

Vapor Intrusion

Technology Group Releases Petroleum Vapor Intrusion Guidance to Aid Site Screening



The Interstate Technology and Regulatory Council, a state-led coalition, has released petroleum vapor intrusion **guidance** to help parties involved in cleanups better screen out uncontaminated sites and focus their resources on contaminated ones.

The document, which was released Oct. 15, addresses more fully than any previous guidance the extent to which natural biodegradation restricts petroleum vapor intrusion, the ITRC said. Previously, regulatory agencies, consultants and industry have been “wasting both money and time” on petroleum vapor intrusion evaluations using traditional vapor intrusion approaches “that in most cases are not necessary and rarely lead to vapor control,” according to the ITRC guidance. The ITRC, which is sponsored by the Environmental Council of the States, works to improve environmental protections through innovative technologies .

Subset of Vapor Intrusion

Petroleum vapor intrusion is a subset of vapor intrusion and is the process by which volatilized hydrocarbons from petroleum-contaminated soils, groundwater and light nonaqueous phase liquids diffuse through the vadose zone—the region of aeration above the water table—and into overlying buildings, the ITRC document said. Migration of petroleum vapors usually is restricted by biodegradation, which is the breakdown of these chemicals to nontoxic compounds by microorganisms that are found in soil, the guidance said.

Unlike vapor intrusion associated with chlorinated compounds, vapors from petroleum hydrocarbons degrade more rapidly, the ITRC said. As such, the number of sites with a completed petroleum vapor intrusion pathway is significantly less than at sites with chlorinated compounds, where slower anaerobic degradation occurs, the organization said.

Intended for Regulators, Practitioners

The ITRC document primarily is intended for regulators and private sector practitioners who evaluate and manage petroleum vapor intrusion sites. It also provides responsible parties, site owners, managers and other stakeholders with a basic understanding of the singular aspects of petroleum vapor intrusion.

The guidance is important because state environmental regulatory agencies consistently have identified vapor intrusion as a high priority at sites contaminated with volatile organic compounds, the ITRC said. Many regulators and practitioners have been uncertain about how to best account for biodegradation of petroleum hydrocarbon vapors when evaluating petroleum vapor intrusion at contaminated sites, the organization said.

Complements Upcoming EPA Guidance

The Environmental Protection Agency is developing federal vapor intrusion guidance—one document for chlorinated compounds and a separate one on petroleum. The White House Office of Management and Budget began its review of the documents Sept. 25 (**23 EDDG 78, 10/16/14**).

As currently drafted, the EPA's petroleum vapor intrusion guidance is limited to underground storage tanks regulated by Subtitle I of the Resource Conservation and Recovery Act, whereas ITRC's guidance applies to various types of petroleum sites and multiple volatile petroleum hydrocarbons. ITRC said its guidance is intended to complement the EPA's upcoming document.

Screening Process Outlined

The screening process in ITRC's guidance involves:

- developing a conceptual site model,
- evaluating a site for precluding factors and lateral inclusion and
- screening a building using vertical separation distance.

If this site-screening process doesn't allow elimination of a vapor intrusion pathway, the process calls for a site investigation that:

- conducts a concentration-based evaluation using existing data,
- selects and implements an applicable scenario and investigative approach,
- evaluates data,
- determines if additional investigation is warranted and
- decides if the petroleum vapor intrusion pathway is complete.

Goldilocks' Comparison

Larry Schnapf, an environmental lawyer with Schnapf LLC, told Bloomberg BNA Oct. 16 he has not thoroughly examined the guidance, but his initial reaction is that "the vertical/lateral distances are woefully inadequate." This inadequacy will cause sites that could present potential vapor intrusion risk to be screened out from further evaluation, he said. The distances seem to be based on "Goldilocks" scenarios, by which he means they seem to be "just right"—predicated on perfect conditions, such as those with abundant oxygen, no residual piping or contaminated soil and no preferential pathways.