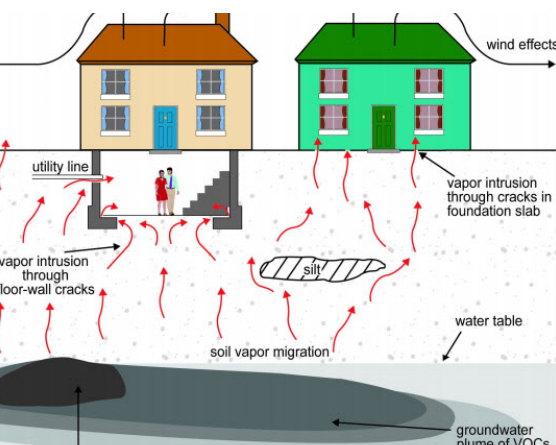


Vapor Intrusion Services

With changing regulations, technologies, and growing knowledge of vapor intrusion (VI) risks, CEC has the experience and acuity to raise awareness and the expertise to investigate, evaluate, and mitigate exposure risk.



VI risks manifest from on- and off-property releases of volatile chemicals, typically solvents and petroleum hydrocarbons, but hazards may occur from other compounds such as methane, radon, and hydrogen sulfide, depending on the source/locale. VI can have significant implications for CEC's clients, including prospective and existing property owners, developers, and manufacturing facility owners/operators. As the science of VI continues to evolve, CEC's highly experienced team members remain on the forefront of research, regulations, investigative techniques, and mitigation.

CEC's comprehensive VI consulting services include initial screening-level efforts (often as due diligence for property transactions), soil gas and indoor air sampling, analyses, risk evaluation, and mitigation design and implementation.

EDUCATION

VI is a challenging topic. CEC provides information sessions for our clients, answering questions such as: What is VI? Why is this a focus for regulators? How does this impact business or the property I own or want to develop?

ASSESSMENT

CEC has extensive experience with numerous investigative techniques for the assessment of VI, including preliminary risk screening based on site and surrounding land use (historical and current) and available soil and groundwater data. Direct assessment often includes:

- Collection of soil gas samples beneath existing building slabs and/or from various depths within the soil column;
- Indoor air samples from existing structures;
- Differential pressure measurements; and
- Evaluation of site-specific attenuation factors.

Analyses can be performed at a laboratory or via real-time, field-based instruments to allow for adjustment of sampling to refine the findings.

DATA ANALYSIS AND EXPOSURE RISK

VI data and exposure risk are evaluated by various methods depending on the current and/or anticipated property use, purpose of the evaluation, project location, and regulatory program. Single-chemical and cumulative risks are evaluated against screening levels, standards and/or acceptable risk thresholds. Compound-specific isotope analysis is emerging as a powerful tool when multiple sources are suspected, including indoor interferences.

MITIGATION DESIGN/IMPLEMENTATION

The need for mitigation is based on the data evaluation and characteristics of each project. Mitigation can be passive or active, integrated into new construction or retrofitted, and designed to meet the client's objectives and regulatory objectives. Observation of mitigation system installation, pre-occupancy testing, operation, and maintenance are important steps CEC provides to our clients for successful VI mitigation.