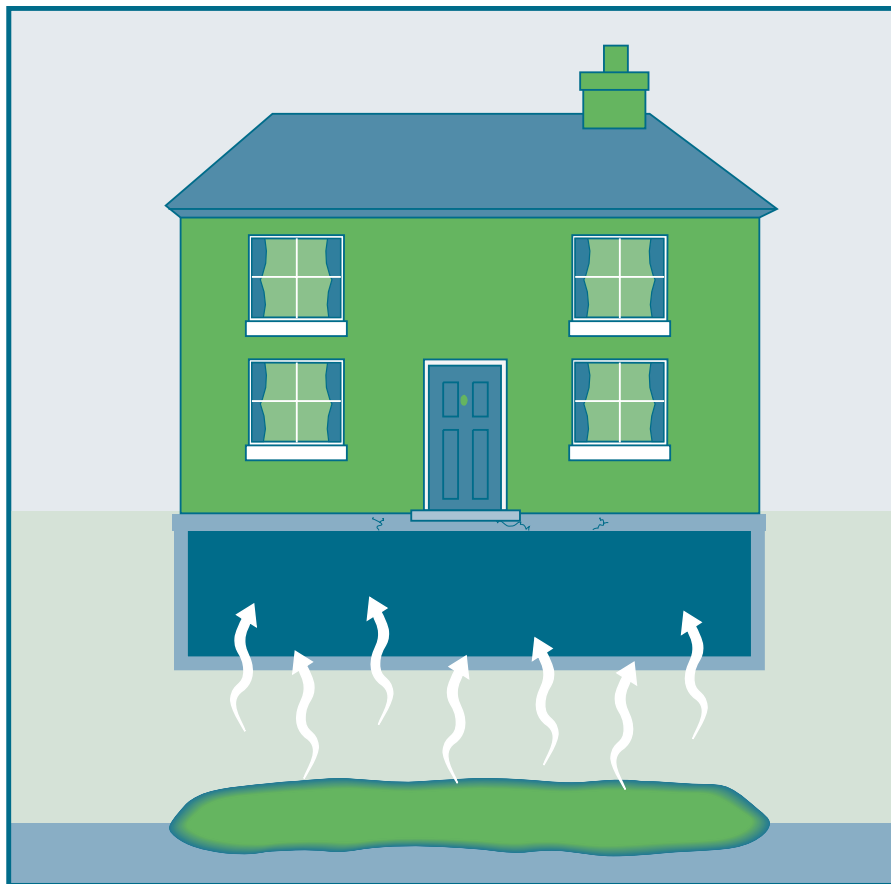




Technical and Regulatory Guidance Supplement

Vapor Intrusion Pathway: Investigative Approaches for Typical Scenarios

A Supplement to Vapor Intrusion Pathway: A Practical Guide



January 2007

Prepared by
The Interstate Technology & Regulatory Council
Vapor Intrusion Team

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minimize miscommunication of information to the public. A key issue facing investigators and regulators of large sites is to determine when public outreach should begin so as to provide timely notice of potential concerns and investigation activities without creating unnecessary alarm.

The third major issue affecting both investigators and regulators at large sites is the logistical challenge associated with investigating and potentially mitigating a large number of buildings in a relatively short period of time. Investigators must be prepared, often with little advanced warning, to coordinate access and schedule tests with a large number of property owners; to obtain, store, and ship large numbers of samples (potentially bulky Summa canisters); to manage and report large quantities of data to both agencies and property owners on a continual and relatively rapid turnaround basis; and to coordinate the installation, monitoring, and operation and maintenance of a large number of mitigation systems. With most of the contamination being off site, institutional controls may not be applicable in this scenario, so long-term monitoring of the systems needs to be considered. Regulators may be contacted by a large number of interested parties asking for information over an extended time period and may be under a great deal of pressure to make a large number of risk-management decisions in short time frames.

Finally, issues potentially affecting all vapor intrusion sites regardless of size are often exacerbated at large sites. Geologic, groundwater, and building conditions are likely to vary to greater degrees across larger sites. Each building at a large site may also have unique materials and occupant activities creating potential background sources. At the same time, it is impractical to study each building and property at a large site to the degree of detail feasible at smaller sites. Therefore, building-specific decisions have to be made using less information than typically available at smaller sites. On the other hand, the database of information provided by testing at numerous buildings may provide different tools for evaluating vapor intrusion impacts that are not available at smaller sites. For example, spatial patterns and correlations with other site factors based on testing at other properties may aid interpretation of individual test results.

3.D LESSONS LEARNED

- There are an infinite number of investigative strategies to handle large vapor intrusion sites. There is no cookie-cutter approach to their investigation. The process must start with the CSM and proceed from there.
- Expect surprises, especially additional sources when dealing with large plumes.

Lessons Learned from Redfields

- Very low levels of groundwater contamination can cause vapor intrusion.
- If using soil gas sampling for screening large site, make sure to use state-of-the-art techniques, including the use of vapor implants and tracer compounds to ensure that the results are the subsurface soil gas and not ambient air.
- Subslab sampling is likely to be a better indicator of vapor intrusion potential than soil gas sampling remote from the building (e.g., in public areas) or even adjacent to the structure.
- There can be many complications with sampling indoors due to background chemicals in the structure. Indoor product inventory is essential to demonstrate that contributions to indoor air concentrations are not due to vapor intrusion. However, inventories may not identify all sources, particularly if the compound is not indicated on the container or is present in building materials.
- Large sites will be very costly no matter what type of investigation strategy is used.
- External drivers that dramatically affect the cost of mitigation include asbestos, dry-layered foundation walls, and multiple foundations (grade beams, etc.).

