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

Tony Evers, Governor Adam N. Payne, Secretary Telephone 608-266-2621 Toll Free 1-888-936-7463 TTY Access via relay - 711



April 28, 2023

Roxane and Lee Gnatzig 120 N. Locust Street Reedsburg, WI 53959

SUBJECT: Introduction and Request for Property Access - Reply Requested by May 12, 2023

Dear Roxane and Lee,

The Wisconsin Department of Natural Resources (DNR) is leading an investigation of environmental contamination in your neighborhood with support from our partners at the Department of Health Services (DHS). The purpose of this letter is to introduce the current understanding of the issue and request permission for DNR to test your home for the presence of trichloroethylene ("TCE") and tetrachloroethylene (PCE). This testing is part of an on-going investigation and cleanup of TCE and PCE migrating from the former Reedsburg Cleaners at 349 E. Main St., Reedsburg, Wisconsin ("the Site").

TCE is a contaminant that is a concern for human health with both short duration (acute) exposure health risks and long-duration (chronic) exposure health risks. Please see the attached fact sheets, *TCE in the Air* from DHS and ToxFAQs for TCE and PCE by the Agency for Toxic Substances and Disease Registry (ATSDR).

Vapor intrusion is the movement of vapors from chemicals in the soil, groundwater, or utilities into the indoor air. It is very similar to the way that radon gas can move into a home or office. The results from the proposed air sampling will tell us if vapors are present in your home and guide DNR and DHS on next steps. Please see the attached fact sheet, *What Is Vapor Intrusion?* for more information.

The Site operated as a gasoline and service station from approximately 1944 until 1976 when it was converted to a dry cleaning facility. Four underground fuel storage tanks were previously removed or abandoned in place. PCE was stored in a 100-gallon AST along the northern property boundary at the northeast corner of the site. Reportedly, a release of approximately 10 to 15 gallons of PCE occurred in 1994.

The WDNR requested the Reedsburg Cleaners begin an investigation for the occurrence of CVOCs discovered in an off-Site monitoring well. After the initial round of investigation in 1996, the WDNR also requested the Responsible Party begin investigation activities for the petroleum investigation identified for the CVOCS. Corrective actions occurred between 2009 and 2011 and during the final round in 2017, which included installing a sub-slab vapor mitigation system at the Site building and groundwater monitoring.

Information about the Site is tracked in the DNR's Bureau for Remediation and Remediation Tracking System (BRRTS) on the Web (BOTW) with Activity Name "Reedsburg Cleaners", BRRTS No. 02-57-001682. Go to dnr.wi.gov and search "BOTW".



The DNR would like to collect air samples from within the soil beneath your foundation and from the indoor air in your home to determine whether vapors from chemicals used at Reedsburg Cleaners may be present in your home and, if so, at what levels. There is no cost to you for this work.

In addition to the requested sampling in your home, you may see technicians testing other homes in the neighborhood and collecting samples from the sewers in the road. These tests will help us determine if TCE is moving through the soil as a vapor and accumulating beneath homes and/or moving through the sanitary sewer and potentially entering your home through the sewer lines. This testing will also provide us with a more accurate picture of where and whether TCE vapors are a concern to the neighborhood. As noted above, there is evidence that TCE is in groundwater above the standard and vapors related to TCE are near some of the homes in your neighborhood.

Enclosed are two copies of an access agreement for your review and signature. To assist our coordination efforts, we request to receive your signed access agreement by <u>May 12, 2023</u>. Please send one copy of the signed agreement back in the self-addressed, stamped envelope provided with this letter and retain a copy for your records. Do not modify the access agreement in any way, as it may void the agreement. If preferred, you may instead send a scanned PDF copy to the DNR at <u>Robert.Hoverman@wisconsin.gov</u> and Mark Gretebeck at <u>mgretebeck@BAYWEST.com</u>. Once received, Mr. Gretebeck or a member of his staff will contact you to schedule the sampling.

At this time, only a limited number of homes are recommended for sampling in your neighborhood based on the data collected. If you would find a meeting useful, the DNR will work with you to schedule a time to meet. Regardless, we can be reached by telephone or email to answer any questions using the information below.

DNR will continue to share information with you as the work progresses. Contacts are included on the next page for your use.

Sincerely,

Rob Hoverman Hydrogeologist - Vapor Intrusion Expert Remediation & Redevelopment Program

Encl. Fact Sheets: TCE in the Air (DHS) Tetrachloroethylene-ToxFAQs (ATSDR) Trichloroethylene-ToxFAQs (ATSDR) What is Vapor Intrusion (DNR PUB RR-892)

Copy: Wayne Butz, Previous owner and operator of Reedsburg Cleaners Stacy Knickelbein, Current Site owner Jeff Ackerman – <u>Jeff.Ackerman@wisconsin.gov</u> Jeremiah Yee, DHS – <u>Jeremiah.Yee@dhs.wisconsin.gov</u> Mark Gretebeck – mgretebeck@BAYWEST.com

Contacts for Vapor Intrusion Investigation in Oakfield, Wisconsin – April 2023



Vapor Intrusion Investigation Lead – contact for current investigation questions Rob Hoverman Phone: (414) 497-0896 Email: <u>Robert.Hoverman@wisconsin.gov</u>

Overall Project Manager of Site – contact for site discovery or responsibility questions Jeff Ackerman Phone: (608) 219-2302 Email: Jeff.Ackerman@wisconsin.gov



DNR

WISCONSIN DEPARTMENT of HEALTH SERVICES

Toxicologist – contact for health-related questions Dr. Jeremiah Yee Phone: 608-266-3139 Email: Jeremiah.Yee@dhs.wisconsin.gov

Bay West Project Manager – contact for logistical coordination Mark Getebeck Phone: (651) 291-3146 Mobile: (608) 769-5045 Email: mgretebeck@BAYWEST.com

Wisconsin Department of Natural Resources ACCESS PERMISSION AGREEMENT

I,	hereby give permission to the Wisconsin Department of Natural Resources
(Print Name)	
(DNR) and its employees, o	duly authorized representatives, agents and contractors, to enter upon and have access at

reasonable times to the home/business located at

(ADDRESS)_____

and that is owned by_____

(Print as Listed on Title / County GIS)

The property is located in the SE 1/4 of the NW 1/4 of Sec 10, T12N, R04E, Sauk County, Wisconsin. The access permission is for the following purposes: The DNR may perform an investigation of the home/business for vapor migration from trichloroethylene (TCE) and tetrachloroethylene (PCE) located in groundwater, associated with the Reedsburg Cleaners Site, BRRTS #02-57-001682 located near your property. This permission allows the DNR or its authorized representative to:

- (1) Install and maintain sub-slab vapor probe(s) into the foundation of the home or business.
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- (3) Collect indoor air samples on each level of the home or business and within the sealed sump headspace, if applicable.
- (4) Collect water sample(s) from the sump, if applicable.
- (5) *Abandon the vapor probe(s) when no longer needed.*

The permission that is granted shall remain in effect for one year from the signature date when the vapor investigation work is expected to be complete. If an extension is necessary to complete the work, DNR will inform you in writing.

The property owner agrees not to damage or interfere with the use of any sub-slab probe installed as permitted herein.

IN WITNESS WHEREOF:

Signature of Property Owner Representative

Print Name, Title

Mailing Address of Owner

TENANT(S) / LESSEE(S) by UNIT NUMBER, ETC.

Name of Tenant(s)/Lessee(s)

Tenant(s) phone number

Tenant(s) email address

Signature Date

Email address

Area Code and Telephone Number

Mail or email correspondence regarding this site to:

Department of Natural Resources ATTN: Rob Hoverman 1027 West St. Paul Avenue Milwaukee, WI 53233-2641

Robert.Hoverman@wisconsin.gov Phone: 414.497.0896

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

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April 28, 2023

Stephanie and Joseph Hassler 125 N. Locust Street Reedsburg, WI 53959

SUBJECT: Introduction and Request for Property Access - Reply Requested by May 12, 2023

Dear Stephanie and Joseph,

The Wisconsin Department of Natural Resources (DNR) is leading an investigation of environmental contamination in your neighborhood with support from our partners at the Department of Health Services (DHS). The purpose of this letter is to introduce the current understanding of the issue and request permission for DNR to test your home for the presence of trichloroethylene ("TCE") and tetrachloroethylene (PCE). This testing is part of an on-going investigation and cleanup of TCE and PCE migrating from the former Reedsburg Cleaners at 349 E. Main St., Reedsburg, Wisconsin ("the Site").

TCE is a contaminant that is a concern for human health with both short duration (acute) exposure health risks and long-duration (chronic) exposure health risks. Please see the attached fact sheets, *TCE in the Air* from DHS and ToxFAQs for TCE and PCE by the Agency for Toxic Substances and Disease Registry (ATSDR).

Vapor intrusion is the movement of vapors from chemicals in the soil, groundwater, or utilities into the indoor air. It is very similar to the way that radon gas can move into a home or office. The results from the proposed air sampling will tell us if vapors are present in your home and guide DNR and DHS on next steps. Please see the attached fact sheet, *What Is Vapor Intrusion?* for more information.

The Site operated as a gasoline and service station from approximately 1944 until 1976 when it was converted to a dry cleaning facility. Four underground fuel storage tanks were previously removed or abandoned in place. PCE was stored in a 100-gallon AST along the northern property boundary at the northeast corner of the site. Reportedly, a release of approximately 10 to 15 gallons of PCE occurred in 1994.

The WDNR requested the Reedsburg Cleaners begin an investigation for the occurrence of CVOCs discovered in an off-Site monitoring well. After the initial round of investigation in 1996, the WDNR also requested the Responsible Party begin investigation activities for the petroleum investigation identified for the CVOCS. Corrective actions occurred between 2009 and 2011 and during the final round in 2017, which included installing a sub-slab vapor mitigation system at the Site building and groundwater monitoring.

Information about the Site is tracked in the DNR's Bureau for Remediation and Remediation Tracking System (BRRTS) on the Web (BOTW) with Activity Name "Reedsburg Cleaners", BRRTS No. 02-57-001682. Go to dnr.wi.gov and search "BOTW".



The DNR would like to collect air samples from within the soil beneath your foundation and from the indoor air in your home to determine whether vapors from chemicals used at Reedsburg Cleaners may be present in your home and, if so, at what levels. There is no cost to you for this work.

In addition to the requested sampling in your home, you may see technicians testing other homes in the neighborhood and collecting samples from the sewers in the road. These tests will help us determine if TCE is moving through the soil as a vapor and accumulating beneath homes and/or moving through the sanitary sewer and potentially entering your home through the sewer lines. This testing will also provide us with a more accurate picture of where and whether TCE vapors are a concern to the neighborhood. As noted above, there is evidence that TCE is in groundwater above the standard and vapors related to TCE are near some of the homes in your neighborhood.

Enclosed are two copies of an access agreement for your review and signature. To assist our coordination efforts, we request to receive your signed access agreement by <u>May 12, 2023</u>. Please send one copy of the signed agreement back in the self-addressed, stamped envelope provided with this letter and retain a copy for your records. Do not modify the access agreement in any way, as it may void the agreement. If preferred, you may instead send a scanned PDF copy to the DNR at <u>Robert.Hoverman@wisconsin.gov</u> and Mark Gretebeck at <u>mgretebeck@BAYWEST.com</u>. Once received, Mr. Gretebeck or a member of his staff will contact you to schedule the sampling.

At this time, only a limited number of homes are recommended for sampling in your neighborhood based on the data collected. If you would find a meeting useful, the DNR will work with you to schedule a time to meet. Regardless, we can be reached by telephone or email to answer any questions using the information below.

DNR will continue to share information with you as the work progresses. Contacts are included on the next page for your use.

Sincerely,

Rob Hoverman Hydrogeologist - Vapor Intrusion Expert Remediation & Redevelopment Program

Encl. Fact Sheets: TCE in the Air (DHS) Tetrachloroethylene-ToxFAQs (ATSDR) Trichloroethylene-ToxFAQs (ATSDR) What is Vapor Intrusion (DNR PUB RR-892)

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Contacts for Vapor Intrusion Investigation in Oakfield, Wisconsin – April 2023



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Overall Project Manager of Site – contact for site discovery or responsibility questions Jeff Ackerman Phone: (608) 219-2302 Email: Jeff.Ackerman@wisconsin.gov



DNR

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Toxicologist – contact for health-related questions Dr. Jeremiah Yee Phone: 608-266-3139 Email: Jeremiah.Yee@dhs.wisconsin.gov

Bay West Project Manager – contact for logistical coordination Mark Getebeck Phone: (651) 291-3146 Mobile: (608) 769-5045 Email: mgretebeck@BAYWEST.com

Wisconsin Department of Natural Resources ACCESS PERMISSION AGREEMENT

I,	hereby give permission to the Wisconsin Department of Natural Resources
(Print Name)	
(DNR) and its employees, o	duly authorized representatives, agents and contractors, to enter upon and have access at

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IN WITNESS WHEREOF:

Signature of Property Owner Representative

Print Name, Title

Mailing Address of Owner

TENANT(S) / LESSEE(S) by UNIT NUMBER, ETC.

Name of Tenant(s)/Lessee(s)

Tenant(s) phone number

Tenant(s) email address

Signature Date

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Area Code and Telephone Number

Mail or email correspondence regarding this site to:

Department of Natural Resources ATTN: Rob Hoverman 1027 West St. Paul Avenue Milwaukee, WI 53233-2641

Robert.Hoverman@wisconsin.gov Phone: 414.497.0896

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April 28, 2023

Nancy Caflisch Starkweather Properties, LLC 335 E Main St. Reedsburg, WI 53959

SUBJECT: Introduction and Request for Property Access - Reply Requested by May 12, 2023

Dear Nancy,

The Wisconsin Department of Natural Resources (DNR) is leading an investigation of environmental contamination in your neighborhood with support from our partners at the Department of Health Services (DHS). The purpose of this letter is to introduce the current understanding of the issue and request permission for DNR to test your business for the presence of trichloroethylene ("TCE") and tetrachloroethylene (PCE). This testing is part of an on-going investigation and cleanup of TCE migrating from the former Reedsburg Cleaners at 349 E. Main St., Reedsburg, Wisconsin ("the Site").

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IN WITNESS WHEREOF:

Signature of Property Owner Representative

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Mailing Address of Owner

TENANT(S) / LESSEE(S) by UNIT NUMBER, ETC.

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Tenant(s) phone number

Tenant(s) email address

Signature Date

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Area Code and Telephone Number

Mail or email correspondence regarding this site to:

Department of Natural Resources ATTN: Rob Hoverman 1027 West St. Paul Avenue Milwaukee, WI 53233-2641

Robert.Hoverman@wisconsin.gov Phone: 414.497.0896

TCE in the Air

Trichloroethylene (TCE) health effects and actions you can take to protect your home's air

TCE is a man-made chemical used to clean metal in some factories and is found in some household items like paint, spot removers, and varnishes. If spilled, it can stay in the ground for a long time.

Why should I care?

- It can enter your home through cracks in the floor or walls of your basement, and other openings.
- It evaporates quickly and breathing the vapors is not healthy.
- It can cause cancer if you are breathe it over a long period of time.

What if TCE is in my community?

If there is a known concern, environmental health professionals will ask to check your home to make sure there is no TCE inside.

They need your permission to drill in your basement and test.

If they find high levels of TCE, they will suggest that you have a special system installed to fix the problem.

Do I have to pay?

The people responsible for the spill will probably have to pay for the testing and any repairs that have to be made.

What else can I do?

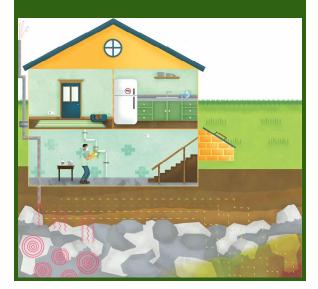
- Wear protective gloves if you use products with TCE (like paint remover).
- Use only small amounts of products containing TCE.
- Use the chemical in well-ventilated areas.
- Do not stay in the room for long periods of time if you can smell the chemical while using it or after using it.

Who has more risk?

Babies whose mother's breathe in TCE while pregnant can have:

- Lower birth weights
- Heart defects
- Nervous or immune system problems

A "sub-slab mitigation" system moves air from below to outside the house.



Where can I learn more?

- <u>Vapor Intrusion 101 (video</u>): www.youtube.com/watch?v=izo0QKqCToU
- Vapor Intrusion Investigation Information Sheet for Neighbors: https://dnr.wi.gov/files/PDF/pubs/rr/RR067.pdf
- Why Test for Vapor Intrusion?: https://dnr.wi.gov/files/PDF/pubs/rr/RR953.pdf
- Mitigation: Protection from Vapor Intrusion: https://dnr.wi.gov/files/PDF/pubs/rr/RR094.pdf



Division of Public Health Bureau of Environmental and Occupational Health P-02480 (10/2020)

Tetrachloroethylene - ToxFAQs™

CAS # 127-18-4

This fact sheet answers the most frequently asked health questions (FAQs) about tetrachloroethylene. For more information, call the ATSDR Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Tetrachloroethylene is a manufactured chemical used for dry cleaning and metal degreasing and in the aerospace industry. Exposure to very high concentrations of tetrachloroethylene can cause dizziness headaches, sleepiness, incoordination confusion, nausea, unconsciousness, and even death. Tetrachloroethylene has been found in at least 949 of the 1,854 National Priorities List sites identified by U.S. Environmental Protection Agency (EPA).

What is tetrachloroethylene?

Tetrachloroethylene is a nonflammable colorless liquid. Other names for tetrachloroethylene include perchloroethylene, PCE, perc, tetrachloroethene, and perchlor. Most people can smell tetrachloroethylene when it is present in the air at a level of 1 part in 1 million parts of air (1 ppm) or more.

Tetrachloroethylene is used as a dry cleaning agent and metal degreasing solvent. It is also used as a starting material (building block) for making other chemicals and is used in some consumer products.

What happens to tetrachloroethylene when it enters the environment?

- Tetrachloroethylene can be released into air, water, and soil at places where it is produced or used.
- Tetrachloroethylene breaks down very slowly in the air and so it can be transported long distances in the air. Half of the amount in the air will degrade in approximately 100 days.
- Tetrachloroethylene evaporates quickly from water into air. It is generally slow to break down in water.
- Tetrachloroethylene may evaporate quickly from shallow soils or may filter through the soil and into the groundwater below. It is generally slow to break down in soil.

How might I be exposed to tetrachloroethylene?

- When you bring clothes from the dry cleaners, they will release small amounts of tetrachloroethylene into the air.
- When you drink water containing tetrachloroethylene, you are exposed to it. You might also be exposed to tetrachloroethylene that is released into the air during showering and bathing.
- People residing near contaminated sites or dry cleaning locations may be exposed to higher levels than the general population.
- People working in the dry cleaning industries or using metal degreasing products may be exposed to elevated levels of tetrachloroethylene.

How can tetrachloroethylene affect my health?

Breathing high levels of tetrachloroethylene for a brief period may cause dizziness or drowsiness, headache, and incoordination; higher levels may cause unconsciousness and even death.

Exposure for longer periods to low levels of tetrachloroethylene may cause changes in mood, memory, attention, reaction time, and vision.

Studies in animals exposed to tetrachloroethylene have shown liver and kidney effects, and changes in brain chemistry, but we do not know what these findings mean for humans.



Division of Toxicology and Human Health Sciences

Tetrachloroethylene

CAS # 127-18-4

How likely is tetrachloroethylene to cause cancer?

Studies in humans suggest that exposure to tetrachloroethylene might lead to a higher risk of getting bladder cancer, multiple myeloma, or non-Hodgkin's lymphoma.

In animals, tetrachloroethylene has been shown to cause cancers of the liver, kidney, and blood system.

The Department of Health and Human Services (DHHS) considers tetrachloroethylene to be reasonably anticipated to be a human carcinogen. EPA considers tetrachloroethylene likely to be carcinogenic to humans by all routes of exposure. The International Agency for Research on Cancer (IARC) considers tetrachloroethylene probably carcinogenic to humans.

How can tetrachloroethylene affect children?

It is not known whether children are more susceptible than adults to the effects of tetrachloroethylene.

A few studies in humans have suggested that exposure to tetrachloroethylene increased the numbers of babies with birth defects, but these studies were not large enough to clearly answer the question. Studies in animals exposed by inhalation or stomach tube have not shown clear evidence of specific birth defects.

How can families reduce the risk of exposure to tetrachloroethylene?

- Tetrachloroethylene has been found in low levels in some food. You can minimize the risk of your family's exposure by peeling and thoroughly washing fruits and vegetables before cooking.
- Use bottled water if you have concerns about the presence of tetrachloroethylene in your tap water. You may also contact local drinking water authorities and follow their advice.

- Prevent children from playing in dirt or eating dirt if you live near a waste site that has tetrachloroethylene.
- Tetrachloroethylene is widely used as a scouring solvent that removes oils from fabrics, as a carrier solvent, as a fabric finish or water repellant, and as a metal degreaser/cleaner. Follow instructions on product labels to minimize exposure to tetrachloroethylene.

Is there a medical test to determine whether I've been exposed to tetrachloroethylene?

Tetrachloroethylene and its breakdown products (metabolites) can be measured in blood and urine. However, the detection of tetrachloroethylene or its metabolites cannot predict the kind of health effects that might develop from that exposure. Because tetrachloroethylene and its metabolites leave the body fairly rapidly, the tests need to be conducted within days after exposure.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) has set an 8-hour time weighted average permissible exposure limit of 100 ppm, an acceptable ceiling exposure limit of 200 ppm, and a maximum peak of 300 ppm (not to be exceeded for more than 5 minutes of any 3-hour period).

The National Institute for Occupational Safety and Health (NIOSH) recommends that workplace exposure to tetrachloroethylene be minimized due to concerns about its carcinogenicity.

Reference

This ToxFAQs[™] information is taken from the 2019 Toxicological Profile for Tetrachloroethylene produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636

ToxFAQs[™] on the web: <u>www.atsdr.cdc.gov/ToxFAQs</u>

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Trichloroethylene - ToxFAQs™

CAS # 79-01-6

This fact sheet answers the most frequently asked health questions (FAQs) about trichloroethylene. For more information, call the ATSDR Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Trichloroethylene is used as a solvent for cleaning metal parts. Exposure to very high concentrations of trichloroethylene can cause dizziness headaches, sleepiness, incoordination, confusion, nausea, unconsciousness, and even death. Trichloroethylene has been found in at least 1,051 of the 1,854 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is trichloroethylene?

Trichloroethylene is a colorless, volatile liquid. Liquid trichloroethylene evaporates quickly into the air. It is nonflammable and has a sweet odor.

The two major uses of trichloroethylene are as a solvent to remove grease from metal parts and as a chemical that is used to make other chemicals, especially the refrigerant, HFC-134a.

What happens to trichloroethylene when it enters the environment?

- Trichloroethylene can be released to air, water, and soil at places where it is produced or used.
- Trichloroethylene is broken down quickly in air.
- Trichloroethylene breaks down very slowly in soil and water and is removed mostly through evaporation to air.
- It is expected to remain in groundwater for long time since it is not able to evaporate.
- Trichloroethylene does not build up significantly in plants or animals.

How might I be exposed to trichloroethylene?

- · Breathing trichloroethylene in contaminated air.
- Drinking contaminated water.
- Workers at facilities using this substance for metal degreasing are exposed to higher levels of trichloroethylene.
- If you live near such a facility or near a hazardous waste site containing trichloroethylene, you may also have higher exposure to this substance.

Agency for Toxic Substances and Disease Registry

How can trichloroethylene affect my health?

Trichloroethylene was once used as an anesthetic for surgery. Exposure to moderate amounts of trichloroethylene may cause headaches, dizziness, and sleepiness; large amounts may cause coma and even death. Eating or breathing high levels of trichloroethylene may damage some of the nerves in the face. Exposure to high levels can also result in changes in the rhythm of the heartbeat, liver damage, and evidence of kidney damage. Skin contact with concentrated solutions of trichloroethylene can cause skin rashes. There is some evidence exposure to trichloroethylene in the work place may cause scleroderma (a systemic autoimmune disease) in some people. Some men occupationally-exposed to trichloroethylene and other chemicals showed decreases in sex drive, sperm quality, and reproductive hormone levels.

How likely is trichloroethylene to cause cancer?

There is strong evidence that trichloroethylene can cause kidney cancer in people and some evidence for trichloroethylene-induced liver cancer and malignant lymphoma. Lifetime exposure to trichloroethylene resulted in increased liver cancer in mice and increased kidney cancer and testicular cancer in rats.

The Department of Health and Human Services (DHHS) considers trichloroethylene to be a known human carcinogen. The International Agency for Research on Cancer (IARC) classified trichloroethylene as carcinogenic to humans. The EPA has characterized trichloroethylene as carcinogenic to humans by all routes of exposure.



Division of Toxicology and Human Health Sciences

Trichloroethylene

CAS # 79-01-6

How can trichloroethylene affect children?

It is not known whether children are more susceptible than adults to the effects of trichloroethylene.

Some human studies indicate that trichloroethylene may cause developmental effects such as spontaneous abortion, congenital heart defects, central nervous system defects, and small birth weight. However, these people were exposed to other chemicals as well.

In some animal studies, exposure to trichloroethylene during development caused decreases in body weight, increases in heart defects, changes to the developing nervous system, and effects on the immune system.

How can families reduce the risk of exposure to trichloroethylene?

- Avoid drinking water from sources that are known to be contaminated with trichloroethylene. Use bottled water if you have concerns about the presence of chemicals in your tap water. You may also contact local drinking water authorities and follow their advice.
- Prevent children from playing in dirt or eating dirt if you live near a waste site that has trichloroethylene.
- Trichloroethylene is used in many industrial products. Follow instructions on product labels to minimize exposure to trichloroethylene.

Is there a medical test to determine whether I've been exposed to trichloroethylene?

Trichloroethylene and its breakdown products (metabolites) can be measured in blood and urine. However, the detection of trichloroethylene or its metabolites cannot predict the kind of health effects that might develop from that exposure. Because trichloroethylene and its metabolites leave the body fairly rapidly, the tests need to be conducted within days after exposure.

Has the federal government made recommendations to protect human health?

The EPA set a maximum contaminant goal (MCL) of 0.005 milligrams per liter (mg/L; 5 ppb) as a national primary drinking standard for trichloroethylene.

The Occupational Safety and Health Administration (OSHA) set a permissible exposure limit (PEL) of 100 ppm for trichloroethylene in air averaged over an 8-hour work day, an acceptable ceiling concentration of 200 ppm provided the 8 hour PEL is not exceeded, and an acceptable maximum peak of 300 ppm for a maximum duration of 5 minutes in any 2 hours.

The National Institute for Occupational Safety and Health (NIOSH) considers trichloroethylene to be a potential occupational carcinogen and established a recommended exposure limit (REL) of 2 ppm (as a 60-minute ceiling) during its use as an anesthetic agent and 25 ppm (as a 10-hour TWA) during all other exposures.

Reference

This ToxFAQs[™] information is taken from the 2019 Toxicological Profile for Trichloroethylene produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

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Wisconsin DNR vapor intrusion quick facts

What is Vapor Intrusion?



Chemicals used in commercial or industrial activities – dry cleaning chemicals, chemical degreasers and petroleum products such as gasoline – are sometimes spilled and leak into nearby soil or groundwater. When this happens, these chemicals may release gases or vapors, which travel from the contaminated groundwater or soil and move into nearby homes or businesses. This is called vapor intrusion.

Why are these chemical vapors a problem?

The chemicals that cause vapor intrusion are known as volatile organic compounds, or VOCs. Even when spilled into soil or water, these chemicals easily evaporate. They don't cause human health problems when they evaporate into the outside air, but when their vapors move into homes or businesses, they may cause long-term health problems for the people who live or work in those buildings. These vapors are usually odorless and colorless and undetectable without special testing equipment.

Why is vapor intrusion a concern?

Exposure to some chemical gases or vapors can cause an increased risk of adverse health effects. Whether or not a person experiences any health effects depends on several factors, including the amount and length of exposure, the toxicity of the chemical, and the individual's sensitivity to the chemical. When harmful chemical vapor intrusion is the result of environmental contamination, the Wisconsin Department of Natural Resources (DNR) requires that steps be taken to reduce or eliminate exposures which could be harmful to human health. The process when chemical vapors from contaminated soil or groundwater enter a home or other structure is called vapor intrusion.

What should I expect if vapor intrusion is suspected near my home or business?

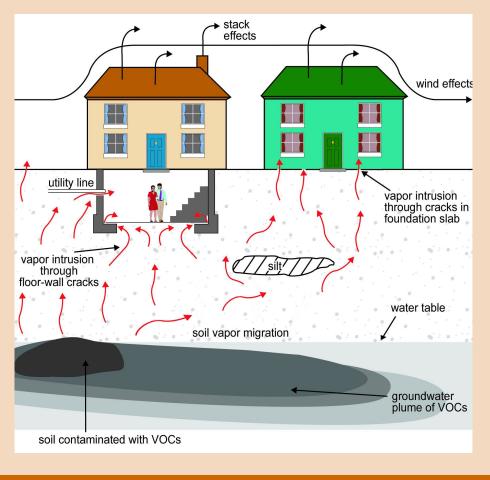
For businesses or other locations where VOC contamination has been found, the DNR requires that the potential for vapor intrusion be investigated. If you live near a site being cleaned up, you may be contacted by the site owner or others working on the cleanup. Your cooperation and consent will be requested before any testing or sampling is conducted on your property. Ask the person contacting you any questions you have about the work being done, or contact the DNR for more information (see DNR contact information on reverse). For more information about testing for vapor intrusion, see DNR-Pub-RR-954, "What to Expect During Vapor Intrusion Sampling."





How Vapors Enter a Building

If you live near a commercial or industrial facility or landfill where VOCs have entered either the soil or groundwater, there may be a potential for those chemicals to travel as vapors into your home or business. Vapors can enter buildings in various ways, including through cracks in the foundation and openings for utility lines. Building ventilation and weather can influence the extent of vapor intrusion.



Adapted from U.S. Environmental Protection Agency (EPA) graphic. www.epa.gov/oswer/vaporintrusion/basic.html

Where can I find more information?

Health and vapor-related information can be found at the Wisconsin Department of Health Services (DHS) website at <u>dhs.wisconsin.gov</u>, search "Vapor." For other health-related questions, please contact your local health department: <u>www.dhs.wisconsin.gov/localhealth</u>.

For more DNR information, please visit the DNR's Remediation and Redevelopment (RR) Program's Vapor Intrusion page at <u>dnr.wi.gov/topic/Brownfields/Vapor.html</u>.

Additional information can be obtained through the DNR field office in your region. To find the correct office, visit the RR Program Staff Contacts page at <u>dnr.wi.gov/topic/Brownfields/Contact.html</u> or call the RR Program at (608) 266-2111.

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.

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