



September 26, 2019

DB Oak Limited Partnership  
c/o Randy Knox  
W9147 Red Feather Drive  
Cambridge, WI 53523



SUBJECT: Vapor Sampling Results - Contaminant Detected Above DNR Screening Level

PROPERTY: DB Oak (formerly Thomas Industries) ("DB Oak")  
700-710 Oak Street, Fort Atkinson, Wisconsin (the "Property")  
DNR BRRTS # 02-28-176509

Dear Mr. Knox:

Included are the findings of a recent investigation on the Property by Friess Environmental Consulting, Inc. ("FEC"). This letter is a follow up to a telephone conversation on September 25, 2019.

As you are aware, this investigation was conducted because of the potential for contaminant vapors from the Property, identified above, to migrate through soils, accumulate beneath the foundation of the Property, and possibly enter your indoor air. The contaminants of concern at the Property are tetrachloroethylene, trichloroethylene and vinyl chloride, commonly referred to as PCE, TCE and VC.

#### **Test Results**

On August 7, 2018 and April 26, 2019, FEC, an environmental consultant hired by Gardner Denver, Inc., installed sampling devices into the floor of a portion of the building foundation of the Property and collected soil vapor samples. The samples were then submitted to the laboratory for analysis of five (5) different volatile organic compounds, including PCE, TCE and VC.

The analysis detected PCE in soil gas (vapors) beneath the foundation floor at concentrations ranging from 20,100 ug/m<sup>3</sup> to 47,000,000 ug/m<sup>3</sup>. The DNR sub-slab industrial risk vapor screening level ("VRSL") for PCE is 18,000 ug/m<sup>3</sup>.

The analysis detected TCE in soil gas (vapors) beneath the foundation floor at concentrations ranging from 9,700 ug/m<sup>3</sup> to 2,920,000 ug/m<sup>3</sup>. The DNR sub-slab industrial VRSL for TCE is 880 ug/m<sup>3</sup>.

The analysis detected VC in soil gas (vapors) beneath the foundation floor at a concentration of 12,200 ug/m<sup>3</sup>. The DNR sub-slab industrial VRSL for VC is 2,800 ug/m<sup>3</sup>.

Attached is a copy of the laboratory reports for the air sample(s) taken from beneath the building foundation at the Property, as well as a map showing the sampling locations, and a data table. I also enclose a copy of WDNR Publication RR-977, "Understanding Chemical Vapor Testing Results."

The DNR action level for PCE, TCE and VC is set to provide a threshold concentration for PCE, TCE and VC that is protective of human health over long-term exposure. It is the experience of DNR and the Wisconsin Department of Health Services (DHS) in investigating similar cases at other locations in the state that the potential health risk for you is low. The vapor levels measured in the sub-slab at the Property present a long-term risk, not an immediate one, to occupants of the building.

Even though your potential health risks are low, you may have questions about how breathing these vapors may affect your health. Please contact Curtis Hedman with DHS, who can address your health questions and concerns.

### **Next Steps**

We recommend the following actions at this time:

We would like to collect an air sample from the indoor air of the Property and test this sample for PCE, TCE and VC, which will allow us to determine whether building occupants are breathing elevated PCE, TCE and VC vapors. This also allows us to assess how effectively the building foundation is blocking sub-slab vapors from entering your indoor air.

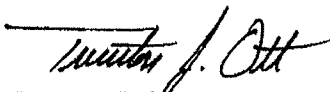
The Wisconsin DNR recommends that we install a sub-slab mitigation system to remove PCE, TCE and VC vapors from beneath the Property. This system is identical to that used for homes with high radon levels. The system diverts radon (or chemical vapors) from beneath the home and discharges them into the outdoor air, above the building's roofline, rendering them harmless. Once PCE, TCE and VC vapors are successfully removed from beneath the foundation floor, there will be no potential or actual health threat for you or your employees from that kind of exposure.

The Property owner will be contacted by FEC to schedule installation of the sub-slab mitigation system, and we will be forwarding to the Property owner a First Request for Access to Install Mitigation System, as well as WDNR RR 5457 Template Access Agreement for VI Mitigation Installation. The cost of system installation will be paid by Gardner Denver, Inc.

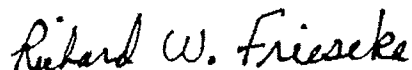
Please feel free to contact me at the number below if you have any questions about these results.

Sincerely,

**FRIESS ENVIRONMENTAL CONSULTING, INC.**



Trenton J. Ott  
Project Manager



Richard W. Frieseke, P.E.  
President

Encs.

cc: Curtis Hedman  
Wisconsin Dept. of Health Services  
1 W. Wilson St.  
PO Box 2659  
Madison, WI 53703

Alyssa Sellwood

Wisconsin Dept. of Natural Resources RR/5  
101 S. Webster St.  
PO Box 7921  
Madison, WI 53707

WDNR Project Manager:

Jeff Ackerman  
State of Wisconsin Department of Natural Resources  
3911 Fish Hatchery Road  
Fitchburg, WI 53711-5397  
608-275-3323

Responsible Party Name and Contact Information:

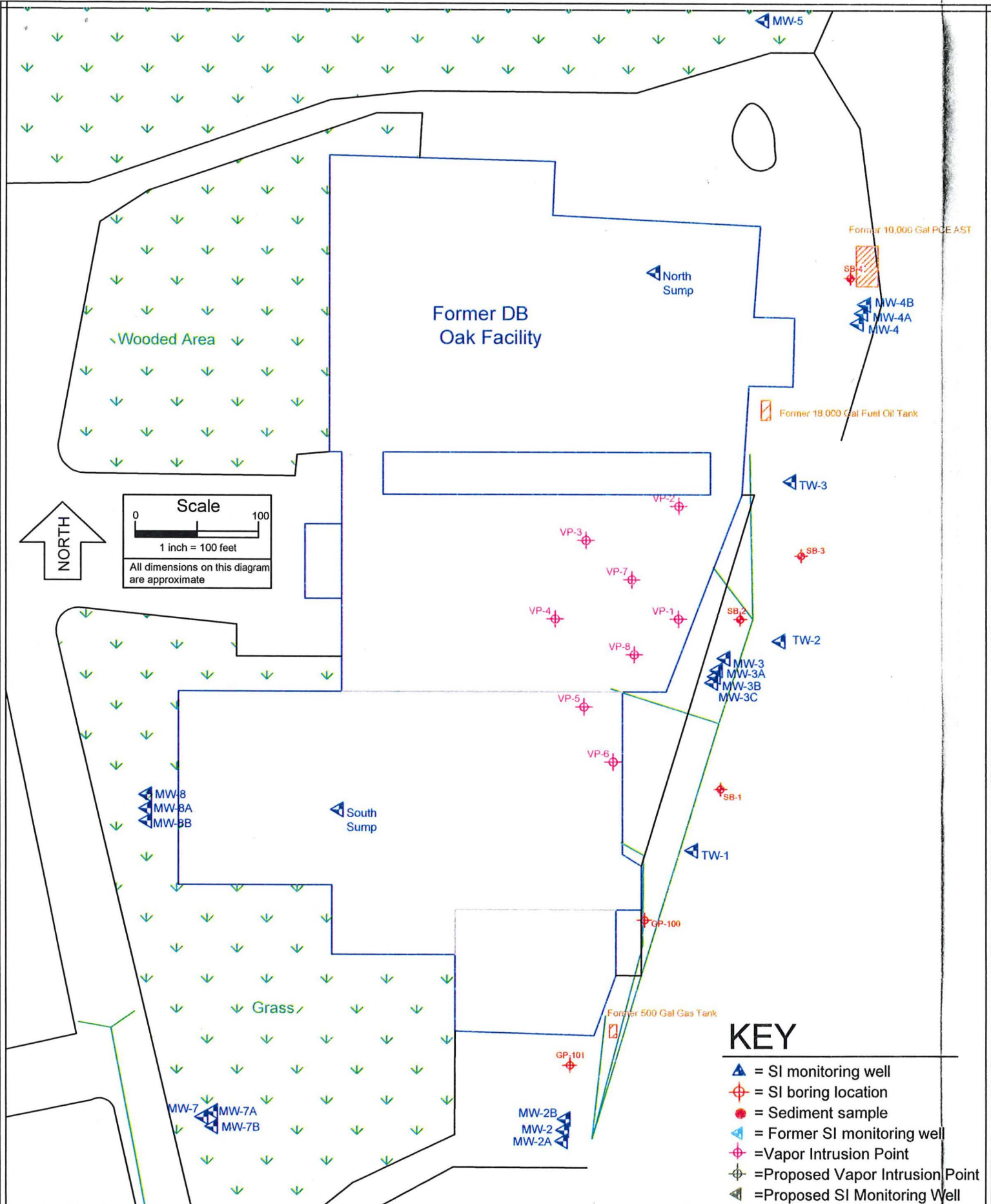
Gardner Denver, Inc.  
c/o Andrew Schiesl  
222 East Erie Street  
Milwaukee, WI 53202  
414-212-4700

Mark Thimke  
Foley & Lardner  
777 East Wisconsin Avenue  
Milwaukee, WI 53202

All tenants/occupants of the Property:

Storage Space Solutions LLC  
Riedl & Son LLC  
Kennel Club of Fort Atkinson, Inc.

42354339



**KEY**

- ▲ = SI monitoring well
- ⊕ = SI boring location
- = Sediment sample
- ▲ = Former SI monitoring well
- ⊕ = Vapor Intrusion Point
- ⊕ = Proposed Vapor Intrusion Point
- ▲ = Proposed SI Monitoring Well



File No.: 170503  
 DWG Date: 2-20-18  
 Rev Date: 8-26-19  
 Drawn By: BRF  
 Checked By (PM): TJO

**WP Site Diagram**  
 Former DB Oak Property  
 704 Oak Street  
 Fort Atkinson, Wisconsin

**Figure**  
 1



**A.4. Vapor Analytical Table (1 of 2)**  
**VOC Analytical Results - Sub-Slab Vapor Samples**  
**Former DB Oak Property**  
**Fort Atkinson, Wisconsin**

Sample Location	Sampling Date	cis-1,2-DCE (ug/m <sup>3</sup> )	trans-1,2-DCE (ug/m <sup>3</sup> )	PCE (ug/m <sup>3</sup> )	TCE (ug/m <sup>3</sup> )	Vinyl Chloride (ug/m <sup>3</sup> )
VP-1	8/7/18	820,000	19,300	<u>5,000,000</u>	<u>2,920,000</u>	<828.8
VP-2	4/26/19	<551.6	2,330	<u>212,000</u>	<u>34,000</u>	<414.4
VP-3	4/26/19	NS	NS	NS	NS	NS
VP-4	4/26/19	<551.6	<646.8	<u>64,000</u>	<u>9,700</u>	<414.4
VP-5	4/26/19	NS	NS	NS	NS	NS
VP-6	4/26/19	<9.85	<11.55	<u>20,100</u>	<u>204</u>	<7.40
VP-7	4/26/19	<551.6	<646.8	<u>153,000</u>	<u>23,700</u>	<414.4
VP-8	4/26/19	910,000	9,700	<u>47,000,000</u>	<u>580,000</u>	<u>12,200</u>
<i>Residential VRSLs</i>		NS	NS	1,400	70	57
<i>Commercial VRSLs</i>		NS	NS	6,000	293	933
<i>Industrial VRSLs</i>		NS	NS	18,000	880	2,800

Notes:

1. DNR Vapor Risk Screening Levels (VRSLs) are from U.S. EPA tables (updated November 2017)
2. Concentrations that exceed their respective residential DNR VRSLs are underlined.
3. Concentrations that exceed their respective small commercial DNR VRSLs are in **red**.
4. Concentrations that exceed their respective large commercial DNR VRSLs are in **red bold**.

*Environmental Lab, Inc.*

1990 Prospect Ct. • Appleton, WI 54914  
920-830-2455 • FAX 920-733-0631

**Sample Handling Request**

Rush Analysis Date Required \_\_\_\_\_  
(Rushes accepted only with prior authorization)

Normal Turn Around

Lab I.D. # \_\_\_\_\_  
Account No. \_\_\_\_\_ Quote No.: \_\_\_\_\_  
Project #: 170503  
Sampler (signature): Michael J. Ott

Project (Name / Location): DB/Cal  
Reports To: Trenton Ott Invoice To: Same  
Company: FEC, Inc. Company: \_\_\_\_\_  
Address: 4635 N. Sydney Place Address: \_\_\_\_\_  
City State Zip: Milwaukee, WI 53209 City State Zip: \_\_\_\_\_  
Phone: (414) 278-7615 Phone: \_\_\_\_\_  
FAX: (414) 278-9816 FAX: \_\_\_\_\_

Analysis Requested										Other Analysis						
DRO (Mod DRO Sep 95)	GRO (Mod GRO Sep 95)	LEAD	NITRATE/NITRITE	OIL & GREASE	PAH (EPA 8270)	PCB	PVOC (EPA 821)	PVOC + NAPHTHALENE	SULFATE	TOTAL SUSPENDED SOLIDS	VOC DW (EPA 8242)	VOC (EPA 8000)	8-PCRA METALS	TDS Short List	FID	FID

Lab I.D.	Sample I.D.	Collection Date	Time	Comp	Grab	Filtered Y/N	No. of Containers	Sample Type (Matrix)*	Preservation
<u>5035058A</u>	<u>VP-1</u>	<u>8/7/12</u>	<u>AM</u>		<u>X</u>	<u>N</u>	<u>1</u>	<u>A</u>	<u>-</u>

Comments/Special Instructions (\*Specify groundwater "GW", Drinking Water "DW", Waste Water "WW", Soil "S", Air "A", Oil, Sludge etc.)  
\* TDS Short - PCE, TCE, constituents 1,2-DCE, Vinyl Chloride

Sample Integrity - To be completed by receiving lab.  
Method of Shipment: Express  
Temp. of Temp. Blank: °C On Ice  
Cooler seal intact upon receipt:  Yes  No

Relinquished By: (sign) Michael J. Ott Time 11:45am Date 8/8/12  
Received By: (sign) \_\_\_\_\_ Time \_\_\_\_\_ Date \_\_\_\_\_  
Received in Laboratory By: Michael J. Ott Time: 8:00 AM Date: 8-9-12

# Synergy Environmental Lab, INC

1990 Prospect Ct., Appleton, WI 54914 \*P 920-830-2455 \* F 920-733-0631

TRENTON OTT  
FEC. INC.  
6635 N. SIDNEY PLACE  
MILWAUKEE, WI 53209

Report Date 17-Aug-18

Project Name DB OAK  
Project # 170503

Invoice # E35058

Lab Code 5035058A  
Sample ID VP-1  
Sample Matrix Air  
Sample Date 8/7/2018

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
Air Samples										
cis-1,2-Dichloroethene	820000	ug/m3	1103.2	3505.6	5600	TO-15		8/14/2018	CJR	1
trans-1,2-Dichloroethene	19300	ug/m3	1293.6	4110.4	5600	TO-15		8/14/2018	CJR	1
Tetrachloroethene	5000000	ug/m3	38920	123760	140000	TO-15		8/14/2018	CJR	1
Trichloroethene (TCE)	2920000	ug/m3	33180	105560	140000	TO-15		8/14/2018	CJR	1
Vinyl Chloride	< 828.8	ug/m3	828.8	2643.2	5600	TO-15		8/14/2018	CJR	1

"J" Flag: Analyte detected between LOD and LOQ

LOD Limit of Detection

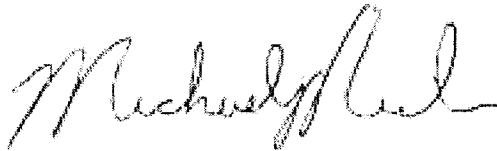
LOQ Limit of Quantitation

Code Comment

1 Laboratory QC within limits.

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight. Subcontracted results are denoted by SUB in the analyst field.

Authorized Signature



**Lab Code** 5036084E  
**Sample ID** VP-2  
**Sample Matrix** Air  
**Sample Date** 4/26/2019

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
Air Samples										
Chloroform	< 840	ug/m3	840	2668.4	2800	TO-15		5/6/2019	CJR	1
1,2-Dichloroethane	< 672	ug/m3	672	2136.4	2800	TO-15		5/6/2019	CJR	1
1,1-Dichloroethane	< 523.6	ug/m3	523.6	1668.8	2800	TO-15		5/6/2019	CJR	1
1,1-Dichloroethene	< 588	ug/m3	588	1870.4	2800	TO-15		5/6/2019	CJR	1
cis-1,2-Dichloroethene	< 551.6	ug/m3	551.6	1752.8	2800	TO-15		5/6/2019	CJR	1
trans-1,2-Dichloroethene	2330	ug/m3	646.8	2055.2	2800	TO-15		5/6/2019	CJR	1
1,1,2,2-Tetrachloroethane	< 910	ug/m3	910	2884	2800	TO-15		5/6/2019	CJR	1
Tetrachloroethene	212000	ug/m3	778.4	2475.2	2800	TO-15		5/6/2019	CJR	1
1,1,1-Trichloroethane	< 697.2	ug/m3	697.2	2220.4	2800	TO-15		5/6/2019	CJR	1
1,1,2-Trichloroethane	< 722.4	ug/m3	722.4	2301.6	2800	TO-15		5/6/2019	CJR	1
Trichloroethene (TCE)	34000	ug/m3	663.6	2111.2	2800	TO-15		5/6/2019	CJR	1
Vinyl Chloride	< 414.4	ug/m3	414.4	1321.6	2800	TO-15		5/6/2019	CJR	1



**Project Name** DB OAK  
**Project #** 170503  
**Lab Code** 5036084F  
**Sample ID** VP-4  
**Sample Matrix** Air  
**Sample Date** 4/26/2019

**Invoice #** E36084

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
Air Samples										
Chloroform	< 840	ug/m3	840	2668.4	2800	TO-15		5/6/2019	CJR	1
1,2-Dichloroethane	< 672	ug/m3	672	2136.4	2800	TO-15		5/6/2019	CJR	1
1,1-Dichloroethane	< 523.6	ug/m3	523.6	1668.8	2800	TO-15		5/6/2019	CJR	1
1,1-Dichloroethene	< 588	ug/m3	588	1870.4	2800	TO-15		5/6/2019	CJR	1
cis-1,2-Dichloroethene	< 551.6	ug/m3	551.6	1752.8	2800	TO-15		5/6/2019	CJR	1
trans-1,2-Dichloroethene	< 646.8	ug/m3	646.8	2055.2	2800	TO-15		5/6/2019	CJR	1
1,1,2,2-Tetrachloroethane	< 910	ug/m3	910	2884	2800	TO-15		5/6/2019	CJR	1
Tetrachloroethene	64000	ug/m3	778.4	2475.2	2800	TO-15		5/6/2019	CJR	1
1,1,1-Trichloroethane	< 697.2	ug/m3	697.2	2220.4	2800	TO-15		5/6/2019	CJR	1
1,1,2-Trichloroethane	< 722.4	ug/m3	722.4	2301.6	2800	TO-15		5/6/2019	CJR	1
Trichloroethene (TCE)	9700	ug/m3	663.6	2111.2	2800	TO-15		5/6/2019	CJR	1
Vinyl Chloride	< 414.4	ug/m3	414.4	1321.6	2800	TO-15		5/6/2019	CJR	1

**Lab Code** 5036084G  
**Sample ID** VP-6  
**Sample Matrix** Air  
**Sample Date** 4/26/2019

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
Air Samples										
Chloroform	< 15	ug/m3	15	47.65	50	TO-15		5/7/2019	CJR	1
1,2-Dichloroethane	< 12	ug/m3	12	38.15	50	TO-15		5/7/2019	CJR	1
1,1-Dichloroethane	< 9.35	ug/m3	9.35	29.8	50	TO-15		5/7/2019	CJR	1
1,1-Dichloroethene	< 10.5	ug/m3	10.5	33.4	50	TO-15		5/7/2019	CJR	1
cis-1,2-Dichloroethene	< 9.85	ug/m3	9.85	31.3	50	TO-15		5/7/2019	CJR	1
trans-1,2-Dichloroethene	< 11.55	ug/m3	11.55	36.7	50	TO-15		5/7/2019	CJR	1
1,1,2,2-Tetrachloroethane	< 16.25	ug/m3	16.25	51.5	50	TO-15		5/7/2019	CJR	1
Tetrachloroethene	20100	ug/m3	778.4	2475.2	2800	TO-15		5/6/2019	CJR	1
1,1,1-Trichloroethane	< 12.45	ug/m3	12.45	39.65	50	TO-15		5/7/2019	CJR	1
1,1,2-Trichloroethane	< 12.9	ug/m3	12.9	41.1	50	TO-15		5/7/2019	CJR	1
Trichloroethene (TCE)	204	ug/m3	11.85	37.7	50	TO-15		5/7/2019	CJR	1
Vinyl Chloride	< 7.4	ug/m3	7.4	23.6	50	TO-15		5/7/2019	CJR	1

**Project Name** DB OAK  
**Project #** 170503

**Invoice #** E36084

"J" Flag: Analyte detected between LOD and LOQ


LOD Limit of Detection

LOQ Limit of Quantitation

<i>Code</i>	<i>Comment</i>
1	Laboratory QC within limits.

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight. Subcontracted results are denoted by SUB in the analyst field.

**Authorized Signature**



# 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.

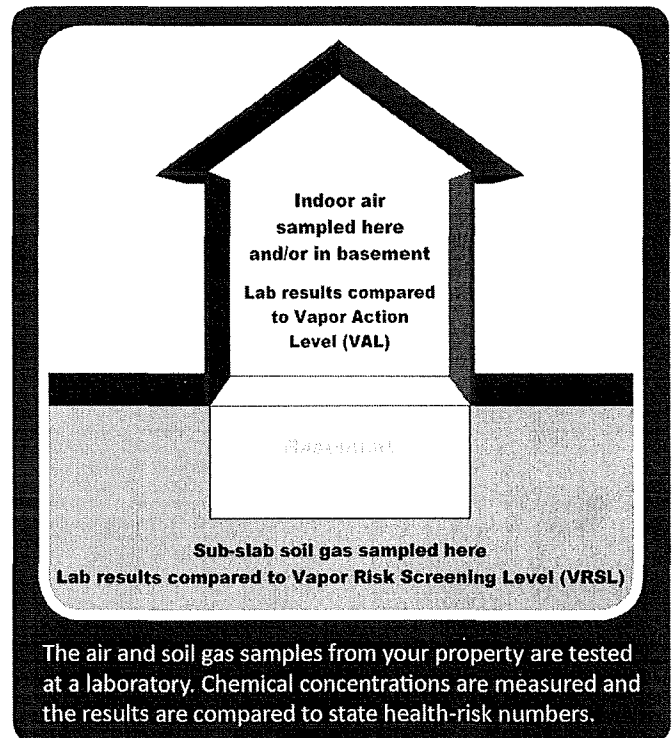
## Indoor Air Testing Results

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

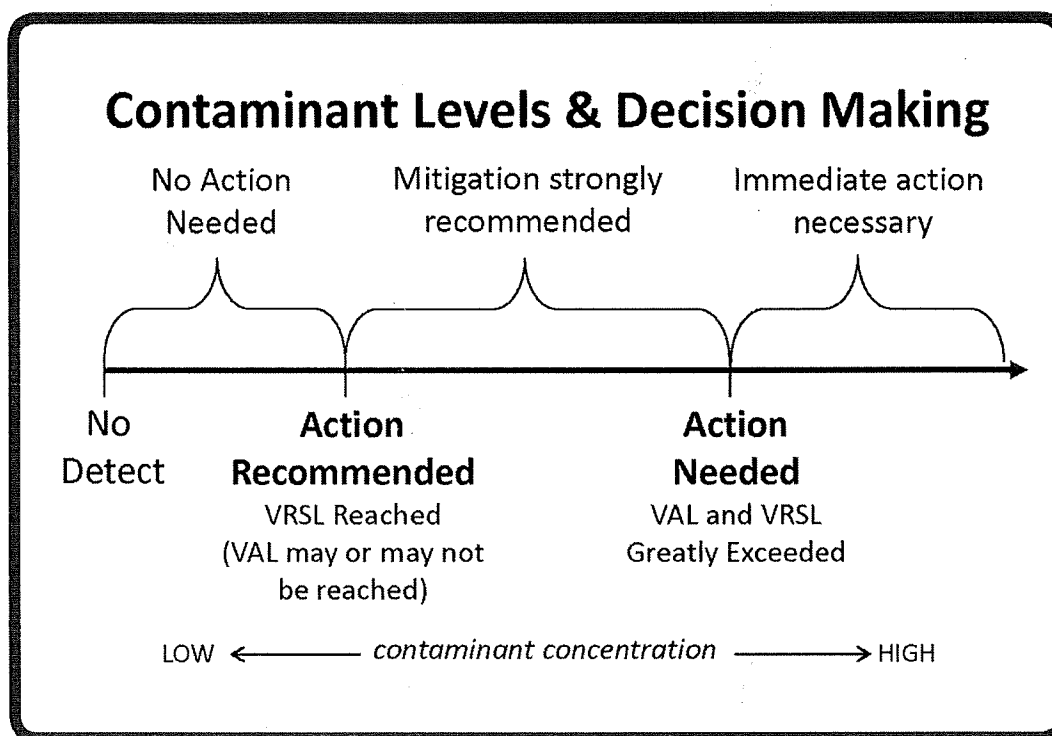
If your test results are less than a VAL for indoor air, or a VRSL for sub-slab soil gas, then the air in the house or building should not present a health concern. Follow-up sampling and testing may be necessary to confirm the results, but no other action is typically suggested.

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](http://dnr.wi.gov/topic/Brownfields/Vapor.html)

This document contains information about certain state statutes and administrative rules but does not necessarily include all of the details found in the statutes and rules. Readers should consult the actual language of the statutes and rules to answer specific questions. The Wisconsin Department of Natural Resources provides equal opportunity in its employment, programs, services, and functions under an Affirmative Action Plan. If you have any questions, please write to Equal Opportunity Office, Department of Interior, Washington, D.C. 20240. This publication is available in alternative format upon request. Please call 608-267-3543 for more information.



September 26, 2019

Mr. Timothy Carnes  
Storage Space Solutions LLC  
710 Oak Street  
Fort Atkinson, WI 53538

SUBJECT: Vapor Sampling Results - Contaminant Detected Above DNR Screening Level

PROPERTY: DB Oak (formerly Thomas Industries) ("DB Oak")  
700-710 Oak Street, Fort Atkinson, Wisconsin (the "Property")  
DNR BRRTS # 02-28-176509

Dear Mr. Carnes:

Included are the findings of a recent investigation on the Property by Friess Environmental Consulting, Inc. ("FEC"). This letter is a follow up to our conversation on September 25, 2019.

As you are aware, this investigation was conducted because of the potential for contaminant vapors from the Property, identified above, to migrate through soils, accumulate beneath the foundation of the Property, and possibly enter your indoor air. The contaminants of concern at the Property are tetrachloroethylene, trichloroethylene and vinyl chloride, commonly referred to as PCE, TCE and VC.

#### **Test Results**

On August 7, 2018 and April 26, 2019, FEC, an environmental consultant hired by Gardner Denver, Inc., installed sampling devices into the floor of a portion of the building foundation of the Property and collected soil vapor samples. The samples were then submitted to the laboratory for analysis of five (5) different volatile organic compounds, including PCE, TCE and VC.

The analysis detected PCE in soil gas (vapors) beneath the foundation floor at concentrations ranging from 20,100 ug/m<sup>3</sup> to 47,000,000 ug/m<sup>3</sup>. The DNR sub-slab industrial risk vapor screening level ("VRSL") for PCE is 18,000 ug/m<sup>3</sup>.

The analysis detected TCE in soil gas (vapors) beneath the foundation floor at concentrations ranging from 9,700 ug/m<sup>3</sup> to 2,920,000 ug/m<sup>3</sup>. The DNR sub-slab industrial VRSL for TCE is 880 ug/m<sup>3</sup>.

The analysis detected VC in soil gas (vapors) beneath the foundation floor at a concentration of 12,200 ug/m<sup>3</sup>. The DNR sub-slab industrial VRSL for VC is 2,800 ug/m<sup>3</sup>.

Attached is a copy of the laboratory reports for the air sample(s) taken from beneath the building foundation at the Property, as well as a map showing the sampling locations, and a data table. I also enclose a copy of WDNR Publication RR-977, "Understanding Chemical Vapor Testing Results."

The DNR action level for PCE, TCE and VC is set to provide a threshold concentration for PCE, TCE and VC that is protective of human health over long-term exposure. It is the experience of DNR and the Wisconsin Department of Health Services (DHS) in investigating similar cases at other locations in the state that the potential health risk for you is low. The vapor levels measured in the sub-slab at the Property present a long-term risk, not an immediate one, to occupants of the building.

Even though your potential health risks are low, you may have questions about how breathing these vapors may affect your health. Please contact Curtis Hedman with DHS, who can address your health questions and concerns.

#### **Next Steps**

We recommend the following actions at this time:

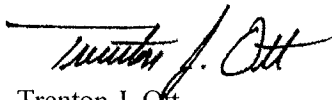
We would like to collect an air sample from the indoor air of the Property and test this sample for PCE, TCE and VC, which will allow us to determine whether building occupants are breathing elevated PCE, TCE and VC vapors. This also allows us to assess how effectively the building foundation is blocking sub-slab vapors from entering your indoor air.

The Wisconsin DNR recommends that we install a sub-slab mitigation system to remove PCE, TCE and VC vapors from beneath the Property. This system is identical to that used for homes with high radon levels. The system diverts radon (or chemical vapors) from beneath the home and discharges them into the outdoor air, above the building's roofline, rendering them harmless. Once PCE, TCE and VC vapors are successfully removed from beneath the foundation floor, there will be no potential or actual health threat for you or your employees from that kind of exposure.

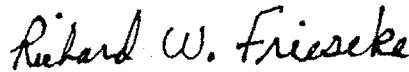
The Property owner will be contacted by FEC to schedule installation of the sub-slab mitigation system, and we are forwarding a letter to the owner with a First Request for Access to Install Mitigation System, as well as WDNR RR 5457 Template Access Agreement for VI Mitigation Installation. The cost of system installation will be paid by Gardner Denver, Inc.

Please feel free to contact me at the number below if you have any questions about these results.

Sincerely,  
**FRIESS ENVIRONMENTAL CONSULTING, INC.**



Trenton J. Ott  
Project Manager



Richard W. Frieseke, P.E.  
President

Encs.

cc: Curtis Hedman  
Wisconsin Dept. of Health Services  
1 W. Wilson St.  
PO Box 2659  
Madison, WI 53703



Alyssa Sellwood

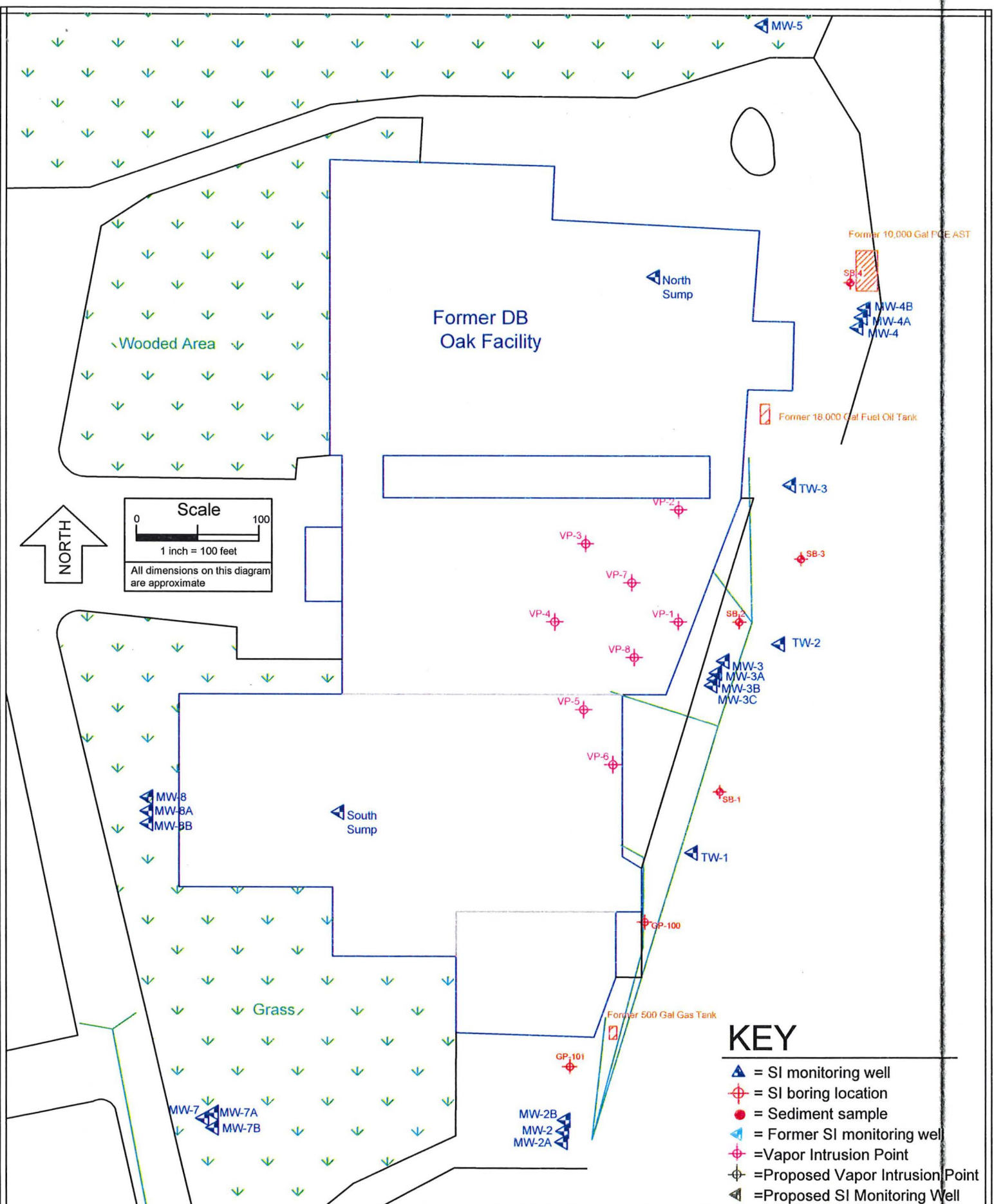
Wisconsin Dept. of Natural Resources RR/5  
101 S. Webster St.  
PO Box 7921  
Madison, WI 53707

WDNR Project Manager:  
Jeff Ackerman  
State of Wisconsin Department of Natural Resources  
3911 Fish Hatchery Road  
Fitchburg, WI 53711-5397  
608-275-3323

Responsible Party Name and Contact Information:  
Gardner Denver, Inc.  
c/o Andrew Schiesl  
222 East Erie Street  
Milwaukee, WI 53202  
414-212-4700

Property Owner:  
DB Oak Limited Partnership

42356550



**KEY**

- ▲ = SI monitoring well
- ⊕ = SI boring location
- = Sediment sample
- ▲ = Former SI monitoring well
- ⊕ = Vapor Intrusion Point
- ⊕ = Proposed Vapor Intrusion Point
- ▲ = Proposed SI Monitoring Well



File No.: 170503  
 DWG Date: 2-20-18  
 Rev Date: 8-26-19  
 Drawn By: BRF  
 Checked By (PM): TJO

**WP Site Diagram**  
 Former DB Oak Property  
 704 Oak Street  
 Fort Atkinson, Wisconsin

**Figure**  
 1

**A.4. Vapor Analytical Table (1 of 2)**  
**VOC Analytical Results - Sub-Slab Vapor Samples**  
**Former DB Oak Property**  
**Fort Atkinson, Wisconsin**

Sample Location	Sampling Date	cis-1,2-DCE (ug/m <sup>3</sup> )	trans-1,2-DCE (ug/m <sup>3</sup> )	PCE (ug/m <sup>3</sup> )	TCE (ug/m <sup>3</sup> )	Vinyl Chloride (ug/m <sup>3</sup> )
VP-1	8/7/18	820,000	19,300	<b><u>5,000,000</u></b>	<b><u>2,920,000</u></b>	<828.8
VP-2	4/26/19	<551.6	2,330	<b><u>212,000</u></b>	<b><u>34,000</u></b>	<414.4
VP-3	4/26/19	NS	NS	NS	NS	NS
VP-4	4/26/19	<551.6	<646.8	<b><u>64,000</u></b>	<b><u>9,700</u></b>	<414.4
VP-5	4/26/19	NS	NS	NS	NS	NS
VP-6	4/26/19	<9.85	<11.55	<b><u>20,100</u></b>	<u>204</u>	<7.40
VP-7	4/26/19	<551.6	<646.8	<b><u>153,000</u></b>	<b><u>23,700</u></b>	<414.4
VP-8	4/26/19	910,000	9,700	<b><u>47,000,000</u></b>	<b><u>580,000</u></b>	<b><u>12,200</u></b>
<i>Residential VRSLs</i>		NS	NS	1,400	70	57
<i>Commercial VRSLs</i>		NS	NS	6,000	293	933
<i>Industrial VRSLs</i>		NS	NS	18,000	880	2,800

Notes:

1. DNR Vapor Risk Screening Levels (VRSLs) are from U.S. EPA tables (updated November 2017)
2. Concentrations that exceed their respective residential DNR VRSLs are underlined.
3. Concentrations that exceed their respective small commercial DNR VRSLs are in **red**.
4. Concentrations that exceed their respective large commercial DNR VRSLs are in **red bold**.

## Environmental Lab, Inc.

1990 Prospect Ct. • Appleton, WI 54914  
920-830-2455 • FAX 920-733-0631

**Sample Handling Request**

Rush Analysis Date Required \_\_\_\_\_  
(Rushes accepted only with prior authorization)

Normal Turn Around

Lab I.D. # \_\_\_\_\_  
Account No. \_\_\_\_\_ Quote No.: \_\_\_\_\_  
Project #: 170503  
Sampler: Mitchell J. Ott

Project (Name / Location): DB/Cal  
Reports To: Trenton Ott Invoice To: Same  
Company: FEC, Inc. Company: \_\_\_\_\_  
Address: 4635 N. Siding Place Address: \_\_\_\_\_  
City State Zip: Milwaukee, WI 53209 City State Zip: \_\_\_\_\_  
Phone: (414) 278-9815 Phone: \_\_\_\_\_  
FAX: (414) 278-9816 FAX: \_\_\_\_\_

Analysis Requested										Other Analysis					
DRO (Mod DRO Sep 95)	GRO (Mod GRO Sep 95)	LEAD	NITRATE/NITRITE	OIL & GREASE	PAH (EPA 8270)	PCB	PVOC (EPA 8261)	PVOC + NAPHTHALENE	SULFATE	TOTAL SUSPENDED SOLIDS	VOC DW (EPA 8242)	VOC (EPA 8260)	8-PCRA METALS	TO-15 Short List	PID/ FID

Lab I.D.	Sample I.D.	Collection Date	Time	Comp	Grab	Filtered Y/N	No. of Containers	Sample Type (Matrix)*	Preservation
<u>5035058A</u>	<u>VP-1</u>	<u>8/7/12</u>	<u>AM</u>		<u>X</u>	<u>N</u>	<u>1</u>	<u>A</u>	<u>-</u>

Comments/Special Instructions (\*Specify groundwater "GW", Drinking Water "DW", Waste Water "WW", Soil "S", Air "A", Oil, Sludge etc.)  
\* TO-15 Short - PCE, TCE, o-xylene, p-xylene, Vinyl Chloride.

Sample Integrity - To be completed by receiving lab.  
Method of Shipment: Cold Dry Ice  
Temp. of Temp. Blank: \_\_\_\_\_ °C On Ice  
Cooler seal intact upon receipt:  Yes  No

Relinquished By: (sign) Mitchell J. Ott Time: 11:45am Date: 8/8/12  
Received By: (sign) \_\_\_\_\_ Time: \_\_\_\_\_ Date: \_\_\_\_\_  
Received in Laboratory By: Mitchell J. Ott Time: 8:00 AM Date: 8-9-12

# Synergy Environmental Lab, INC

1990 Prospect Ct., Appleton, WI 54914 \*P 920-830-2455 \* F 920-733-0631

TRENTON OTT  
FEC. INC.  
6635 N. SIDNEY PLACE  
MILWAUKEE, WI 53209

Report Date 17-Aug-18

Project Name DB OAK  
Project # 170503  
Lab Code 5035058A  
Sample ID VP-1  
Sample Matrix Air  
Sample Date 8/7/2018

Invoice # E35058

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
Air Samples										
cis-1,2-Dichloroethene	820000	ug/m3	1103.2	3505.6	5600	TO-15		8/14/2018	CJR	1
trans-1,2-Dichloroethene	19300	ug/m3	1293.6	4110.4	5600	TO-15		8/14/2018	CJR	1
Tetrachloroethene	5000000	ug/m3	38920	123760	140000	TO-15		8/14/2018	CJR	1
Trichloroethene (TCE)	2920000	ug/m3	33180	105560	140000	TO-15		8/14/2018	CJR	1
Vinyl Chloride	< 828.8	ug/m3	828.8	2643.2	5600	TO-15		8/14/2018	CJR	1

"J" Flag: Analyte detected between LOD and LOQ

LOD Limit of Detection


LOQ Limit of Quantitation

**Code**      **Comment**

1      Laboratory QC within limits.

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight. Subcontracted results are denoted by SUB in the analyst field.

Authorized Signature



**Lab Code** 5036084E  
**Sample ID** VP-2  
**Sample Matrix** Air  
**Sample Date** 4/26/2019

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
Air Samples										
Chloroform	< 840	ug/m3	840	2668.4	2800	TO-15		5/6/2019	CJR	1
1,2-Dichloroethane	< 672	ug/m3	672	2136.4	2800	TO-15		5/6/2019	CJR	1
1,1-Dichloroethane	< 523.6	ug/m3	523.6	1668.8	2800	TO-15		5/6/2019	CJR	1
1,1-Dichloroethene	< 588	ug/m3	588	1870.4	2800	TO-15		5/6/2019	CJR	1
cis-1,2-Dichloroethene	< 551.6	ug/m3	551.6	1752.8	2800	TO-15		5/6/2019	CJR	1
trans-1,2-Dichloroethene	2330	ug/m3	646.8	2055.2	2800	TO-15		5/6/2019	CJR	1
1,1,2,2-Tetrachloroethane	< 910	ug/m3	910	2884	2800	TO-15		5/6/2019	CJR	1
Tetrachloroethene	212000	ug/m3	778.4	2475.2	2800	TO-15		5/6/2019	CJR	1
1,1,1-Trichloroethane	< 697.2	ug/m3	697.2	2220.4	2800	TO-15		5/6/2019	CJR	1
1,1,2-Trichloroethane	< 722.4	ug/m3	722.4	2301.6	2800	TO-15		5/6/2019	CJR	1
Trichloroethene (TCE)	34000	ug/m3	663.6	2111.2	2800	TO-15		5/6/2019	CJR	1
Vinyl Chloride	< 414.4	ug/m3	414.4	1321.6	2800	TO-15		5/6/2019	CJR	1



**Project Name** DB OAK  
**Project #** 170503  
**Lab Code** 5036084F  
**Sample ID** VP-4  
**Sample Matrix** Air  
**Sample Date** 4/26/2019

**Invoice #** E36084

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
Air Samples										
Chloroform	< 840	ug/m3	840	2668.4	2800	TO-15		5/6/2019	CJR	1
1,2-Dichloroethane	< 672	ug/m3	672	2136.4	2800	TO-15		5/6/2019	CJR	1
1,1-Dichloroethane	< 523.6	ug/m3	523.6	1668.8	2800	TO-15		5/6/2019	CJR	1
1,1-Dichloroethene	< 588	ug/m3	588	1870.4	2800	TO-15		5/6/2019	CJR	1
cis-1,2-Dichloroethene	< 551.6	ug/m3	551.6	1752.8	2800	TO-15		5/6/2019	CJR	1
trans-1,2-Dichloroethene	< 646.8	ug/m3	646.8	2055.2	2800	TO-15		5/6/2019	CJR	1
1,1,2,2-Tetrachloroethane	< 910	ug/m3	910	2884	2800	TO-15		5/6/2019	CJR	1
Tetrachloroethene	64000	ug/m3	778.4	2475.2	2800	TO-15		5/6/2019	CJR	1
1,1,1-Trichloroethane	< 697.2	ug/m3	697.2	2220.4	2800	TO-15		5/6/2019	CJR	1
1,1,2-Trichloroethane	< 722.4	ug/m3	722.4	2301.6	2800	TO-15		5/6/2019	CJR	1
Trichloroethene (TCE)	9700	ug/m3	663.6	2111.2	2800	TO-15		5/6/2019	CJR	1
Vinyl Chloride	< 414.4	ug/m3	414.4	1321.6	2800	TO-15		5/6/2019	CJR	1

**Lab Code** 5036084G  
**Sample ID** VP-6  
**Sample Matrix** Air  
**Sample Date** 4/26/2019

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
Air Samples										
Chloroform	< 15	ug/m3	15	47.65	50	TO-15		5/7/2019	CJR	1
1,2-Dichloroethane	< 12	ug/m3	12	38.15	50	TO-15		5/7/2019	CJR	1
1,1-Dichloroethane	< 9.35	ug/m3	9.35	29.8	50	TO-15		5/7/2019	CJR	1
1,1-Dichloroethene	< 10.5	ug/m3	10.5	33.4	50	TO-15		5/7/2019	CJR	1
cis-1,2-Dichloroethene	< 9.85	ug/m3	9.85	31.3	50	TO-15		5/7/2019	CJR	1
trans-1,2-Dichloroethene	< 11.55	ug/m3	11.55	36.7	50	TO-15		5/7/2019	CJR	1
1,1,2,2-Tetrachloroethane	< 16.25	ug/m3	16.25	51.5	50	TO-15		5/7/2019	CJR	1
Tetrachloroethene	20100	ug/m3	778.4	2475.2	2800	TO-15		5/6/2019	CJR	1
1,1,1-Trichloroethane	< 12.45	ug/m3	12.45	39.65	50	TO-15		5/7/2019	CJR	1
1,1,2-Trichloroethane	< 12.9	ug/m3	12.9	41.1	50	TO-15		5/7/2019	CJR	1
Trichloroethene (TCE)	204	ug/m3	11.85	37.7	50	TO-15		5/7/2019	CJR	1
Vinyl Chloride	< 7.4	ug/m3	7.4	23.6	50	TO-15		5/7/2019	CJR	1

**Project Name** DB OAK  
**Project #** 170503

**Invoice #** E36084

"J" Flag: Analyte detected between LOD and LOQ


LOD Limit of Detection

LOQ Limit of Quantitation

<i>Code</i>	<i>Comment</i>
1	Laboratory QC within limits.

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight. Subcontracted results are denoted by SUB in the analyst field.

**Authorized Signature**



Michael J. Paul

# 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.

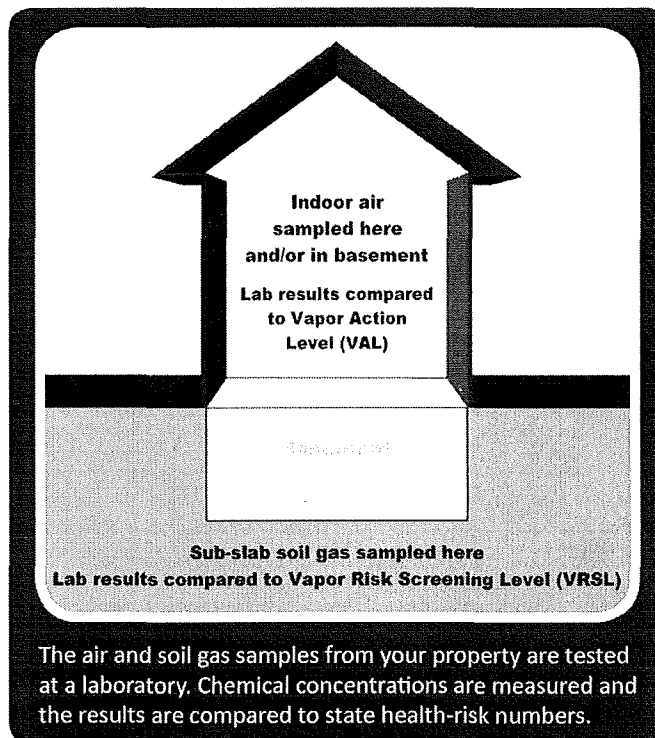
## Indoor Air Testing Results

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**

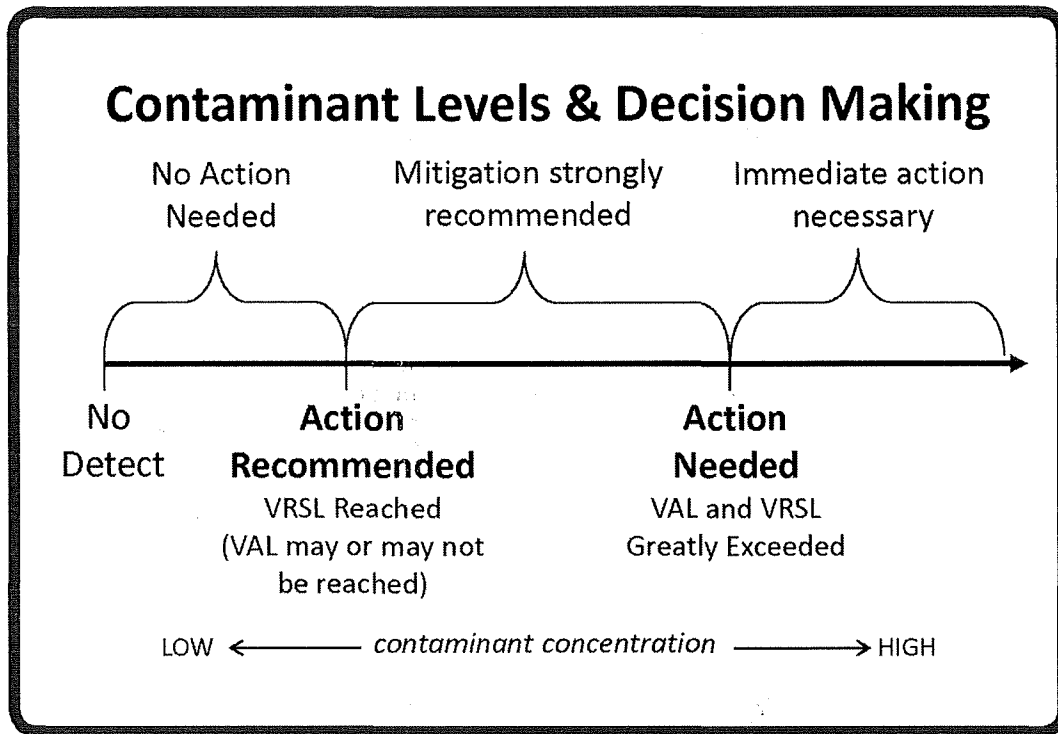
If your test results are less than a VAL for indoor air, or a VRSL for sub-slab soil gas, then the air in the house or building should not present a health concern. Follow-up sampling and testing may be necessary to confirm the results, but no other action is typically suggested.

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 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](http://dnr.wi.gov/topic/Brownfields/Vapor.html)



September 26, 2019

Mr. Tom Doeberlein  
Best Tile Werks  
W6490 Kiesling Road  
Jefferson, WI 53549

SUBJECT: Vapor Sampling Results - Contaminant Detected Above DNR Screening Level

PROPERTY: DB Oak (formerly Thomas Industries) ("DB Oak")  
700-710 Oak Street, Fort Atkinson, Wisconsin (the "Property")  
DNR BRRTS # 02-28-176509

Dear Mr. Doeberlein:

Included are the findings of a recent investigation on the Property by Friess Environmental Consulting, Inc. ("FEC"). This letter is a follow up to our conversation on September 25, 2019.

As you are aware, this investigation was conducted because of the potential for contaminant vapors from the Property, identified above, to migrate through soils, accumulate beneath the foundation of the Property, and possibly enter your indoor air. The contaminants of concern at the Property are tetrachloroethylene, trichloroethylene and vinyl chloride, commonly referred to as PCE, TCE and VC.

#### **Test Results**

On August 7, 2018 and April 26, 2019, FEC, an environmental consultant hired by Gardner Denver, Inc., installed sampling devices into the floor of a portion of the building foundation of the Property and collected soil vapor samples. The samples were then submitted to the laboratory for analysis of five (5) different volatile organic compounds, including PCE, TCE and VC.

The analysis detected PCE in soil gas (vapors) beneath the foundation floor at concentrations ranging from 20,100 ug/m<sup>3</sup> to 47,000,000 ug/m<sup>3</sup>. The DNR sub-slab industrial risk vapor screening level ("VRSL") for PCE is 18,000 ug/m<sup>3</sup>.

The analysis detected TCE in soil gas (vapors) beneath the foundation floor at concentrations ranging from 9,700 ug/m<sup>3</sup> to 2,920,000 ug/m<sup>3</sup>. The DNR sub-slab industrial VRSL for TCE is 880 ug/m<sup>3</sup>.

The analysis detected VC in soil gas (vapors) beneath the foundation floor at a concentration of 12,200 ug/m<sup>3</sup>. The DNR sub-slab industrial VRSL for VC is 2,800 ug/m<sup>3</sup>.

Attached is a copy of the laboratory reports for the air sample(s) taken from beneath the building foundation at the Property, as well as a map showing the sampling locations, and a data table. I also enclose a copy of WDNR Publication RR-977, "Understanding Chemical Vapor Testing Results."

The DNR action level for PCE, TCE and VC is set to provide a threshold concentration for PCE, TCE and VC that is protective of human health over long-term exposure. It is the experience of DNR and the Wisconsin Department of Health Services (DHS) in investigating similar cases at other locations in the state that the potential health risk for you is low. The vapor levels measured in the sub-slab at the Property present a long-term risk, not an immediate one, to occupants of the building.

Even though your potential health risks are low, you may have questions about how breathing these vapors may affect your health. Please contact Curtis Hedman with DHS, who can address your health questions and concerns.

#### **Next Steps**

We recommend the following actions at this time:

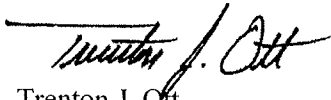
We would like to collect an air sample from the indoor air of the Property and test this sample for PCE, TCE and VC, which will allow us to determine whether building occupants are breathing elevated PCE, TCE and VC vapors. This also allows us to assess how effectively the building foundation is blocking sub-slab vapors from entering your indoor air.

The Wisconsin DNR recommends that we install a sub-slab mitigation system to remove PCE, TCE and VC vapors from beneath the Property. This system is identical to that used for homes with high radon levels. The system diverts radon (or chemical vapors) from beneath the home and discharges them into the outdoor air, above the building's roofline, rendering them harmless. Once PCE, TCE and VC vapors are successfully removed from beneath the foundation floor, there will be no potential or actual health threat for you or your employees from that kind of exposure.

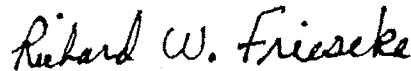
The Property owner will be contacted by FEC to schedule installation of the sub-slab mitigation system, and we are forwarding a letter to the owner with a First Request for Access to Install Mitigation System, as well as WDNR RR 5457 Template Access Agreement for VI Mitigation Installation. The cost of system installation will be paid by Gardner Denver, Inc.

Please feel free to contact me at the number below if you have any questions about these results.

Sincerely,  
**FRIESS ENVIRONMENTAL CONSULTING, INC.**



Trenton J. Ott  
Project Manager



Richard W. Frieeseke, P.E.  
President

Encs.

cc: Curtis Hedman  
Wisconsin Dept. of Health Services  
1 W. Wilson St.  
PO Box 2659  
Madison, WI 53703



Alyssa Sellwood

Wisconsin Dept. of Natural Resources RR/5  
101 S. Webster St.  
PO Box 7921  
Madison, WI 53707

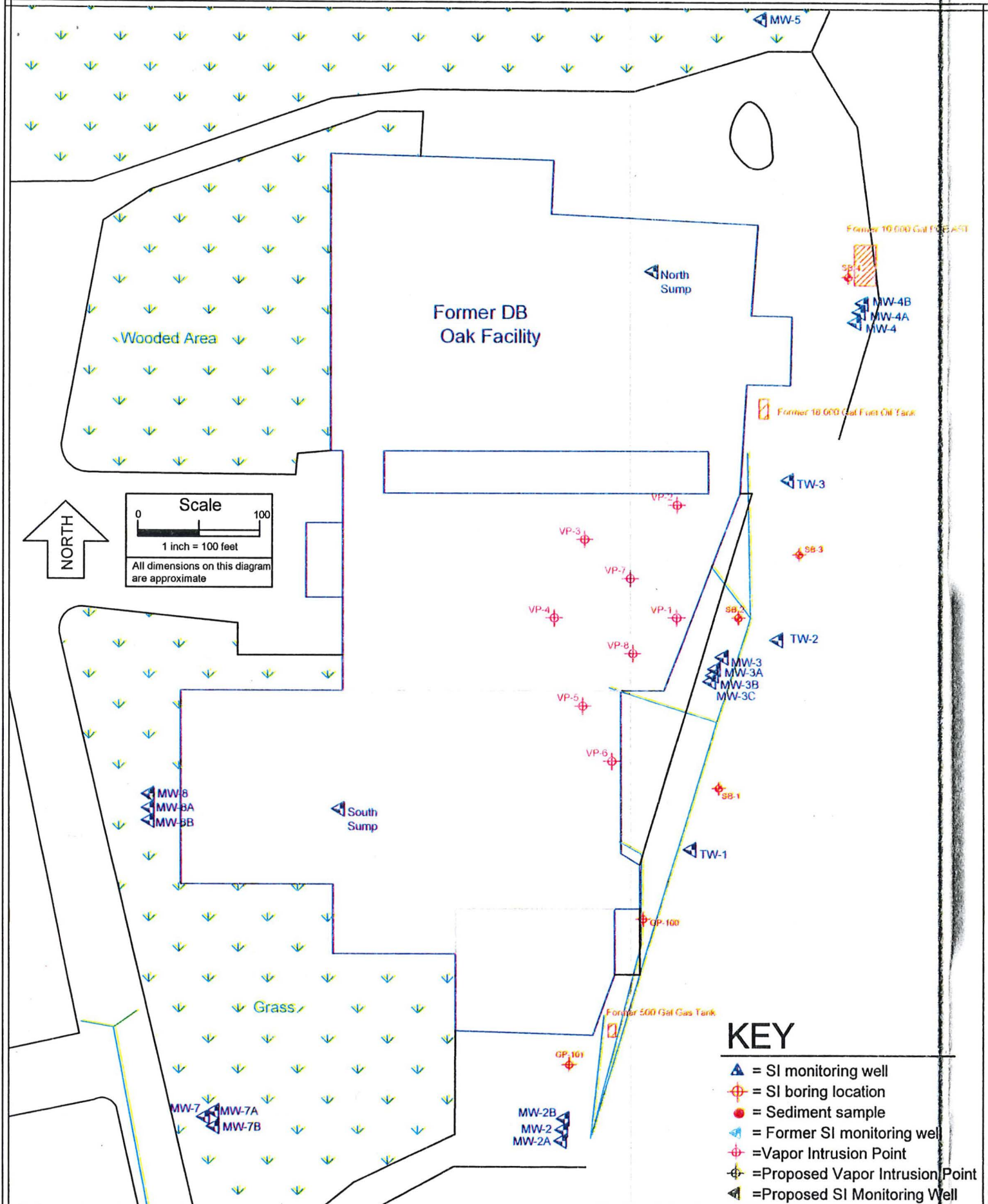
WDNR Project Manager:  
Jeff Ackerman  
State of Wisconsin Department of Natural Resources  
3911 Fish Hatchery Road  
Fitchburg, WI 53711-5397  
608-275-3323

Responsible Party Name and Contact Information:

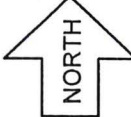
Gardner Denver, Inc.  
c/o Andrew Schiesl  
222 East Erie Street  
Milwaukee, WI 53202  
414-212-4700

Property Owner:  
DB Oak Limited Partnership

42356550



**Scale**  
 0 100  
 1 inch = 100 feet  
 All dimensions on this diagram are approximate



- KEY**
- ▲ = SI monitoring well
  - ⊕ = SI boring location
  - = Sediment sample
  - ▲ (blue) = Former SI monitoring well
  - ⊕ (red) = Vapor Intrusion Point
  - ⊕ (blue) = Proposed Vapor Intrusion Point
  - ▲ (blue) = Proposed SI Monitoring Well



File No.: 170503  
 DWG Date: 2-20-18  
 Rev Date: 8-26-19  
 Drawn By: BRF  
 Checked By (PM): TJO

**WP Site Diagram**  
 Former DB Oak Property  
 704 Oak Street  
 Fort Atkinson, Wisconsin

**Figure**  
 1

**A.4. Vapor Analytical Table (1 of 2)**  
**VOC Analytical Results - Sub-Slab Vapor Samples**  
**Former DB Oak Property**  
**Fort Atkinson, Wisconsin**

Sample Location	Sampling Date	cis-1,2-DCE (ug/m <sup>3</sup> )	trans-1,2-DCE (ug/m <sup>3</sup> )	PCE (ug/m <sup>3</sup> )	TCE (ug/m <sup>3</sup> )	Vinyl Chloride (ug/m <sup>3</sup> )
VP-1	8/7/18	820,000	19,300	<b><u>5,000,000</u></b>	<b><u>2,920,000</u></b>	<828.8
VP-2	4/26/19	<551.6	2,330	<b><u>212,000</u></b>	<b><u>34,000</u></b>	<414.4
VP-3	4/26/19	NS	NS	NS	NS	NS
VP-4	4/26/19	<551.6	<646.8	<b><u>64,000</u></b>	<b><u>9,700</u></b>	<414.4
VP-5	4/26/19	NS	NS	NS	NS	NS
VP-6	4/26/19	<9.85	<11.55	<b><u>20,100</u></b>	<u>204</u>	<7.40
VP-7	4/26/19	<551.6	<646.8	<b><u>153,000</u></b>	<b><u>23,700</u></b>	<414.4
VP-8	4/26/19	910,000	9,700	<b><u>47,000,000</u></b>	<b><u>580,000</u></b>	<b><u>12,200</u></b>
<i>Residential VRSLs</i>		NS	NS	1,400	70	57
<i>Commercial VRSLs</i>		NS	NS	6,000	293	933
<i>Industrial VRSLs</i>		NS	NS	18,000	880	2,800

**Notes:**

1. DNR Vapor Risk Screening Levels (VRSLs) are from U.S. EPA tables (updated November 2017)
2. Concentrations that exceed their respective residential DNR VRSLs are underlined.
3. Concentrations that exceed their respective small commercial DNR VRSLs are in **red**.
4. Concentrations that exceed their respective large commercial DNR VRSLs are in **red bold**.

## Environmental Lab, Inc.

1990 Prospect Ct. • Appleton, WI 54914  
920-830-2455 • FAX 920-733-0631

**Sample Handling Request**  
Rush Analysis Date Required \_\_\_\_\_  
(Rushes accepted only with prior authorization)  
 Normal Turn Around

Lab I.D. # \_\_\_\_\_  
Account No. \_\_\_\_\_ Quote No. \_\_\_\_\_  
Project #: 170503  
Sampler, (signature) Tristan J. Ott

Project (Name / Location) DB/Cal  
Reports To: Tristan Ott Invoice To: Same  
Company FEC, Inc. Company \_\_\_\_\_  
Address 4635 N. Sidney Place Address \_\_\_\_\_  
City State Zip Waukesha, WI 53009 City State Zip \_\_\_\_\_  
Phone (414) 228-9815 Phone \_\_\_\_\_  
FAX (414) 228-9816 FAX \_\_\_\_\_

Analysis Requested											Other Analysis					
DRO (Mod DRO Sep 98)	GRO (Mod GRO Sep 96)	LEAD	NITRATE/NITRITE	OIL & GREASE	PAH (EPA 8270)	PCB	PVOC (EPA 821)	PVOC + NAPHTHALENE	SULFATE	TOTAL SUSPENDED SOLIDS	VOC DW (EPA 524.2)	VOC (EPA 8260)	8-PCRA METALS	TO-15 Short List	FID:	FID:

Lab I.D.	Sample I.D.	Collection Date Time	Comp	Grab	Filtered Y/N	No. of Containers	Sample Type (Matrix)	Preservation
<u>5035058A</u>	<u>VP-1</u>	<u>8/12 AM</u>		<u>X</u>	<u>N</u>	<u>1</u>	<u>A</u>	<u>-</u>

Comments/Special Instructions ("Specify groundwater "GW", Drinking Water "DW", Waste Water "WW", Soil "S", Air "A", Oil, Sludge etc.)  
\* TO-15 Short - PCE, TCE, chloroethanes 1,2-DCE, Vinyl Chloride.

Sample Integrity - To be completed by receiving lab.  
Method of Shipment: Cold Cross  
Temp. of Temp. Blank: C On Ice  
Cooler seal intact upon receipt: X Yes      No

Relinquished By: (sign) Tristan J. Ott Time 11:55am Date 8/8/18  
Received By: (sign) Mild Time 8:20 AM Date 8-9-18

# Synergy Environmental Lab, INC

1990 Prospect Ct., Appleton, WI 54914 \*P 920-830-2455 \* F 920-733-0631

TRENTON OTT  
FEC. INC.  
6635 N. SIDNEY PLACE  
MILWAUKEE, WI 53209

Report Date 17-Aug-18

Project Name DB OAK  
Project # 170503

Invoice # E35058

Lab Code 5035058A  
Sample ID VP-1  
Sample Matrix Air  
Sample Date 8/7/2018

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
Air Samples										
cis-1,2-Dichloroethene	820000	ug/m3	1103.2	3505.6	5600	TO-15	8/14/2018	8/14/2018	CJR	1
trans-1,2-Dichloroethene	19300	ug/m3	1293.6	4110.4	5600	TO-15	8/14/2018	8/14/2018	CJR	1
Tetrachloroethene	5000000	ug/m3	38920	123760	140000	TO-15	8/14/2018	8/14/2018	CJR	1
Trichloroethene (TCE)	2920000	ug/m3	33180	105560	140000	TO-15	8/14/2018	8/14/2018	CJR	1
Vinyl Chloride	< 828.8	ug/m3	828.8	2643.2	5600	TO-15	8/14/2018	8/14/2018	CJR	1

"J" Flag: Analyte detected between LOD and LOQ

LOD Limit of Detection

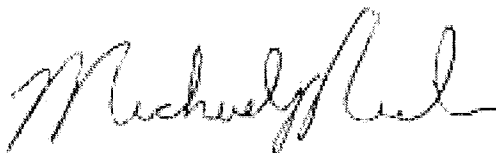
LOQ Limit of Quantitation

Code Comment

1 Laboratory QC within limits.

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight. Subcontracted results are denoted by SUB in the analyst field.

Authorized Signature



**Lab Code** 5036084E  
**Sample ID** VP-2  
**Sample Matrix** Air  
**Sample Date** 4/26/2019

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
Air Samples										
Chloroform	< 840	ug/m3	840	2668.4	2800	TO-15		5/6/2019	CJR	1
1,2-Dichloroethane	< 672	ug/m3	672	2136.4	2800	TO-15		5/6/2019	CJR	1
1,1-Dichloroethane	< 523.6	ug/m3	523.6	1668.8	2800	TO-15		5/6/2019	CJR	1
1,1-Dichloroethene	< 588	ug/m3	588	1870.4	2800	TO-15		5/6/2019	CJR	1
cis-1,2-Dichloroethene	< 551.6	ug/m3	551.6	1752.8	2800	TO-15		5/6/2019	CJR	1
trans-1,2-Dichloroethene	2330	ug/m3	646.8	2055.2	2800	TO-15		5/6/2019	CJR	1
1,1,2,2-Tetrachloroethane	< 910	ug/m3	910	2884	2800	TO-15		5/6/2019	CJR	1
Tetrachloroethene	212000	ug/m3	778.4	2475.2	2800	TO-15		5/6/2019	CJR	1
1,1,1-Trichloroethane	< 697.2	ug/m3	697.2	2220.4	2800	TO-15		5/6/2019	CJR	1
1,1,2-Trichloroethane	< 722.4	ug/m3	722.4	2301.6	2800	TO-15		5/6/2019	CJR	1
Trichloroethene (TCE)	34000	ug/m3	663.6	2111.2	2800	TO-15		5/6/2019	CJR	1
Vinyl Chloride	< 414.4	ug/m3	414.4	1321.6	2800	TO-15		5/6/2019	CJR	1



**Project Name** DB OAK  
**Project #** 170503  
**Lab Code** 5036084F  
**Sample ID** VP-4  
**Sample Matrix** Air  
**Sample Date** 4/26/2019

**Invoice #** E36084

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
Air Samples										
Chloroform	< 840	ug/m3	840	2668.4	2800	TO-15		5/6/2019	CJR	1
1,2-Dichloroethane	< 672	ug/m3	672	2136.4	2800	TO-15		5/6/2019	CJR	1
1,1-Dichloroethane	< 523.6	ug/m3	523.6	1668.8	2800	TO-15		5/6/2019	CJR	1
1,1-Dichloroethene	< 588	ug/m3	588	1870.4	2800	TO-15		5/6/2019	CJR	1
cis-1,2-Dichloroethene	< 551.6	ug/m3	551.6	1752.8	2800	TO-15		5/6/2019	CJR	1
trans-1,2-Dichloroethene	< 646.8	ug/m3	646.8	2055.2	2800	TO-15		5/6/2019	CJR	1
1,1,2,2-Tetrachloroethane	< 910	ug/m3	910	2884	2800	TO-15		5/6/2019	CJR	1
Tetrachloroethene	64000	ug/m3	778.4	2475.2	2800	TO-15		5/6/2019	CJR	1
1,1,1-Trichloroethane	< 697.2	ug/m3	697.2	2220.4	2800	TO-15		5/6/2019	CJR	1
1,1,2-Trichloroethane	< 722.4	ug/m3	722.4	2301.6	2800	TO-15		5/6/2019	CJR	1
Trichloroethene (TCE)	9700	ug/m3	663.6	2111.2	2800	TO-15		5/6/2019	CJR	1
Vinyl Chloride	< 414.4	ug/m3	414.4	1321.6	2800	TO-15		5/6/2019	CJR	1

**Lab Code** 5036084G  
**Sample ID** VP-6  
**Sample Matrix** Air  
**Sample Date** 4/26/2019

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
Air Samples										
Chloroform	< 15	ug/m3	15	47.65	50	TO-15		5/7/2019	CJR	1
1,2-Dichloroethane	< 12	ug/m3	12	38.15	50	TO-15		5/7/2019	CJR	1
1,1-Dichloroethane	< 9.35	ug/m3	9.35	29.8	50	TO-15		5/7/2019	CJR	1
1,1-Dichloroethene	< 10.5	ug/m3	10.5	33.4	50	TO-15		5/7/2019	CJR	1
cis-1,2-Dichloroethene	< 9.85	ug/m3	9.85	31.3	50	TO-15		5/7/2019	CJR	1
trans-1,2-Dichloroethene	< 11.55	ug/m3	11.55	36.7	50	TO-15		5/7/2019	CJR	1
1,1,2,2-Tetrachloroethane	< 16.25	ug/m3	16.25	51.5	50	TO-15		5/7/2019	CJR	1
Tetrachloroethene	20100	ug/m3	778.4	2475.2	2800	TO-15		5/6/2019	CJR	1
1,1,1-Trichloroethane	< 12.45	ug/m3	12.45	39.65	50	TO-15		5/7/2019	CJR	1
1,1,2-Trichloroethane	< 12.9	ug/m3	12.9	41.1	50	TO-15		5/7/2019	CJR	1
Trichloroethene (TCE)	204	ug/m3	11.85	37.7	50	TO-15		5/7/2019	CJR	1
Vinyl Chloride	< 7.4	ug/m3	7.4	23.6	50	TO-15		5/7/2019	CJR	1

**Project Name** DB OAK  
**Project #** 170503

**Invoice #** E36084

"J" Flag: Analyte detected between LOD and LOQ

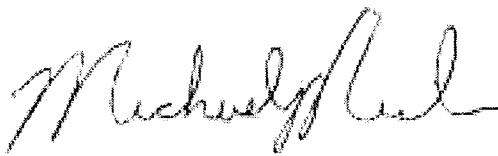
LOD Limit of Detection

LOQ Limit of Quantitation

<i>Code</i>	<i>Comment</i>
1	Laboratory QC within limits.

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight. Subcontracted results are denoted by SUB in the analyst field.

**Authorized Signature**



# 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.

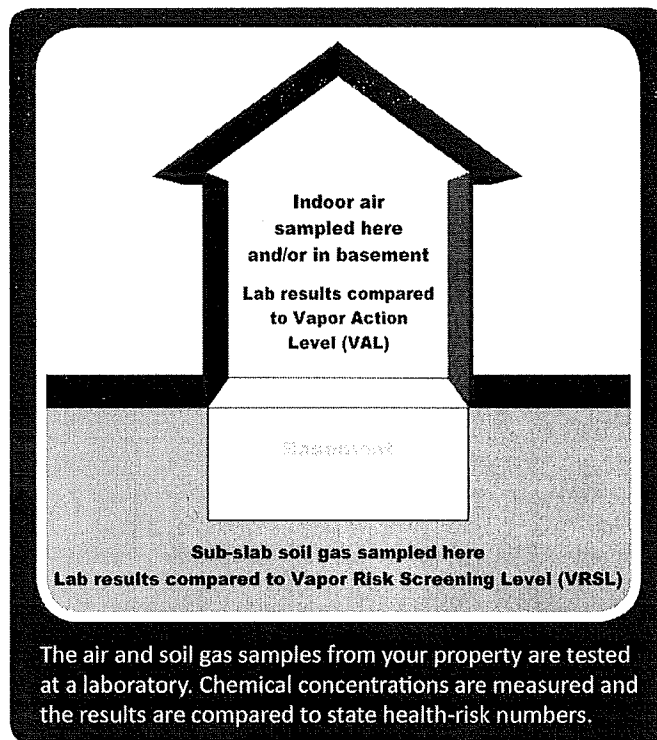
## Indoor Air Testing Results

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

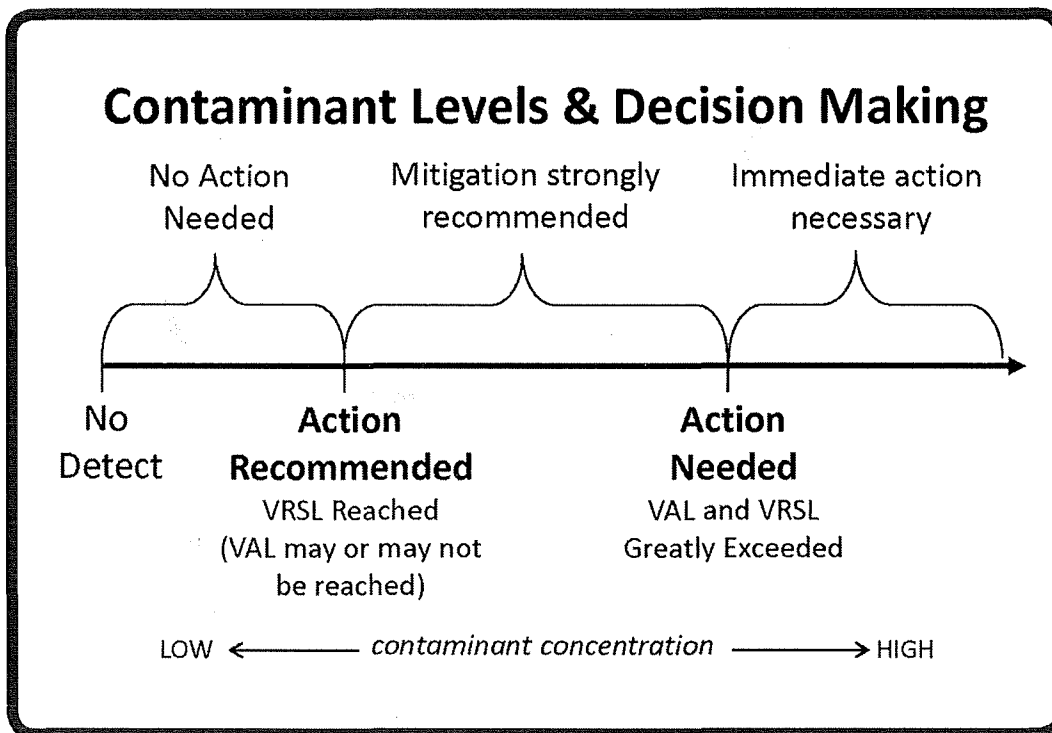
If your test results are less than a VAL for indoor air, or a VRSL for sub-slab soil gas, then the air in the house or building should not present a health concern. Follow-up sampling and testing may be necessary to confirm the results, but no other action is typically suggested.

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)

This document contains information about certain state statutes and administrative rules but does not necessarily include all of the details found in the statutes and rules. Readers should consult the actual language of the statutes and rules to answer specific questions. The Wisconsin Department of Natural Resources provides equal opportunity in its employment, programs, services, and functions under an Affirmative Action Plan. If you have any questions, please write to Equal Opportunity Office, Department of Interior, Washington, D.C. 20240. This publication is available in alternative format upon request. Please call 608-267-3543 for more information.



September 26, 2019

Mr. Jesse Riedl  
Riedl & Sons  
704 Oak Street  
Fort Atkinson, WI 53538

SUBJECT: Vapor Sampling Results - Contaminant Detected Above DNR Screening Level

PROPERTY: DB Oak (formerly Thomas Industries) ("DB Oak")  
700-710 Oak Street, Fort Atkinson, Wisconsin (the "Property")  
DNR BRRTS # 02-28-176509

Dear Mr. Riedl:

Included are the findings of a recent investigation on the Property by Friess Environmental Consulting, Inc. ("FEC"). This letter is a follow up to our conversation on September 25, 2019.

As you are aware, this investigation was conducted because of the potential for contaminant vapors from the Property, identified above, to migrate through soils, accumulate beneath the foundation of the Property, and possibly enter your indoor air. The contaminants of concern at the Property are tetrachloroethylene, trichloroethylene and vinyl chloride, commonly referred to as PCE, TCE and VC.

#### **Test Results**

On August 7, 2018 and April 26, 2019, FEC, an environmental consultant hired by Gardner Denver, Inc., installed sampling devices into the floor of a portion of the building foundation of the Property and collected soil vapor samples. The samples were then submitted to the laboratory for analysis of five (5) different volatile organic compounds, including PCE, TCE and VC.

The analysis detected PCE in soil gas (vapors) beneath the foundation floor at concentrations ranging from 20,100 ug/m<sup>3</sup> to 47,000,000 ug/m<sup>3</sup>. The DNR sub-slab industrial risk vapor screening level ("VRSL") for PCE is 18,000 ug/m<sup>3</sup>.

The analysis detected TCE in soil gas (vapors) beneath the foundation floor at concentrations ranging from 9,700 ug/m<sup>3</sup> to 2,920,000 ug/m<sup>3</sup>. The DNR sub-slab industrial VRSL for TCE is 880 ug/m<sup>3</sup>.

The analysis detected VC in soil gas (vapors) beneath the foundation floor at a concentration of 12,200 ug/m<sup>3</sup>. The DNR sub-slab industrial VRSL for VC is 2,800 ug/m<sup>3</sup>.

Attached is a copy of the laboratory reports for the air sample(s) taken from beneath the building foundation at the Property, as well as a map showing the sampling locations, and a data table. I also enclose a copy of WDNR Publication RR-977, "Understanding Chemical Vapor Testing Results."

The DNR action level for PCE, TCE and VC is set to provide a threshold concentration for PCE, TCE and VC that is protective of human health over long-term exposure. It is the experience of DNR and the Wisconsin Department of Health Services (DHS) in investigating similar cases at other locations in the state that the potential health risk for you is low. The vapor levels measured in the sub-slab at the Property present a long-term risk, not an immediate one, to occupants of the building.

Even though your potential health risks are low, you may have questions about how breathing these vapors may affect your health. Please contact Curtis Hedman with DHS, who can address your health questions and concerns.

### **Next Steps**

We recommend the following actions at this time:

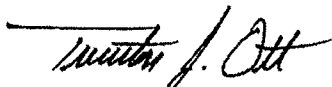
We would like to collect an air sample from the indoor air of the Property and test this sample for PCE, TCE and VC, which will allow us to determine whether building occupants are breathing elevated PCE, TCE and VC vapors. This also allows us to assess how effectively the building foundation is blocking sub-slab vapors from entering your indoor air.

The Wisconsin DNR recommends that we install a sub-slab mitigation system to remove PCE, TCE and VC vapors from beneath the Property. This system is identical to that used for homes with high radon levels. The system diverts radon (or chemical vapors) from beneath the home and discharges them into the outdoor air, above the building's roofline, rendering them harmless. Once PCE, TCE and VC vapors are successfully removed from beneath the foundation floor, there will be no potential or actual health threat for you or your employees from that kind of exposure.

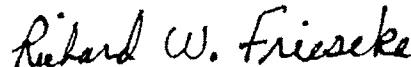
The Property owner will be contacted by FEC to schedule installation of the sub-slab mitigation system, and we are forwarding a letter to the owner with a First Request for Access to Install Mitigation System, as well as WDNR RR 5457 Template Access Agreement for VI Mitigation Installation. The cost of system installation will be paid by Gardner Denver, Inc.

Please feel free to contact me at the number below if you have any questions about these results.

Sincerely,  
**FRIESS ENVIRONMENTAL CONSULTING, INC.**



Trenton J. Ott  
Project Manager



Richard W. Frieseke, P.E.  
President

Encs.

cc: Curtis Hedman  
Wisconsin Dept. of Health Services  
1 W. Wilson St.  
PO Box 2659  
Madison, WI 53703

Alyssa Sellwood

Wisconsin Dept. of Natural Resources RR/5  
101 S. Webster St.  
PO Box 7921  
Madison, WI 53707

WDNR Project Manager:

Jeff Ackerman  
State of Wisconsin Department of Natural Resources  
3911 Fish Hatchery Road  
Fitchburg, WI 53711-5397  
608-275-3323

Responsible Party Name and Contact Information:

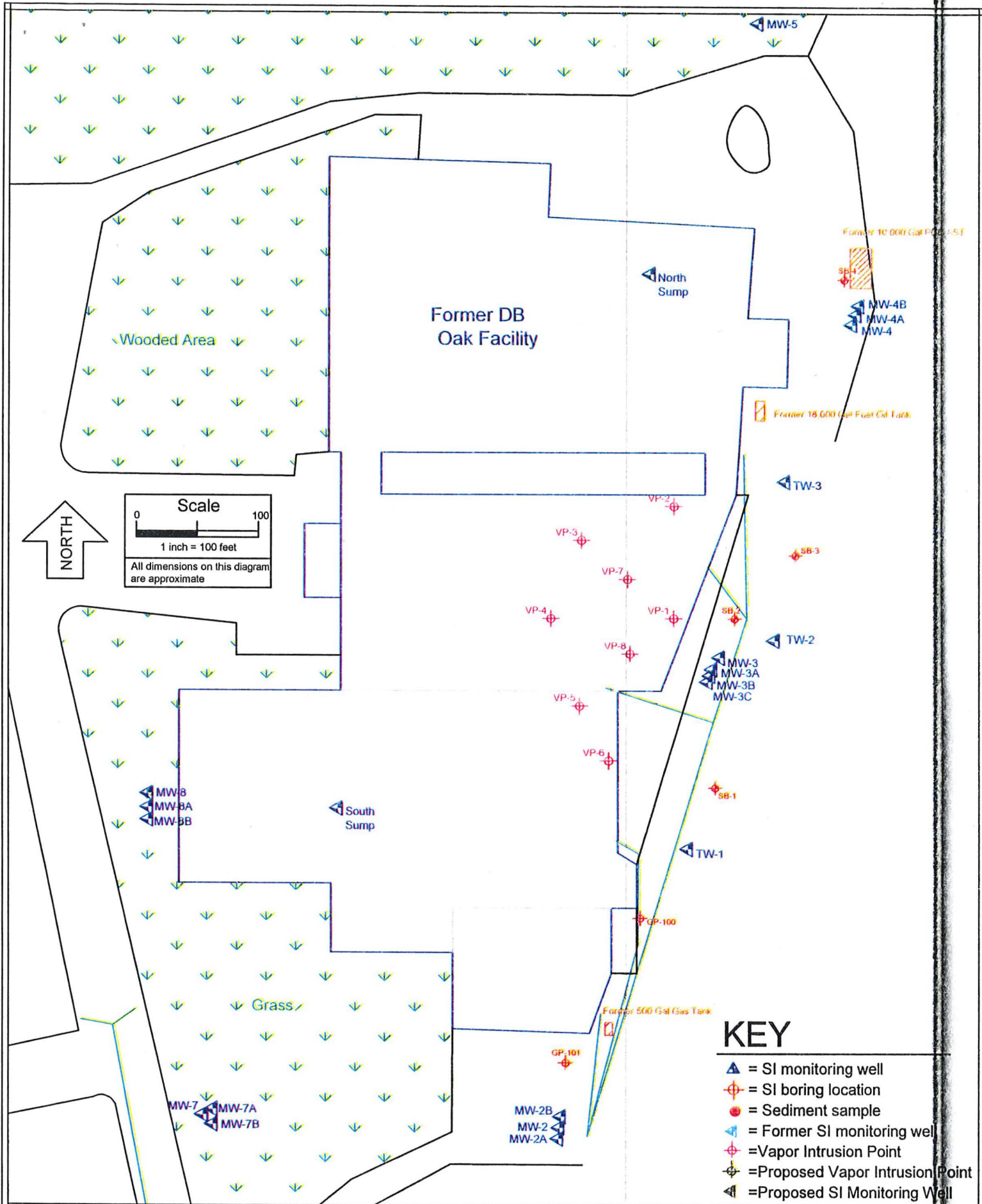
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Property Owner:

DB Oak Limited Partnership

42356550





- KEY**
- ▲ = SI monitoring well
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  - ▲ = Proposed SI Monitoring Well



File No.: 170503  
 DWG Date: 2-20-18  
 Rev Date: 8-26-19  
 Drawn By: BRF  
 Checked By (PM): TJO

**WP Site Diagram**  
 Former DB Oak Property  
 704 Oak Street  
 Fort Atkinson, Wisconsin

**Figure**  
 1

**A.4. Vapor Analytical Table (1 of 2)**  
**VOC Analytical Results - Sub-Slab Vapor Samples**  
**Former DB Oak Property**  
**Fort Atkinson, Wisconsin**

Sample Location	Sampling Date	cis-1,2-DCE (ug/m <sup>3</sup> )	trans-1,2-DCE (ug/m <sup>3</sup> )	PCE (ug/m <sup>3</sup> )	TCE (ug/m <sup>3</sup> )	Vinyl Chloride (ug/m <sup>3</sup> )
VP-1	8/7/18	820,000	19,300	<b><u>5,000,000</u></b>	<b><u>2,920,000</u></b>	<828.8
VP-2	4/26/19	<551.6	2,330	<b><u>212,000</u></b>	<b><u>34,000</u></b>	<414.4
VP-3	4/26/19	NS	NS	NS	NS	NS
VP-4	4/26/19	<551.6	<646.8	<b><u>64,000</u></b>	<b><u>9,700</u></b>	<414.4
VP-5	4/26/19	NS	NS	NS	NS	NS
VP-6	4/26/19	<9.85	<11.55	<b><u>20,100</u></b>	<u>204</u>	<7.40
VP-7	4/26/19	<551.6	<646.8	<b><u>153,000</u></b>	<b><u>23,700</u></b>	<414.4
VP-8	4/26/19	910,000	9,700	<b><u>47,000,000</u></b>	<b><u>580,000</u></b>	<b><u>12,200</u></b>
<i>Residential VRSLs</i>		NS	NS	1,400	70	57
<i>Commercial VRSLs</i>		NS	NS	6,000	293	933
<i>Industrial VRSLs</i>		NS	NS	18,000	880	2,800

Notes:

1. DNR Vapor Risk Screening Levels (VRSLs) are from U.S. EPA tables (updated November 2017)
2. Concentrations that exceed their respective residential DNR VRSLs are underlined.
3. Concentrations that exceed their respective small commercial DNR VRSLs are in **red**.
4. Concentrations that exceed their respective large commercial DNR VRSLs are in **red bold**.

*Environmental Lab, Inc.*

1990 Prospect Ct. • Appleton, WI 54914  
920-830-2455 • FAX 920-733-0631

### Sample Handling Request

Rush Analysis Date Required \_\_\_\_\_  
(Rushes accepted only with prior authorization)

Normal Turn Around

Lab I.D. # \_\_\_\_\_  
Account No. : \_\_\_\_\_ Quote No.: \_\_\_\_\_  
Project #: 170503  
Sampler: (signature) Michelle J. Ott

Project (Name / Location): <u>DB/Cal</u>	Analysis Requested											Other Analysis				
Reports To: <u>Trenton Ott</u>	Invoice To: <u>Same</u>															
Company: <u>FEC, Inc.</u>	Company:															
Address: <u>4635 N. Sidney Place</u>	Address:															
City/State/Zip: <u>Milwaukee, WI 53209</u>	City/State/Zip:															
Phone: <u>(414) 278-9815</u>	Phone:															
FAX: <u>(414) 278-9816</u>	FAX:															

Lab I.D.	Sample I.D.	Collection Date	Time	Comp	Grab	Filtered Y/N	No. of Containers	Sample Type (Matrix)	Preservation	DRO (Mod DRG Sep 95)	GRO (Mod GRO Sep 95)	LEAD	NITRATE/NITRITE	OIL & GREASE	PAH (EPA 8270)	PCB	PVOC (EPA 8021)	PVOC + NAPHTHALENE	SULFATE	TOTAL SUSPENDED SOLIDS	VOC DW (EPA 5242)	VOC (EPA 8260)	8-PCRA METALS	TO-15 Short List	PID/ FID
5035058A	VP-1	8/2/18	AM		K	N	1	A	-																

Comments/Special Instructions (\*Specify groundwater "GW", Drinking Water "DW", Waste Water "WW", Soil "S", Air "A", Oil, Sludge etc.)  
\* TO-15 Short - PCE, TCE, o-xylene, 1,2-DCE, Vinyl Chloride.

Sample Integrity - To be completed by receiving lab. Method of Shipment: <u>Gold Cross</u> Temp. of Temp. Blank: _____ °C On Ice Cooler seal intact upon receipt: <input checked="" type="checkbox"/> Yes _____ No	Relinquished By: (sign) <u>Michelle J. Ott</u>	Time	Date	Received By: (sign)	Time	Date	
		<u>1145am</u>	<u>8/2/18</u>				
	Received in Laboratory By: <u>Michelle J. Ott</u>			Time:	Date:		
				<u>8:00 AM</u>	<u>8-9-18</u>		

# Synergy Environmental Lab, INC

1990 Prospect Ct., Appleton, WI 54914 \*P 920-830-2455 \* F 920-733-0631

TRENTON OTT  
FEC. INC.  
6635 N. SIDNEY PLACE  
MILWAUKEE. WI 53209

Report Date 17-Aug-18

Project Name DB OAK  
Project # 170503  
Lab Code 5035058A  
Sample ID VP-1  
Sample Matrix Air  
Sample Date 8/7/2018

Invoice # E35058

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
Air Samples										
cis-1,2-Dichloroethene	820000	ug/m3	1103.2	3505.6	5600	TO-15		8/14/2018	CJR	1
trans-1,2-Dichloroethene	19300	ug/m3	1293.6	4110.4	5600	TO-15		8/14/2018	CJR	1
Tetrachloroethene	5000000	ug/m3	38920	123760	140000	TO-15		8/14/2018	CJR	1
Trichloroethene (TCE)	2920000	ug/m3	33180	105560	140000	TO-15		8/14/2018	CJR	1
Vinyl Chloride	< 828.8	ug/m3	828.8	2643.2	5600	TO-15		8/14/2018	CJR	1

"J" Flag: Analyte detected between LOD and LOQ

LOD Limit of Detection

LOQ Limit of Quantitation

**Code**      **Comment**

1      Laboratory QC within limits.

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight. Subcontracted results are denoted by SUB in the analyst field.

Authorized Signature



**Lab Code** 5036084E  
**Sample ID** VP-2  
**Sample Matrix** Air  
**Sample Date** 4/26/2019

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
Air Samples										
Chloroform	< 840	ug/m3	840	2668.4	2800	TO-15		5/6/2019	CJR	1
1,2-Dichloroethane	< 672	ug/m3	672	2136.4	2800	TO-15		5/6/2019	CJR	1
1,1-Dichloroethane	< 523.6	ug/m3	523.6	1668.8	2800	TO-15		5/6/2019	CJR	1
1,1-Dichloroethene	< 588	ug/m3	588	1870.4	2800	TO-15		5/6/2019	CJR	1
cis-1,2-Dichloroethene	< 551.6	ug/m3	551.6	1752.8	2800	TO-15		5/6/2019	CJR	1
trans-1,2-Dichloroethene	2330	ug/m3	646.8	2055.2	2800	TO-15		5/6/2019	CJR	1
1,1,2,2-Tetrachloroethane	< 910	ug/m3	910	2884	2800	TO-15		5/6/2019	CJR	1
Tetrachloroethene	212000	ug/m3	778.4	2475.2	2800	TO-15		5/6/2019	CJR	1
1,1,1-Trichloroethane	< 697.2	ug/m3	697.2	2220.4	2800	TO-15		5/6/2019	CJR	1
1,1,2-Trichloroethane	< 722.4	ug/m3	722.4	2301.6	2800	TO-15		5/6/2019	CJR	1
Trichloroethene (TCE)	34000	ug/m3	663.6	2111.2	2800	TO-15		5/6/2019	CJR	1
Vinyl Chloride	< 414.4	ug/m3	414.4	1321.6	2800	TO-15		5/6/2019	CJR	1

**Project Name** DB OAK  
**Project #** 170503  
**Lab Code** 5036084F  
**Sample ID** VP-4  
**Sample Matrix** Air  
**Sample Date** 4/26/2019

**Invoice #** E36084

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
Air Samples										
Chloroform	< 840	ug/m3	840	2668.4	2800	TO-15		5/6/2019	CJR	1
1,2-Dichloroethane	< 672	ug/m3	672	2136.4	2800	TO-15		5/6/2019	CJR	1
1,1-Dichloroethane	< 523.6	ug/m3	523.6	1668.8	2800	TO-15		5/6/2019	CJR	1
1,1-Dichloroethene	< 588	ug/m3	588	1870.4	2800	TO-15		5/6/2019	CJR	1
cis-1,2-Dichloroethene	< 551.6	ug/m3	551.6	1752.8	2800	TO-15		5/6/2019	CJR	1
trans-1,2-Dichloroethene	< 646.8	ug/m3	646.8	2055.2	2800	TO-15		5/6/2019	CJR	1
1,1,2,2-Tetrachloroethane	< 910	ug/m3	910	2884	2800	TO-15		5/6/2019	CJR	1
Tetrachloroethene	64000	ug/m3	778.4	2475.2	2800	TO-15		5/6/2019	CJR	1
1,1,1-Trichloroethane	< 697.2	ug/m3	697.2	2220.4	2800	TO-15		5/6/2019	CJR	1
1,1,2-Trichloroethane	< 722.4	ug/m3	722.4	2301.6	2800	TO-15		5/6/2019	CJR	1
Trichloroethene (TCE)	9700	ug/m3	663.6	2111.2	2800	TO-15		5/6/2019	CJR	1
Vinyl Chloride	< 414.4	ug/m3	414.4	1321.6	2800	TO-15		5/6/2019	CJR	1

**Lab Code** 5036084G  
**Sample ID** VP-6  
**Sample Matrix** Air  
**Sample Date** 4/26/2019

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
Air Samples										
Chloroform	< 15	ug/m3	15	47.65	50	TO-15		5/7/2019	CJR	1
1,2-Dichloroethane	< 12	ug/m3	12	38.15	50	TO-15		5/7/2019	CJR	1
1,1-Dichloroethane	< 9.35	ug/m3	9.35	29.8	50	TO-15		5/7/2019	CJR	1
1,1-Dichloroethene	< 10.5	ug/m3	10.5	33.4	50	TO-15		5/7/2019	CJR	1
cis-1,2-Dichloroethene	< 9.85	ug/m3	9.85	31.3	50	TO-15		5/7/2019	CJR	1
trans-1,2-Dichloroethene	< 11.55	ug/m3	11.55	36.7	50	TO-15		5/7/2019	CJR	1
1,1,2,2-Tetrachloroethane	< 16.25	ug/m3	16.25	51.5	50	TO-15		5/7/2019	CJR	1
Tetrachloroethene	20100	ug/m3	778.4	2475.2	2800	TO-15		5/6/2019	CJR	1
1,1,1-Trichloroethane	< 12.45	ug/m3	12.45	39.65	50	TO-15		5/7/2019	CJR	1
1,1,2-Trichloroethane	< 12.9	ug/m3	12.9	41.1	50	TO-15		5/7/2019	CJR	1
Trichloroethene (TCE)	204	ug/m3	11.85	37.7	50	TO-15		5/7/2019	CJR	1
Vinyl Chloride	< 7.4	ug/m3	7.4	23.6	50	TO-15		5/7/2019	CJR	1

Project Name DB OAK

Invoice # E36084

Project # 170503

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"J" Flag: Analyte detected between LOD and LOQ

LOD Limit of Detection

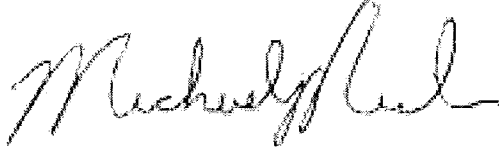
LOQ Limit of Quantitation

*Code*      *Comment*

1            Laboratory QC within limits.

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight. Subcontracted results are denoted by SUB in the analyst field.

Authorized Signature



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# 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.

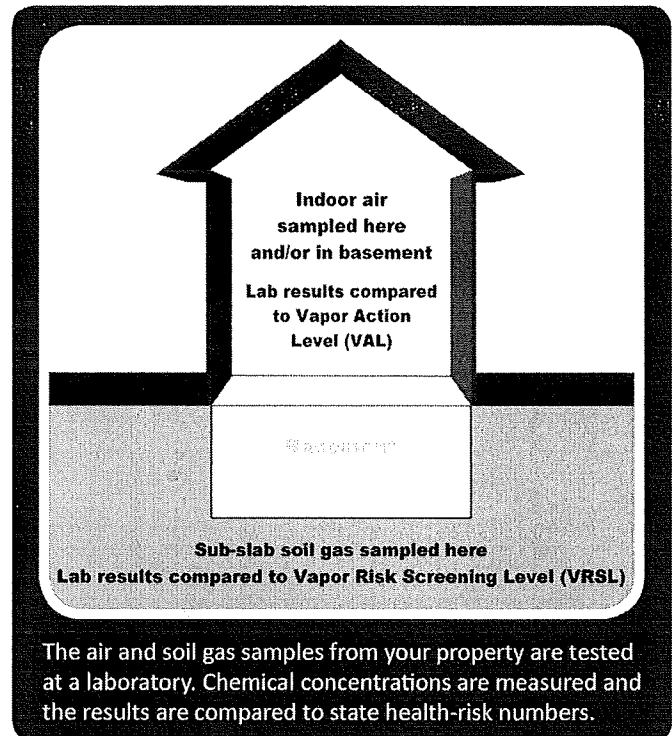
## Indoor Air Testing Results

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

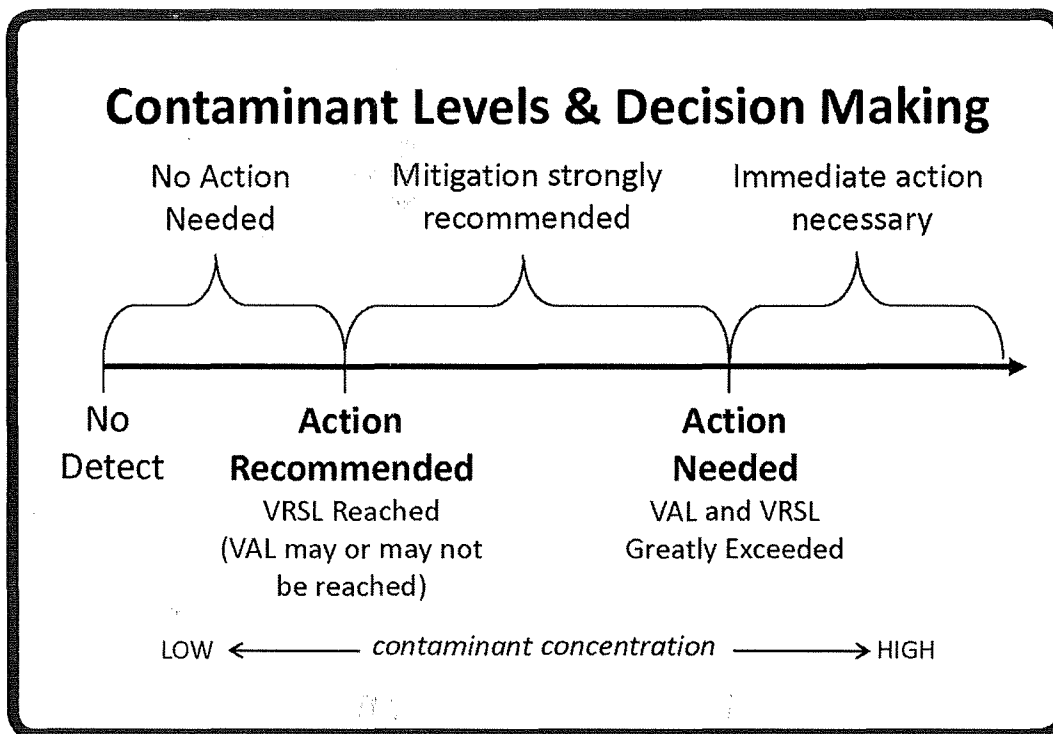
If your test results are less than a VAL for indoor air, or a VRSL for sub-slab soil gas, then the air in the house or building should not present a health concern. Follow-up sampling and testing may be necessary to confirm the results, but no other action is typically suggested.

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](http://dnr.wi.gov/topic/Brownfields/Vapor.html)

This document contains information about certain state statutes and administrative rules but does not necessarily include all of the details found in the statutes and rules. Readers should consult the actual language of the statutes and rules to answer specific questions. The Wisconsin Department of Natural Resources provides equal opportunity in its employment, programs, services, and functions under an Affirmative Action Plan. If you have any questions, please write to Equal Opportunity Office, Department of Interior, Washington, D.C. 20240. This publication is available in alternative format upon request. Please call 608-267-3543 for more information.