



What You Should Know About Vapor Intrusion

October 2021

For More Information:

To learn about PCE, use your smartphone to follow the link on this QR code to a profile from the Agency for Toxic Substances and Disease Registry (ATSDR):



To learn about TCE, follow the link on this QR code to a profile from the ATSDR:



To learn how EPA conducts indoor air sampling, follow the link on this QR code to a short video:



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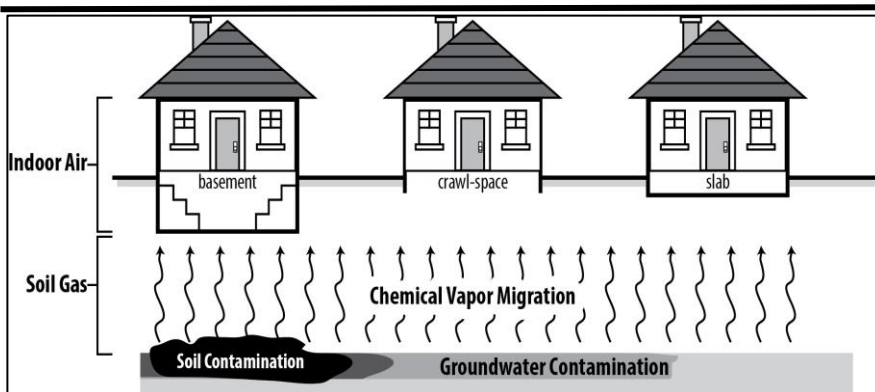
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This diagram shows how vapors can rise up through the soil and into your home.

What is Vapor Intrusion?

When chemicals or petroleum products spill or leak into the ground, they may give off gases or vapors that can get inside buildings, such as homes. The vapors can move through the soil and seep through cracks in basements or foundations, sewer lines, and other openings. Common products that may cause vapor intrusion are gasoline or diesel fuel, dry cleaning solvents, and industrial degreasers.

Some vapors have a gasoline odor, and others are odorless and tasteless, such as tetrachloroethylene (PCE), and trichloroethylene (TCE). Therefore, the only way to determine if vapor intrusion is happening is to sample the air within and underneath a home or business.

Can Vapor Intrusion Affect My Health?

Vapor intrusion is a concern because vapors can build up to a point where the health of residents or workers may be at risk. Health risks vary based on the type and amount of chemicals, although how healthy you are and how long you are exposed are also factors. Until these vapors are vented from the indoor air, some people may experience symptoms that could include eye and respiratory irritation, headaches, or nausea. Low-level chemical exposures over many years, however, may lead to chronic disease, including cancer. Long-term exposures are especially dangerous for children, pregnant women, or people with underlying health conditions.

How Do You Test for Vapor Intrusion?

EPA uses a device called a "Summa canister" to collect air samples from indoor air and from beneath the building (sub-slab gas) over a 24-hour period. Because weather and climate control systems can affect the test results, samples may be taken during different times of the year. EPA then sends the air samples to a laboratory where they are tested for the contaminants of concern. The results are then shared with the property owner.



This photo shows a Summa canister, which is left in place for 24 hours to collect samples of indoor air. The silent device is about the size of a basketball.

What Do I Need to Do to Test My Home for Vapor Intrusion?

If your home is within the boundaries of an EPA investigation, EPA will need permission to conduct the necessary air sampling on your property to determine if vapor intrusion is occurring. If the structure is a rental property, both the owner and the tenant must provide permission. Completing and signing an EPA “access agreement” form is the most effective way to ensure your property is tested.

What Happens if My Home Tests Positive for Vapor Intrusion?

The most common solution is to install systems, known as vapor mitigation systems, that are often used to reduce prevent underground vapors that seep into homes. Acting like a vacuum, these systems remove vapors from below basements or foundations before they enter homes and vent the vapors outside of the homes and into the atmosphere where they are quickly diluted to harmless concentrations. These systems use minimal electricity and do not affect heating and cooling efficiency.

It should be noted that common household products can be a source of indoor air problems, too. Vapors and gases can come from paint, paint strippers or thinners, gun cleaners, moth balls, new carpeting and furniture, stored fuel, air fresheners, cleaning products, dry-cleaned clothing, cigarette smoke and other sources. Therefore, you should only buy household chemicals that are needed, making sure to store them in appropriate tightly sealed containers.

What Else Can I Do to Improve Air Quality in My Home?

- Increase natural air flow indoors, as fresh air helps to prevent chemical build-up.
- Fix leaks promptly and address moisture problems that may encourage mold.
- Check all appliances and fireplaces annually.
- Test your home for radon. Test kits are available at hardware and stores or via the Radon Hotline at 800-767-7236 (800-SOSRADON).
- Install carbon monoxide detectors in your home.



This photo shows a system that draws vapors out of the soil from below a structure and vents them outside of the building. This is known as a “sub-slab vapor mitigation system”, which is the same type of system used for radon mitigation.

What if I Have More Questions?

If you have specific questions on how vapor intrusion may impact your family’s health, contact your local health department or the ATSDR at 888-422-8737, or visit www.atsdr.cdc.gov.

For more detailed information on vapor intrusion, visit <https://www.epa.gov/vaporintrusion>. You may also call the EPA Indoor Air Quality Information hotline at 800-438-4318.