

# East Troy Contaminated Aquifer Superfund Site

EPA Public Meeting  
October 19, 2011

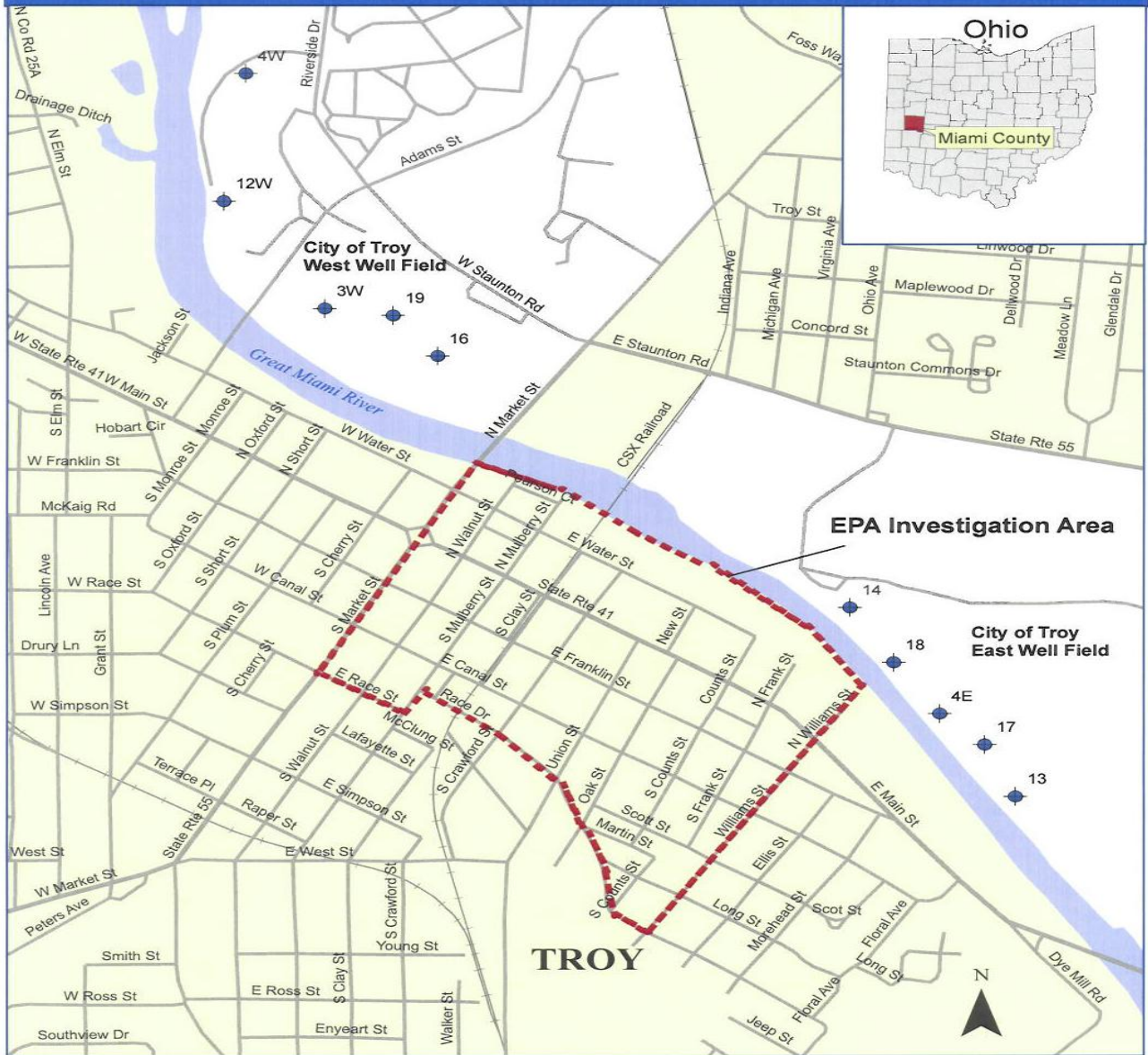


# Overview

---

- ◆ Site Background
- ◆ Past U.S. EPA Response Actions
- ◆ Upcoming Sampling
- ◆ Next Steps

# Figure 1. East Troy Contaminated Aquifer Site Location Map



- Legend**
- ◆ City Production Wells
  - EPA Investigation Area

Map reprinted with permission from Ohio Department of Public Health

# East Troy Contaminated Aquifer Site Background



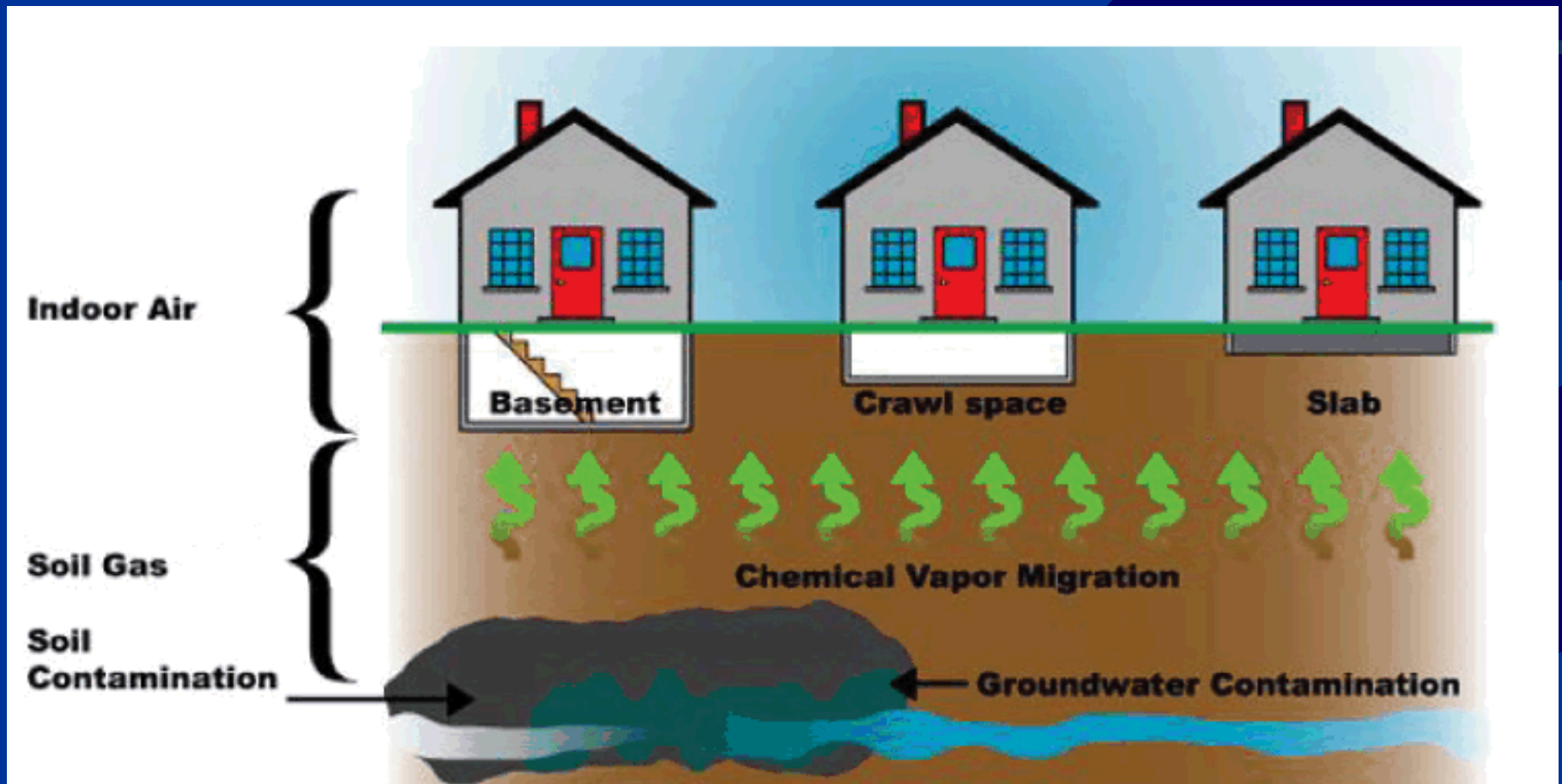
- Site includes approximately 25 block area where volatile organic compounds (VOCs) are present in groundwater, soils, and indoor air space of residential, public, and commercial properties
- Site boundaries and sources of contamination to groundwater will be delineated as part of the U.S. EPA remedial investigation

# East Troy Contaminated Aquifer Site Background



- Primary groundwater contaminants are PCE & TCE (common solvents used in dry cleaning and to degrease metal parts)
- June 2006, Ohio EPA requested U.S. EPA involvement to assess the potential for vapor intrusion

# What is Vapor Intrusion?



*This illustration shows how vapor intrusion works. Pollution carried along in the underground water supplies (ground water) evaporates and hazardous gases rise toward the surface where they can seep into homes and buildings.*

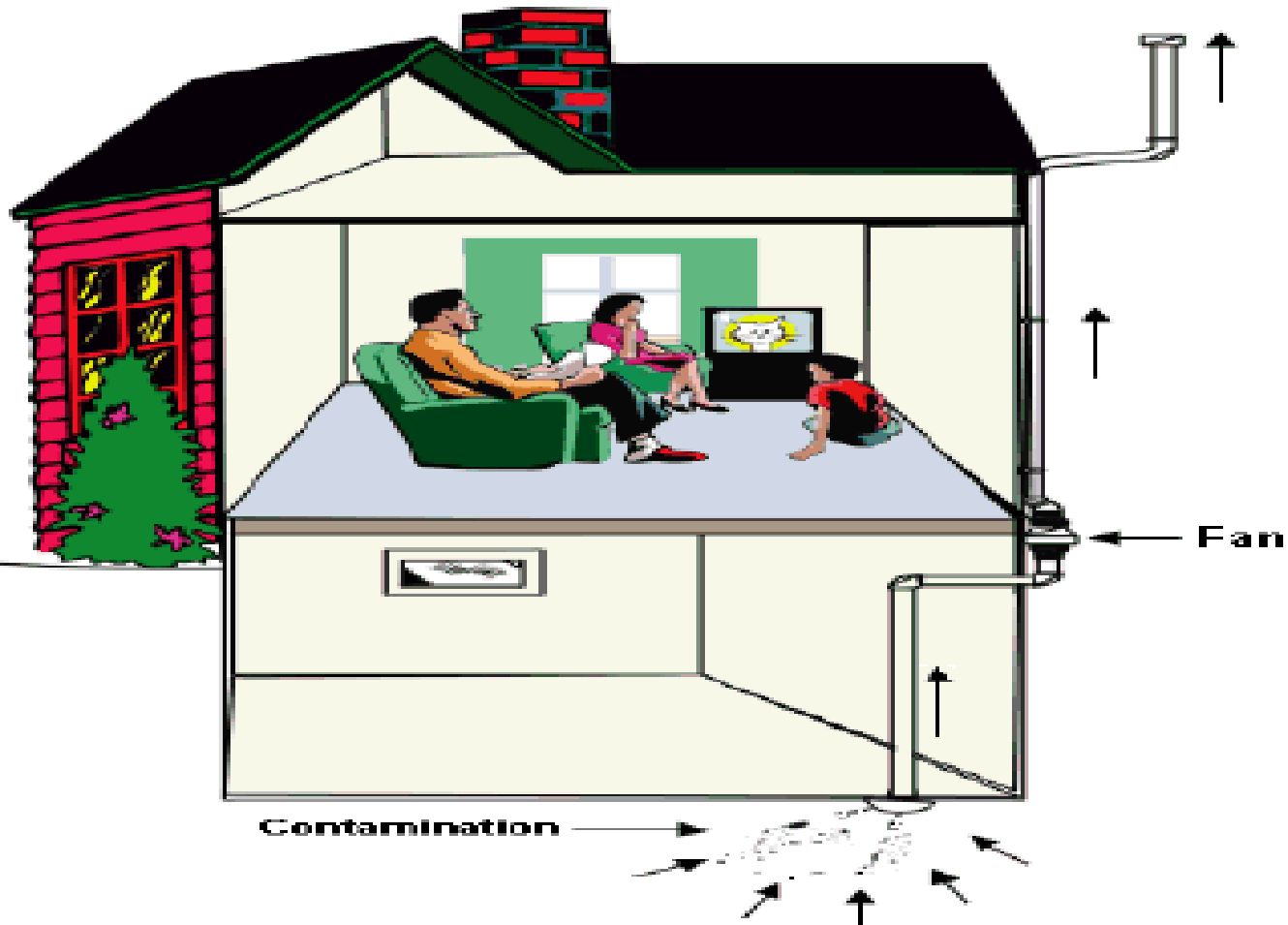
# U.S. EPA Removal Action July 2006 – April 2008

- ❑ In 2006-2007, U.S. EPA sampled 85 homes, schools, and businesses for VOCs
- ❑ Sampling confirmed VOCs above health standards in indoor air at residential & commercial properties due to vapor intrusion
- ❑ U.S. EPA installed 17 Vapor abatement systems (June 2007 – April 2008)



# Vapor Abatement System

## Radon Mitigation System



# Remedial Investigation – Phase I Sampling

---

- Phase I Sampling Completed (Aug. /Sept. 2010)
  - baseline groundwater
  - surface water
  - river sediment

# Remedial Investigation – Phase 1 Sampling (Fall 2011- early Winter 2012)

---

## □ Phase I Sampling (start Nov./Dec. 2011)

- groundwater
- soil
- sewer investigation
- vapor intrusion monitoring
  - residential sub slab gas / indoor air

# Vapor Intrusion Monitoring –

---

- ❑ Sample 36 homes initially

- previously untested homes located above highest known PCE/TCE concentrations in ground water
- homes not tested during the 2006-2008 EPA investigation that are close to locations where EPA identified vapor intrusion concerns

- ❑ As investigation proceeds, sample more homes

# Vapor Intrusion Monitoring – Sub-slab Vapor and Indoor Air Sampling

---

**Day 1- Install 2 Sub-Slab Sampling Ports**  
(less than 1 hour)



**Day 2- Connect Summa Canisters**  
(less than 30 minutes)



**Day 3- Retrieve Canisters**  
(less than 15 minutes)

# Coordination with Public Vapor Intrusion Monitoring

---

- Encouraging all residents to sign-up for sampling
- Testing is free
- Designed to protect your health
- U.S. EPA will be flexible and work around your schedule

# Remedial Investigation - Phase 2 Sampling (Spring/Summer 2012)

---

- Phase 2 Sampling
  - Evaluate Phase I data
  - Identify data gaps
  - Collect additional samples
  - Continue vapor intrusion monitoring
    - Sample more homes - sub slab gas /indoor air

# Next Steps

---

- ◆ Remedial Investigation/Feasibility Study (Fall 2012/early Winter 2013)
- ◆ Proposed Plan (Winter 2012/Spring 2013)
- ◆ Public Hearing (Winter 2012/Spring 2013)
- ◆ Record of Decision (Summer/Fall 2013)



## Region 5 Cleanup Sites



Serving Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin and 35 Tribes

[Contact Us](#)

Search:  All EPA  This Area

You are here: [EPA Home](#) » [About Region 5](#) » [Cleanup Sites](#) » East Troy Contaminated Aquifer

Cleanup Sites  
Home

Illinois  
Indiana  
Michigan  
Minnesota  
Ohio  
Wisconsin

## East Troy Contaminated Aquifer

### Background

US EPA hosted a public meeting Oct. 25 to discuss its progress on the investigation of chemical pollution underneath sections of Troy. The pollution may be giving off vapors that are seeping through foundation cracks and contaminating the indoor air of some buildings in Troy. EPA, Ohio EPA, Ohio Department of Health and other state and local agencies are now considering ways to solve potential vapor intrusion problems and protect people's health. This meeting was to update the community on what the latest pollution tests found and possible future cleanup work.

[Site Updates](#) | [News Releases](#) | [Fact Sheets](#) || [Public Meetings](#)

You will need the free Adobe Reader to view some of the files on this page. See [EPA's PDF page](#) to learn more.

### Site Updates

### News Releases

- [US EPA adds East Troy site to Superfund list, proposes two Ohio and one Indiana site for list](#) September 3, 2008
- [EPA proposes East Troy, Ohio, site for Superfund National Priorities List](#) September 19, 2007
- [EPA hosts public meeting on Troy, Ohio, vapor investigation, Oct. 25, 6 p.m.](#) October 18, 2006
- [MEDIA ADVISORY: EPA finds high chemical vapor levels in Troy, Ohio.](#) Briefing Aug. 25, 10:30 a.m. August 24, 2006

### Site Information

- Troy, OH (Miami County)
- EPA ID# OHSFN0507962
- [NPL Site Narrative](#)
- [Superfund Site Progress Profile](#)
- Alias(es): Troy VOC Plume Site, Troy Well Field

### Contact Information

#### Community Involvement Coordinator

Don de Blasio  
([deblasio.don@epa.gov](mailto:deblasio.don@epa.gov))  
312-886-4360 or 800-621-8431, ext. 64360

#### Remedial Project Manager

Shari Kolak  
([kolak.shari@epa.gov](mailto:kolak.shari@epa.gov))  
312-886-6151 or 800-621-8431, ext. 66151

#### EPA On-Scene Coordinator

Steve Renninger  
([renninger.steve@epa.gov](mailto:renninger.steve@epa.gov))  
EPA Region 5  
26 W. Martin Luther King Drive  
Cincinnati, OH 45268  
(513) 569-7539

# U.S. EPA Web Site

## <http://www.epa.gov/region5/cleanup/troyvoc>

# Fact Sheets – Ohio Department of Public Health



Bureau of  
Environmental Health  
Health Assessment Section

"To protect and improve the health of all Ohioans"

## Tetrachloroethylene (PCE)

Other names for tetrachloroethylene include PCE, perchloroethylene, PERC or tetrachloroethene.

### What is PCE?

Tetrachloroethylene (also known as PCE, PERC or perchloroethylene) is a man-made chemical that is widely used for dry cleaning clothes and degreasing metal. It is also used to make other chemicals and can be found in some household products such as water repellents, silicone lubricants, spot removers, adhesives and wood cleaners. It easily evaporates (turn from a liquid to a gas) into the air and has a sharp, sweet odor. PCE is a nonflammable (does not burn) liquid at room temperature.

### How does PCE get into the environment?

PCE can evaporate into the air during dry cleaning operations and during industrial use. It can also evaporate into the air if it is not properly stored or was spilled. If it was spilled or leaked on the ground, it may find its way into groundwater (underground drinking water).

People can be exposed to PCE from the environment from household products, from dry cleaning products and from their occupation (work). Common environmental levels of PCE (called background levels) can be found in the air we breathe, in the water we drink and in the food we eat. In general, levels in the air are higher in the cities or around industrial areas where it is used more than rural or remote areas.

The people with the greatest chance of exposure to PCE are those who work with it. According to estimates from a survey conducted by the National Institute for Occupational Safety and Health (NIOSH), more than 650,000 U.S. workers may be exposed. However, the air close to dry cleaning business and industrial sites may have levels of PCE higher than background levels. If the dry cleaning business or industry has spilled or leaked PCE on the ground, there may also be contaminated groundwater as well.



### What happens to PCE in the environment?

Much of the PCE that gets into surface waters or soil evaporates into the air. However, some of the PCE may make its way to the groundwater.

Microorganisms can break down some of the PCE in soil or underground water. In the air, it is broken down by sunlight into other chemicals or brought back to the soil and water by rain. PCE does not appear to collect in fish or other animals that live in water.



### How can PCE enter and leave my body?

PCE can enter your body when you breathe contaminated air or when you drink water or eat food contaminated with the chemical. If PCE is trapped against your skin, a small amount of it can pass through into your body. Very little PCE in the air can pass through your skin into your body. Breathing contaminated air and drinking water are the two most likely ways people will be exposed to PCE. How much enters your body depends on how much of the chemical is in the air, how fast and deeply you are breathing, how long you are exposed to it or how much of the chemical you eat or drink.

Most PCE leaves your body from your lungs when you breathe out. This is true whether you take in the chemical by breathing, drinking, eating, or touching it. A small amount is changed by your body (in your liver) into other chemicals that are removed from your body in urine. Most of the changed PCE leaves your body in a few days. Some of it that you take in is found in your blood and other tissues, especially body fat. Part of the PCE that is stored in fat may stay in your body for several days or weeks before it is eliminated.



Bureau of  
Environmental Health  
Health Assessment Section

"To protect and improve the health of all Ohioans"

## Trichloroethylene (TCE)

(try- klor'oh eth'uh- leen)

Answers to Frequently Asked Health Questions

### What is TCE?

TCE is man-made chemical that is not found naturally in the environment. TCE is a non-flammable (does not burn), colorless liquid with a somewhat sweet odor and has a sweet, "burning" taste. It is mainly used as a cleaner to remove grease from metal parts. TCE can also be found in glues, paint removers, typewriter correction fluids and spot removers.

The biggest source of TCE in the environment comes from evaporation (changing from a liquid into a vapor/gas) when industries use TCE to remove grease from metals. But TCE also enters the air when we use common household products that contain TCE. It can also enter the soil and water as the result of spills or improper disposal.

### What happens to TCE in the environment?

- TCE will quickly evaporate from the surface waters of rivers, lakes, streams, creeks and puddles.
- If TCE is spilled on the ground, some of it will evaporate and some of it may leak down into the ground. When it rains, TCE can sink through the soils and into the ground (underground drinking) water.
- When TCE is in an oxygen-poor environment and with time, it will break down into different chemicals such as 1,2-Dichloroethene and Vinyl Chloride.
- TCE does not build up in plants and animals.
- The TCE found in foods is believed to come from TCE contaminated water used in food processing or from food processing equipment cleaned with TCE.

### How does TCE get into your body?

- TCE can get into your body by breathing (inhalation) air that is polluted with TCE vapors. The vapors can be produced from the manufacturing of TCE, from TCE polluted water evaporating in the shower or by using household products such as spot removers and typewriter correction fluid.
- TCE can get into your body by drinking (ingestion) TCE polluted water.
- Small amounts of TCE can get into your body through skin (dermal) contact. This can take place when using TCE as a cleaner to remove grease from metal parts or by contact with TCE polluted soils.

### Can TCE make you sick?

Yes, you can get sick from TCE. But getting sick will depend on the following:

- How much you were exposed to (dose).
- How long you were exposed (duration).
- How often you were exposed (frequency).
- General Health, Age, Lifestyle: Young children, the elderly and people with chronic (on-going) health problems are more at risk to chemical exposures.

### How does TCE affect your health?

#### Breathing (Inhalation):

- Breathing high levels of TCE may cause headaches, lung irritation, dizziness, poor coordination (clumsy) and difficulty concentrating.
- Breathing very high levels of TCE for long periods may cause nerve, kidney and liver damage.

#### Drinking (Ingestion):

- Drinking high concentrations of TCE in the water for long periods may cause liver and kidney damage, harm immune system functions and damage fetal development in pregnant women (although the extent of some of these effects is not yet clear).
- It is uncertain whether drinking low levels of TCE will lead to adverse health effects.

#### Skin (Dermal) Contact:

- Short periods of skin contact with high levels of TCE may cause skin rashes.

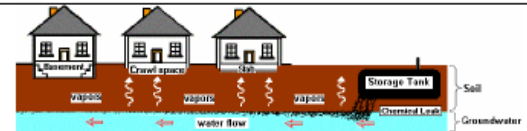


Bureau of  
Environmental Health  
Health Assessment Section

"To protect and improve the health of all Ohioans"

## Vapor Intrusion

Answers to Frequently Asked Health Questions



### What is vapor intrusion?

Vapor intrusion refers to the vapors produced by a chemical spill/leak that make their way into indoor air. When chemicals are spilled on the ground or leak from an underground storage tank, they will seep into the soils and will sometimes make their way into the groundwater (underground drinking water). There are a group of chemicals called volatile organic compounds (VOCs) that easily produce vapors. These vapors can travel through soils, especially if the soils are sandy and loose or have a lot of cracks (fissures). These vapors can then enter a home through cracks in the foundation or into a basement with a dirt floor or concrete slab.

### VOCs and vapors:

VOCs can be found in petroleum products such as gasoline or diesel fuels, in solvents used for industrial cleaning and are also used in dry cleaning. If there is a large spill or leak resulting in soil or groundwater contamination, vapor intrusion may be possible and should be considered a potential public health concern that may require further investigation.

Although large spills or leaks are a public health concern, other sources of VOCs are found in everyday household products and are a more common source of poor indoor air quality. Common products such as paint, paint strippers and thinners, hobby supplies (glues), solvents, stored fuels (gasoline or home heating fuel), aerosol sprays, new carpeting or furniture, cigarette smoke, moth balls, air fresheners and dry-cleaned clothing all contain VOCs.

### Can you get sick from vapor intrusion?

You can get sick from breathing harmful chemical vapors. But getting sick will depend on:  
**How much** you were exposed to (dose).  
**How long** you were exposed (duration).  
**How often** you were exposed (frequency).  
**How toxic** the spill/leak chemicals are.  
**General Health, Age, Lifestyle:** Young children, the elderly and people with chronic (on-going) health problems are more at risk to chemical exposures.

VOC vapors at high levels can cause a strong petroleum or solvent odor and some persons may experience eye and respiratory irritation, headache and/or nausea (upset stomach). These symptoms are usually temporary and go away when the person is moved to fresh air.

Lower levels of vapors may go unnoticed and a person may feel no health effects. A few individual VOCs are known carcinogens (cause cancer). Health officials are concerned with low-level chemical exposures that happen over many years and may raise a person's lifetime risk for developing cancer.

### How is vapor intrusion investigated?

In most cases, collecting soil gas or groundwater samples near the spill site is done **first** to see if there is on-site contamination. If soil vapors or groundwater contamination are detected at a spill site, environmental protection and public health officials may then ask that soil vapor samples be taken from areas outside the immediate spill site and near any potential affected business or home. The Ohio Department of Health (ODH) does not usually recommend indoor air sampling for vapor intrusion before the on-site contamination is determined.



(continued on next page)

# Contacts

---

U.S. EPA (lead agency)

Shari Kolak

Remedial Project Manager

U.S. Environmental Protection Agency, Region 5  
Superfund Division (SR-6J)

77 W. Jackson Blvd

Chicago, IL 60604

312-886-6151, [kolak.shari@epa.gov](mailto:kolak.shari@epa.gov)

Don deBlasio

Community Involvement Coordinator

U.S. Environmental Protection Agency, Region 5  
Superfund Division (SI-7J)

77 W. Jackson Blvd, SR-6J

Chicago, IL 60604

312-886-4360, [deblasio.don@epa.gov](mailto:deblasio.don@epa.gov)

# Contacts

---

Ohio EPA (support agency)

Jon R. Watterworth  
Senior Site Coordinator  
Ohio Environmental Protection Agency  
Division of Emergency and Remedial Response  
401 East Fifth Street  
Dayton, Ohio 45402-2911  
(937) 285-6062

[Randy.watterworth@epa.state.oh.us](mailto:Randy.watterworth@epa.state.oh.us)

Ohio EPA

Kristopher Weiss  
Public Involvement Coordinator  
Ohio EPA Public Interest Center  
50 W. Town St., Suite 700  
Columbus, OH 43216-1049  
(614) 644-2160

[Kristopher.weiss@epa.ohio.gov](mailto:Kristopher.weiss@epa.ohio.gov)

# Contacts

---

Ohio Department of  
Public Health

John Kollman  
Environmental Specialist/Toxicologist  
Ohio Department of Health  
Health Assessment Section  
246 North High Street  
Columbus, OH 43215  
(614) 752-8335  
[john.kollman@odh.ohio.gov](mailto:john.kollman@odh.ohio.gov)

# Definitions

---

Remedial Investigation/Feasibility Study -summarizes sampling results and evaluates cleanup options

Proposed Plan - presents EPA's preferred cleanup approach

Public Hearing – gives public opportunity to comment on cleanup approach

Record of Decision – documents EPA's cleanup decision