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March 25, 2024

Ms. Amanda Babic
6501 28th Avenue
Kenosha, WI 53143

SUBJECT: Vapor Sampling Results – 6501 28th Avenue, Kenosha, WI
Contaminant Detected **Below** DNR Screening Level

Dear Ms. Babic,

Included are the findings of a recent investigation on your property by The Sigma Group, Inc. on behalf of the Wisconsin Department of Natural Resources (DNR).

As you are aware, this investigation was conducted because of the potential for contaminant vapors from the nearby former Werner's Cleaners/6415 28th Avenue property to migrate through soils, accumulate beneath the foundation of your home, and possibly enter your indoor air. The contaminants of concern at the former Werner's Cleaners/6415 28th Avenue property are tetrachloroethene, commonly referred to as PCE and trichloroethene, commonly referred to as TCE. The history of this site and the potential concerns to neighboring residents were described in detail in the WDNR's original letter to you, dated August 22, 2023.

Your Test Results

On February 26, 2024, The Sigma Group, Inc. installed one sampling device into the floor of your basement and collected a sub-slab vapor sample. Indoor air samples were also collected from the basement and first floor of your home. The samples were collected on March 11, 2024, and submitted to the Beacon Environmental laboratory, where they underwent laboratory analysis for perchloroethylene (PCE), TCE, cis-1,2-dichloroethylene (cis-1,2-DCE), trans-1,2-dichloroethylene (trans-1,2-DCE) and vinyl chloride (VC).

The results show small amounts of PCE detected in the indoor air samples collected within your residence. Although PCE was detected in indoor air samples, the levels at which it was detected do not pose a threat to you or your family. This is called "a detection below screening level" and is explained within the enclosed within factsheet, *Understanding Chemical Vapor Intrusion Test Results* for more information.

The analysis detected PCE within the indoor air samples at 0.191 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) and 0.203 $\mu\text{g}/\text{m}^3$ which is less than 10 percent of the DNR action level for indoor air samples (42 $\mu\text{g}/\text{m}^3$ for PCE).

Attached are tables summarizing the results of the samples collected from beneath your basement floor and your indoor air compared to DNR screening levels or action levels. Please see the attached fact sheet, *Understanding Chemical Vapor Intrusion Test Results* for more information.

At this time, there does not appear to be a risk of PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, and VC vapors entering your home from beneath the foundation.

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Next Steps

Additional sampling needs to be conducted in order to confirm these results. The Sigma Group, Inc. will contact you to schedule another sampling visit.

Please feel free to contact Joseph Martinez of the DNR at 414-218-6042 or joseph.martinez@wisconsin.gov or myself at the number below if you have any questions about these results.

Sincerely,



Stephen Meer, P.E.
Senior Engineer
The Sigma Group, Inc.
414-643-4124

cc: Mr. Joseph Martinez, DNR – Joseph.Martinez@wisconsin.gov
Ms. Jennifer Borski, DNR - Jennifer.Borski@wisconsin.gov

Enc: Table 1, Table 2, (Sample Results)
Fact Sheet: Understanding Chemical Vapor Intrusion Test Results (DNR Pub RR-977)

Table 1, Table 2, Table 3

(Sample Results)

Table 1
Sub-slab Vapor Analytical Data
6501 28th Avenue
Werners Cleaners - 6415 28th Avenue, Kenosha, Wisconsin
Sigma Project No. 21985

Sample Type:		Sub-slab Vapor Sample			Residential Vapor Risk Screening Level ² (AF=0.03)
Sample Identification:		06A_SSV_01_20231120	06A_SSV_01D_20231120	06A_SSV_01_20240311	
Sample Date(s):		11/9/2023 - 11/20/2023		2/26/24-3/11/24	
Sampling/Analysis Method:		Beacon PSG Sampler/ EPA 8260C	WMS-VP	Beacon PSG Sampler/ EPA 8260C	
Sample Duration (minutes):		15,770	15,800	20163	
VOCs					
cis-1,2-Dichloroethene	µg/m ³	<1.20	<7	<0.94	1,400
trans-1,2-Dichloroethene	µg/m ³	<1.44	<23	<1.13	1,400
Tetrachloroethene (PCE)	µg/m ³	1.88	<2.4	<1.21	1,400
Trichloroethene (TCE)	µg/m ³	<1.92	<3.8	<1.50	70
Vinyl Chloride	µg/m ³	<0.78	<130	<0.61	56

Notes:

1. Analytical units: µg/m³ = micrograms per cubic meter

SRM

5. NA = not analyzed

6. Laboratory flags:

7. Exceedances:

BOLD = concentration greater than residential Vapor Risk Screening Level

[] = concentration greater than small commercial Vapor Risk Screening Level

{ } = concentration greater than large commercial / industrial Vapor Risk Screening Level

Data entered / updated by: CLE

Date: 3/21/2024

Data checked by: SRM

Date: 3/21/2024

Table 2
Indoor Air Analytical Data
6501 28th Avenue
Werners Cleaners VIZC - 6415 28th Avenue, Kenosha, Wisconsin
Sigma Project No. 21985

Sample Type:		Indoor Air Samples						Outdoor Air Sample	VAL for Residential Indoor Air ²		
Sample Identification:		06A_IAB_01_20231120		06A_IAB_01_20240311		06A_IA1_01_20231120		06A_IA1_01_20240311		06_OA01_20240311	
Sample Date(s):		11/9/2023-11/20/2023		2/26/24-3/11/24		11/9/2023-11/20/2023		2/26/24-3/11/24		2/26/24-3/11/24	
Sampling/Analysis Method:		Beacon Chlorosorber Sampler/ TO-17	Radiello 130/ Modified TO-17	Beacon Chlorosorber Sampler/ TO-17	Beacon Chlorosorber Sampler/ TO-17	Radiello 130/ Modified TO-17	Beacon Chlorosorber Sampler/ TO-17	Beacon Chlorosorber Sampler/ TO-17		Beacon Chlorosorber Sampler/ TO-17	
Sample Duration (minutes):		15760		20148		15740		20140		20205	
VOCs											
cis-1,2-Dichloroethene	µg/m ³	<0.0453	<0.1	<0.0352	<0.0454	<0.1	<0.0352	<0.0361	42		
trans-1,2-Dichloroethene	µg/m ³	<0.0453	<0.21	<0.0352	<0.0454	<0.21	<0.0352	<0.0361	42		
Tetrachloroethene (PCE)	µg/m ³	0.194	0.12	0.191	0.196	<0.11	0.203	<0.0459	42		
Trichloroethene (TCE)	µg/m ³	0.0791 J	<0.092	<0.0379	0.0831 J	<0.092	<0.0379	<0.0388	2.1		
Vinyl Chloride	µg/m ³	<0.0567	NA	<0.0440	<0.0567	NA	<0.0440	<0.0451	1.7		

Notes:

- Analytical units: µg/m³ = micrograms per cubic meter
- VAL for Residential Indoor Air = Vapor Action Level described in 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).
- NA = not analyzed
- Laboratory flags: J = Value reported below limit of quantitation (LOQ)
- Exceedances:
 - BOLD** = concentration greater than residential Vapor Action Level
 - [] = concentration greater than small commercial Vapor Action Level
 - { } = concentration greater than large commercial / industrial Vapor Action Level

Data entered / updated by: CLE
 Data checked by: SRM

Date: 3/21/2024
 Date: 3/21/2024

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.

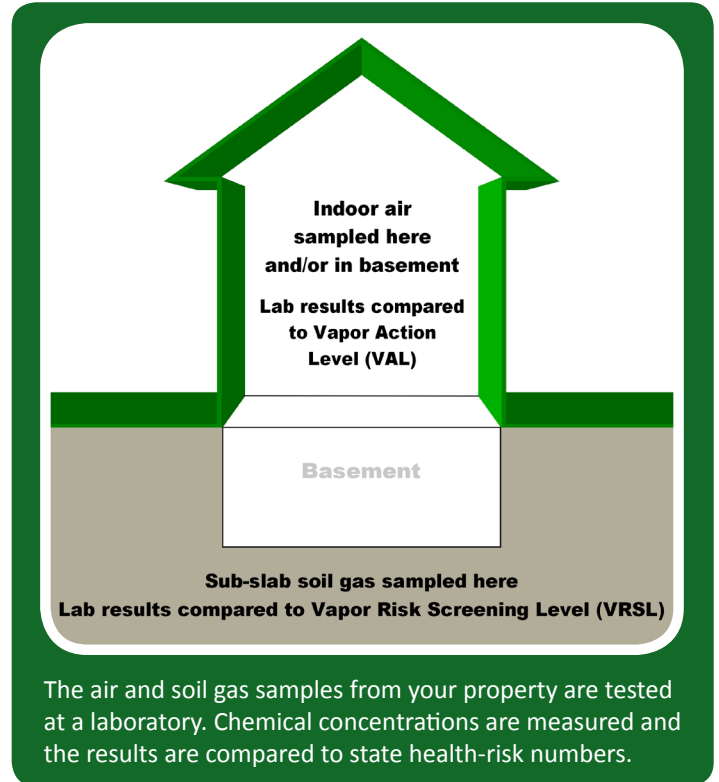
Indoor Air Testing Results

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.



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

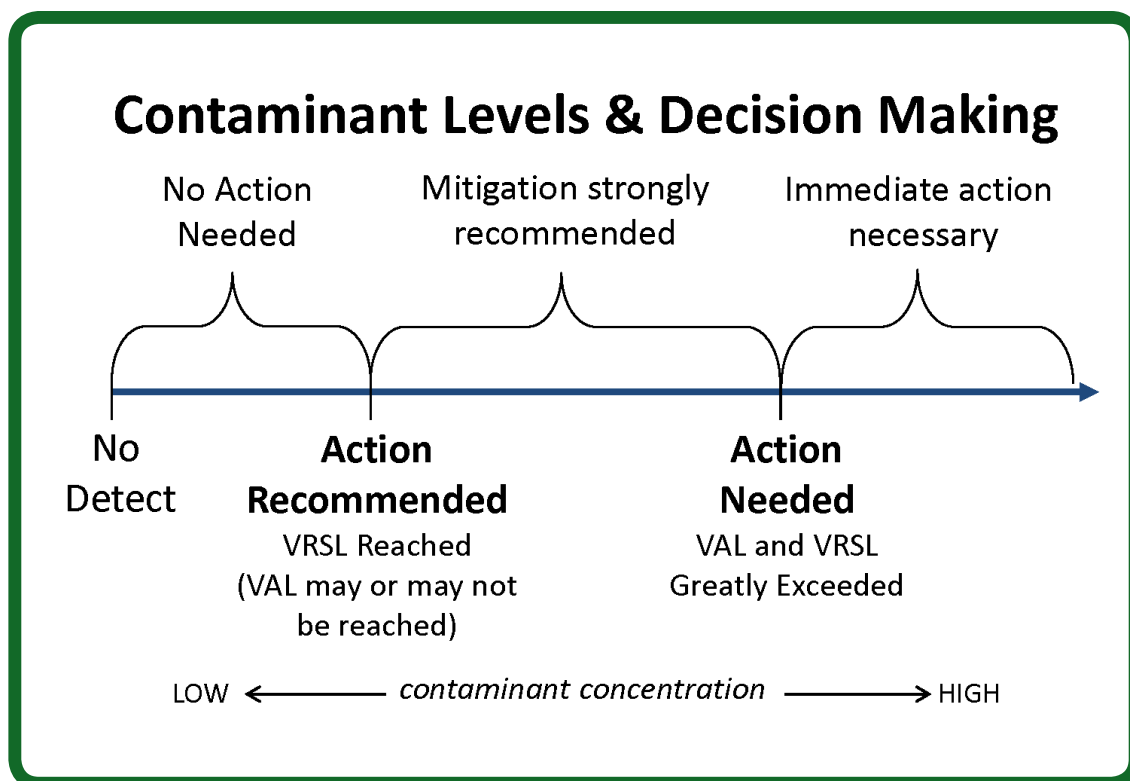
If your test results are less than a VAL for indoor air, or a VRSL for sub-slab soil gas, then the air in the house or building should not present a health concern. Follow-up sampling and testing may be necessary to confirm the results, but no other action is typically suggested.

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