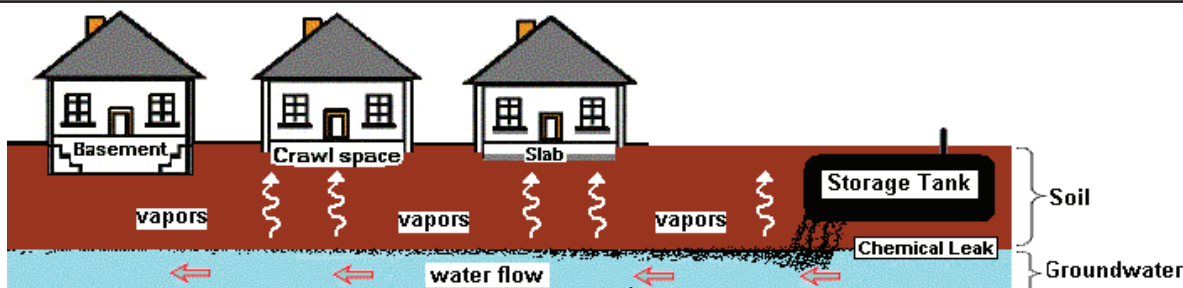




Vapor Intrusion

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 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 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?

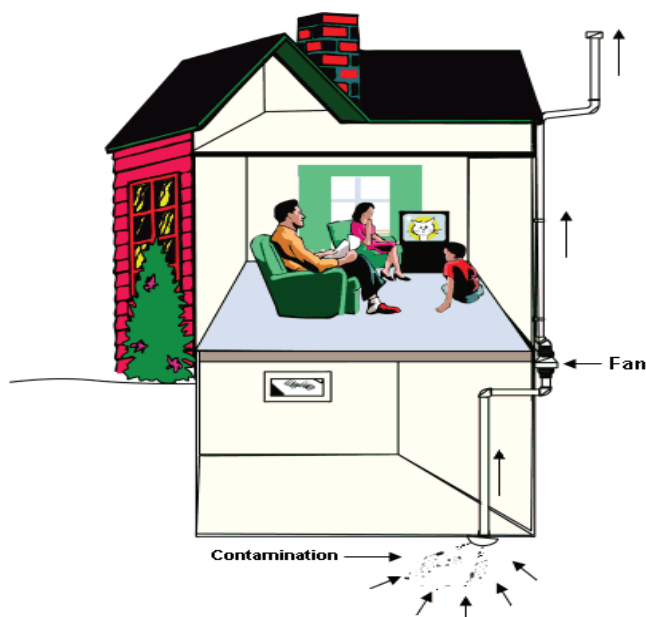
In most cases, collecting soil gas or groundwater samples near the spill site is done first to see if there is on-site contamination. If soil vapors or groundwater contamination are detected at a spill site, environmental protection and public health officials may then ask that soil vapor samples be taken from areas outside the immediate spill site and near any potentially affected business or home.

If contamination from below ground indicates there is the potential for VOCs to enter nearby homes or buildings, additional sampling inside or beneath the building's foundation (or in the crawlspace) may be needed. Sub-slab or crawlspace air samples may be collected to see if the source of indoor air contamination is coming from the soils beneath the building and not from chemicals inside the building or in the outside air. If there is a need for additional sampling near or inside a home or other building, residents or property owners would be contacted by EPA or its representatives asking for permission to sample.

What happens if a vapor intrusion problem is found?

If vapor intrusion is having an effect on the air in your home, the most common solution is to install a *vapor mitigation system*. A vapor mitigation system (which is used extensively in situations where radon is of concern) will prevent gases in the soil from entering the home. A low amount of suction is applied below the foundation and the vapors are vented to the outside. The system uses minimal electricity and should not noticeably affect heating and cooling efficiency. This mitigation system also prevents radon and other vapors from entering the home, an added health benefit. Usually, the party responsible for cleaning up the contamination is also responsible for paying for the installation of this system. In any case, the homeowner does not pay for installation of the system. Once the contamination is cleaned up, the system should no longer be needed.

Vapor Mitigation System



What can you do to improve your indoor air quality?

The following helpful hints will help improve air quality inside your home:

- ❖ Do not buy more chemicals than you need and know what products contain VOCs.
- ❖ If you have a garage or an out building such as a shed, place the properly stored VOC-containing chemicals outside and away from your family living areas.
- ❖ Immediately clean and ventilate any VOC spill area.
- ❖ If you smoke, go outside and/or open the windows to ventilate the second-hand, VOC-containing smoke outdoors.
- ❖ Make sure all your major appliances and fireplace(s) are in good condition and not leaking harmful VOC vapors. Fix all appliance and fireplace leaks promptly as well as other leaks that cause moisture problems and encourage mold growth.
- ❖ Most VOCs are a fire hazard. Make sure these chemicals are stored in appropriate containers and in a well-ventilated location, away from an open pilot light (flame) of a gas water heater or furnace.
- ❖ Fresh air will help prevent both the buildup of chemical vapors in the air and mold growth. Occasionally open the windows and doors and ventilate.

For more information contact:

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