

May 28, 2024

AOA Milwaukee LLC  
1835 South 2<sup>nd</sup> Street  
Milwaukee, Wisconsin 53204

RE: Sub-slab Vapor Sampling Results – 1835 South 2<sup>nd</sup> Street, Milwaukee, Wisconsin  
Contaminant Detected **Below** WDNR Screening Level

To Whom it May Concern:

Included are the findings of a recent investigation completed on your property by The Sigma Group, Inc. on behalf of the City of Milwaukee.

As you are aware, this investigation was conducted because of the potential for contaminant vapors from the west adjoining 1818-1836 South 3<sup>rd</sup> Street properties (Former Plunkett Property) to migrate through soils, accumulate beneath the foundation of your building, and possibly enter your indoor air. The contaminants of concern at the 1818-1836 South 3<sup>rd</sup> Street properties are volatile organic compounds (VOCs).

#### **Your Test Results**

On May 8<sup>th</sup> 2024, The Sigma Group, Inc. collected one sub-slab vapor sample (SVP-3) from the vapor point installed in the floor of your building. The vapor sample was submitted to Beacon Environmental Laboratory of Forest Hill, Maryland, where the sample underwent laboratory analysis for benzene, ethylbenzene, naphthalene, tetrachloroethene (PCE), toluene, trichloroethene (TCE), 1,2,4-trimethylbenzene (1,2,4-TMB), 1,3,5-trimethylbenzene (1,3,5-TMB) and total xylenes.

Review of the sub-slab vapor analytical results indicate concentrations of PCE and TCE were detected within the sub-slab vapor sample collected from beneath the slab of your building. Although there were detections in the sub-slab vapor samples, they did not exceed the Wisconsin Department of Natural Resources (WDNR) Vapor Risk Screening Levels (VRSLs) for Residential, Small Commercial or Large Commercial/Industrial settings. This is called “a detection below screening level” and is explained within the enclosed factsheet, *Understanding Chemical Vapor Intrusion Test Results* for more information. The attached **Table 1** summarizes the results of the sub-slab vapor samples collected from beneath your floor slab and compared to WDNR screening levels. Please see the attached fact sheet, *Understanding Chemical Vapor Intrusion Test Results* for more information.

#### **Summary of Results**

At this time, there does not appear to be a vapor risk of benzene, ethylbenzene, naphthalene, PCE, toluene, TCE, 1,2,4-TMB, 1,3,5-TMB or xylene vapors entering your building from beneath the foundation.

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Please feel free to contact Riley Neumann of the WDNR at 414-750-7030 or [Riley.Neumann@wisconsin.gov](mailto:Riley.Neumann@wisconsin.gov) or myself at the number below if you have any questions about these results.

Sincerely,



Chelsea Corson  
Senior Project Manager  
The Sigma Group, Inc.  
414-643-4137

cc: Mr. Riley Neumann, WDNR – [Riley.Neumann@wisconsin.gov](mailto:Riley.Neumann@wisconsin.gov)  
Mr. Mat Reimer, City of Milwaukee – [Mathew.Reimer@milwaukee.gov](mailto:Mathew.Reimer@milwaukee.gov)

Enc: Table 1 – Sub-slab Vapor Analytical Data  
Fact Sheet: Understanding Chemical Vapor Intrusion Test Results (DNR Pub RR-977)

**Table 1**  
**(Sample Results)**

**Table 1**  
**Subslab Vapor Analytical Data**  
**1906 S. 3rd Street - Milwaukee, WI**  
**Sigma Project No. 22255**  
**Former Plunkett Property - 1818-1836 South 3rd Street, Milwaukee, Wisconsin**

Sample Type:		Subslab Vapor	Residential Vapor Risk Screening Level <sup>2</sup>	Small Commercial Vapor Risk Screening Level <sup>3</sup>	Large Commercial / Industrial Vapor Risk Screening Level <sup>4</sup>
Sample Identification:		SVP-3	(AF=0.03)	(AF = 0.03)	(AF = 0.01)
Sample Date(s):		5/8/24			
Sampling/Analysis Method:		Passive			
Sample Duration:		7d 5h 25m			
VOCs					
Benzene	µg/m <sup>3</sup>	<4.53	120	520	1,600
Ethylbenzene	µg/m <sup>3</sup>	<2.83	370	1,600	4,900
Naphthalene	µg/m <sup>3</sup>	<1.20	28	120	360
Tetrachloroethene (PCE)	µg/m <sup>3</sup>	112	1,400	5,800	18,000
Toluene	µg/m <sup>3</sup>	<6.01	170,000	730,000	2,200,000
Trichloroethene (TCE)	µg/m <sup>3</sup>	16.6	70	290	880
1,2,4-Trimethylbenzene	µg/m <sup>3</sup>	<2.89	2,100	8,800	26,000
1,3,5-Trimethylbenzene	µg/m <sup>3</sup>	<2.89	2,100	8,800	26,000
Xylenes, total	µg/m <sup>3</sup>	<5.46	3,500	15,000	44,000

Notes:

- Analytical units: µg/m<sup>3</sup> = micrograms per cubic meter
- Residential Vapor Risk Screening Level = Risk-based concentrations based on VALs for **residential** air which has been adjusted with an **Attenuation Factor of 0.03** for the subslab vapor to ambient air pathway in a **residential** setting. VALs for residential indoor air based on WDNR publication RR-800 "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin" (dated January 2018) which in turn references EPA Region 3 Risk-Based Concentrations for residential air [Regional Screening Level (RSL) Summary Table (TR=1E-06, HQ=1) May 2023] and residential air in August 2023 "Wisconsin Vapor Quick Look-Up Table, Indoor Air Vapor Action Levels And Vapor Risk Screening Levels" publication RR-0136. VAL adjusted to 1-in-100,000 increase in lifetime cancer risk for carcinogens per WDNR publication RR-800; VAL is not adjusted for non-carcinogens (i.e., hazard index = 1).
- Small Commercial Vapor Risk Screening Level = Risk-based concentrations based on VALs for **small commercial** air which has been adjusted with an **Attenuation Factor of 0.03** for the subslab vapor to ambient air pathway in a **small commercial** setting. VALs for small commercial setting indoor air based on WDNR publication PUB-RR-800 "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin" (dated January 2018) which in turn references EPA Region 3 Risk-Based Concentrations for industrial air [Regional Screening Level (RSL) Summary Table (TR=1E-06, HQ=1) May 2023] and small commercial air in August 2023 "Wisconsin Vapor Quick Look-Up Table, Indoor Air Vapor Action Levels And Vapor Risk Screening Levels" publication RR-0136. VAL adjusted to 1-in-100,000 increase in lifetime cancer risk for carcinogens per WDNR publication RR-800; VAL is not adjusted for non-carcinogens (i.e., hazard index = 1).
- Large Commercial / Industrial Vapor Risk Screening Level = Risk-based concentrations based on VALs for **large commercial/industrial** air which has been adjusted with an **Attenuation Factor of 0.01** for the subslab vapor to ambient air pathway in a **large commercial/industrial** setting. VALs for large commercial / industrial indoor air based on WDNR publication PUB-RR-800 "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin" (dated January 2018) which in turn references EPA Region 3 Risk-Based Concentrations for industrial air [Regional Screening Level (RSL) Summary Table (TR=1E-06, HQ=1) May 2023] and large commercial / industrial air in August 2023 "Wisconsin Vapor Quick Look-Up Table, Indoor Air Vapor Action Levels And Vapor Risk Screening Levels" publication RR-0136. VAL adjusted to 1-in-100,000 increase in lifetime cancer risk for carcinogens per WDNR publication RR-800; VAL is not adjusted for non-carcinogens (i.e., hazard index = 1).
- NA = not analyzed
- < = concentration reported less than laboratory limit of detection (LOD)
- Exceedances: **BOLD**  
[ ]  
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Data Entered/Updated by: NRW  
Data Checked by: \_\_\_\_\_

Date: 5/21/2024  
Date: \_\_\_\_\_

**Fact Sheet: Understanding Chemical Vapor Intrusion Test Results**

**(DNR Pub RR-977)**



# 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.

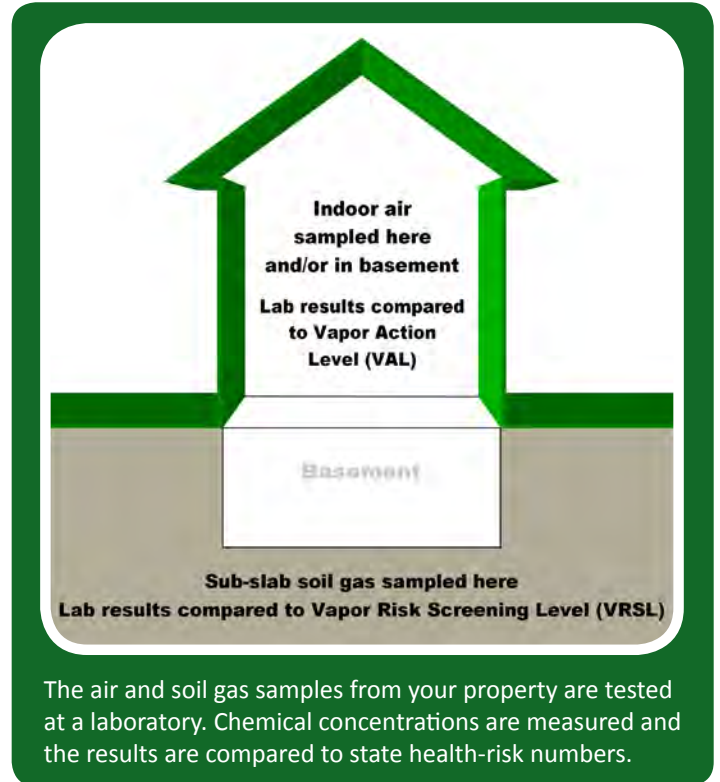
## Indoor Air Testing Results

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

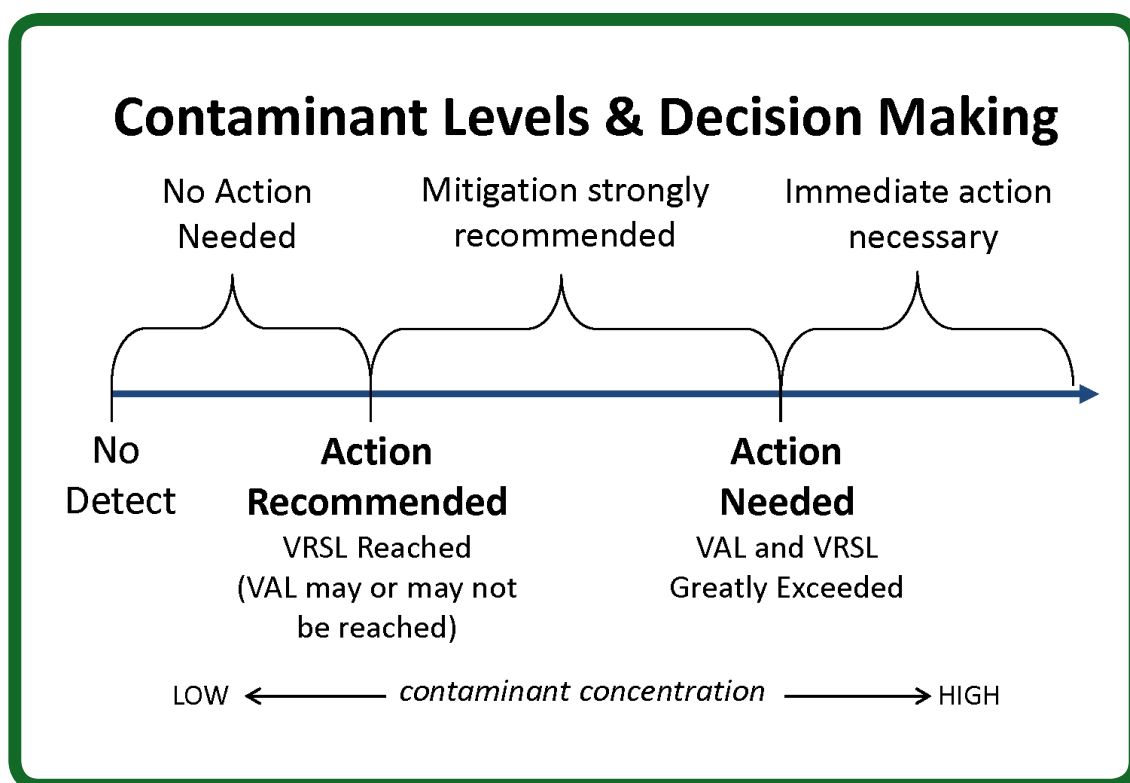
If your test results are less than a VAL for indoor air, or a VRSL for sub-slab soil gas, then the air in the house or building should not present a health concern. Follow-up sampling and testing may be necessary to confirm the results, but no other action is typically suggested.

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  $\mu\text{g}/\text{m}^3$  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](http://dnr.wi.gov/topic/Brownfields/Vapor.html)