



7.3 CHARACTERIZATION, DELINEATION AND MONITORING

Soil vapor sampling, also referred to as a soil vapor survey, may be a useful tool to locate potential release point or source of contaminant vapors, evaluate the distribution of chemical(s) or contaminant(s) of potential concern (COPC) in soil and groundwater, guide additional site characterizations, and monitor the progress of remedial actions or attenuation of chemicals over time. Typically, soil vapor surveys may be performed in conjunction with soil and groundwater sampling during site investigations.

The Site Investigation Design and Implementation guidelines contained in Section 3 should be followed when planning and implementing a soil vapor survey. The information contained in Subsection 7.2.2 is also applicable to soil vapor sampling for characterization, delineation, and monitoring.

Sites of potential soil vapor contamination may be characterized using a phased approach. Initial monitoring should verify suspected releases and concentrations of chemicals of concern. The contaminants of concern selected for analysis are typically based on the Investigation Scoping information provided in Section 3.1. For example, analysis of total petroleum hydrocarbons may not be required for a former dry cleaning site.

The initial characterization should include methane or other indicators (e.g., oxygen and CO₂) if degradation processes are identified in the site conceptual model. If the initial characterization verifies soil vapor contamination, the soil vapor survey is typically expanded to assess the vertical and horizontal extent of the release.

When assessing the source of subsurface vapors, samples are typically collected within the suspected or known source area, and upgradient, downgradient, and cross-gradient of the source area because soil vapor may migrate in a different direction than groundwater flow.

When assessing vertical migration, a minimum of three sample depths are typically selected between the contaminant source (or groundwater) and ground surface. Subsection 7.6 provides additional recommendations regarding the location and depth of samples when delineating lateral and vertical contaminant impacts.



Section 7 Soil Vapor and Indoor Air Sampling Guidance

Characterization, Delineation and Monitoring

The frequency of soil vapor surveys is dependent upon the purpose of the soil vapor investigation. Characterization and delineation may require one or two surveys, while remediation assessment or long term monitoring may require repeated surveys on a pre-determined schedule (e.g., weekly for remediation assessment and semi-annually or annually for long term monitoring). Remediation assessment and long term monitoring of contaminants of concern are typically refined during the characterization and delineation phases of the project. To support data interpretation and analysis, remediation assessment or long term monitoring generally should be conducted using permanent probes.