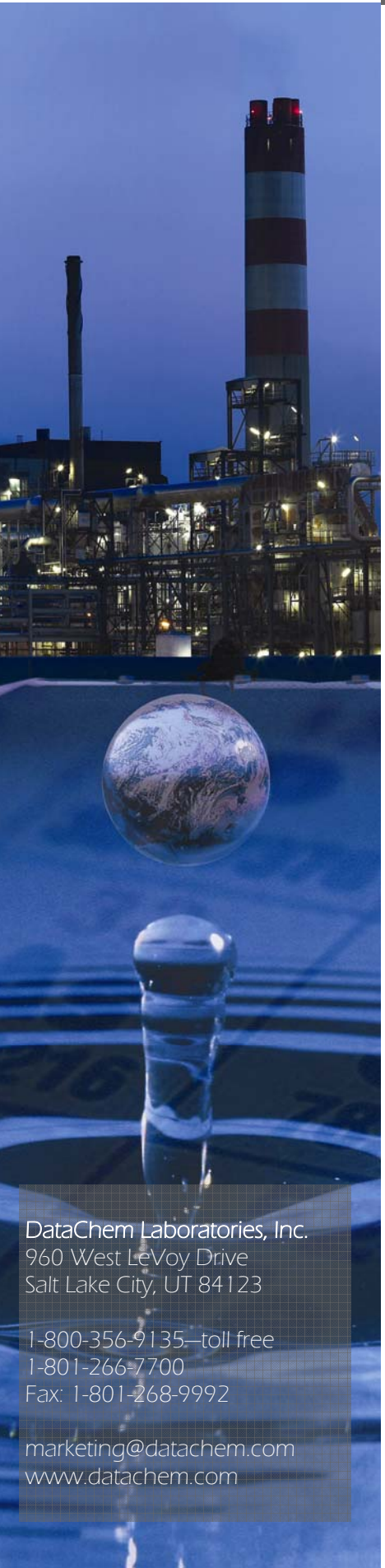
DATA CHEM LABORATORIES, INC.

Vapor Intrusion



Problem: Contaminated soil or contaminated groundwater plumes under homes, schools, and businesses emit volatile vapors that can intrude into the overlying structures, and may pose a health risk. While microbes, soil compaction and other factors may naturally attenuate those vapors before they can enter into a building, vapors may be strong enough to accumulate in crawlspaces, basements, and areas with utility connections.

In November of 2002, the US EPA issued a draft guidance document to help determine the vapor intrusion pathway, and some states have followed with guidance of their own.

Solution: DataChem can provide quick, accurate low-Level Analysis by EPA Method TO-15 and TO-17.

♦ DataChem Laboratories is highly experienced with sampling and analytical methods required to determine the vapor intrusion pathway
♦ DataChem can provide personal sampling pump kits setup for soil gas sampling, SUMMA canisters and pre-set flow controllers for indoor air sampling
♦ DataChem has state-of-the-art laboratory instrumentation and highly experienced chemists ready to analyze compounds, often to pptv/v levels
♦ DataChem can help you select the appropriate methodology for VOCs
♦ DataChem carries NELAP and AIHA accreditations
♦ DataChem provides legally defensible data “of known quality”
♦ Reporting limits for vapor intrusion by EPA TO-15
TO-15 full scan—0.5-20 ppb v/v
TO-15 Selected Ion Monitoring (SIM) - 0.05-2.0 ppb v/v

EPA TO-15

EPA TO-17

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Vapor Intrusion

Sites with volatile organic compound (VOC) contamination are potential public health hazards. Contact with contaminated soil and the contamination of drinking water are widely recognized pathways of exposure. One commonly overlooked pathway involves VOC movement from groundwater or soil into nearby building foundations, and then into the indoor air that people breathe. This pathway is commonly known as chemical vapor intrusion.

The United States EPA issued draft guidance, "Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathways from Groundwater and Soils" (November 2002), to help determine if the vapor intrusion pathway poses a significant risk to human health.

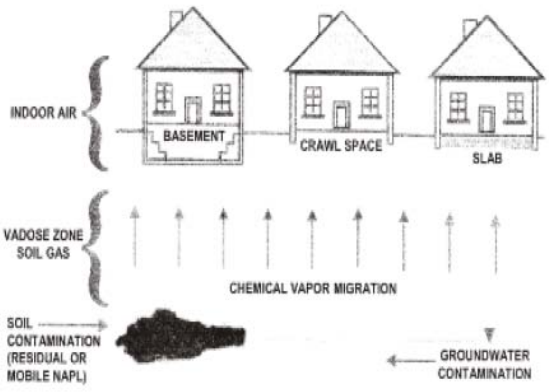

Figure 1-1. Generalized diagram of vapor intrusion in a residential setting from a groundwater source (based on Johnson 2002).

Vapor intrusion is a way that chemicals in soil or groundwater can get into indoor air. (see figure) Sometimes, chemicals are spilled on the ground at a factory or leak from an underground storage tank or are buried. These chemicals can seep down into the soil and groundwater. Some chemicals can also travel through soil as vapors. These vapors may then move up through the soil and into nearby buildings, contaminating indoor air. Vapor intrusion is similar to how radon, a naturally occurring radioactive gas, can enter a home through cracks in the foundation. Vapor intrusion is the migration of volatile organic compounds (VOCs) from the subsurface into overlying buildings and homes. VOCs are one group of compounds that easily become gases which can migrate through the soil and groundwater and enter buildings and homes.

The EPA guidance discusses sampling and analysis of soil gas and indoor air samples by EPA Method TO-15 and TO-17.

The allowable levels of volatile organic compounds in air have been lowered significantly. The new lower limits challenge laboratories to achieve the lowest reporting limits for these compounds. DataChem has the systems and experience designed to meet your project requirements.

If you would like to know more about our capabilities and services, please contact your DataChem representative.

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