



## **Vapor Intrusion: What's Happening in the Real World, and How Does it Impact Brownfields Redevelopment?**

Based on our experience over the last three years, this presentation will inform those interested in Brownfields redevelopment about the assessment and mitigation of vapor intrusion (VI), first in terms of what scenarios are typically being encountered in the real world and their applicability to Brownfields, and then through a case study of a private developer who encountered unanticipated contamination in the course of redeveloping a retail/commercial property in Allegheny County.

In the last three years, our staff has performed vapor intrusion (VI) assessments in accordance with Pennsylvania Department of Environmental Protection (PADEP) guidance in a variety of settings, including redevelopment sites, industrial facilities, and residential properties. Assessments have included the comparison of new and existing groundwater data to generic standards, as well as the collection of soil gas and indoor air samples. Details of the sites include the following:

- Three separate residential area investigations were undertaken in a region with competent fractured bedrock near the surface, requiring the use of groundwater and/or indoor air sampling to assess the VI pathway.
- At the site of an explosion, we conducted an expedited assessment and evaluated the VI risk.
- We studied VI at a facility with separate phase liquids associated with a shallow water table which was overlain by buildings.

In most cases, assessments resulted in a determination of incomplete pathways or negligible risk with respect to VI, with the exception of one residential site which required the installation of a sub-slab depressurization system. This presentation will provide a summary of these assessments, including a comparison of expected and actual conditions, and will address the importance of conducting a proactive community relations initiative in conjunction with assessments.

The presentation will then move to a case study of a private developer who was moving quickly to redevelop a retail/commercial property. In digging new foundations at the site – the former location of a dry-cleaner -- soils contaminated with tetrachloroethene (PCE) were identified. In order to keep the redevelopment project on schedule, after removal of the most significantly contaminated material, a perforated pipe network was installed prior to concrete slab construction to assist in the removal of residual PCE vapors from the subsurface. We will provide a detailed discussion of this project, including the current status, performance of the mitigation system, and the impact of the presence of vapors on the overall redevelopment schedule.