

From: Alex Allie <aallie@alliecompanies.com>
Sent: Thursday, August 31, 2023 11:10 AM
To: Byers, Harris
Cc: Peter Allie; Beggs, Tauren R - DNR
Subject: Re: Sub-Slab Vapor Results - River North

Good morning Harris and Tauren,

That is great news. Thanks for the update!

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On Thu, Aug 31, 2023 at 10:44 AM Byers, Harris <Harris.Byers@stantec.com> wrote:

Alex and Peter (and Tauren):

I realize vapor intrusion is a HOT topic in Wisconsin, so I wanted to send a short email to keep everyone in the loop.

Stantec collected samples of sub-slab vapor at the River North project in Manitowoc on July 25, 2023. The results are summarized on the attached table.

As noted on the attached, the concentrations of all detected constituents remain less than the most conservative vapor risk screening levels.

As we've recently discussed, we will collect the final round of sub-slab samples in late October/November. If constituents remain less than VRSLs, the vapor pins will be removed/abandoned, and the sub-slab depressurization system will remain passive (without a continuing obligation).

Sincerely,

Harris Byers, Ph.D.

Sr. Brownfields Project Manager

Contaminant Hydrogeologist / Urban Geochemist

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Table 1 - Detected Constituents in Sub-Slab Vapor

River North Apartment Building
1000 River Point Drive, Manitowoc, WI

Sample Point	Vacuum Testing of Sampling Fittings** (Pass/Fail)	Helium Shroud QA/QC Testing		Date Sampled	Date Analyzed	Sample Location	Sample Duration (minutes)	Detected Volatile Organic Compounds (micrograms per cubic meter; method TO-15)																
		Helium Concentration Under Shroud	Helium Concentration in Sample					1,1,1-Trichloroethane ~	1,1,2,2-Tetrachloroethane*	1,1,2-Trichloro-1,2,2-trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane*~	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromosthane*	1,2-Dichloro-1,1,2,2-tetrafluoroethane	1,2-Dichloroethane*~	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene*	1,4-Dioxane*	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)
Sub-Slab Vapor Risk Screening Level (VRSL) (micrograms per cubic meter)						Residential (AF = 0.03)	170,000	16	170,000	7	590	70	2,100	2	NSL	36	140	2,100	NSL	85	190	170,000	100,000	
						Small Commercial (AF = 0.03)	730,000	71	730,000	29	2,600	290	8,800	7	NSL	160	580	8,800	NSL	370	820	730,000	440,000	
						Large Commercial/Industrial (AF = 0.01)	2,200,000	210	2,200,000	88	7,700	880	26,000	20	NSL	470	1,800	26,000	NSL	1,100	2,500	2,200,000	1,300,000	
SVP-1	Pass	45%	0%	3/9/2023	3/30/2023	River North Apartment Complex	30	1.70	< 0.30	< 0.42	< 0.19	< 0.12	< 1.4	8.4	< 0.35	< 0.38	< 0.61	< 0.40	3.2	< 0.54	< 0.57	< 6.1	10	< 0.78
	Pass	30%	0%	7/25/2023	8/3/2023		30	1.0 J	0.28 J	0.72 J	0.22 J	0.17 J	0.86 J	3.8	0.28 J	0.26 J	0.17 J	0.19 J	1.4 J	0.30 J	0.32 J	0.38 J	1.7 J	0.83 J
SVP-2	Pass	55%	0%	3/9/2023	3/30/2023	River North Apartment Complex	30	< 0.21	< 0.30	0.44 J	< 0.19	< 0.12	< 1.4	1.7	< 0.35	< 0.38	< 0.61	< 0.40	0.48 J	< 0.54	< 0.57	< 6.1	28	1.9 J
	Pass	24%	0%	7/25/2023	8/3/2023		30	< 0.39	< 0.24	0.46 J	< 0.21	< 0.11	< 0.66	1.4	< 0.24	< 0.21	< 0.10	< 0.12	< 0.79	< 0.24	< 0.24	< 0.27	4.0	0.79 J
SVP-3	Pass	50%	0%	3/9/2023	3/30/2023	River North Apartment Complex	30	< 0.21	< 0.30	< 0.42	< 0.19	< 0.12	< 1.4	2.4	< 0.35	< 0.38	< 0.61	< 0.40	0.69 J	< 0.54	< 0.57	< 6.1	8.2	< 0.78
	Pass	22%	0%	7/25/2023	8/3/2023		30	< 3.9	< 2.4	< 1.8	< 2.1	< 1.1	< 6.6	< 2.5	< 2.4	< 2.1	< 1.0	< 1.2	< 7.9	< 2.4	< 2.4	< 2.7	< 5.3	< 5.7
SVP-4	Pass	54%	0%	3/9/2023	3/30/2023	River North Apartment Complex	30	< 0.21	< 0.30	< 0.42	< 0.19	< 0.12	< 1.4	< 0.23	< 0.35	< 0.38	< 0.61	< 0.40	< 0.22	< 0.54	< 0.57	< 6.1	9.9	< 0.78
SVP-5	Pass	56%	0%	3/9/2023	3/30/2023	River North Apartment Complex	30	< 0.21	< 0.30	< 0.42	< 0.19	< 0.12	< 1.4	4.3	< 0.35	< 0.38	< 0.61	< 0.40	1.5	< 0.54	< 0.57	< 6.1	15	0.91 J
	Pass	26%	0%	7/25/2023	8/3/2023		30	< 0.39	< 0.24	0.44 J	< 0.21	< 0.11	< 0.66	1.6	< 0.24	< 0.21	< 0.10	< 0.12	< 0.79	< 0.24	< 0.24	< 0.27	5.6	< 0.57
SVP-6	Pass	31%	0%	3/9/2023	3/31/2023	River North Apartment Complex	30	< 0.21	< 0.30	0.42 J	< 0.19	< 0.12	< 1.4	26	< 0.35	< 0.38	< 0.61	< 0.40	12	< 0.54	< 0.57	< 6.1	30	2.8
	Pass	30%	0%	7/25/2023	8/3/2023		30	< 3.9	< 2.4	< 1.8	< 2.1	< 1.1	< 6.6	2.5 J	< 2.4	< 2.1	< 1.0	< 1.2	< 7.9	< 2.4	< 2.4	< 2.7	17 J	< 5.7

Notes:

- AF Attenuation factor.
- NSL No screening level assigned.
- VRSL Vapor risk screening level.
- E Result exceeded calibration range.
- J Estimated concentration is greater than the limit of detection, but less than the limit of quantification.
- < Constituent not detected.
- * Carcinogenic constituent.
- ** A vacuum of greater than 5 inches of mercury was applied to the hoses and fittings used to collect each sample. A passing grade was given if no drop in vacuum was observed after at least 1 minute.

All screening levels were determined using WDNR Publication RR-0136 guidance using the following methods:
 1) The Wisconsin Vapor Quick Look-Up Table (page 1 of the guidance document) was used for the common contaminants listed (these are marked with a "~" in the summary table above).
 2) All other screening levels not included on the Wisconsin Vapor Quick Look-Up table were determined from current "USEPA Vapor Intrusion Screening Levels (VISL) Website (last updated November 2022), per the instructions on page 2 of the RR-0136 guidance document.

Citation: **WDNR Publication RR-0136, Guidance: Wisconsin Vapor Quick Look-Up Table; Indoor Air Vapor Action Levels and**

Table 1 - Detected Constituents in Sub-Slab Vapor

River North Apartment Building
1000 River Point Drive, Manitowoc, WI

Sample Point	Vacuum Testing of Sampling Fittings** (Pass/Fail)	Helium Shroud QA/QC Testing		Date Sampled	Date Analyzed	Sample Location	Sample Duration (minutes)	Detected Volatile Organic Compounds (micrograms per cubic meter; method TO-15)																
		Helium Concentration Under Shroud	Helium Concentration in Sample					Acetone	Benzene*~	Bromomethane	Carbon disulfide	Carbon tetrachloride*~	Chloroethane (ethyl chloride)	Chloroform*	Chloromethane~	cis-1,2-Dichloroethene~	Cyclohexane	Dichlorodifluoromethane	Ethylbenzene*~	Hexane	Isopropyl alcohol (isopropanol)	Isopropylbenzene (cumene)	Methylene Chloride~	Naphthalene*~
Sub-Slab Vapor Risk Screening Level (VRSL) (micrograms per cubic meter)						Residential (AF = 0.03)	NSL	120	170	24,000	160	140,000	41	3,100	1,400	210,000	3,500	370	24,000	7,000	14,000	21,000	28	
						Small Commercial (AF = 0.03)	NSL	520	730	100,000	680	580,000	180	13,000	5,800	880,000	15,000	1,600	100,000	29,000	58,000	88,000	120	
						Large Commercial/Industrial (AF = 0.01)	NSL	1,600	2,200	310,000	2,000	1,800,000	530	39,000	18,000	2,600,000	44,000	4,900	310,000	88,000	180,000	260,000	360	
SVP-1	Pass	45%	0%	3/9/2023	3/30/2023	River North Apartment Complex	30	750 E	0.49 J	< 0.20	10	0.32 J	< 0.66	< 0.22	< 0.25	< 0.13	0.33 J	2.0 J	1.6	1.8 J	< 2.4	0.53 J	1.0 J	< 0.89
	Pass	30%	0%	7/25/2023	8/3/2023		30	16 J	0.55 J	< 0.21	0.84 J	0.49 J	0.22 J	0.59 J	< 0.33	0.15 J	5.3	2.9	0.50 J	1.0 J	1.8 J	0.32 J	2.3 J B	0.57 J
SVP-2	Pass	55%	0%	3/9/2023	3/30/2023	River North Apartment Complex	30	300 E	0.63	< 0.20	1.8	0.34 J	< 0.66	< 0.22	0.68 J	< 0.13	0.35 J	2.5	2.8	4.9	21	< 0.18	9.7	< 0.89
	Pass	24%	0%	7/25/2023	8/3/2023		30	210	0.61 J	0.22 J	0.79 J	0.29 J	< 0.21	1.0	0.38 J	< 0.099	< 0.32	1.8 J	2.4	0.38 J	2.6 J	< 0.21	1.9 J B	< 0.52
SVP-3	Pass	50%	0%	3/9/2023	3/30/2023	River North Apartment Complex	30	230 E	0.84	< 0.20	< 0.40	0.31 J	< 0.66	< 0.22	< 0.25	< 0.13	0.42 J	1.8 J	8.6	1.6 J	3.5 J	< 0.18	< 0.59	< 0.89
	Pass	22%	0%	7/25/2023	8/3/2023		30	34 J	2.3 J	< 2.1	< 2.7	< 2.0	< 2.1	< 1.8	< 3.3	< 0.99	< 3.2	4.5 J	1.5 J	3.0 J	< 5.9	< 2.1	14 J B	< 5.2
SVP-4	Pass	54%	0%	3/9/2023	3/30/2023	River North Apartment Complex	30	270 E	0.38 J	< 0.20	9.2	0.34 J	< 0.66	< 0.22	< 0.25	< 0.13	0.36 J	1.9 J	3.8	1.3 J	3.8 J	< 0.18	< 0.59	< 0.89
SVP-5	Pass	56%	0%	3/9/2023	3/30/2023	River North Apartment Complex	30	1700 E	0.72	< 0.20	< 0.40	0.32 J	< 0.66	< 0.22	< 0.25	< 0.13	0.78 J	2.0 J	3.7	3.2	< 2.4	0.29 J	< 0.59	< 0.89
	Pass	26%	0%	7/25/2023	8/3/2023		30	400	0.35 J	< 0.21	< 0.27	0.30 J	< 0.21	0.23 J	< 0.33	< 0.099	< 0.32	2.6	3.0	0.35 J	3.4 J	< 0.21	2.5 J B	< 0.52
SVP-6	Pass	31%	0%	3/9/2023	3/31/2023	River North Apartment Complex	30	850 E	4.2	< 0.20	0.72 J	0.33 J	< 0.66	< 0.22	0.65 J	< 0.13	1.4 J	1.8 J	56	3.8	7.3 J	2.1 J	< 0.59	< 0.89
	Pass	30%	0%	7/25/2023	8/3/2023		30	900	2.3 J	< 2.1	< 2.7	< 2.0	< 2.1	< 1.8	< 3.3	< 0.99	< 3.2	4.7 J	6.5 J	< 2.2	10 J	< 2.1	< 12	< 5.2

Notes:

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		Helium Concentration Under Shroud	Helium Concentration in Sample					Styrene	Tetrachloroethene [~]	Tetrahydrofuran	Toluene	Trichloroethene [~]	Trichlorofluoromethane	m-Xylene & p-Xylene	o-Xylene	Xylenes, Total [~]
Sub-Slab Vapor Risk Screening Level (VRSL) (micrograms per cubic meter)						Residential (AF = 0.03)	35,000	1,400	70,000	170,000	70	NSL	3,500	3,500	3,500	
						Small Commercial (AF = 0.03)	150,000	5,800	290,000	730,000	290	NSL	15,000	15,000	15,000	
						Large Commercial/Industrial (AF = 0.01)	440,000	18,000	880,000	2,200,000	880	NSL	44,000	44,000	44,000	
SVP-1	Pass	45%	0%	3/9/2023	3/30/2023	River North Apartment Complex	30	< 0.14	0.66 J	< 3.5	1.7	0.86 J	0.99 J	6.2	2.8	8.9
	Pass	30%	0%	7/25/2023	8/3/2023		30	0.34 J	0.77 J	0.71 J	1.4 J B	0.42 J	1.2	1.3 J	0.63 J	1.9
SVP-2	Pass	55%	0%	3/9/2023	3/30/2023	River North Apartment Complex	30	< 0.14	< 0.18	< 3.5	2.5	0.87 J	1.0 J	12	4.7	17
	Pass	24%	0%	7/25/2023	8/3/2023		30	< 0.26	0.47 J	< 0.53	1.7 J B	< 0.18	1.2	9.3	3.2	13
SVP-3	Pass	50%	0%	3/9/2023	3/30/2023	River North Apartment Complex	30	< 0.14	0.40 J	< 3.5	4	< 0.13	0.97 J	36	14	50
	Pass	22%	0%	7/25/2023	8/3/2023		30	< 2.6	< 2.0	< 5.3	4.4 J B	< 1.8	< 1.6	< 3.2	< 1.7	< 1.7
SVP-4	Pass	54%	0%	3/9/2023	3/30/2023	River North Apartment Complex	30	< 0.14	0.20 J	< 3.5	1.9	< 0.13	1.0 J	9.6	2.2	12
SVP-5	Pass	56%	0%	3/9/2023	3/30/2023	River North Apartment Complex	30	< 0.14	0.40 J	< 3.5	2.8	0.15 J	1.2	16	5.9	23
	Pass	26%	0%	7/25/2023	8/3/2023		30	< 0.26	1.2 J	< 0.53	1.4 J B	< 0.18	1.2	14	4.8	19
SVP-6	Pass	31%	0%	3/9/2023	3/31/2023	River North Apartment Complex	30	< 0.14	1.2 J	6.3 J	11	< 0.13	1.1	230	83	310
	Pass	30%	0%	7/25/2023	8/3/2023		30	< 2.6	< 2.0	< 5.3	3.5 J B	< 1.8	1.8 J	28 J	10	38

Notes:

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