
Did EPA Overstep in Applying Soil Vapor Intrusion Guidance to Commercial Buildings?

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In April 2013, U.S. EPA's Office of Solid Waste and Emergency Response issued two guidance documents on soil vapor intrusion. One addresses general soil vapor intrusion issues¹, while the other is specific to petroleum vapor intrusion at leaking underground storage tank sites². This alert focuses on the first one – the “2013 Guidance.” Although the 2013 Guidance was issued as “final,” U.S. EPA solicited public comments through June 24, 2013. The 2013 Guidance changes U.S. EPA's basic approach to addressing soil vapor intrusion and raises important jurisdictional issues regarding the interplay between U.S. EPA and the U.S. Department of Labor, Occupational Safety and Health Administration (“OSHA”). These features of the 2013 Guidance underscore the need for careful legal attention to cleanup sites involving soil vapor intrusion, which has become an important factor in both remedy selection and toxic torts litigation.

What Is Soil Vapor Intrusion and Why Is It Important?

The phrase “soil vapor intrusion” refers to the migration of volatile chemicals from a subsurface source into buildings. This migration occurs through cracks or perforations in floors and walls, when there is a difference in interior and exterior vapor pressure or concentration. Soil vapor (*i.e.*, the gas between soil particles) can become contaminated when chemicals evaporate or migrate from contaminated soil or groundwater, non-aqueous phase liquid, buried wastes, and underground storage tanks or drums. The potential harm to humans posed by soil vapor intrusion depends on several factors, including the length,

¹ See *OSWER Final Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Sources to Indoor Air (External Review Draft)*, available at: (<http://www.epa.gov/oswer/vaporintrusion/documents/vaporintrusion-final-guidance-20130411-reviewdraft.pdf>).

² See *Guidance for Petroleum Vapor Intrusion at Leaking Underground Storage Tank Sites (EPA 510-R-13)*, available at: (<http://www.epa.gov/oust/cat/pvi/petroleum-vapor-intrusion-review-draft-04092013.pdf>).

amount, and frequency of exposure, as well as the toxicity of the volatile chemicals and the individual's sensitivity.

Soil vapor intrusion can be addressed through one of two approaches. One involves remedying structural defects, by sealing openings in walls or floors and/or installing indoor air vapor mitigation systems. In extreme cases, this type of fix may involve slab replacement or installation of liners. These function similarly to radon systems by interrupting the pathways that facilitate intrusion. The other approach involves removing or treating the subsurface sources of soil gas.

The selection of a particular remedy may have significant cost and procedural implications for a cleanup. Regulatory agencies generally view indoor air vapor mitigation as "passive" and therefore will not delay the issuance of a certificate of completion or a no-further-action letter based on the need to perform such work. On the other hand, source removal and groundwater treatment generally constitute active phase remediation, which must be completed before case closure is granted.

How Have Regulatory Agencies Regulated Soil Vapor Intrusion in the Past?

Regulatory agencies first began paying attention to soil vapor intrusion in the 1970s and 1980s, when concerns increased over radon exposure and cancer threats associated with volatile organic compounds. The first state to issue guidance on soil vapor intrusion was Massachusetts in 1993, and U.S. EPA followed suit with an important draft guidance document in 2002 ("2002 Guidance").³ Despite the label "draft," U.S. EPA's regional offices have followed the 2002 Guidance closely, such that some practitioners consider it to be a *de facto* regulation. Furthermore, certain principles within the 2002 Guidance have served as a model for state regulators, and all but four states have currently published guidance on soil vapor intrusion, while two of the four outstanding states have either developed internal criteria for case managers or have referenced the 2002 Guidance in their soil screening policies.⁴

What Are the Major Differences Between U.S. EPA's 2013 and 2002 Guidance?

The 2013 Guidance varies from the 2002 Guidance in two fundamental ways. First, the 2013 Guidance recommends indoor air sampling, rather than vapor intrusion modeling, as the primary method for determining the existence of vapor intrusion. Second, it seeks to extend U.S. EPA's authority to vapor intrusion risks in commercial and industrial buildings, the regulation of which has traditionally rested with OSHA.

Modeling and Pre-Emptive Sampling

Under the 2002 Guidance, parties could determine the existence of soil vapor intrusion by extrapolating the results of sub-slab gas or soil or groundwater sampling. Many specialists believe that this approach, known as modeling, is preferable to actual indoor air sampling (see below). Under the modeling approach, non-detectable or low concentrations of volatile chemicals in soil, groundwater, and/or sub-slab gas may suffice to conclude that soil vapor intrusion does not exist for a given structure. However, the 2013 Guidance states that such results may be inadequate for demonstrating the absence of subsurface vapor

³ See *OSWER Draft Guidance For Evaluating The Vapor Intrusion to Indoor Air Pathway From Groundwater And Soils (Subsurface Vapor Intrusion Guidance)*, EPA 530-D-02-004, issued November 2002 and available at (<http://www.epa.gov/osw/hazard/correctiveaction/eis/vapor/guidance.pdf>).

⁴ The Nevada Division of Environmental Protection has developed internal screening procedures for soil vapor intrusion, whereas the New Mexico Environment Department references the 2002 Guidance in the document entitled *New Mexico Environment Department Soil Screening Levels* (July 2006), p. 6. The two states without vapor intrusion standards are North Dakota and Arkansas.

sources. The 2013 Guidance advocates determinations based on “multiple lines of evidence,” which, in the context of soil vapor intrusion, means indoor air sampling.⁵

Indoor air sampling results, however, are often unreliable, as concentrations may fluctuate due to seasonal factors, ambient air conditions, HVAC condition and status, and the presence of cleaning chemicals. Furthermore, soil vapor intrusion exposure is only of concern in occupied buildings, and the regular use of buildings is not conducive to the sort of long-term monitoring necessary to generate worthwhile data. Moreover, building owners and occupants cannot always be counted on to grant access to parties seeking to conduct indoor air sampling and may be unduly alarmed by sampling results.

These issues are more problematic under the 2013 Guidance, because it also recommends pre-emptive sampling and mitigation, even though only limited data may exist to characterize the vapor intrusion pathway.⁶ This may compel performing parties to gather large amounts of unreliable data, which, per the action levels in the 2013 Guidance, will require them to perform active mitigation.

Application to Commercial and Industrial Buildings

Whereas OSHA has broad statutory authority to ensure workplace safety for employees, CERCLA and RCRA do not expressly authorize U.S. EPA to regulate indoor air. The 2002 Guidance states that OSHA should take the lead in addressing soil vapor intrusion in industrial and commercial settings. Most significantly, the 2002 Guidance states that OSHA has the lead authority in both industrial buildings and “other workplaces, such as administrative and other office buildings where chemicals are not routinely handled in daily activities.”⁷ In a February 2012 FAQ document, U.S. EPA modified its position to state that OSHA standards for indoor air should only apply in commercial or industrial structures where the chemicals implicated in vapor intrusion are also used in the workplace.⁸

In the 2013 Guidance, U.S. EPA goes even farther by declaring that it has authority “to protect the public and workers’ health in nonresidential settings where hazardous vapors may be intruding into occupied buildings from vapor intrusion.”⁹ Whether U.S. EPA has overstepped its legal mandate in making such claims is important, because for many volatile chemicals, such as trichloroethylene, OSHA-permissible exposure limits are several orders of magnitude higher than the action levels set forth in the 2013 Guidance. As a result, one’s legal obligations may differ based on whether OSHA or U.S. EPA standards are applied.

What Are the Implications for Environmental Due Diligence Methodology?

Also in April 2013, the American Society for Testing and Materials (“ASTM”) submitted for U.S. EPA approval the latest version of standard E 1527, which governs the performance of Phase I Environmental Site Assessments. U.S. EPA will determine whether the new version is consistent with the requirements of the All Appropriate Inquiries Rule codified at 40 CFR Part 312. Environmental due diligence conducted in accordance with this rule is a necessary element in establishing innocent landowner/prospective purchaser defenses to CERCLA liability.

 ⁵ See 2013 Guidance, pp. 45–81.

⁶ See 2013 Guidance, p. 41.

⁷ See, e.g., 2002 Guidance, pp. 3,

⁸ See U.S. EPA Superfund Vapor Intrusion FAQs (February 2012), p. 31. The document is available at http://www.epa.gov/superfund/sites/npl/Vapor_Intrusion_FAQs_Feb2012.pdf.

⁹ See 2013 Guidance, pp. 5, 37.

Unlike previous iterations of the ASTM E 1527 standard, the 2013 edition will expressly require environmental professionals to account for “vapor migration” or “encroachment” in determining the existence of “recognized environmental conditions” on a property. “Vapor migration” or “encroachment” alludes to the movement of surface or subsurface contamination toward buildings in a manner that could result in soil vapor intrusion. The inclusion of soil vapor migration/encroachment within the ASTM standard will doubtless compel parties to proactively address such soil vapor intrusion in connection with real estate and corporate transactions involving contaminated sites. The current timeline for the final issuance of the ASTM E 1527-13 standard is late summer or fall 2013.

Conclusion

The issuance of the 2013 Guidance signifies U.S. EPA’s heightened attention to soil vapor intrusion. Given the significant cost, procedural, and, in residential contexts, public relations considerations at issue, the identification of soil vapor intrusion represents a crucial factor at cleanup sites. By endorsing the “multiple lines of evidence approach,” the 2013 Guidance threatens to base such identifications on indoor air testing, which can be variable and unreliable. This will place a heavy onus on environmental professionals to work closely with lawyers to design careful and elaborate sampling protocols. Close coordination between consultants and lawyers is especially essential where soil vapor intrusion is suspected of impacting residential buildings, as any detection, even if below regulatory limits, could alarm occupants and raise the specter of toxic tort litigation.

Finally, the 2013 Guidance’s application to industrial and commercial buildings poses various problems, as the use of U.S. EPA versus OSHA action levels can lead to different conclusions regarding the need to address soil vapor intrusion. This overlap with OSHA may well precipitate legal challenges to the 2013 Guidance.

If you have any questions about the content of this alert, please contact the Pillsbury attorney with whom you regularly work, or the authors below.

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