From: Hodgson, Scott A. <Scott.Hodgson@terracon.com>
Sent: Wednesday, August 30, 2023 11:02 AM
To: Schultz, Josie M - DNR
Cc: mark.woppert@smoke-out.net; crdockry@gmail.com
Subject: Smoke-Out Cleaners: (brrts# August 2023 Vapor Sampling Results
Attachments: Pace.vapor report.L1645623.Aug2023.pdf; 58187103C1-FIG2 SITE MAP.pdf; Smoke Out.Indoor Air.Aug2023.pdf; Smoke Out.Subslab.Aug2023.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Josie,

Terracon collected the second round of vapor intrusion investigation/SSDS decommissioning samples on August 11, 2023. The laboratory report, revised site map, and updated tables are attached. Samples were collected in accordance with the *Supplemental Vapor Intrusion Investigation and System Decommissioning Work Plan* dated September 13, 2022. The results indicated that PCE and associated compounds were not detected above the small commercial vapor risk screening levels (VRSLs) in any of the six sub-slab vapor points that were sampled (VP-3 through VP-8). In some cases the concentrations were higher than during the winter assessment period samples collected in January 2023. In addition to the six sub-slab samples, an 8-hour indoor air sample was also collected from the Badger Scale office area and grab samples were collected from the Smoke-Out south floor drain, sanitary cleanout within the boiler room, and from the headspace in the 10,000 gallon underground sanitary holding tank. There was no detection above the limit of detection in either the Badger Scale indoor air sample or the boiler room sanitary sewer cleanout grab sample. Concentrations of PCE, TCE, and related compounds in the south floor drain grab sample were significantly lower than in January 2023; however, several compounds in the holding tank and south floor drain grab samples were detected above indoor air vapor action limits (VALs). Mapping of the sanitary sewer and floor drain piping via video indicated that the sanitary sewer main ran north-south under the building with cleanouts near the north and south walls of the Smoke-out space as well as in the boiler room. A lateral from the main at the boiler room cleanout led to the exterior sanitary holding tank. Video mapping also indicated that the floor drains led into a north-south piping run that was pitched southward toward a holding tank in the southernmost space of the building. The discharge of the holding tank is suspected to lead back to the sanitary sewer holding tank, but that could not be confirmed. Although, there were VAL exceedances in the south floor drain grab sample, liquid in the trap keeps the vapors from migrating into the Smoke-Out breathing space. Vapors could potentially migrate to the sanitary holding tank and back into the building but the boiler room cleanout, which is the closest point to the holding tank that could be sampled, did not have PCE or related compounds detected above the limit of detection. Therefore, it appears that additional sampling in other parts of the building are not necessary.

Terracon will perform the third round of supplemental vapor intrusion investigation SSDS decommissioning sampling in December 2023 in conjunction with the final round of groundwater sampling. Please let us know if you have any questions or comments.

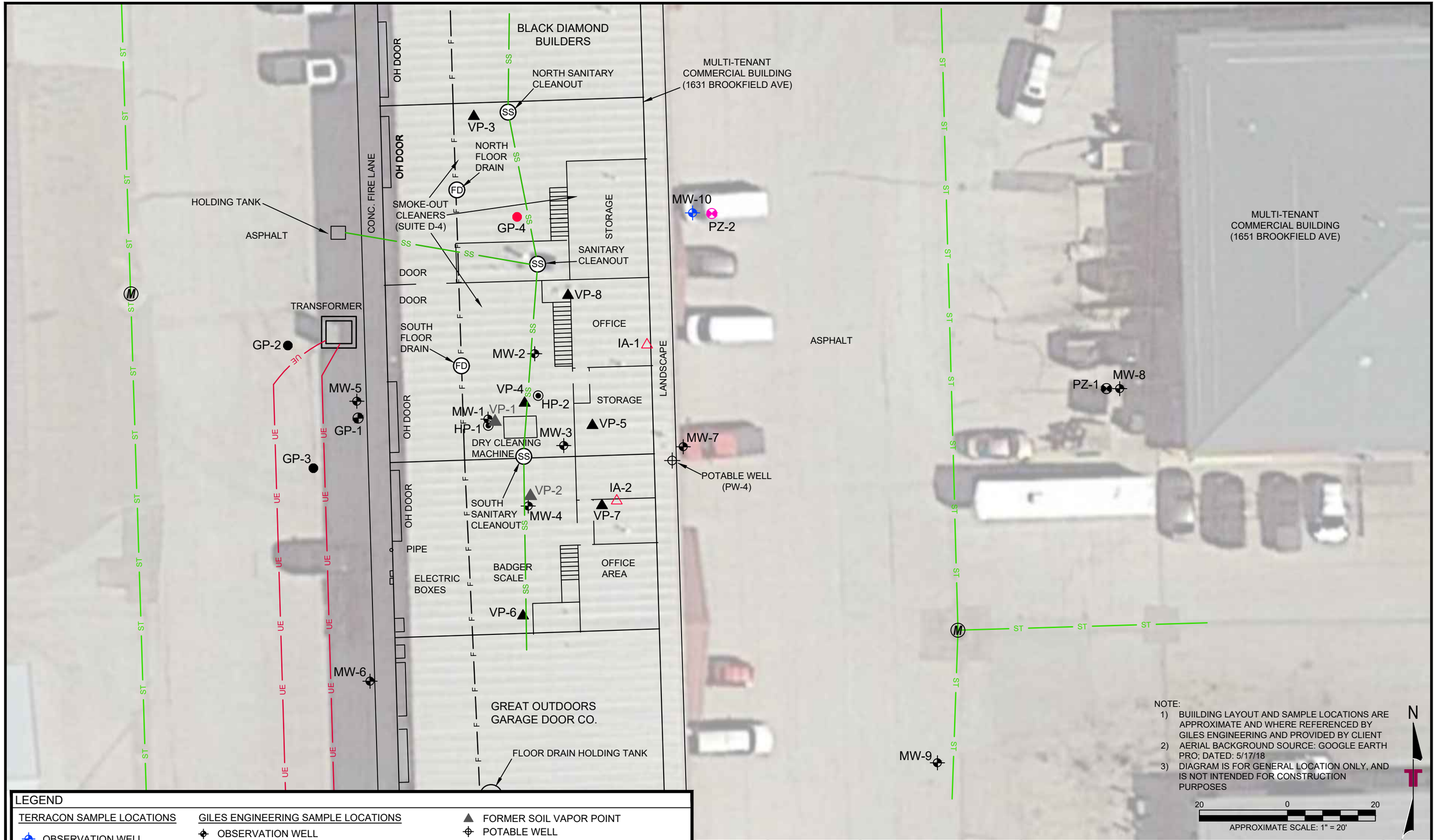
Scott A. Hodgson, P.G.
Senior Project Manager I Environmental Services

Terracon

4900 South Pennsylvania Avenue, Suite 100 I Cudahy, Wisconsin 53110 **New Address!**
D (414) 209-7640 I M (920) 791-9206
Scott.Hodgson@terracon.com I Terracon.com

Learn more about how we can help by visiting our **video channel**

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



NOTE:
1) BUIILDING LAYOUT AND SAMPLE LOCATIONS ARE APPROXIMATE AND WHERE REFERENCED BY GILES ENGINEERING AND PROVIDED BY CLIENT
2) AERIAL BACKGROUND SOURCE: GOOGLE EARTH PRO; DATED: 5/17/18
3) DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

N

20 0 20

APPROXIMATE SCALE: 1" = 20'

LEGEND

TERRACON SAMPLE LOCATIONS
- OBSERVATION WELL
- PIEZOMETER
- DIRECT-PUSH SOIL BORING
- INDOOR AIR SAMPLE POINT

GILES ENGINEERING SAMPLE LOCATIONS
- OBSERVATION WELL
- PIEZOMETER
- HAND PROBE SOIL BORING
- DIRECT-PUSH SOIL BORING/TEMPORARY WELL
- DIRECT-PUSH SOIL BORING
- SOIL VAPOR POINT

- FORMER SOIL VAPOR POINT
- POTABLE WELL
- MANHOLE
- FLOOR DRAIN CLEANOUT
- FLOOR DRAIN LINE
- UNDERGROUND ELECTRIC LINE
- STORM SEWER LINE
- SANITARY SEWER LINE

Project Mngr:	SAH
Drawn By:	JLM (41)
Checked By:	EPK
Approved By:	SAH

Project No.	58187103
Scale:	AS SHOWN
File No.	58187103C1
Date:	10/2021

Terracon
Consulting Engineers and Scientists
4900 SO. PENNSYLVANIA AVE, SUITE 100 CUDAHY, WI 53110
PH. (414) 423-0255 terracon.com

SITE MAP

SMOKE-OUT CLEANERS
1631 BROOKFIELD AVENUE, UNIT D-4
HOWARD, WISCONSIN

FIGURE 2 (FIG2 SD)

TABLE 4
Vapor Analytical Test Results Summary: Indoor Air

Smoke-Out Cleaners
Howard, Wisconsin
Terracon Project No. 58187103

Vapor Sampling Point	Location	Sample Type	Sample Date	Chlorinated Volatile Organic Compounds (CVOCs - µg/m^3)					
				Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cis-DCE)	trans-1,2-Dichloroethene (trans-DCE)	1,1-Dichloroethene (DCE)	Vinyl Chloride (VC)
IA - 1	Smoke-Out Office	Small Commercial Ambient Air 8-hour	10/25/17	**3,990**	1.1	<0.49	<0.42	<0.34	<0.18
IA - 2	Badger Scale Office	Small Commercial Ambient Air 8-hour	10/25/17	21.8	<0.39	<0.49	<0.42	<0.34	<0.18
			01/11/23	2.3	<0.36	<0.32	<0.62	NA	<0.14
			08/11/23	<1.84	<1.22	<1.03	<0.888	NA	<0.808
South Floor Drain	East of South Overhead Door	Small Commercial Ambient Grab Sample	01/11/23	**7,320,000**	**58,400**	**7,460 J**	<4,750	NA	**4,790**
			08/11/23	**14,500**	**1,530**	**523**	17.8	NA	**36.0**
Sewer Clean Out	Boiler Room	Small Commercial Ambient Grab Sample	01/11/23	**261**	**18.4**	**575**	13.9	NA	**44.2**
			08/11/23	<1.84	<1.22	<1.03	<0.888	NA	<0.808
Holding Tank	Exterior West of Smoke-Out	Small CommercialAmbient Grab Sample	08/11/23	**637**	**99.1**	51.1	7.65	NA	**52.7**
Residential Indoor Air Vapor Action Limit[1] (µg/m3)				42	2.1	42	42	210	1.7
Small Commercial Building Indoor Air Vapor Action Limit[1] (µg/m3)				*180*	*8.8*	*180*	*180*	*880*	*28*
Large Commercial/Industrial Building Indoor Air Vapor Action Limit[1] (µg/m3)				**180**	**8.8**	**180**	**180**	**880**	**28**

Notes:

Results expressed in micrograms per cubic meter (ug/m³)
VAL = Vapor Action Limit
< = Not detected at or above the limit of detection (LOD)
Underline values indicate exceedance of applicable residential VALs (indoor)
Italic values indicate exceedance of applicable small commercial VALs (indoor)
Bold values indicate exceedance of applicable Large commercial building VALs (indoor)
NA = Not Analyzed
[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) (Dec 2022)

TABLE 3
Vapor Analytical Test Results Summary: Sub-Slab

Smoke-Out Cleaners
Howard, Wisconsin
Terracon Project No. 58187103

Vapor Sampling Point	Location	Sample Type	Sample Date	Chlorinated Volatile Organic Compounds (CVOCs - µg/m³)					
				Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cis-DCE)	trans-1,2-Dichloroethene (trans-DCE)	1,1-Dichloroethene (DCE)	Vinyl Chloride (VC)
VP-1	Smoke-Out South Garage	Small Commercial Sub-slab-30 minute	06/01/11	**12,000,000**	**24,000**	6,000	<59,000	<59,000	<38,000
VP-2	Badger Scale Garage	Small Commercial Sub-slab-30 minute	06/01/11	**3,100,000**	**6,000**	<16,000	<16,000	<16,000	<10,000
VP-3	Smoke-Out North Garage	Small Commercial Sub-slab-30 minute	03/30/16	2,010	<0.41	<0.37	<0.57	<0.35	<0.29
			06/03/16	2,870	3.2	1.8	<0.55	<0.34	<0.28
			09/29/16	5,960	75	55.2	<11.4	<7.1	<5.8
			03/15/17	<0.40	0.44	<0.35	<0.55	<0.34	<0.28
			10/25/17	3,050	<20.8	<26.4	<22.9	<18.4	<9.8
			01/11/23	336	<0.44	<0.39	<0.76	NA	<0.18
			08/11/23	740	1.40	<1.03	<0.888	NA	<0.808
VP-4	Smoke-Out South Garage	Small Commercial Sub-slab-30 minute	03/30/16	**889,000**	**5,820**	6,080	<95.2	<59.0	<48.4
			06/03/16	**1,050,000**	**13,200**	12,000	28.9	<0.34	<0.28
			09/29/16	**1,280,000**	**36,400**	36,200	67.6	1.2	12.4
			03/15/17	**604,000**	**13,200**	12,600	54.8	<6.6	<5.4
			10/25/17	**564,000**	**6,010**	4,870	<21.2	<17.1	<9.1
			01/11/23	654	7.9	0.85 J	<0.80	NA	0.48 J
			08/11/23	4,400	81.4	6.18	<0.888	NA	<0.808
VP-5	Smoke-Out Storage Area	Small Commercial Sub-slab-30 minute	03/30/16	**270,000**	**7,090**	11,800	119	<59.0	<48.4
			06/03/16	**196,000**	**12,000**	22,400	114	3.2	2.6
			09/29/16	**309,000**	**27,500**	39,100	238	<14.8	<12.1
			03/15/17	**93,700**	**7,040**	12,800	168	<6.9	9.6
			10/25/17	**162,000**	**7,580**	20,100	78.9	<17.1	<9.1
			01/11/23	47.8	<0.40	<0.36	<0.70	NA	<0.16
			08/11/23	2,250	124	8.32	0.900	NA	<0.808
VP-6	Badger Scale Garage	Small Commercial Sub-slab-30 minute	03/30/16	3,540	12.5	5.0	<0.57	<0.35	<0.29
			06/03/16	497	0.68	0.74	<0.57	<0.35	<0.29
			09/29/16	1,140	<0.41	<0.37	<0.57	<0.35	<0.29
			03/15/17	2,670	<8.2	<7.3	<11.4	<7.1	<5.8
			10/25/17	2,600	<20.8	<26.4	<22.9	<18.4	<9.8
			01/11/23	15.8	<0.46	<0.41	<0.80	NA	<0.18
			08/11/23	48.3	<1.22	<1.03	<0.888	NA	<0.808
VP-7	Badger Scale Office/Storage Area	Small Commercial Sub-slab-30 minute	06/03/16	13,800	156	<0.40	<0.62	<0.38	<0.31
			09/29/16	**24,200**	**1,270**	16.5	0.99	<0.35	<0.29
			03/15/17	**16,200**	454	41.3	<10.7	<6.6	<5.4
			10/25/17	11,200	<20.0	<25.4	<22.0	<17.7	<9.4
			01/11/23	74.9	9.7	0.53 J	<0.73	NA	<0.17
			08/11/23	595	117	7.17	<0.888	NA	<0.808
VP-8	Smoke-Out Office	Small Commercial Sub-slab-30 minute	06/03/16	13,600	2.1	<0.38	<0.60	<0.37	<0.30
			09/29/16	**19,200**	7.1	<0.35	<0.55	<0.34	<0.28
			03/15/17	5,360	<7.9	<7.1	<11.1	<6.9	<5.6
			10/25/17	**11,200**	<20.0	<25.4	<22.0	<17.7	<9.4
			01/11/23	149	14.7	7.2	<0.73	NA	<0.17
			08/11/23	587	1.25	<1.03	<0.888	NA	<0.808
Residential Indoor Air VAL[1] (µg/m3)				42	2.1	42	42	210	1.7
Residential Sub-slab Vapor/Soil Gas VRSL[2] (µg/m3)				1,400	70	1,400	1,400	7,000	57
Small Commercial Building Indoor Air VAL[1] (µg/m3)				*180*	*8.8*	*180*	*180*	*880*	*28*
Small Commercial Building Sub-slab Vapor/Soil Gas VRSL[2] (µg/m3)				6,000	290	5,800	5,800	29,000	930
Large Commercial/Industrial Building Indoor Air VAL[1] (µg/m3)				**180**	**8.8**	**180**	**180**	**880**	**28**
Large Commercial/Industrial Building Sub-slab Vapor/Soil Gas VRSL[3] (µg/m3)				**18,000**	**880**	**18,000**	**18,000**	**88,000**	**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
< = Not detected at or above the limit of detection (LOD)
NA = Not analyzed

[1] VALs are shown for information only and do not apply to sub-slab results. 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) (Dec 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.

Blue-Shaded values indicate exceedance of applicable residential VRSLs (sub-slab)
Gray-Shaded values indicate exceedance of applicable small commercial VRSLs (sub-slab)
Bold, Red-Shaded values indicate exceedance of applicable Large commercial building VRSLs (sub-slab)

ANALYTICAL REPORT

August 21, 2023

Terracon - Franklin, WI

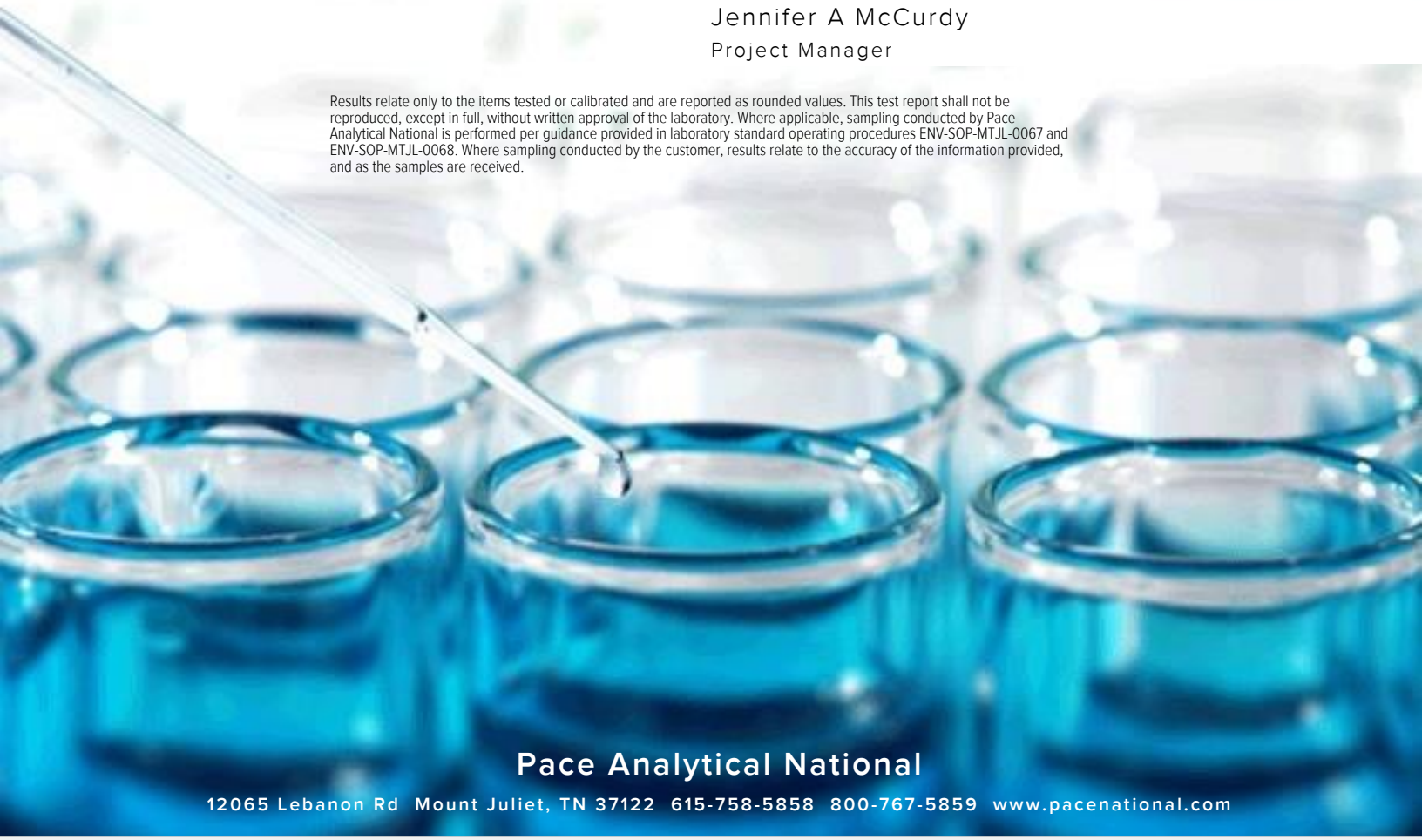
Sample Delivery Group:	L1645623
Samples Received:	08/12/2023
Project Number:	
Description:	Smoke-Out Cleaners

Report To:

Scott Hodgson
4900 South Pennsylvania Ave
Suite 100
Cudahy, WI 53110

Entire Report Reviewed By:

Jennifer A McCurdy
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SANITARY CLEANOUT L1645623-01 Air

Collected by: Jon Cop | Collected date/time: 08/11/23 09:29 | Received date/time: 08/12/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG2114306	1	08/15/23 18:10	08/15/23 18:10	DAH	Mt. Juliet, TN

SOUTH FLOOR DRAIN L1645623-02 Air

Collected by: Jon Cop | Collected date/time: 08/11/23 11:13 | Received date/time: 08/12/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG2114306	1	08/15/23 18:51	08/15/23 18:51	DAH	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG2115182	20	08/16/23 17:57	08/16/23 17:57	MNP	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG2115923	100	08/17/23 19:16	08/17/23 19:16	MNP	Mt. Juliet, TN

HOLDING TANK L1645623-03 Air

Collected by: Jon Cop | Collected date/time: 08/11/23 11:33 | Received date/time: 08/12/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG2114306	1	08/15/23 19:31	08/15/23 19:31	DAH	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG2115182	5	08/16/23 14:58	08/16/23 14:58	MNP	Mt. Juliet, TN

VP-3 L1645623-04 Air

Collected by: Jon Cop | Collected date/time: 08/11/23 11:03 | Received date/time: 08/12/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG2114306	1	08/15/23 20:12	08/15/23 20:12	DAH	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG2115182	2	08/16/23 14:33	08/16/23 14:33	MNP	Mt. Juliet, TN

VP-4 L1645623-05 Air

Collected by: Jon Cop | Collected date/time: 08/11/23 09:16 | Received date/time: 08/12/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG2114306	1	08/15/23 20:52	08/15/23 20:52	DAH	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG2115182	20	08/16/23 17:07	08/16/23 17:07	MNP	Mt. Juliet, TN

VP-5 L1645623-06 Air

Collected by: Jon Cop | Collected date/time: 08/11/23 09:20 | Received date/time: 08/12/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG2114306	1	08/15/23 21:33	08/15/23 21:33	DAH	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG2115182	10	08/16/23 16:42	08/16/23 16:42	MNP	Mt. Juliet, TN

VP-6 L1645623-07 Air

Collected by: Jon Cop | Collected date/time: 08/11/23 07:49 | Received date/time: 08/12/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG2114306	1	08/15/23 22:13	08/15/23 22:13	DAH	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG2115182	1	08/16/23 13:37	08/16/23 13:37	MNP	Mt. Juliet, TN

SAMPLE SUMMARY

VP-7 L1645623-08 Air

Collected by: Jon Cop
Collected date/time: 08/11/23 07:58
Received date/time: 08/12/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG2114306	1	08/15/23 22:54	08/15/23 22:54	DAH	Mt. Juliet, TN

VP-8 L1645623-09 Air

Collected by: Jon Cop
Collected date/time: 08/11/23 09:23
Received date/time: 08/12/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG2114306	1	08/15/23 23:35	08/15/23 23:35	DAH	Mt. Juliet, TN

BADGER SCALE IA-2 L1645623-10 Air

Collected by: Jon Cop
Collected date/time: 08/11/23 14:25
Received date/time: 08/12/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG2114306	1	08/16/23 00:15	08/16/23 00:15	DAH	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jennifer A McCurdy
Project Manager

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
cis-1,2-Dichloroethene	156-59-2	96.90	0.261	1.03	ND	ND		1	WG2114306
trans-1,2-Dichloroethene	156-60-5	96.90	0.224	0.888	ND	ND		1	WG2114306
Tetrachloroethylene	127-18-4	166	0.271	1.84	ND	ND		1	WG2114306
Trichloroethylene	79-01-6	131	0.227	1.22	ND	ND		1	WG2114306
Vinyl chloride	75-01-4	62.50	0.316	0.808	ND	ND		1	WG2114306
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*99.4*				WG2114306

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
cis-1,2-Dichloroethene	156-59-2	96.90	5.23	20.7	132	523		20	WG2115182
trans-1,2-Dichloroethene	156-60-5	96.90	0.224	0.888	4.50	17.8		1	WG2114306
Tetrachloroethylene	127-18-4	166	27.1	184	2130	14500		100	WG2115923
Trichloroethylene	79-01-6	131	4.53	24.3	286	1530		20	WG2115182
Vinyl chloride	75-01-4	62.50	0.316	0.808	14.1	36.0		1	WG2114306
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*101*				WG2114306
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*99.9*				WG2115182
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*98.1*				WG2115923

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
cis-1,2-Dichloroethene	156-59-2	96.90	0.261	1.03	12.9	51.1		1	WG2114306
trans-1,2-Dichloroethene	156-60-5	96.90	0.224	0.888	1.93	7.65		1	WG2114306
Tetrachloroethylene	127-18-4	166	1.36	9.23	93.8	637		5	WG2115182
Trichloroethylene	79-01-6	131	1.13	6.05	18.5	99.1		5	WG2115182
Vinyl chloride	75-01-4	62.50	0.316	0.808	20.6	52.7		1	WG2114306
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*101*				WG2114306
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*103*				WG2115182

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
cis-1,2-Dichloroethene	156-59-2	96.90	0.261	1.03	ND	ND		1	WG2114306
trans-1,2-Dichloroethene	156-60-5	96.90	0.224	0.888	ND	ND		1	WG2114306
Tetrachloroethylene	127-18-4	166	0.543	3.69	109	740		2	WG2115182
Trichloroethylene	79-01-6	131	0.227	1.22	0.261	1.40		1	WG2114306
Vinyl chloride	75-01-4	62.50	0.316	0.808	ND	ND		1	WG2114306
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*99.4*				WG2114306
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*102*				WG2115182

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
cis-1,2-Dichloroethene	156-59-2	96.90	0.261	1.03	1.56	6.18		1	WG2114306
trans-1,2-Dichloroethene	156-60-5	96.90	0.224	0.888	ND	ND		1	WG2114306
Tetrachloroethylene	127-18-4	166	5.43	36.9	648	4400		20	WG2115182
Trichloroethylene	79-01-6	131	0.227	1.22	15.2	81.4		1	WG2114306
Vinyl chloride	75-01-4	62.50	0.316	0.808	ND	ND		1	WG2114306
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*100*				WG2114306
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*97.9*				WG2115182

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
cis-1,2-Dichloroethene	156-59-2	96.90	0.261	1.03	2.10	8.32		1	WG2114306
trans-1,2-Dichloroethene	156-60-5	96.90	0.224	0.888	0.227	0.900		1	WG2114306
Tetrachloroethylene	127-18-4	166	2.71	18.4	331	2250		10	WG2115182
Trichloroethylene	79-01-6	131	0.227	1.22	23.2	124		1	WG2114306
Vinyl chloride	75-01-4	62.50	0.316	0.808	ND	ND		1	WG2114306
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*99.2*				WG2114306
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*99.7*				WG2115182

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
cis-1,2-Dichloroethene	156-59-2	96.90	0.261	1.03	ND	ND		1	WG2114306
trans-1,2-Dichloroethene	156-60-5	96.90	0.224	0.888	ND	ND		1	WG2114306
Tetrachloroethylene	127-18-4	166	0.271	1.84	7.12	48.3		1	WG2115182
Trichloroethylene	79-01-6	131	0.227	1.22	ND	ND		1	WG2114306
Vinyl chloride	75-01-4	62.50	0.316	0.808	ND	ND		1	WG2114306
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*99.7*				WG2114306
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*99.2*				WG2115182

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
cis-1,2-Dichloroethene	156-59-2	96.90	0.261	1.03	1.81	7.17		1	WG2114306
trans-1,2-Dichloroethene	156-60-5	96.90	0.224	0.888	ND	ND		1	WG2114306
Tetrachloroethylene	127-18-4	166	0.271	1.84	87.7	595		1	WG2114306
Trichloroethylene	79-01-6	131	0.227	1.22	21.9	117		1	WG2114306
Vinyl chloride	75-01-4	62.50	0.316	0.808	ND	ND		1	WG2114306
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*98.3*				WG2114306

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
cis-1,2-Dichloroethene	156-59-2	96.90	0.261	1.03	ND	ND		1	WG2114306
trans-1,2-Dichloroethene	156-60-5	96.90	0.224	0.888	ND	ND		1	WG2114306
Tetrachloroethylene	127-18-4	166	0.271	1.84	86.4	587		1	WG2114306
Trichloroethylene	79-01-6	131	0.227	1.22	0.233	1.25		1	WG2114306
Vinyl chloride	75-01-4	62.50	0.316	0.808	ND	ND		1	WG2114306
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*97.9*				WG2114306

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
cis-1,2-Dichloroethene	156-59-2	96.90	0.261	1.03	ND	ND		1	WG2114306
trans-1,2-Dichloroethene	156-60-5	96.90	0.224	0.888	ND	ND		1	WG2114306
Tetrachloroethylene	127-18-4	166	0.271	1.84	ND	ND		1	WG2114306
Trichloroethylene	79-01-6	131	0.227	1.22	ND	ND		1	WG2114306
Vinyl chloride	75-01-4	62.50	0.316	0.808	ND	ND		1	WG2114306
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*98.8*				WG2114306

Method Blank (MB)

(MB) R3961359-3 08/15/23 10:57

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
cis-1,2-Dichloroethene	U		0.0784	0.261
trans-1,2-Dichloroethene	U		0.0673	0.224
Tetrachloroethylene	U		0.0814	0.271
Trichloroethylene	U		0.0680	0.227
Vinyl chloride	U		0.0949	0.316
(S) 1,4-Bromofluorobenzene	*98.0*			*60.0-140*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3961359-1 08/15/23 09:35 • (LCSD) R3961359-2 08/15/23 10:17

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
cis-1,2-Dichloroethene	3.75	3.85	3.78	103	101	70.0-130			1.83	25
trans-1,2-Dichloroethene	3.75	3.94	3.89	105	104	70.0-130			1.28	25
Tetrachloroethylene	3.75	3.76	3.87	100	103	70.0-130			2.88	25
Trichloroethylene	3.75	3.73	3.78	99.5	101	70.0-130			1.33	25
Vinyl chloride	3.75	3.94	3.86	105	103	70.0-130			2.05	25
(S) 1,4-Bromofluorobenzene				*98.3*	*98.4*	*60.0-140*				

Method Blank (MB)

(MB) R3961512-1 08/16/23 09:42

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
cis-1,2-Dichloroethene	U		0.0784	0.261
Tetrachloroethylene	U		0.0814	0.271
Trichloroethylene	U		0.0680	0.227
(S) 1,4-Bromofluorobenzene	*101*			*60.0-140*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3961512-2 08/16/23 11:39 • (LCSD) R3961512-3 08/16/23 12:09

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
cis-1,2-Dichloroethene	3.75	3.27	3.43	87.2	91.5	70.0-130			4.78	25
Tetrachloroethylene	3.75	3.54	3.96	94.4	106	70.0-130			11.2	25
Trichloroethylene	3.75	3.43	3.59	91.5	95.7	70.0-130			4.56	25
(S) 1,4-Bromofluorobenzene				*102*	*101*	*60.0-140*				

Method Blank (MB)

(MB) R3961966-3 08/17/23 09:19

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Tetrachloroethylene	U		0.0814	0.271
(S) 1,4-Bromofluorobenzene	*99.9*			*60.0-140*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3961966-1 08/17/23 08:23 • (LCSD) R3961966-2 08/17/23 08:52

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Tetrachloroethylene	3.75	3.65	3.59	97.3	95.7	70.0-130			1.66	25
(S) 1,4-Bromofluorobenzene				*102*	*104*	*60.0-140*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
	The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
Terracon - Franklin, WI

4900 South Pennsylvania Ave

Suite 100

Billing Information:
Mr. Tim Welch
4900 South Pennsylvania Ave

Suite 100
Cudahy, WI 53110

Analysis | Chain of Custody | Page 1 of 1

Sample Receipt Checklist
COC Seal Present/Intact: Y N — If Applicable
COC Signed/Accurate: Y N — VOA Zero Headspace: Y N
Bottles arrive intact: Y N — Pres.Correct/Check: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
RAD Screen <0.5 mR/hr: Y N

SCIENCE

12065 Lebanon Road Mt Juliet, TN 37122
Phone: 615-758-5858 Alt: 800-767-5859
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

Report To:
Scott Hodgson

Email To:
Scott.Hodgson@terracon.com

Project Description: **Smoke-Out Cleaners**

City/State Collected: Howard, WI

Please Circle: PT MT CT ET

SDG # L1615623

1145

Phone: **414-209-7640**

Client Project #

Lab Project #
TERRAFWI-SMOKE-OUT

Collected by (print): Jon Coe

Site/Facility ID #

P.O. #

Acctnum: **TERRAFWI**
Template: **T234643**
Prelogin: **P1013615**
PM: **3828 - Jennifer A McCurdy**
PB: CSH 08/09/23

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day ___ Three Day
___ Next Day ___ Five Day
___ Two Day

Date Results Needed

Shipped Via: **FedEx Ground**

Sample ID	Can #	Flow Cont. #	Collection Date	Collection Time	Canister Pressure/Vacuum Initial	Canister Pressure/Vacuum Final	TO-15 Summa				Rem./Contaminant	Sample # (lab only)
Sanitary Cleanout	23240	28867	8/11/23	0929	-29	-5	1					-01
South floor drain	21042	28867		1113	-28	-3	1					-02
Holding tank	28514	28867		1133	-29	-3	1					-03
VP-3	~~23240~~ 21263	~~28867~~ 11946		1103	-~~30~~ -22	-3	1					-04
VP-4	9321	11529		0916	-30	-3	1					-05
VP-5	12310	9279		0920	-27	-6	1					-06
VP-6	24181	7826		0749	-30	-3	1					-07
VP-7	15007	12672		0758	-29	-11	1					-08
VP-8	23005	5990		0923	-30	-4	1					-09
Badger Scale IA-2	23933	24859		1425	-30	-2	1					-10

Remarks:
please send 2 COCs

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking #

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:	Condition: (lab use only)
	8/11/23	1500				
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Date: 8/12	Time: 0900	COC Seal Intact: ___Y ___N ___NA
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date:	Time:	NCF: