From: Welch, Tim <Tim.Welch@terracon.com>
Sent: Wednesday, March 8, 2023 11:27 AM
To: 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

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

4900 S. Pennsylvania Ave, Ste 100
Cudahy, WI 53110-1347
P (414) 423-0255
terracon.com

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 (µg/m^3), 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 µg/m^3. The TCE concentrations ranged from 2.4 to 4.5 µg/m^3, which are less than the VAL of 8.8 µg/m^3. No other contaminants of concern were detected in the air samples.
The responsible party will continue to work with the WDNR to find solutions to improve air quality in 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:

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 tim.welch@terracon.com, or contact our office at (414) 423-0255.

Sincerely,

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 Test Results Summary for Ambient Air CVOCs

Martinizing Dry Cleaning and Laundry Service
1233 South Military Avenue
Green Bay, Wisconsin
Terracon Project No. 58217038

						CVOCs (µg/m³)				
Sample ID	**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**
Jim's Music & Teaching Center (1219 Military)										
AA1	Jim's Music Retail (Front/West)	First Floor	3/4/2020	6-Liter Summa Canister	8-Hour	*338*	1.4	<0.793	<0.793	<0.511
			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	3/4/2020	6-Liter Summa Canister	8-hour	*411*	1.93	<0.793	<0.793	<0.511
AA4	Jim's Music Retail	North Basement	3/4/2020	6-Liter Summa Canister	8-Hour	*382*	2.18	<0.793	<0.793	<0.511
			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 Center (1219)	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
	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 (1219)	Jim's Music Retail (Basement)	Basement	12/30/2022	6-Liter Summa Canister	8-hour	*931*	3.5	<0.34	<0.67	<0.15
	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)										
AA3	Jim's Music Lesson	First Floor	3/4/2020	6-Liter Summa Canister	8-Hour	*827/983*	6.23	2.0	<0.793	<0.511
			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 Music Lesson (1231)	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
	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
Residential Indoor Air VAL [1]					**µg/m³**	**42**	**2.1**	**42**	**42**	**1.7**
Small Commercial Building Indoor Air VAL [1]					*µg/m³*	*180*	*8.8*	*180*	*180*	*28*
Large Commercial/Industrial Building Indoor Air VAL [1]					µg/m³	180	8.8	180	180	28

Notes:
Results expressed in micrograms per cubic meter (µg/m³)
VAL = Vapor Action 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
[1] 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/rb-concentratio_table/Generic_Tables/index.htm
and modifed for Wisconsin Vapor Intrusion Guidance PUB-RR-800 lifetime cancer risk (1:100,000) (November 2022)
Bold = Exceedance of Residential Indoor Air VAL
Italicized = Exceedance of Small-Commercial Building Indoor Air VAL
Underlined = Exceedance of Large Commercial/Industrial Building Indoor Air VAL

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

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,

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 (*).

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

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

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

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

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

SUMMARY OF DETECTION

Project: 58217038 OHM
Pace Project No.: 10641837

Lab Sample ID / Method	Client Sample ID / 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	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 58217038 OHM
Pace Project No.: 10641837

Sample: AMB-Basement (1219) **Lab ID: 10641837001** Collected: 02/02/23 16:37 Received: 02/03/23 11:30 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15 Pace Analytical Services - Minneapolis								
cis-1,2-Dichloroethene	**<0.30**	ug/m3	1.1	0.30	1.39		02/08/23 00:17	156-59-2	
trans-1,2-Dichloroethene	**<0.58**	ug/m3	1.1	0.58	1.39		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** Collected: 02/02/23 16:19 Received: 02/03/23 11:30 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15 Pace Analytical Services - Minneapolis								
cis-1,2-Dichloroethene	**<0.31**	ug/m3	1.2	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**	ug/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** Collected: 02/02/23 16:36 Received: 02/03/23 11:30 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15 Pace Analytical Services - Minneapolis								
cis-1,2-Dichloroethene	**<0.31**	ug/m3	1.2	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**	ug/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** Collected: 02/02/23 16:22 Received: 02/03/23 11:30 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15 Pace Analytical Services - Minneapolis								
cis-1,2-Dichloroethene	**<0.31**	ug/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

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

ANALYTICAL RESULTS

Project: 58217038 OHM
Pace Project No.: 10641837

Sample: AMB-Spa (1235) **Lab ID: 10641837004** Collected: 02/02/23 16:22 Received: 02/03/23 11:30 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
	Pace Analytical Services - Minneapolis								
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** Collected: 02/02/23 16:24 Received: 02/03/23 11:30 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
	Pace Analytical Services - Minneapolis								
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	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 58217038 OHM
Pace Project No.: 10641837

QC Batch: 866362
QC Batch Method: TO-15
Analysis Method: TO-15
Analysis Description: TO15 MSV AIR Low Level
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10641837001, 10641837002, 10641837003, 10641837004, 10641837005

METHOD BLANK: 4572151 Matrix: Air
Associated Lab Samples: 10641837001, 10641837002, 10641837003, 10641837004, 10641837005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,2-Dichloroethene	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-Dichloroethene	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	02/07/23 10:25	

LABORATORY CONTROL SAMPLE: 4572152

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ug/m3	42.1	47.7	113	70-133	
Tetrachloroethene	ug/m3	72	80.6	112	70-139	
trans-1,2-Dichloroethene	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	

SAMPLE DUPLICATE: 4573898

Parameter	Units	10641298001 Result	Dup Result	RPD	Max RPD	Qualifiers
cis-1,2-Dichloroethene	ug/m3	<1.6	<0.42		25	
Tetrachloroethene	ug/m3	2.6	2.5	2	25	
trans-1,2-Dichloroethene	ug/m3	<1.6	<0.81		25	
Trichloroethene	ug/m3	22.8	24.6	8	25	
Vinyl chloride	ug/m3	<0.50	<0.19		25	

SAMPLE DUPLICATE: 4573899

Parameter	Units	10641833010 Result	Dup Result	RPD	Max RPD	Qualifiers
cis-1,2-Dichloroethene	ug/m3	ND	<0.32		25	
Tetrachloroethene	ug/m3	ND	<0.37		25	
trans-1,2-Dichloroethene	ug/m3	ND	<0.62		25	
Trichloroethene	ug/m3	ND	0.41J		25	
Vinyl chloride	ug/m3	ND	<0.14		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

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

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.

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

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		

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AIR: CHAIN-OF-CUSTODY / A

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

WO# : 10641837

10641837

57045

Page: 1 of 1

Section A Required Client Information:

Company:	Terracon
Address:	4900 S. Pennsylvania Ave Ste 100
Email To:	Tim Welch
Phone:	Fax:
Requested Due Date/TAT:	STD

Section B Required Project Information:

Report To:	Tim Welch
Copy To:	Ryan Johnson, Jon Cone
Purchase Order No.:	
Project Name:	OHM
Project Number:	58217038

Section C Invoice Information:

Attention:	
Company Name:	SAME
Address:	
Pace Quote Reference:	
Pace Project Manager/Sales Rep	
Pace Profile #:	37754

Program: ☐ UST ☐ Superfund ☐ Emissions ☐ Clean Air Act ☐ Voluntary Clean Up ☐ Dry Clean ☐ RCRA ☐ Other____

Location of Sampling by State: WI

Reporting Units: ug/m³___ mg/m³___ PPBV___ PPMV___ Other___

Report Level: II.___ III.___ IV.___ Other____

'Section D Required Client Information

AIR SAMPLE ID

Sample IDs MUST BE UNIQUE

Valid Media Codes

MEDIA	CODE
Tedlar Bag	TB
1 Liter Summa Can	1LC
6 Liter Summa Can	6LC
Low Volume Puff	LVP
High Volume Puff	HVP
Other	PM10

ITEM #	AIR SAMPLE ID	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE - END/GRAB DATE	COLLECTED COMPOSITE - END/GRAB TIME	Canister Pressure (Initial Field - in Hg)	Canister Pressure (Final Field - in Hg)	Summa Can Number	Flow Control Number	Method: PM10	3C - Fixed Gas (%)	TO-3 BTEX	TO-3M (Methane)	TO-14	TO-15 Full List VOCs	TO-15 Short List BTEX	TO-15 Short List Chlorinated	TO-15 Short List (other)	Pace Lab ID
1	AMB - Basement (1219)	6LC		2/2/23	0838	2/2/23	1637	-30	-4	21773382							X				
2	AMB - Jim's Teaching Center (1217)				0839		1619	-30	-2	33692635							X				
3	AMB - Jim's Music Lesson (1231)				0837		1636	-30	-2	11392501							X				
4	AMB - Spa (1235)				0840		1622	-30	-4	33642640							X				
5	AMB - Wakanda (1239)				0841		1624	-30	-2	35493274							X				
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Comments :

PCE, TCE, Trans DCE, Cis-DCE, VC

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	2/2/23	1643		2/3/23	11:30

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM / DD / YY)

ORIGINAL

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

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-MIN4-0113 v01_Sample Condition Upon Receipt (SCUR) - Air Effective Date: 02/25/2022

WO#: 10641837

PM: KNH Due Date: 02/10/23

CLIENT: Terracon-WI

Air Sample Condition Upon Receipt

Client Name: Terracon **Project #:**

Courier: [X] FedEx [ ] UPS [ ] USPS [ ] Client [ ] Pace [ ] SpeeDee [ ] Commercial

Tracking Number: 6101 8741 2360 2350 [ ] See Exception

Custody Seal on Cooler/Box Present? [ ] Yes [X] No

Seals Intact? [ ] Yes [X] No

Packing Material: [ ] Bubble Wrap [ ] Bubble Bags [X] Foam [ ] None [ ] Tin Can [ ] Other:

Date & Initials of Person Examining Contents: RG 2/3/23

				Comments:
Chain of Custody Present?	[X] Yes	[ ] No		1.
Chain of Custody Filled Out?	[X] Yes	[ ] No		2.
Chain of Custody Relinquished?	[X] Yes	[ ] No		3.
Sampler Name and/or Signature on COC?	[ ] Yes	[X] No	[ ] N/A	4.
Samples Arrived within Hold Time?	[X] Yes	[ ] No		5.
Short Hold Time Analysis (<72 hr)?	[ ] Yes	[X] No		6.
Rush Turn Around Time Requested?	[ ] Yes	[X] No		7.
Sufficient Volume?	[X] Yes	[ ] No		8.
Correct Containers Used? **(Tedlar bags not acceptable container for TO-15 or APH)** -Pace Containers Used?	[X] Yes [X] Yes	[ ] No [ ] No		9.
Containers Intact? **(visual inspection/no leaks when pressurized)**	[X] Yes	[ ] No		10.
Media: (Air Can) | Airbag				11. Individually Certified Cans? Y (N) (list which samples)
Is sufficient information available to reconcile samples to the COC?	[X] Yes	[ ] No		12.
Do cans need to be pressurized? **(DO NOT PRESSURIZE 3C or ASTM 1946!!!)**	[X] Yes	[ ] No		13.

Gauge #: [ ] 10AIR26 [ ] 10AIR34 [ ] 10AIR35 [ ] 10AIR17 [ ] 10AIR47 [X] 10AIR48

Canisters					Canisters				
Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure	Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure
Base	2177	3382	-1	+5					
Teach	3369	2635	-2	|					
Music	1189	2501	-2	|					
Spa	3364	2640	-2	|					
Wakanda	3593	2744	-2	+5					

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: Date/Time: **Field Data Required?** [ ] Yes [ ] No

Comments/Resolution:

Project Manager Review: Kirsten Hogberg **Date:** 2/6/2023

***Note:** Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).*

Qualtrax ID: 52723

PUB-RR-892
Feb 2014

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.

The process when chemical vapors from contaminated soil or groundwater enter a home or other structure 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.

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."

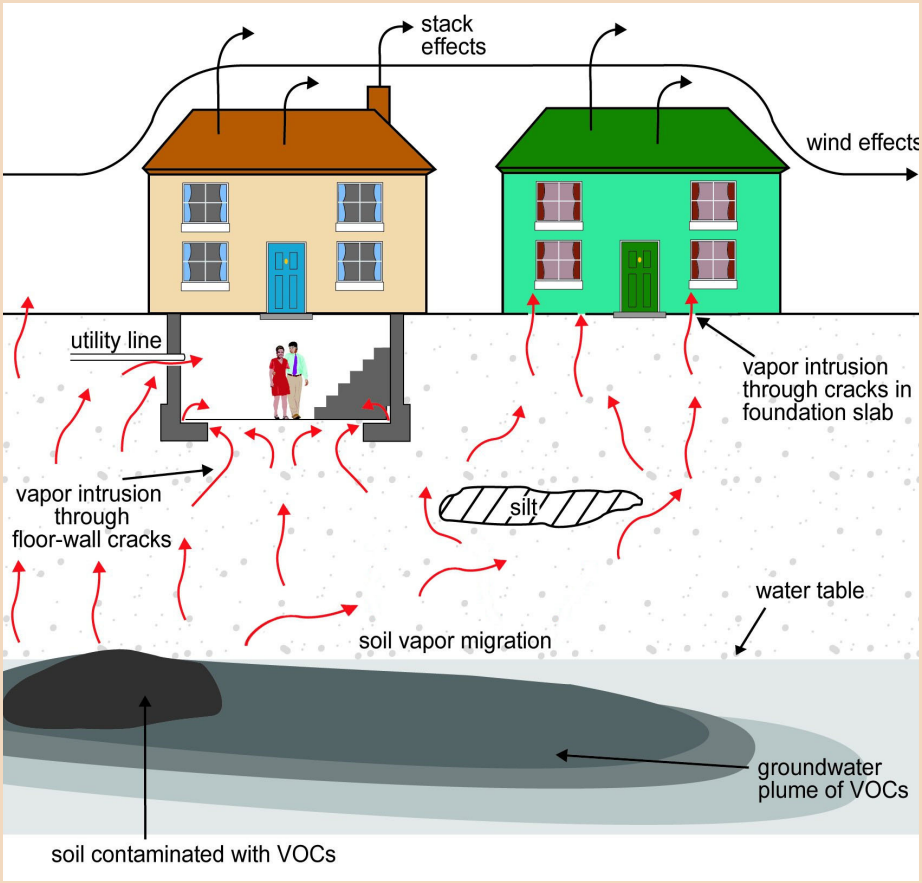
WISCONSIN DEPT. OF NATURAL RESOURCES

Wisconsin Department of Natural Resources
P.O. Box 7921, Madison, WI 53707
dnr.wi.gov, search "Brownfields"

Environment Remediation and Redevelopment Program Redevelopment Partnership Cleanup

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 **dhs.wisconsin.gov** , search "Vapor." For other health-related questions, please contact your local health department: **www.dhs.wisconsin.gov/localhealth**.

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

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 **dnr.wi.gov/topic/Brownfields/Contact.html** or call the RR Program at (608) 266-2111.

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.

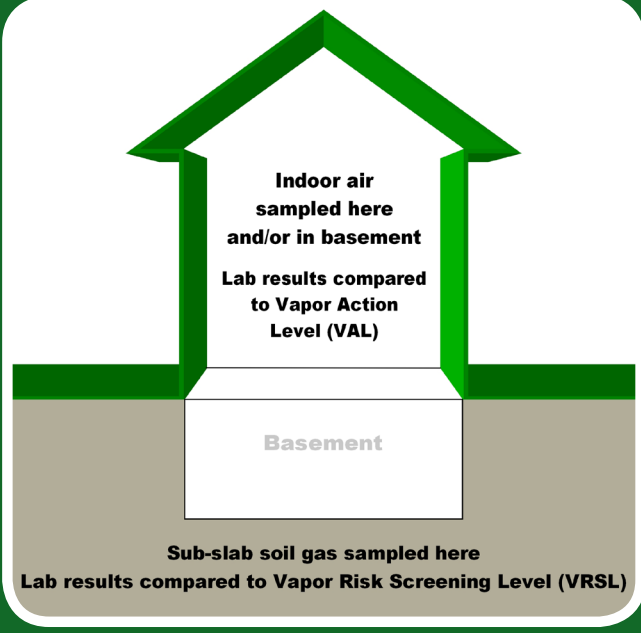
Indoor Air Testing Results

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.

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.

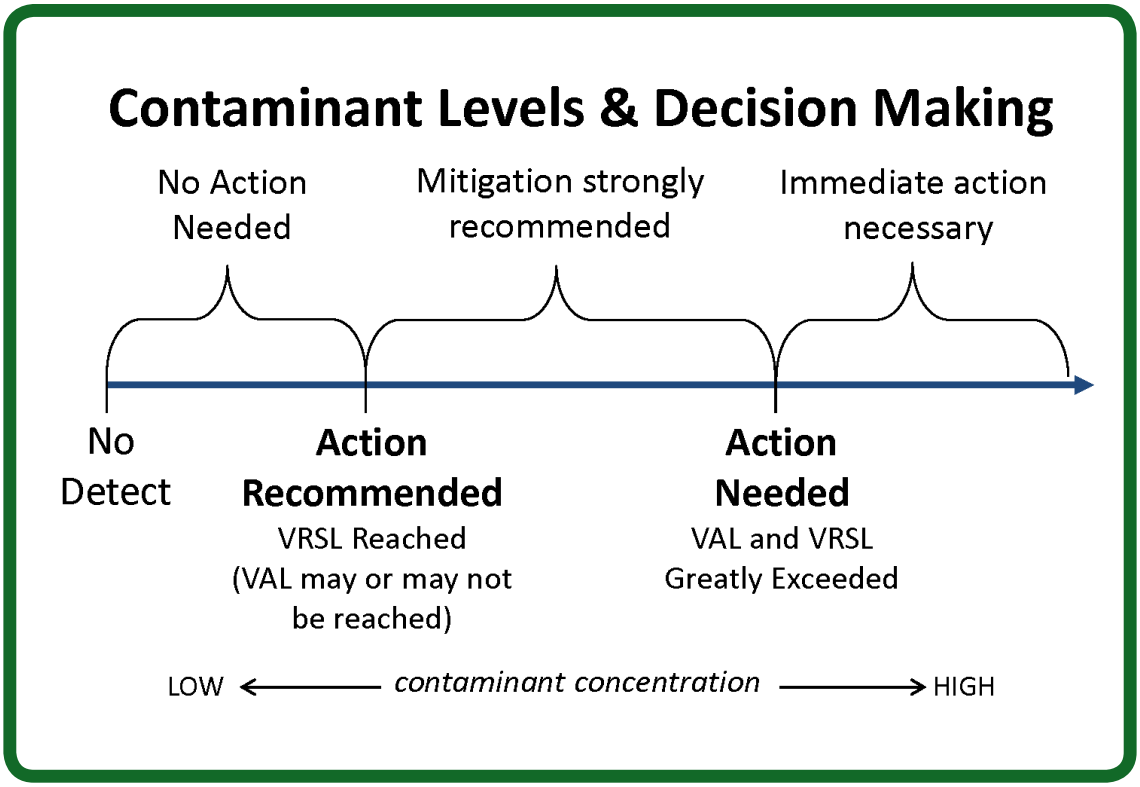
Follow-Up Actions

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.



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**

4900 S. Pennsylvania Ave, Ste 100
Cudahy, WI 53110-1347
P (414) 423-0255
terracon.com

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 (µg/m^3), which exceeds its vapor action level (VAL) for small commercial buildings established by the Wisconsin Department of Natural Resources (WDNR) of 180 µg/m^3. TCE was detected at an estimated concentration of 0.72 µg/m^3, which is less than its VAL of 8.8 µg/m^3. 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.

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 tim.welch@terracon.com, or contact our office at (414) 423-0255.

Sincerely,

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 Test Results Summary for Ambient Air CVOCs

Martinizing Dry Cleaning and Laundry Service
1233 South Military Avenue
Green Bay, Wisconsin
Terracon Project No. 58217038

							CVOCs (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/East Spa (1235 Military)											
AA8	Ambient Air	Former William's Taekwondo	First Floor	3/4/2020	6-Liter Summa Canister	8-Hour	*1,420 / 2,270*	<1.07	<0.793	<0.793	<0.511
				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 (1235)	Ambient Air	East Spa	First Floor	12/30/2022	6-Liter Summa Canister	8-hour	*959*	2.0	<0.32	<0.62	<0.14
	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 Vent											
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 Indoor Air VAL [1]						**µg/m³**	**42**	**2.1**	**42**	**42**	**1.7**
Residential Sub-slab Vapor/Soil Gas VRSL [2]						µg/m³	1,400	70	1,400	1,400	57
Small Commercial Building Indoor Air VAL [1]						*µg/m³*	*180*	*8.8*	*180*	*180*	*28*
Small Commercial Building Sub-slab Vapor/Soil Gas VRSL [2]						µg/m³	5,800	290	5,800	5,800	930
Large Commercial/Industrial Building Indoor Air VAL [1]						µg/m³	180	8.8	180	180	28
Large Commercial/Industrial Building Sub-slab Vapor/Soil Gas VRSL [3]						µg/m³	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

[1]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/rb-concentratio_table/Generic_Tables/index.htm and modifed for Wisconsin Vapor Intrusion Guildance PUB-RR-800 lifetime cancer risk (1:100,000)(Nov 2022)

[2] 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.

[3] 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

Underlined = Exceedance of Large Commercial/Industrial Building Indoor Air VAL

Blue Shaded values indicate exceedance of applicable residential VRSLs (sub-slab)

Brown Shaded values indicate exceedance of applicable small commercial VRSLs (sub-slab)

Red Shaded values indicate exceedance of applicable Large commercial building VRSLs (sub-slab)

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

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,

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 (*).

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

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

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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

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SUMMARY OF DETECTION

Project: 58217038 OHM
Pace Project No.: 10641837

Lab Sample ID / Method	Client Sample ID / 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	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: 58217038 OHM
Pace Project No.: 10641837

Sample: AMB-Basement (1219) **Lab ID: 10641837001** Collected: 02/02/23 16:37 Received: 02/03/23 11:30 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15 Pace Analytical Services - Minneapolis								
cis-1,2-Dichloroethene	**<0.30**	ug/m3	1.1	0.30	1.39		02/08/23 00:17	156-59-2	
trans-1,2-Dichloroethene	**<0.58**	ug/m3	1.1	0.58	1.39		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** Collected: 02/02/23 16:19 Received: 02/03/23 11:30 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15 Pace Analytical Services - Minneapolis								
cis-1,2-Dichloroethene	**<0.31**	ug/m3	1.2	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**	ug/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** Collected: 02/02/23 16:36 Received: 02/03/23 11:30 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15 Pace Analytical Services - Minneapolis								
cis-1,2-Dichloroethene	**<0.31**	ug/m3	1.2	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**	ug/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** Collected: 02/02/23 16:22 Received: 02/03/23 11:30 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15 Pace Analytical Services - Minneapolis								
cis-1,2-Dichloroethene	**<0.31**	ug/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

Pace Analytical Services, LLC
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(612)607-1700

ANALYTICAL RESULTS

Project: 58217038 OHM
Pace Project No.: 10641837

Sample: AMB-Spa (1235) **Lab ID: 10641837004** Collected: 02/02/23 16:22 Received: 02/03/23 11:30 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
	Pace Analytical Services - Minneapolis								
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** Collected: 02/02/23 16:24 Received: 02/03/23 11:30 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
	Pace Analytical Services - Minneapolis								
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	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 58217038 OHM
Pace Project No.: 10641837

QC Batch: 866362
QC Batch Method: TO-15
Analysis Method: TO-15
Analysis Description: TO15 MSV AIR Low Level
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10641837001, 10641837002, 10641837003, 10641837004, 10641837005

METHOD BLANK: 4572151 Matrix: Air
Associated Lab Samples: 10641837001, 10641837002, 10641837003, 10641837004, 10641837005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,2-Dichloroethene	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-Dichloroethene	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	02/07/23 10:25	

LABORATORY CONTROL SAMPLE: 4572152

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ug/m3	42.1	47.7	113	70-133	
Tetrachloroethene	ug/m3	72	80.6	112	70-139	
trans-1,2-Dichloroethene	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	

SAMPLE DUPLICATE: 4573898

Parameter	Units	10641298001 Result	Dup Result	RPD	Max RPD	Qualifiers
cis-1,2-Dichloroethene	ug/m3	<1.6	<0.42		25	
Tetrachloroethene	ug/m3	2.6	2.5	2	25	
trans-1,2-Dichloroethene	ug/m3	<1.6	<0.81		25	
Trichloroethene	ug/m3	22.8	24.6	8	25	
Vinyl chloride	ug/m3	<0.50	<0.19		25	

SAMPLE DUPLICATE: 4573899

Parameter	Units	10641833010 Result	Dup Result	RPD	Max RPD	Qualifiers
cis-1,2-Dichloroethene	ug/m3	ND	<0.32		25	
Tetrachloroethene	ug/m3	ND	<0.37		25	
trans-1,2-Dichloroethene	ug/m3	ND	<0.62		25	
Trichloroethene	ug/m3	ND	0.41J		25	
Vinyl chloride	ug/m3	ND	<0.14		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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(612)607-1700

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.

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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		

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AIR: CHAIN-OF-CUSTODY / A

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

WO# : 10641837

10641837

57045

Page: 1 of 1

Section A Required Client Information:

Company:	Terracon
Address:	4900 S. Pennsylvania Ave Ste 100
Email To:	Tim Welch
Phone:	Fax:
Requested Due Date/TAT:	STD

Section B Required Project Information:

Report To:	Tim Welch
Copy To:	Ryan Johnson, Jon Cone
Purchase Order No.:	
Project Name:	OHM
Project Number:	58217038

Section C Invoice Information:

Attention:	
Company Name:	SAME
Address:	
Pace Quote Reference:	
Pace Project Manager/Sales Rep	
Pace Profile #:	37754

Program: ☐ UST ☐ Superfund ☐ Emissions ☐ Clean Air Act ☐ Voluntary Clean Up ☐ Dry Clean ☐ RCRA ☐ Other____

Location of Sampling by State: WI

Reporting Units: ug/m³___ mg/m³___ PPBV___ PPMV___ Other___

Report Level: II.___ III.___ IV.___ Other____

'Section D Required Client Information

AIR SAMPLE ID

Sample IDs MUST BE UNIQUE

Valid Media Codes

MEDIA	CODE
Tedlar Bag	TB
1 Liter Summa Can	1LC
6 Liter Summa Can	6LC
Low Volume Puff	LVP
High Volume Puff	HVP
Other	PM10

ITEM #	AIR SAMPLE ID	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE - END/GRAB DATE	COLLECTED COMPOSITE - END/GRAB TIME	Canister Pressure (Initial Field - in Hg)	Canister Pressure (Final Field - in Hg)	Summa Can Number	Flow Control Number	Method: PM10	3C - Fixed Gas (%)	TO-3 BTEX	TO-3M (Methane)	TO-14	TO-15 Full List VOCs	TO-15 Short List BTEX	TO-15 Short List Chlorinated	TO-15 Short List (other)	Pace Lab ID
1	AMB - Basement (1219)	6LC		2/2/23	0838	2/2/23	1637	-30	-4	21773382							X				
2	AMB - Jim's Teaching Center (1217)				0839		1619	-30	-2	33692635							X				
3	AMB - Jim's Music Lesson (1231)				0837		1636	-30	-2	11392501							X				
4	AMB - Spa (1235)				0840		1622	-30	-4	33642640							X				
5	AMB - Wakanda (1239)				0841		1624	-30	-2	35493274							X				
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Comments :

PCE, TCE, Trans DCE, Cis-DCE, VC

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	2/2/23	1643		2/3/23	11:30

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM / DD / YY)

ORIGINAL

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

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-MIN4-0113 v01_Sample Condition Upon Receipt (SCUR) - Air Effective Date: 02/25/2022

WO#: 10641837

PM: KNH Due Date: 02/10/23

CLIENT: Terracon-WI

Air Sample Condition Upon Receipt

Client Name: Terracon **Project #:**

Courier: [X] FedEx [ ] UPS [ ] USPS [ ] Client [ ] Pace [ ] SpeeDee [ ] Commercial

Tracking Number: 6101 8741 2360 2350 [ ] See Exception

Custody Seal on Cooler/Box Present? [ ] Yes [X] No

Seals Intact? [ ] Yes [X] No

Packing Material: [ ] Bubble Wrap [ ] Bubble Bags [X] Foam [ ] None [ ] Tin Can [ ] Other:

Date & Initials of Person Examining Contents: RG 2/3/23

				Comments:
Chain of Custody Present?	[X] Yes	[ ] No		1.
Chain of Custody Filled Out?	[X] Yes	[ ] No		2.
Chain of Custody Relinquished?	[X] Yes	[ ] No		3.
Sampler Name and/or Signature on COC?	[ ] Yes	[X] No	[ ] N/A	4.
Samples Arrived within Hold Time?	[X] Yes	[ ] No		5.
Short Hold Time Analysis (<72 hr)?	[ ] Yes	[X] No		6.
Rush Turn Around Time Requested?	[ ] Yes	[X] No		7.
Sufficient Volume?	[X] Yes	[ ] No		8.
Correct Containers Used? **(Tedlar bags not acceptable container for TO-15 or APH)** -Pace Containers Used?	[X] Yes [X] Yes	[ ] No [ ] No		9.
Containers Intact? **(visual inspection/no leaks when pressurized)**	[X] Yes	[ ] No		10.
Media: (Air Can) | Airbag				11. Individually Certified Cans? Y (N) (list which samples)
Is sufficient information available to reconcile samples to the COC?	[X] Yes	[ ] No		12.
Do cans need to be pressurized? **(DO NOT PRESSURIZE 3C or ASTM 1946!!!)**	[X] Yes	[ ] No		13.

Gauge #: [ ] 10AIR26 [ ] 10AIR34 [ ] 10AIR35 [ ] 10AIR17 [ ] 10AIR47 [X] 10AIR48

Canisters					Canisters				
Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure	Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure
Base	2177	3382	-1	+5					
Teach	3369	2635	-2	|					
Music	1189	2501	-2	|					
Spa	3364	2640	-2	|					
Wakanda	3593	2744	-2	+5					

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: Date/Time: **Field Data Required?** [ ] Yes [ ] No

Comments/Resolution:

Project Manager Review: Kirsten Hogberg **Date:** 2/6/2023

***Note:** Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).*

Qualtrax ID: 52723

PUB-RR-892
Feb 2014

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.

The process when chemical vapors from contaminated soil or groundwater enter a home or other structure 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.

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."

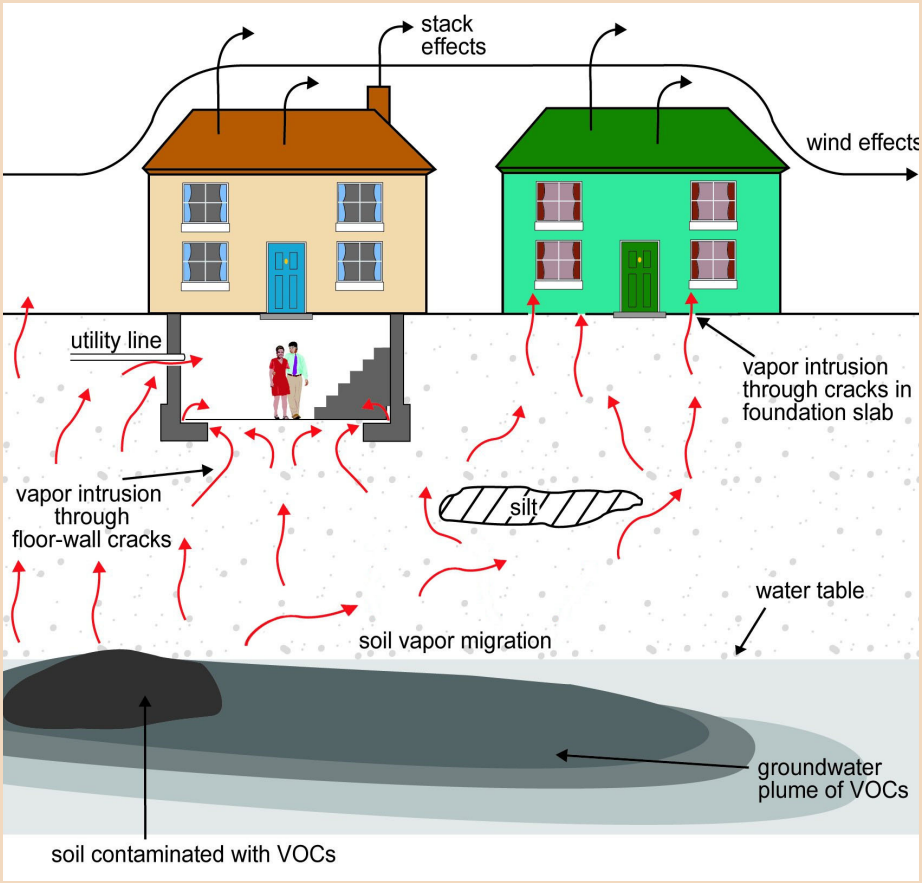
WISCONSIN DEPT. OF NATURAL RESOURCES

Wisconsin Department of Natural Resources
P.O. Box 7921, Madison, WI 53707
dnr.wi.gov, search "Brownfields"

Environment Remediation and Redevelopment Program Redevelopment Partnership Cleanup

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 **dhs.wisconsin.gov** , search "Vapor." For other health-related questions, please contact your local health department: **www.dhs.wisconsin.gov/localhealth**.

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

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 **dnr.wi.gov/topic/Brownfields/Contact.html** or call the RR Program at (608) 266-2111.

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.

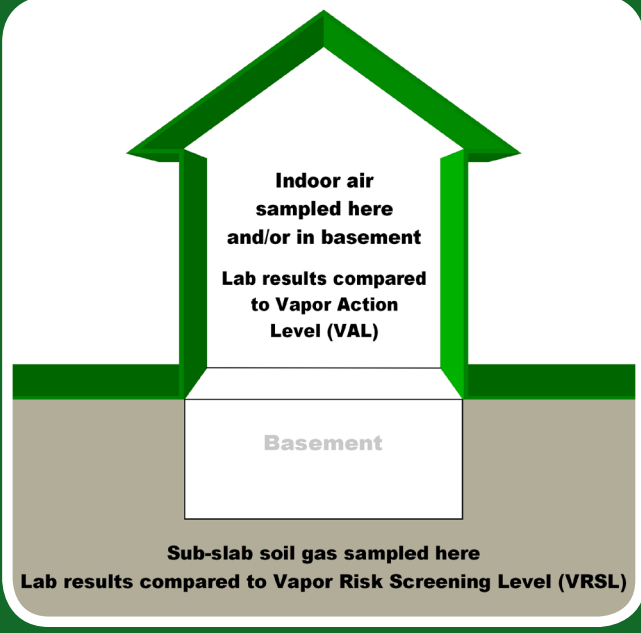
Indoor Air Testing Results

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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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.

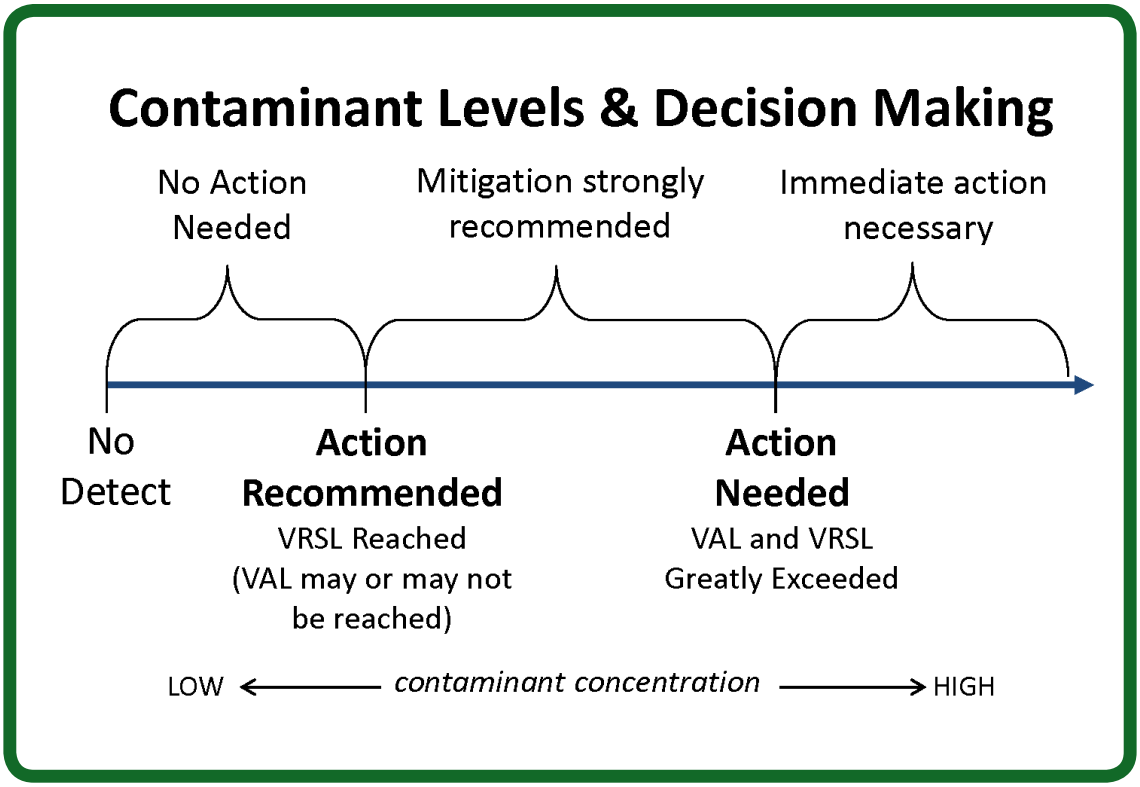
Follow-Up Actions

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**