State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
1027 W. Saint Paul Avenue
Milwaukee, WI 53233

Tony Evers, Governor
Preston D. Cole, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

August 18, 2022

Mr. David Thornton
Westgate Property Management
5223 26th Avenue
Kenosha, WI 53140
Email only to: david@westgatewi.com

Subject: Review of the "Site Investigation Field Procedures Workplan"
Rosselli Dry Cleaning, 715 57th Street, Kenosha
DNR BRRTS Activity #: 02-30-586299; FID #: 230013850

Dear Mr. Thornton:

The Department of Natural Resources (DNR) has completed its review of the June 13, 2022 "Site Investigation Field Procedures Workplan" and other documentation submitted previously for the Rosselli Dry Cleaning site. The workplan proposes the installation and sampling of three groundwater monitoring wells spaced within rights of way around the site and one well placed near the onsite building. The DNR received the applicable technical assistance fee in accordance with Wis. Admin. Code § NR 749.04 (1) for providing this written response. As presented below, the DNR is not recommending the installation of three of these wells at this time but to instead prioritize determining the source(s) of contamination and investigating the vapor intrusion pathway.

Source assessment (Wis. Admin. Code §§ NR 716.01 and NR 716.07)

Identifying the source(s) of contamination is an important part of the site investigation, as it allows the field investigation to be scoped properly to determine the full extent of contamination. Further assessment of the source(s) of chlorinated volatile organic compound (CVOC) contamination is needed. Tetrachloroethene (PCE) was not identified as being used at this facility, however, the long history of the dry-cleaning on this site and the common use of PCE at dry cleaners suggests that its use on the property still needs to be considered. Identify areas on the property where solvents were commonly discharged by historic dry cleaners, such as dry-cleaning machine locations, drains, storage areas, dumpster/disposal areas, and doors leading outside from the cleaners. Determine if the contamination could be related to these sources and whether additional sampling is necessary to investigate those areas. An alternative explanation for the source of the PCE would need to be provided to demonstrate that it is unrelated to the dry-cleaning operations. Understanding the source of the contamination will allow you to demonstrate how the existing samples were collected at appropriate depths and locations to investigate the contamination and to determine where additional sampling is needed to define it. A survey of the site using passive soil gas samplers may be a cost-effective way to identify source areas.

Elevated PID readings and petroleum odors were reported at GP-1 at a depth of 6 feet. Laboratory analysis of soil samples collected at this depth did not identify significant concentrations of VOCs or polycyclic aromatic hydrocarbons. Provide an explanation for this discrepancy. An assessment as to whether samples from other areas of the site are needed to investigate these impacts, or if confirmation sampling at the GP-1 location for the same or different analysis to determine what is producing the odors, will also need to be provided.

The emerging contaminant statement will need to address the identified source of the contamination. If the CVOC source is thought to be associated with the dry-cleaner, provide a discussion as to what services the business provided not specifically related to solvent-based cleaning such as leather treatment, waterproofing, rug treatment,

etc., and how this was determined (e.g., owner interviews, reviewing phone book ads). Summarize what services were performed and whether PFOS containing chemicals could have been used in as part of these activities.

Groundwater and soil investigation in the source area (Wis. Admin. Code § NR 716.11 (3) a)

Additional sampling is required to define the extent of soil and groundwater contamination. The extent of soil contamination in near-surface soil (0-3 feet below ground surface) must be defined. Soil samples from the east and west of the building are needed to define contamination at deeper depths. Collecting soil samples from below the water table may be helpful to estimate the limits of groundwater contamination if site conditions physically limit where groundwater samples could be collected.

The recently submitted Workplan proposed installing four monitoring wells for the collection of groundwater samples and to determine groundwater flow. Collecting soil and groundwater samples from the well proposed to be installed off the southeast corner of the building could provide useful data for this purpose. However, the other three wells are likely positioned to far from the source area to provide any accurate definition of plume limits, rule out a vapor intrusion risk to any nearby buildings, or provide an accurate representation of groundwater flow due to the presence of underground utilities and foundations that exist in this area. The relatively low concentration of groundwater contaminants and clay geology in the area suggests the plume may not be widespread and could be defined with samples collected closer to the source.

The DNR recommends confirming the source(s) and extent of soil contamination and collecting groundwater samples from the existing well to confirm the presence of groundwater contamination and estimate plume stability, before installing any additional wells.

Assess and investigate the vapor intrusion risk (Wis. Admin. Code §§ NR 716.11 (5) a, g, and h)

Tetrachloroethene (PCE) and trichloroethene (TCE) have been identified at the site in indoor air and sub-slab soil vapor. PCE and TCE vapors pose a long-term risk to those exposed; TCE also poses an acute risk to certain populations. Assessment (identifying migration pathways and receptors) and investigation (collection of field samples) of the vapor intrusion risk to onsite occupants and the occupants of neighboring buildings must occur without delay. See the attached March 25, 2021, letter from the Wisconsin Department of Health Services for details on the risk this compound poses and when to conduct immediate actions to address it.

The vapor assessment must provide details regarding the use and layout of the on-site dry cleaner building. Identify the current use of property, including if there is or will be a residential space within it, and provide a detailed description of the building layout. Describe how many floors are in the building, if there is a basement, and what level the dry-cleaning operations were conducted on. Clearly identify the layout of interior walls. Discuss the location of storm and sanitary sewer lines in the building and adjacent areas.

Identification of off-site receptors is also needed to complete the vapor assessment. Use the screening criteria provided in DNR guidance RR-800, "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin" to identify other buildings that must be investigated for vapor intrusion, including buildings present within 100 feet of the CVOC contaminant source. Buildings immediately east of the Site appear to be the most likely to be impacted, but other buildings may screen in as well. Obtain information about these buildings including layout, uses, and demographic information of the occupants to create a sampling plan.

Sub-slab and indoor air samples will need to be collected wherever the potential for vapor intrusion or migration has been identified. Air samples from within sewer pipes that run into and adjacent to the onsite building will likely need to be collected to determine if this is pathway for contaminant migration. Additional sub-slab and indoor air sampling of the onsite building, including upper floors, may need to be conducted depending on the

current and planned use of the building. Consider using of long-duration passive samplers to assess the quality of indoor air. Mitigation of the vapor intrusion pathway will need to be conducted wherever a risk is shown to exist.

Notification of sample analysis (Wis. Admin. Code §§ NR 716.14 (2))

Sample results (including soil, groundwater, air, and vapor) must be provided to the DNR, owners of the property where the samples were collected, and occupants of the building as appropriate within ten business days of receipt.

Future submittals to the DNR

An updated site investigation work plan and review fee may be provided if you would like written input from the DNR on proposed actions prior to initiating further field investigation. Once the items outlined in this letter are addressed, a site investigation addendum and remedial action options report should be prepared and provided to the DNR for review. The RAOR must consider the requirement 726.05 (8) b to reduce the mass and concentration of volatile compounds when contaminant concentrations are present above vapor risk screening level. A review fee may be provided with this document if you would want the DNR to provide recommendations for completing the site investigation (if needed) or for taking next steps to complete this project.

We appreciate your efforts to protect the environment at this site. If you have any questions regarding this review or wish to discuss any of these requests in further detail, please contact me by calling (414) 405-0764, or by email at paul.grittner@wisconsin.gov.

Sincerely,

Paul Grittner
Hydrogeologist
Remediation & Redevelopment Program

Attachment:
DHS Response to Request for Assistance: Actions for Trichloroethylene at Acute Risk Levels (3/25/21)

cc: Ron Anderson, METCO – rona@metcofs.com

Tony Evers
Governor

Karen E. Timberlake
Secretary

State of Wisconsin
Department of Health Services

DIVISION OF PUBLIC HEALTH

1 WEST WILSON STREET
PO BOX 2659
MADISON WI 53701-2659

Telephone: 608-266-1251
Fax: 608-267-2832
TTY: 711 or 800-947-3529

March 25, 2021

Christine Haag
Program Director
Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
101 S. Webster Street, P.O. Box 7921
Madison, WI 53707-7921

Subject: DHS response to Request for Assistance: Actions for Trichloroethylene at Acute Risk Levels

Dear Ms. Haag:

The Wisconsin Department of Health Services (DHS) received your letter dated October 18, 2019 requesting clarification on the definition of acute risk and timeline justifications for responding to various scenarios where the acute risk is related to volatile organic compounds (VOCs) and vapor intrusion (VI).

This request for clarification is intended to augment a December 7, 2017 DHS letter to the Wisconsin Department of Natural Resources (DNR) providing recommendations for when immediate action is needed in response to written comments on proposed revisions to the RR-800 document. Specifically, DHS concurred with DNR's position that immediate action is justified when indoor air is found to be present at three (3) times the indoor air vapor action level (VAL) or sub-slab vapor risk screening level (VRSL) for a non-carcinogen or ten (10) times the VAL or VRSL for a carcinogen. In addition, DHS supported the DNR's position that immediate action be taken when trichloroethylene (TCE) is present in indoor air above the VAL and when women of child-bearing age are present.

DHS response:

DHS clarification statements defining acute risk and justifying timelines for responding to acute risk follow for each of the DNR scenarios presented in the request letter:

1. **Clarification from DHS that acute risk necessitates immediate action as defined in s. NR 700.03(28), Wis. Admin. Code.**

   To reinforce the finding in the December 7, 2017 letter, DHS is in agreement that DNR's immediate action as defined in s. NR 700.03(28), Wis. Admin. Code is warranted when acute risk is observed as discussed in DNR's Vapor Intrusion Guidance RR800 (2018). For all contaminants with the exception of trichloroethylene (TCE) when women of childbearing years (age 15 to 44) are present, acute risk is defined as indoor air concentrations that are three times over the vapor action limit (VAL) for non-carcinogens

or ten times over the VAL for carcinogens. For TCE where people who are or may become pregnant occupy a dwelling, acute risk is defined as indoor air concentrations that are equal to or over the VAL (HI $\geq$ 1). These immediate action guidelines are in agreement with EPA guidance. The following statement is from the EPA OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air (EPA 2015): "Although the indoor air concentrations may vary temporally, an appropriate exposure concentration estimate (e.g., time-integrated or time-averaged indoor air concentration measurement in an occupied space) that exceeds the health-protective concentration levels for acute or short-term exposure (i.e., generally considered to be a hazard quotient (HQ) greater than one for an acute or short-term exposure period) indicates vapor concentrations that are generally considered to pose an unacceptable human health risk."

2. **Clarification from DHS that trichloroethylene (TCE) present in indoor air above the applicable VAL qualifies as an acute risk to women of child-bearing years.**

DNR basis its VAL and VRSL values on EPA regional screening levels (RSLs) for indoor air. These values are developed using reference concentrations (RfCs) from EPA's toxicological assessments developed for its Integrated Risk Information System (IRIS). The non-cancer chronic inhalation RfC of $2x10^{-3}$ mg/m^3 in EPAs toxicological assessment for TCE (2011) is based upon two rodent drinking water exposure studies. One study (Kiel et al., 2009) reported an immunotoxic effect of TCE presenting as a reduced thymus weight in female mice. The other study reported an increased incidence of fetal cardiac malformations (Johnson et al., 2003). The cardiac malformation developmental endpoint drives the concern over short term exposure to TCE. Although some limitations were reported with the Johnson et al. study (2003), the cardiac malformations finding has been confirmed by several reviews since, including the EPA Office of Solid Waste and Emergency Response (2014), ATSDR (2014), the Massachusetts Department of Environmental Protection (MADEP, 2014), a group of EPA researchers (Makris et al, 2016), and the North Carolina Department of Environmental Quality (NC DEQ, 2018). These reviews found that a two- to three-fold increase in congenital heart defects were observed in multiple animal studies and that the most frequently observed heart defects were also reported in humans exposed to TCE-containing VOCs in several epidemiological studies (Brender et al. 2014, Dawson et al. 1993). These reviews also found that mechanistic support exists with studies in avian and mammalian cells demonstrating that TCE exposure alters processes that are critical to normal valve and septum formation. Although a recent EPA TSCA Risk Evaluation for TCE (2019) used the immunotoxic end point and not the fetal cardiac malformation end point for their risk determinations, the EPA Science Advisory Committee on Chemicals (SACC) was split on whether to use the fetal heart malformations endpoint for risk consideration and the TSCA Risk Evaluation was not allowed to consider epidemiological evidence or the effects of TCE exposure from air, contaminated waste sites, groundwater used for drinking water, and food in their evaluation.

The EPA identifies that a single exposure at any of several developmental stages may be sufficient to produce an adverse developmental effect (EPA, 1991). In humans, the cardiac system is the second to develop following fertilization, with cardiac development beginning at approximately 3 weeks following implantation. Substantial cardiac system development continues through 8 to 9 weeks post implantation, with the most sensitive period of cardiac development occurring in 3 to 6 weeks (Smart and Hodgson, 2018). These critical fetal heart development windows occur during a time period when an individual may not yet know they are pregnant. Rapid actions should be taken to minimize the potential for TCE exposures during these timeframes (EPA 2014, EPA Region V, 2020).

3. **Health-based recommended responses including the definition of critical exposure windows with scientific justification to help inform DNR determination of time lines for immediate (s. NR 700.03(28), Wis. Admin. Code) and interim (s. NR 700.03(29), Wis. Admin. Code) actions in the following scenarios:**

    a. **TCE is present beyond the envelope of a building at or above the applicable Vapor Risk Screening Level (VRSL);**

    DHS recommends an evaluation of the demographics for the building. If persons of childbearing years occupy the dwelling, indoor air samples should have a quick turnaround time (24 to 72 hours, EPA Region 9, 2014). Women in the sensitive demographic should be consulted about the potential TCE developmental toxicity risk so they may make informed decisions in terms of staying in the dwelling during the timeframe of the indoor air assessment. DHS or local health can assist with this consultation. If the indoor air TCE sample result exceeds the VAL, DHS recommends interim action (carbon filter unit) and rapid installation of sub-slab depressurization system within two weeks. If the indoor air TCE sample result is less than the VAL, mitigate and monitor indoor air in interim to ensure exposure is not occurring and move toward installation of a mitigation system within 4 to 8 weeks, depending upon the building's complexity and need for system design.

    b. **Non-carcinogenic compounds are present beyond the envelope of a building at or above three (3) times the applicable VRSL;**

    The U.S. EPA defines a reference concentration (RfC) as an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure of a chemical to the human population through inhalation (including sensitive subpopulations), that is likely to be without an appreciable risk of deleterious effects during a lifetime (IRIS Glossary, 2020). When a non-carcinogenic VOC is three times above the applicable VRSL, the risk of that VOC being present in indoor air at levels that can cause an adverse health effect is high enough to warrant urgent action including indoor air sampling with 24 to 72 hour turnaround time and mitigation within 4 to 8 weeks, or sooner where indoor air sampling results indicates a VAL exceedance.

c. Carcinogenic compounds are present beyond the envelope of a building at or above ten (10) times the applicable VRSL;

VRSLs are established in Wisconsin with a 10^{-5} cancer risk. When a carcinogenic compound is present in indoor air at or above ten times the applicable VRSL, the cancer risk exceeds 10^{-4} cancer risk. The risk of cancer occurrences from continuous exposure is therefore high enough to warrant the installation of a mitigation system within 4 to 8 weeks, depending upon the building's complexity and need for system design.

d. TCE is present in indoor air below the applicable VAL

Review sub-slab results when available. If sub-slab TCE data is also below VRSL, additional assessment should take place with normal laboratory turnaround time to confirm results are below action levels. If women of childbearing years occupy the building, an additional sampling round should take place as soon as feasible to ensure levels above VAL/VRSL is not present.

e. Non-carcinogenic compounds are present in indoor air between the applicable VAL and three (3) times the applicable VAL;

Move toward mitigation system installation within 4 to 8 weeks, depending upon complexity and need for system design. Perform indoor air sampling to confirm mitigation system is effective.

f. Carcinogenic compounds are present in indoor air between the applicable VAL and ten (10) times the applicable VAL;

Move toward mitigation with a recommended timeframe of 4 to 8 weeks, depending upon complexity and need for system design. Perform indoor air sampling to confirm mitigation system is effective.

g. TCE is present in indoor air at or above the applicable VAL;

DHS recommends an evaluation of the demographics for the building. If women of childbearing years occupy the building, implement interim actions such as carbon filtration units to interrupt the TCE exposure. Move toward installation of a mitigation system within two weeks. Women in the sensitive demographic should be consulted about the potential TCE developmental toxicity risk so they may make informed decisions in terms of staying in the dwelling during the timeframe of the indoor air assessment.

h. Non-carcinogenic compounds are present in indoor air at or above three (3) times the applicable VAL;

The U.S. EPA defines a reference concentration (RfC) as an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure of a chemical to the human population through inhalation (including sensitive subpopulations), that is likely to be without an appreciable risk of deleterious effects during a lifetime (IRIS Glossary, 2020). When a non-carcinogenic VOC is three times above the applicable VAL, the risk of adverse health effects occurring from continuous exposure is high enough to warrant the installation of a mitigation system within 4 to 8 weeks, depending upon the building's complexity and need for system design. Depending upon how far above the VAL the concentration is, more urgent actions may be needed, and the local health officer should be consulted for potential abatement orders, placarding, and temporary relocation of occupants per Section 254 Wis. Admin. Code.

i. Carcinogenic compounds are present in indoor air at or above ten (10) times the applicable VAL.

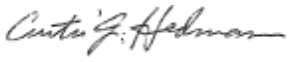
When a carcinogenic compound is present in indoor air at or above ten times the applicable VAL, the cancer risk exceeds 10^{-4} cancer risk. The risk of cancer occurrences from continuous exposure is therefore high enough to warrant the installation of a mitigation system within 4 to 8 weeks, depending upon the building's complexity and need for system design. Depending upon how far above the VAL the concentration is, more urgent actions may be needed, and the local health officer should be consulted for potential abatement orders, placarding, and temporary relocation of occupants per Section 254 Wis. Admin. Code.

4. Health-based recommendations for when sampling indoor air at commercial or industrial businesses is necessary in light of the recent Department of Defense study on sewers and utility tunnels as preferential pathways (*Sewers and Utility Tunnels as Preferential Pathways for Volatile Organic Compound Migration into Buildings: Risk Factors And Investigation Protocol,* ESTCP Project ER-201505).

DHS agrees with the finding in the DoD study that indoor air should be part of the VI assessment where evidence of preferential pathways might be feasible. This evidence may include detection of VOCs in sewer lines or utility corridors. Recent experience has shown instances where indoor air levels are found at high levels due to preferential pathway contamination through open sumps, openings in foundations, and poorly sealed conduits. DHS also recommends sampling indoor air when environmental sampling (groundwater, soil, or soil gas) indicates that indoor air action levels could be exceeded. When TCE is the contaminant of concern, indoor air should always be evaluated to assist with the risk assessment and be able to interrupt exposures as soon as possible to sensitive populations to prevent the known reproductive/developmental endpoint. When commercial or industrial businesses are users of the VOCs being studied, those chemicals may need to be temporarily removed prior to the indoor air assessment, where feasible.

Thank you for the opportunity to provide feedback on this topic. Please contact me at (608) 266-6677, or curtis.hedman@wisconsin.gov if you have any follow up questions or comments about this response.

Sincerely,



Curtis Hedman, Ph.D.
Toxicologist
Bureau of Environmental and Occupational Health

Cc: Jennifer Borski, Vapor Intrusion Team Leader, DNR R&R Program
Judy Fassbender, NR Program Manager, DNR R&R Program
Roy Irving, Chief, DHS Hazard Assessment Section, BEOH
Mark Werner, Chief, DHS BEOH

Enc: Summary of DHS response to Request for Assistance: Actions for Trichloroethylene at Acute Risk Levels

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Enclosure: Summary of DHS response to Request for Assistance: Actions for Trichloroethylene at Acute Risk Levels

DNR Ask	DHS Response	Supporting Reference(s)
1) Clarification from DHS that acute risk necessitates immediate action as defined in s. NR 700.03(28), Wis. Admin. Code.	**A)** Immediate action as defined in NR 700.03(28) warranted if: for compounds except TCE = 3x VAL, or 10x VAL carcinogens; TCE w/ women age 15-44 = VAL	**A)** December 7, 2017 DHS letter and EPA OSWER Tech Guide (2015)
2) Clarification from DHS that trichloroethylene (TCE) present in indoor air above the applicable VAL qualifies as an acute risk to women of child-bearing years	**A)** VALs&VRSLs based on EPA RSLs **B)** RSL for TCE is based on immunotox. and fetal cardiac development endpoints **C)** findings confirmed by reviews **D)** also consistent with epi study findings **E)** single exposure during development can have harmful effect **F)** critical development window 3 to 6 weeks **G)** rapid action warranted for TCE > RSL	**A)** EPA tox assessment TCE (2011) **B)** Kiel et al. (2009) Johnson et al. (2003) **C)**EPA OSWER (2014), ATSDR (2014), MADEP (2014), Makris et al (2016), NC DEQ (2018) **D)**Brender et al. (2014), Dawson et al. (1993) **E)**EPA (1991) **F)** Smart and Hodgson (2018) **G)** EPA 2014, EPA Region V (2020)
3) Health-based recommended responses including the definition of critical exposure windows with scientific justification to help inform DNR determination of time lines for immediate (s. NR 700.03(28), Wis. Admin. Code) and interim (s. NR 700.03(29), Wis. Admin. Code) actions in the following scenarios:		
a) TCE is present beyond the envelope of a building at or above the applicable Vapor Risk Screening Level (VRSL)	**A)** evaluate demographics in building **B)** sample indoor air with 24-72 hour TAT **C)** consult w/ women 15-44 about TCE **D)** if TCE >VAL, carbon filtration w/in 48 hours and sub-slab system w/in 2 weeks **E)** if TCE <VAL, perform another indoor air sample and sub-slab system w/in 4-8 weeks	**B)** EPA Region 9, (2014) WI DNR RR800 (2018), EPA Reg V (2020)
b) Non-carcinogenic compounds are present beyond the envelope of a building at or above three (3) times the applicable VRSL	**A)** RfC is estimate, ca. order of magnitude, of concentration w/o harm over lifetime **B)** >3x that level cuts significantly into that safety factor **C)** indoor air sampling with 24-72 hour TAT **D)** sub-slab system w/in 4-8 weeks if >VAL	**C)** EPA Region 9, (2014) WI DNR RR800 (2018), EPA Reg V (2020)
c) Carcinogenic compounds are	**A)** VRSLs est. w/ 10^{-5} cancer risk	WI DNR RR800 (2018), EPA Reg. V (2020)

present beyond the envelope of a building at or above ten (10) times the applicable VRSL	**B)** >10x that exceeds 10^{-4} cancer risk **C)** sub-slab system w/in 4-8 weeks if >10x VRSL	
d) TCE is present in indoor air below the applicable VAL	**A)** verify TCE in sub-slab is not >VRSL **B)** If TCE also <VRSL; one more sampling event **C)** do follow up samples soon as possible if women age 15-44 live in building	WI DNR RR800 (2018), EPA Reg. V (2020)
e) Non-carcinogenic compounds are present in indoor air between the applicable VAL and three (3) times the applicable VAL	**A)** sub-slab system w/in 4-8 weeks **B)** sample to confirm system is effective	WI DNR RR800 (2018), EPA Reg. V (2020)
f) Carcinogenic compounds are present in indoor air between the applicable VAL and ten (10) times the applicable VAL	**A)** sub-slab system w/in 4-8 weeks **B)** sample to confirm system is effective	WI DNR RR800 (2018), EPA Reg. V (2020)
g) TCE is present in indoor air at or above the applicable VAL	**A)** evaluate demographics in building **B)** consult w/ women 15-44 about TCE **C)** carbon filtration w/in 48 hours and sub-slab system w/in 2 weeks	WI DNR RR800 (2018), EPA Reg. V (2020)
h) Non-carcinogenic compounds are present in indoor air at or above three (3) times the applicable VAL	**A)** RfC is estimate, ca. order of magnitude, of concentration w/o harm over lifetime **B)** >3x that level cuts significantly into that safety factor **C)** sub-slab system w/in 4-8 weeks **D)** if >>VAL, consult health officer for actions available under Section 254 WI Administrative Code	WI DNR RR800 (2018), EPA Reg. V (2020)
i) Carcinogenic compounds are present in indoor air at or above ten (10)	**A)** VRSLs est. w/ 10^{-5} cancer risk **B)** >10x that exceeds 10^{-4} cancer risk **C)** sub-slab system w/in 4-8 weeks	WI DNR RR800 (2018), EPA Reg. V (2020)

times the applicable VAL	**D)** if >>VAL, consult health officer for actions available under Section 254 WI Administrative Code	
4) Health-based recommendations for when sampling indoor air at commercial or industrial businesses is necessary in light of the recent Department of Defense study on sewers and utility tunnels as preferential pathways (*Sewers and Utility Tunnels as Preferential Pathways for Volatile Organic Compound Migration into Buildings: Risk Factors And Investigation Protocol*, ESTCP Project ER-201505)	**A)** DHS agrees with DOD study findings **B)** DHS recommends sampling indoor air when soil gas results suggest indoor air levels may be exceeded **C)** Indoor air should always be assessed where TCE is contaminant of concern due to acute reproductive endpoint **D)** when assessing indoor air in commercial buildings, may need to relocate COCs that are used in production during sampling	US DOD ESTCP Project ER-201505 (2018)