800) #: CL110\* Oklahoma Certification #: 9507\* Oregon Primary Certification #: MN300001 Oregon Secondary Certification #: MN200001\* Pennsylvania Certification #: 68-00563 Puerto Rico Certification #: MN00064 South Carolina Certification #:74003001 Tennessee Certification #: TN02818 Texas Certification #: T104704192\* Utah Certification #: MN00064\* Vermont Certification #: VT-027053137 Virginia Certification #: 460163\* Washington Certification #: C486\* West Virginia DEP Certification #: 382 West Virginia DW Certification #: 9952 C Wisconsin Certification #: 999407970 Wyoming UST Certification #: via A2LA 2926.01 USDA Permit #: P330-19-00208 \*Please Note: Applicable air certifications are denoted with an asterisk (\*).



#### SAMPLE SUMMARY

Project: 58217038 OHM

Pace Project No.: 10641837

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10641837001	AMB-Basement (1219)	Air	02/02/23 16:37	02/03/23 11:30
10641837002	AMB-Jim's Teaching Center(1219	Air	02/02/23 16:19	02/03/23 11:30
10641837003	AMB-Jim's Music Lesson (1231)	Air	02/02/23 16:36	02/03/23 11:30
10641837004	AMB-Spa (1235)	Air	02/02/23 16:22	02/03/23 11:30
10641837005	AMB-Wakanda (1239)	Air	02/02/23 16:24	02/03/23 11:30



#### SAMPLE ANALYTE COUNT

 Project:
 58217038 OHM

 Pace Project No.:
 10641837

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10641837001	AMB-Basement (1219)	TO-15	MJL	5	PASI-M
10641837002	AMB-Jim's Teaching Center(1219	TO-15	MJL	5	PASI-M
10641837003	AMB-Jim's Music Lesson (1231)	TO-15	MJL	5	PASI-M
10641837004	AMB-Spa (1235)	TO-15	MJL	5	PASI-M
10641837005	AMB-Wakanda (1239)	TO-15	MJL	5	PASI-M

PASI-M = Pace Analytical Services - Minneapolis



#### SUMMARY OF DETECTION

Project: 58217038 OHM

Pace Project No.: 10641837

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10641837001	AMB-Basement (1219)					
TO-15	Tetrachloroethene	404	ug/m3	28.7	02/08/23 14:27	
TO-15	Trichloroethene	4.5	ug/m3	0.76	02/08/23 00:17	
10641837002	AMB-Jim's Teaching Center(1219					
TO-15	Tetrachloroethene	751	ug/m3	29.8	02/08/23 14:54	
TO-15	Trichloroethene	2.4	ug/m3	0.79	02/08/23 00:46	
10641837003	AMB-Jim's Music Lesson (1231)					
TO-15	Tetrachloroethene	1120	ug/m3	59.5	02/08/23 16:14	
TO-15	Trichloroethene	3.5	ug/m3	0.79	02/08/23 01:15	
10641837004	AMB-Spa (1235)					
TO-15	Tetrachloroethene	284	ug/m3	29.8	02/08/23 14:00	
TO-15	Trichloroethene	0.72J	ug/m3	0.79	02/08/23 02:14	
10641837005	AMB-Wakanda (1239)					
TO-15	Tetrachloroethene	28.2	ug/m3	0.99	02/08/23 01:45	



#### ANALYTICAL RESULTS

Project: 58217038 OHM

Pace Project No.: 10641837

Sample: AMB-Basement (1219)	Lab ID:	10641837001	Collecte	d: 02/02/2	3 16:37	Received: 02	2/03/23 11:30 Ma	atrix: Air	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical	Method: TO-15							
	Pace Ana	lytical Services	- Minneapo	olis					
cis-1 2-Dichloroethene	<0.30	ua/m3	1 1	0 30	1 39		02/08/23 00.17	156-59-2	
trans-1 2-Dichloroethene	<0.00	ug/m3	1.1	0.00	1.00		02/08/23 00:17	156-60-5	
Tetrachloroethene	404	ug/m3	28.7	10.3	41.7		02/08/23 14:27	127-18-4	
Trichloroethene	4.5	ug/m3	0.76	0.33	1.39		02/08/23 00:17	79-01-6	
Vinyl chloride	<0.13	ug/m3	0.36	0.13	1.39		02/08/23 00:17	75-01-4	
Sample: AMB-Jim's Teaching Center(1219	Lab ID:	10641837002	Collecte	d: 02/02/2	3 16:19	Received: 02	2/03/23 11:30 Ma	atrix: Air	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical	Method: TO-15						_	
	Pace Ana	lytical Services	- Minneapo	olis					
cis-1 2-Dichloroethene	<0.31	ua/m3	12	0.31	1 44		02/08/23 00:46	156-59-2	
trans-1.2-Dichloroethene	<0.60	ug/m3	1.2	0.60	1.44		02/08/23 00:46	156-60-5	
Tetrachloroethene	751	ug/m3	29.8	10.7	43.2		02/08/23 14:54	127-18-4	
Trichloroethene	2.4	ua/m3	0.79	0.34	1.44		02/08/23 00:46	79-01-6	
Vinyl chloride	<0.14	ug/m3	0.37	0.14	1.44		02/08/23 00:46	75-01-4	
Sample: AMB-Jim's Music Lesson (1231)	Lab ID:	10641837003	Collecte	d: 02/02/2	3 16:36	Received: 02	2/03/23 11:30 Ma	atrix: Air	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
	Analytical	Method: TO-15							
	Pace Ana	lytical Services	- Minneapo	olis					
cis-1 2-Dichloroethene	<b>~</b> 0 31	ua/m3	12	0.31	1 44		02/08/23 01.15	156-59-2	
trans-1.2-Dichloroethene	<0.60	ug/m3	1.2	0.60	1.44		02/08/23 01:15	156-60-5	
Tetrachloroethene	1120	ug/m3	59.5	21.4	86.4		02/08/23 16:14	127-18-4	
Trichloroethene	3.5	ua/m3	0.79	0.34	1.44		02/08/23 01:15	79-01-6	
Vinyl chloride	<0.14	ug/m3	0.37	0.14	1.44		02/08/23 01:15	75-01-4	
Sample: AMB-Spa (1235)	Lab ID:	10641837004	Collecte	d: 02/02/2	3 16:22	Received: 02	2/03/23 11:30 Ma	atrix: Air	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Pace Ana	Method: TO-15	- Minneapo	olis					
cis-1.2-Dichloroethene	<0.31	ua/m3	1.2	0.31	1.44		02/08/23 02:14	156-59-2	
trans-1,2-Dichloroethene	<0.60	ug/m3	1.2	0.60	1.44		02/08/23 02:14	156-60-5	

#### **REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, LLC.



#### ANALYTICAL RESULTS

Project: 58217038 OHM

Pace Project No.: 10641837

Sample: AMB-Spa (1235)	Lab ID:	10641837004	Collecte	d: 02/02/2	3 16:22	Received: 02/	03/23 11:30 Ma	atrix: Air	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical	Method: TO-15							
	Pace Anal	lytical Services	- Minneapo	olis					
Tetrachloroethene	284	ug/m3	29.8	10.7	43.2		02/08/23 14:00	127-18-4	
Trichloroethene	0.72J	ug/m3	0.79	0.34	1.44		02/08/23 02:14	79-01-6	
Vinyl chloride	<0.14	ug/m3	0.37	0.14	1.44		02/08/23 02:14	75-01-4	
Sample: AMB-Wakanda (1239)	Lab ID:	10641837005	Collecte	d: 02/02/2	3 16:24	Received: 02/	03/23 11:30 M	atrix: Air	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical	Method: TO-15							
	Pace Anal	lytical Services	- Minneapo	olis					
cis-1,2-Dichloroethene	<0.31	ug/m3	1.2	0.31	1.44		02/08/23 01:45	156-59-2	
trans-1,2-Dichloroethene	<0.60	ug/m3	1.2	0.60	1.44		02/08/23 01:45	156-60-5	
Tetrachloroethene	28.2	ug/m3	0.99	0.36	1.44		02/08/23 01:45	127-18-4	
Trichloroethene	<0.34	ug/m3	0.79	0.34	1.44		02/08/23 01:45	79-01-6	
Vinyl chloride	<0.14	ug/m3	0.37	0.14	1.44		02/08/23 01:45	75-01-4	



#### **QUALITY CONTROL DATA**

Project: Pace Project No.:	58217038 OHM 10641837											
QC Batch:	866362		Analysis Me	Analysis Method: TO-15								
QC Batch Method:	TO-15		Analysis De	scription: T	O15 MSV AIR	Low Level						
			Laboratory:	P	ace Analytical	Services - Mir	ineapolis					
Associated Lab San	nples: 10641837	7001, 10641837002,	, 10641837003, 1064183700		0641837005							
METHOD BLANK:	4572151		Matrix	: Air								
Associated Lab San	nples: 10641837	7001, 10641837002,	10641837003,	10641837004, 1	0641837005							
			Blank	Reporting								
Paran	neter	Units	Result	Limit	Analyzed	d Quali	fiers					
cis-1,2-Dichloroethe	ene	ug/m3	<0.21	0.81	02/07/23 10	):25						
Tetrachloroethene		ug/m3	<0.25	0.69	02/07/23 10	):25						
trans-1,2-Dichloroet	hene	ug/m3	<0.42	0.81	02/07/23 10	):25						
Trichloroethene		ug/m3	<0.24	0.55	02/07/23 10	):25						
Vinyl chloride		ug/m3	<0.096	0.26	6 02/07/23 10	):25						
	NTROL SAMPI F	4572152										
LABORATORY CONTROL SAMPLE:			Spike	LCS	LCS	% Rec						
Parameter		Units	Conc.	Result	% Rec	Limits	Qualifiers					
cis-1 2-Dichloroethe	ne		42 1	47 7	113	70-133						
Tetrachloroethene		ug/m3	72	80.6	110	70-139						
trans-1.2-Dichloroet	hene	ug/m3	42.3	44.6	105	70-132						
Trichloroethene		ug/m3	57.2	67.5	118	70-132						
Vinyl chloride		ug/m3	27.2	27.4	101	64-136						
	TE: 4573808											
	12. 4070000		10641298001	Dup		Max						
Paran	neter	Units	Result	Result	RPD	RPD	Qualifiers					
aia 1.2 Diablaraatha												
CIS-1,2-DICNIOrOetne	ene	ug/m3	<1.0	<0.42		0	25					
trans_1 2-Dichloroot	hono	ug/m3	2.0 ~1 G	2.5 0 91 مر	,	2	25 25					
Trichloroethene		ug/m3	22.8	20.01 24 A		8	25					
Vinvl chloride		ug/m3	<0.50	<0.19		0	25					
		0										
SAMPLE DUPLICA	TE: 4573899		40044000040									
Doron	notor	Linita	10641833010 Rocult	Dup	חחם	Max	Qualifiara					
Paran	netei	Units	Result	Result	KPU	KPD						
cis-1,2-Dichloroethe	ene	ug/m3	ND	<0.32			25					
Tetrachloroethene		ug/m3	ND	<0.37			25					
	hene	ug/m3	ND	<0.62			25					
trans-1,2-Dichloroet		, <b>2</b>		O 11			.72					
trans-1,2-Dichloroet Trichloroethene		ug/m3	ND	0.415			25					

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

#### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, LLC.



#### QUALIFIERS

Project: 58217038 OHM

Pace Project No.: 10641837

#### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.



#### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:	58217038 OHM
Pace Project No.:	10641837

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10641837001	AMB-Basement (1219)	TO-15	866362		
10641837002	AMB-Jim's Teaching Center(1219	TO-15	866362		
10641837003	AMB-Jim's Music Lesson (1231)	TO-15	866362		
10641837004	AMB-Spa (1235)	TO-15	866362		
10641837005	AMB-Wakanda (1239)	TO-15	866362		

Face Analytical\*

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414 Air Technical Phone: 612.607.6386

### AIR: CHAIN-OF-CUSTODY / A

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fit

# WO#:10641837 10641837

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2 AMB - Jin's Teaching Lent	(1217)		Í	0834	1	1619	-30	-2	3 3	36	9	21	53	5				X				
3 AMB- J'A'S MUSIC Lette	n(1231)			0837		1636	-30	-2	11	3	9	2 :	50	1				X				
4 AMB- Spa (1235)				0840		1622	-30	-4	3 3	6	4	20	54	0	ia A i		10104	X	11 s b	Nori		
5 AMB-Wakanda (1239)		1	1-4-	0841	+	1624	-30	-2	35	59	3	2	74	4				x				
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### Wisconsin DNR vapor intrusion quick facts

# What is Vapor Intrusion?



Chemicals used in commercial or industrial activities – dry cleaning chemicals, chemical degreasers and petroleum products such as gasoline – are sometimes spilled and leak into nearby soil or groundwater. When this happens, these chemicals may release gases or vapors, which travel from the contaminated groundwater or soil and move into nearby homes or businesses. This is called vapor intrusion.

## Why are these chemical vapors a problem?

The chemicals that cause vapor intrusion are known as volatile organic compounds, or VOCs. Even when spilled into soil or water, these chemicals easily evaporate. They don't cause human health problems when they evaporate into the outside air, but when their vapors move into homes or businesses, they may cause long-term health problems for the people who live or work in those buildings. These vapors are usually odorless and colorless and undetectable without special testing equipment.

### Why is vapor intrusion a concern?

Exposure to some chemical gases or vapors can cause an increased risk of adverse health effects. Whether or not a person experiences any health effects depends on several factors, including the amount and length of exposure, the toxicity of the chemical, and the individual's sensitivity to the chemical. When harmful chemical vapor intrusion is the result of environmental contamination, the Wisconsin Department of Natural Resources (DNR) requires that steps be taken to reduce or eliminate exposures which could be harmful to human health. The process when chemical vapors from contaminated soil or groundwater enter a home or other structure is called vapor intrusion.

# What should I expect if vapor intrusion is suspected near my home or business?

For businesses or other locations where VOC contamination has been found, the DNR requires that the potential for vapor intrusion be investigated. If you live near a site being cleaned up, you may be contacted by the site owner or others working on the cleanup. Your cooperation and consent will be requested before any testing or sampling is conducted on your property. Ask the person contacting you any questions you have about the work being done, or contact the DNR for more information (see DNR contact information on reverse). For more information about testing for vapor intrusion, see DNR-Pub-RR-954, "What to Expect During Vapor Intrusion Sampling."





## How Vapors Enter a Building

If you live near a commercial or industrial facility or landfill where VOCs have entered either the soil or groundwater, there may be a potential for those chemicals to travel as vapors into your home or business. Vapors can enter buildings in various ways, including through cracks in the foundation and openings for utility lines. Building ventilation and weather can influence the extent of vapor intrusion.



#### Adapted from U.S. Environmental Protection Agency (EPA) graphic. www.epa.gov/oswer/vaporintrusion/basic.html

### Where can I find more information?

Health and vapor-related information can be found at the Wisconsin Department of Health Services (DHS) website at <u>dhs.wisconsin.gov</u>, search "Vapor." For other health-related questions, please contact your local health department: <u>www.dhs.wisconsin.gov/localhealth</u>.

For more DNR information, please visit the DNR's Remediation and Redevelopment (RR) Program's Vapor Intrusion page at <u>dnr.wi.gov/topic/Brownfields/Vapor.html</u>.

Additional information can be obtained through the DNR field office in your region. To find the correct office, visit the RR Program Staff Contacts page at <u>dnr.wi.gov/topic/Brownfields/Contact.html</u> or call the RR Program at (608) 266-2111.

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.

# 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.



#### **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.



Wisconsin Department of Natural Resources 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.



<u>A Note about Measurement Units</u>: 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  $\mu g/m3$  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.



March 8, 2023

Ms. Ping Jiang East Spa 1235 South Military Avenue Green Bay, Wisconsin 54304

#### Re: Sample Results Notification – February 2023 WDNR BRRTS No. 02-05-217270 Terracon Project No. 58217038

Dear Ms. Jiang,

In accordance with Wisconsin Administrative Code (WAC) Chapter NR 716.14, and on behalf of the responsible party, Innovative Properties Group, Terracon Consultants, Inc. (Terracon) is providing this letter to present the results of indoor ambient air samples collected from the East Spa tenant space. The air samples were collected as part of the ongoing environmental investigation of the One Hour Martinizing site located at 1233 South Military Avenue, Green Bay, Wisconsin. The contaminants of concern are the dry cleaning solvent tetrachloroethene (PCE), and its breakdown products. The responsible party contact information is as follows:

Innovative Properties Group c/o Kelly & Brand, Attorneys at Law, LLC 303 Pearl Avenue, Suite A P.O. Box 384 Oshkosh, WI 54903-0384 (920) 230-2100

One indoor air sample was collected from the East Spa on February 2, 2023. The sample designated as "AMB-Spa (1235)", was collected in a vacuum canister over an 8-hour period.

The results of the indoor air sample analysis are summarized and compared to regulatory standards in the attached Table 1. The laboratory report associated with the sample is also attached. PCE and trichloroethene (TCE) were detected in the indoor ambient air sample. PCE was detected at a concentration of 284 micrograms per cubic meter ( $\mu$ g/m<sup>3</sup>), which exceeds its vapor action level (VAL) for small commercial buildings established by the Wisconsin Department of Natural Resources (WDNR) of 180  $\mu$ g/m<sup>3</sup>. TCE was detected at an estimated concentration of 0.72  $\mu$ g/m<sup>3</sup>, which is less than its VAL of 8.8  $\mu$ g/m<sup>3</sup>. No other contaminants of concern were detected in the air sample. The responsible party will continue to work with the WDNR to find solutions to improve air quality in the East Spa building.

Explore with us



Sample Results Notification – February 2023 1235 South Military Avenue ■ Green Bay, Wisconsin March 8, 2023 ■ Terracon Project No. 58217038

In accordance with WAC Chapter NR 714.05 (5), you may request in writing that the WDNR project manager keep you informed of approvals or rejections of the response actions undertaken at the One Hour Martinizing site. The WDNR project manager contact information is as follows:

Josie Schultz Wisconsin Department of Natural Resources 2984 Shawano Avenue Green Bay, Wisconsin 54313 (920) 366-5685 josie.schultz@wisconsin.gov

If you have questions on how breathing these vapors may affect your health, the Wisconsin Department of Health Services (WDHS) contact information is as follows:

Curtis Hedman, Ph.D. Bureau of Environmental and Occupational Health Division of Public Health, Wisconsin Department of Health Services 1 W Wilson St, Rm 150 Madison, WI 53701 Curtis.hedman@dhs.wisconsin.gov Phone: 608-266-6677

If you have any questions, please contact me directly at (414) 209-7634, via email to <u>tim.welch@terracon.com</u>, or contact our office at (414) 423-0255.

Sincerely,

TindfAnkhl

Timothy P. Welch, P.G. Senior Project Manager

Attachments – Table 1 Laboratory Analytical Report – February 10, 2023 What is Vapor Intrusion, RR892 Understanding Chemical VI Sampling Results, RR977

Copy to: Dr. Neziri, Innovative Properties Group Benjamin Brand, Kelly & Brand, Attorneys at Law, LLC Josie Schultz, WDNR Curtis Hedman, WDHS

			Vapo	r Analytical Tes	Table 1 at Results Summa	ry for Ambient Air C	VOCs				
				Martinizing 12 Terr	Dry Cleaning and 233 South Military Green Bay, Wisco racon Project No. 5	Laundry Service Avenue onsin 58217038					
								C\	/OCs (ug/m³)		
Sample ID	Sample Type	Sampling Location	First Floor/ Basement	Sample Date	Sampling Method	Flow Regulator Calibrated Sampling Time	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride
				Former William	's Taekwondo/Eas	st Spa (1235 Military	)				
				3/4/2020	6-Liter Summa Canister	8-Hour	1,420 / 2,270	<1.07	<0.793	<0.793	<0.511
AA8	Ambient Air	Former William's Taekwondo	First Floor	4/2/2020	6-Liter Summa Canister	30-minute	805	<0.43	<0.37	<0.48	<0.21
				5/20/2020	6-Liter Summa Canister	8-Hour	408	<0.53	<0.28	<0.63	<0.23
AMB-Spa	Ambient Air	East Spa	First Floor	12/30/2022	6-Liter Summa Canister	8-hour	959	2.0	<0.32	<0.62	<0.14
(1235)	Ambient Air	East Spa	First Floor	2/2/2023	6-Liter Summa Canister	8-hour	284	0.72J	<0.31	<0.60	<0.14
					Outdoors Near V	/ent					
AA7	Ambient Air	Outdoor Near Vent	Outdoors	3/4/2020	6-Liter Summa Canister	8-hour	23	<1.07	<0.793	<0.793	<0.511
		Residential Inc	loor Air VAL <sup>1</sup>			µg/m³	42	2.1	42	42	1.7
		Residential Sub-slab V	apor/Soil Gas VI	RSL <sup>2</sup>		µg/m³	1,400	70	1,400	1,400	57
		Small Commercial Buil	ding Indoor Air V	/AL <sup>1</sup>		µg/m <sup>3</sup>	180	8.8	180	180	28
	Small (	Commercial Building Sul	b-slab Vapor/Soi	I Gas VRSL <sup>2</sup>		µg/m <sup>3</sup>	5,800	290	5,800	5,800	930
	Larg	ge Commercial/Industria	I Building Indoor	Air VAL <sup>1</sup>		μg/m <sup>3</sup>	<u>180</u>	8.8	<u>180</u>	180	28
	Large Comr	mercial/Industrial Buildin	g Sub-slab Vapo	or/Soil Gas VRS	L <sup>3</sup>	μg/m <sup>3</sup>	18,000	880	18,000	18,000	2,800

#### Notes:

Results expressed in micrograms per cubic meter (ug/m³)

VAL = Vapor Action Limit

VRSL = Vapor Risk Screening Level

CVOCs = Chlorinated Volatile Organic Compounds

J= Estimated concentration at or above the limit of detection (LOD) and below the Limit of Quantitation (LOQ)

" < " Indicates not detected at or above the LOD

<sup>1</sup>VAL given as the lesser of 1:100,000 lifetime cancer risk or noncancer hazard index of 1 value in generic U.S EPA Tables at the web address: http://www.epa.gov/re3hwmd/risk/human/rbconcentratio\_table/Generic\_Tables/index.htm and modifed for Wisconsin Vapor Intrusion Guildance PUB-RR-800 lifetime cancer risk (1:100,000)(Nov 2022)

<sup>2</sup> VRSL is the VAL adjusted for sub-slab vapor to indoor air by applying an attenuation factor of 0.03 for comparison with the analytical results.

<sup>3</sup> VRSL is the VAL adjusted for sub-slab vapor to indoor air by applying an attenuation factor of 0.01 for comparison with analytical results.

Sampled by GEI in March 2020 and May 2020 performed on behalf of Innovative Properties Group

Sampled by SCS Engineers in April 2020 performed on behalf of EPA

Previous consultants focused their vapor results tables on CVOCs. Other constituents were detected above their LODs, however, they were all detected below a VAL or VRSL.

Bold = Exceedance of Residential Indoor Air VAL

Italicized = Exceedance of Small-Commercial Building Indoor Air VAL <u>Underlined</u> = Exceedance of Large Commercial/Industrial Building Indoor Air VAL <u>Blue Shaded values indicate exceedance of applicable residential VRSLs (sub-slab)</u> <u>Brown Shaded values indicate exceedance of applicable small commercial VRSLs (sub-slab)</u> <u>Red Shaded values indicate</u> exceedance of applicable Large commercial building VRSLs (sub-slab)



February 10, 2023

Tim Welch Terracon WI 9856 S. 57th. St. Franklin, WI 53132

RE: Project: 58217038 OHM Pace Project No.: 10641837

Dear Tim Welch:

Enclosed are the analytical results for sample(s) received by the laboratory on February 03, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network: • Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kigh Hegher

Kirsten Hogberg kirsten.hogberg@pacelabs.com (612)607-1700 Project Manager

Enclosures

cc: Ryan Johnson, Terracon





Pace Analytical Services, LLC 1700 Elm Street Minneapolis, MN 55414 (612)607-1700

#### CERTIFICATIONS

Project: 58217038 OHM

Pace Project No.: 10641837

#### Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414 1800 Elm Street SE, Minneapolis, MN 55414--Satellite Air Lab A2LA Certification #: 2926.01\* Alabama Certification #: 40770 Alaska Contaminated Sites Certification #: 17-009\* Alaska DW Certification #: MN00064 Arizona Certification #: AZ0014\* Arkansas DW Certification #: MN00064 Arkansas WW Certification #: 88-0680 California Certification #: 2929 Colorado Certification #: MN00064 Connecticut Certification #: PH-0256 EPA Region 8 Tribal Water Systems+Wyoming DW Certification #: via MN 027-053-137 Florida Certification #: E87605\* Georgia Certification #: 959 GMP+ Certification #: GMP050884 Hawaii Certification #: MN00064 Idaho Certification #: MN00064 Illinois Certification #: 200011 Indiana Certification #: C-MN-01 Iowa Certification #: 368 Kansas Certification #: E-10167 Kentucky DW Certification #: 90062 Kentucky WW Certification #: 90062 Louisiana DEQ Certification #: AI-03086\* Louisiana DW Certification #: MN00064 Maine Certification #: MN00064\* Maryland Certification #: 322 Michigan Certification #: 9909 Minnesota Certification #: 027-053-137\* Minnesota Dept of Ag Approval: via MN 027-053-137 Minnesota Petrofund Registration #: 1240\* Mississippi Certification #: MN00064

Missouri Certification #: 10100 Montana Certification #: CERT0092 Nebraska Certification #: NE-OS-18-06 Nevada Certification #: MN00064 New Hampshire Certification #: 2081\* New Jersey Certification #: MN002 New York Certification #: 11647\* North Carolina DW Certification #: 27700 North Carolina WW Certification #: 530 North Dakota Certification (A2LA) #: R-036 North Dakota Certification (MN) #: R-036 Ohio DW Certification #: 41244 Ohio VAP Certification (1700) #: CL101 Ohio VAP Certification (1800) #: CL110\* Oklahoma Certification #: 9507\* Oregon Primary Certification #: MN300001 Oregon Secondary Certification #: MN200001\* Pennsylvania Certification #: 68-00563 Puerto Rico Certification #: MN00064 South Carolina Certification #:74003001 Tennessee Certification #: TN02818 Texas Certification #: T104704192\* Utah Certification #: MN00064\* Vermont Certification #: VT-027053137 Virginia Certification #: 460163\* Washington Certification #: C486\* West Virginia DEP Certification #: 382 West Virginia DW Certification #: 9952 C Wisconsin Certification #: 999407970 Wyoming UST Certification #: via A2LA 2926.01 USDA Permit #: P330-19-00208 \*Please Note: Applicable air certifications are denoted with an asterisk (\*).



#### SAMPLE SUMMARY

Project: 58217038 OHM

Pace Project No.: 10641837

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10641837001	AMB-Basement (1219)	Air	02/02/23 16:37	02/03/23 11:30
10641837002	AMB-Jim's Teaching Center(1219	Air	02/02/23 16:19	02/03/23 11:30
10641837003	AMB-Jim's Music Lesson (1231)	Air	02/02/23 16:36	02/03/23 11:30
10641837004	AMB-Spa (1235)	Air	02/02/23 16:22	02/03/23 11:30
10641837005	AMB-Wakanda (1239)	Air	02/02/23 16:24	02/03/23 11:30



#### SAMPLE ANALYTE COUNT

 Project:
 58217038 OHM

 Pace Project No.:
 10641837

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10641837001	AMB-Basement (1219)	TO-15	MJL	5	PASI-M
10641837002	AMB-Jim's Teaching Center(1219	TO-15	MJL	5	PASI-M
10641837003	AMB-Jim's Music Lesson (1231)	TO-15	MJL	5	PASI-M
10641837004	AMB-Spa (1235)	TO-15	MJL	5	PASI-M
10641837005	AMB-Wakanda (1239)	TO-15	MJL	5	PASI-M

PASI-M = Pace Analytical Services - Minneapolis



#### SUMMARY OF DETECTION

Project: 58217038 OHM

Pace Project No.: 10641837

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10641837001	AMB-Basement (1219)					
TO-15	Tetrachloroethene	404	ug/m3	28.7	02/08/23 14:27	
TO-15	Trichloroethene	4.5	ug/m3	0.76	02/08/23 00:17	
10641837002	AMB-Jim's Teaching Center(1219					
TO-15	Tetrachloroethene	751	ug/m3	29.8	02/08/23 14:54	
TO-15	Trichloroethene	2.4	ug/m3	0.79	02/08/23 00:46	
10641837003	AMB-Jim's Music Lesson (1231)					
TO-15	Tetrachloroethene	1120	ug/m3	59.5	02/08/23 16:14	
TO-15	Trichloroethene	3.5	ug/m3	0.79	02/08/23 01:15	
10641837004	AMB-Spa (1235)					
TO-15	Tetrachloroethene	284	ug/m3	29.8	02/08/23 14:00	
TO-15	Trichloroethene	0.72J	ug/m3	0.79	02/08/23 02:14	
10641837005	AMB-Wakanda (1239)					
TO-15	Tetrachloroethene	28.2	ug/m3	0.99	02/08/23 01:45	



#### ANALYTICAL RESULTS

Project: 58217038 OHM

Pace Project No.: 10641837

Sample: AMB-Basement (1219)	Lab ID:	10641837001	Collecte	d: 02/02/2	3 16:37	Received: 02	2/03/23 11:30 Ma	atrix: Air	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical	Method: TO-15							
	Pace Ana	lytical Services	- Minneapo	olis					
cis-1 2-Dichloroethene	<0.30	ua/m3	1 1	0 30	1 39		02/08/23 00.17	156-59-2	
trans-1 2-Dichloroethene	<0.00	ug/m3	1.1	0.00	1.00		02/08/23 00:17	156-60-5	
Tetrachloroethene	404	ug/m3	28.7	10.3	41.7		02/08/23 14:27	127-18-4	
Trichloroethene	4.5	ug/m3	0.76	0.33	1.39		02/08/23 00:17	79-01-6	
Vinyl chloride	<0.13	ug/m3	0.36	0.13	1.39		02/08/23 00:17	75-01-4	
Sample: AMB-Jim's Teaching Center(1219	Lab ID:	10641837002	Collecte	d: 02/02/2	3 16:19	Received: 02	2/03/23 11:30 Ma	atrix: Air	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical	Method: TO-15						_	
	Pace Ana	lytical Services	- Minneapo	olis					
cis-1 2-Dichloroethene	<0.31	ua/m3	12	0.31	1 44		02/08/23 00:46	156-59-2	
trans-1.2-Dichloroethene	<0.60	ug/m3	1.2	0.60	1.44		02/08/23 00:46	156-60-5	
Tetrachloroethene	751	ug/m3	29.8	10.7	43.2		02/08/23 14:54	127-18-4	
Trichloroethene	2.4	ua/m3	0.79	0.34	1.44		02/08/23 00:46	79-01-6	
Vinyl chloride	<0.14	ug/m3	0.37	0.14	1.44		02/08/23 00:46	75-01-4	
Sample: AMB-Jim's Music Lesson (1231)	Lab ID:	10641837003	Collecte	d: 02/02/2	3 16:36	Received: 02	2/03/23 11:30 Ma	atrix: Air	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
	Analytical	Method: TO-15							
	Pace Ana	lytical Services	- Minneapo	olis					
cis-1 2-Dichloroethene	<b>~</b> 0 31	ua/m3	12	0.31	1 44		02/08/23 01.15	156-59-2	
trans-1.2-Dichloroethene	<0.60	ug/m3	1.2	0.60	1.44		02/08/23 01:15	156-60-5	
Tetrachloroethene	1120	ug/m3	59.5	21.4	86.4		02/08/23 16:14	127-18-4	
Trichloroethene	3.5	ua/m3	0.79	0.34	1.44		02/08/23 01:15	79-01-6	
Vinyl chloride	<0.14	ug/m3	0.37	0.14	1.44		02/08/23 01:15	75-01-4	
Sample: AMB-Spa (1235)	Lab ID:	10641837004	Collecte	d: 02/02/2	3 16:22	Received: 02	2/03/23 11:30 Ma	atrix: Air	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Pace Ana	Method: TO-15	- Minneapo	olis					
cis-1.2-Dichloroethene	<0.31	ua/m3	1.2	0.31	1.44		02/08/23 02:14	156-59-2	
trans-1,2-Dichloroethene	<0.60	ug/m3	1.2	0.60	1.44		02/08/23 02:14	156-60-5	

#### **REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, LLC.



#### ANALYTICAL RESULTS

Project: 58217038 OHM

Pace Project No.: 10641837

Sample: AMB-Spa (1235)	Lab ID:	10641837004	Collecte	d: 02/02/2	3 16:22	Received: 02/	03/23 11:30 Ma	atrix: Air	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical	Method: TO-15							
	Pace Anal	lytical Services	- Minneapo	olis					
Tetrachloroethene	284	ug/m3	29.8	10.7	43.2		02/08/23 14:00	127-18-4	
Trichloroethene	0.72J	ug/m3	0.79	0.34	1.44		02/08/23 02:14	79-01-6	
Vinyl chloride	<0.14	ug/m3	0.37	0.14	1.44		02/08/23 02:14	75-01-4	
Sample: AMB-Wakanda (1239)	Lab ID:	10641837005	Collecte	d: 02/02/2	3 16:24	Received: 02/	03/23 11:30 M	atrix: Air	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical	Method: TO-15							
	Pace Anal	lytical Services	- Minneapo	olis					
cis-1,2-Dichloroethene	<0.31	ug/m3	1.2	0.31	1.44		02/08/23 01:45	156-59-2	
trans-1,2-Dichloroethene	<0.60	ug/m3	1.2	0.60	1.44		02/08/23 01:45	156-60-5	
Tetrachloroethene	28.2	ug/m3	0.99	0.36	1.44		02/08/23 01:45	127-18-4	
Trichloroethene	<0.34	ug/m3	0.79	0.34	1.44		02/08/23 01:45	79-01-6	
Vinyl chloride	<0.14	ug/m3	0.37	0.14	1.44		02/08/23 01:45	75-01-4	



#### **QUALITY CONTROL DATA**

Project:	58217038 OHM							
Pace Project No.:	10641837							
QC Batch:	866362		Analysis Me	ethod:	ГО-15			
QC Batch Method:	TO-15		Analysis De	scription:	FO15 MSV AIR	Low Level		
			Laboratory:	F	Pace Analytical	Services - Mir	neapolis	
Associated Lab Sar	mples: 10641837	7001, 10641837002,	10641837003,	10641837004,	10641837005			
METHOD BLANK:	4572151		Matrix	: Air				
Associated Lab Sar	mples: 10641837	7001, 10641837002,	10641837003,	10641837004,	10641837005			
			Blank	Reporting				
Parar	meter	Units	Result	Limit	Analyze	d Quali	fiers	
cis-1,2-Dichloroethe	ene	ug/m3	<0.21	0.8	1 02/07/23 10	):25		
Tetrachloroethene		ug/m3	<0.25	0.69	9 02/07/23 10	):25		
trans-1,2-Dichloroe	thene	ug/m3	<0.42	0.8	1 02/07/23 10	):25		
Trichloroethene		ug/m3	<0.24	0.5	5 02/07/23 10	):25		
Vinyl chloride		ug/m3	<0.096	0.20	6 02/07/23 10	):25		
		4572152						
		7312132	Spike	LCS	LCS	% Rec		
Parar	meter	Units	Conc.	Result	% Rec	Limits	Qualifiers	
cis-1 2-Dichlorooth	ono				112	70 100		
Tetrachloroethene	ene	ug/m3	42.1	47.7 80.6	113	70-133		
trans-1 2-Dichloroe	thene	ug/m3	423	44.6	105	70-133		
Trichloroethene		ug/m3	57.2	67.5	118	70-132		
Vinvl chloride		ug/m3	27.2	27.4	101	64-136		
		-9						
SAMPLE DUPLICA	TE: 4573898							
			10641298001	Dup		Max		
Parar	meter	Units	Result	Result	RPD	RPD	Qualifiers	_
cis-1,2-Dichloroethe	ene	ug/m3	<1.6	<0.42	2		25	
Tetrachloroethene		ug/m3	2.6	2.	5	2	25	
trans-1,2-Dichloroe	thene	ug/m3	<1.6	<0.8	1		25	
Trichloroethene		ug/m3	22.8	24.0	6	8	25	
Vinyl chloride		ug/m3	<0.50	<0.1	9		25	
SAMPLE DUPLICA	TE: 4573899							
			10641833010	Dup		Max		
Parar	meter	Units	Result	Result	RPD	RPD	Qualifiers	_
cis-1,2-Dichloroethe	ene	ug/m3	ND	<0.32	2		25	-
Tetrachloroethene		ug/m3	ND	<0.3	7		25	
	thene	ug/m3	ND	<0.62	2		25	
trans-1,2-Dichloroe		0						
trans-1,2-Dichloroe Trichloroethene		ug/m3	ND	0.41	J		25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

#### **REPORT OF LABORATORY ANALYSIS**

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#### QUALIFIERS

Project: 58217038 OHM

Pace Project No.: 10641837

#### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.



#### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:	58217038 OHM
Pace Project No.:	10641837

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10641837001	AMB-Basement (1219)	TO-15	866362		
10641837002	AMB-Jim's Teaching Center(1219	TO-15	866362		
10641837003	AMB-Jim's Music Lesson (1231)	TO-15	866362		
10641837004	AMB-Spa (1235)	TO-15	866362		
10641837005	AMB-Wakanda (1239)	TO-15	866362		

Face Analytical\*

### AIR: CHAIN-OF-CUSTODY / A

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fit

# WO#:10641837

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### Wisconsin DNR vapor intrusion quick facts

# What is Vapor Intrusion?



Chemicals used in commercial or industrial activities – dry cleaning chemicals, chemical degreasers and petroleum products such as gasoline – are sometimes spilled and leak into nearby soil or groundwater. When this happens, these chemicals may release gases or vapors, which travel from the contaminated groundwater or soil and move into nearby homes or businesses. This is called vapor intrusion.

## Why are these chemical vapors a problem?

The chemicals that cause vapor intrusion are known as volatile organic compounds, or VOCs. Even when spilled into soil or water, these chemicals easily evaporate. They don't cause human health problems when they evaporate into the outside air, but when their vapors move into homes or businesses, they may cause long-term health problems for the people who live or work in those buildings. These vapors are usually odorless and colorless and undetectable without special testing equipment.

### Why is vapor intrusion a concern?

Exposure to some chemical gases or vapors can cause an increased risk of adverse health effects. Whether or not a person experiences any health effects depends on several factors, including the amount and length of exposure, the toxicity of the chemical, and the individual's sensitivity to the chemical. When harmful chemical vapor intrusion is the result of environmental contamination, the Wisconsin Department of Natural Resources (DNR) requires that steps be taken to reduce or eliminate exposures which could be harmful to human health. The process when chemical vapors from contaminated soil or groundwater enter a home or other structure is called vapor intrusion.

# What should I expect if vapor intrusion is suspected near my home or business?

For businesses or other locations where VOC contamination has been found, the DNR requires that the potential for vapor intrusion be investigated. If you live near a site being cleaned up, you may be contacted by the site owner or others working on the cleanup. Your cooperation and consent will be requested before any testing or sampling is conducted on your property. Ask the person contacting you any questions you have about the work being done, or contact the DNR for more information (see DNR contact information on reverse). For more information about testing for vapor intrusion, see DNR-Pub-RR-954, "What to Expect During Vapor Intrusion Sampling."





## How Vapors Enter a Building

If you live near a commercial or industrial facility or landfill where VOCs have entered either the soil or groundwater, there may be a potential for those chemicals to travel as vapors into your home or business. Vapors can enter buildings in various ways, including through cracks in the foundation and openings for utility lines. Building ventilation and weather can influence the extent of vapor intrusion.



#### Adapted from U.S. Environmental Protection Agency (EPA) graphic. www.epa.gov/oswer/vaporintrusion/basic.html

### Where can I find more information?

Health and vapor-related information can be found at the Wisconsin Department of Health Services (DHS) website at <u>dhs.wisconsin.gov</u>, search "Vapor." For other health-related questions, please contact your local health department: <u>www.dhs.wisconsin.gov/localhealth</u>.

For more DNR information, please visit the DNR's Remediation and Redevelopment (RR) Program's Vapor Intrusion page at <u>dnr.wi.gov/topic/Brownfields/Vapor.html</u>.

Additional information can be obtained through the DNR field office in your region. To find the correct office, visit the RR Program Staff Contacts page at <u>dnr.wi.gov/topic/Brownfields/Contact.html</u> or call the RR Program at (608) 266-2111.

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.

# 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.



#### **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.



Wisconsin Department of Natural Resources 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.



<u>A Note about Measurement Units</u>: 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  $\mu g/m3$  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.