

Vapor Intrusion Analysis

Vapor Intrusion (VI) is a rapidly developing field of science and policy. VI is basically the migration of volatile chemicals from subsurface contamination (contaminated soil and/or ground-water) into the indoor air of a building. It has been shown that chronic exposure to low levels of volatile organics in ambient air represents a significant health risk that had been previously underestimated. This exposure pathway has been recently highlighted by the U.S. EPA and a number of States, who have developed guidance documents and policy.

These guidance documents make several recommendations for evaluating the Vapor Intrusion into Indoor Air Pathway. Generally, it has been recommended that every commercial and residential building within 100 feet of a site contaminated with volatile organics be evaluated for VI. This guidance is for RCRA, CERCLA and Brownfield Sites. Some states are also requiring VI evaluation for Title 1 USTs. Soil gas and/or indoor air samples are taken for VOCs and analyzed by EPA Compendium Method TO-15 GC/MS using either full scan or selected ion monitoring (SIM) to achieve State-mandated detection limits. Most risk assessments for VI require low part per billion (ppbv) and parts per trillion (pptv) detection limits which can only be achieved using Summa Canister sampling followed by EPA TO-15 SIM for targeted VOCs.



Typical sampling schemes involve a soil gas probe connected to a 45-60 minute sampling valve affixed to an evacuated 6.0 L certified clean Summa canister. The integrity of the sample (i.e. intrusion of ambient air) is documented by flooding the soil probe - soil interface with a tracer gas - helium - at atmospheric pressure. The Summa canister is then analyzed using Method TO-15 for VOCs and EPA Method 18 or 3C for Helium. Helium detected in the canister is an indication that ambient air has been drawn in the canister which will yield a low bias.

York's Services in Support of Vapor Intrusion Studies

York offers a comprehensive support package including:

- Certified Clean Summa Canisters (batch or individual)
- Pre-cleaned Flow Controllers
- EPA Method TO-15 scan or SIM analysis depending on detection limits needed
- Tracer gas analysis (Helium)
- Standard 5-7 working day turn-around-time
- Results in both ppbv and $\mu\text{g}/\text{m}^3$
- Free courier service



TO-15 Cryogenic Preconcentration-GC/MS

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