

This Week's Feature

EPA Final Rule Adds Vapor Intrusion to Hazard Ranking System

by Alana E. Fortna

The United States Environmental Protection Agency (EPA) published a final rule, effective February 8, 2017, adding vapor intrusion as an exposure pathway for consideration under the Hazard Ranking System. 82 Fed. Reg. 9754 (Jan. 9, 2017). The Hazard Ranking System is the screening mechanism used by the EPA to determine whether to place sites on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priorities List—the list of priority sites warranting further investigation and possible remediation under the Superfund program. The rule and its potential implications at current and future sites are addressed in this article.

Vapor Intrusion

Vapor intrusion occurs when vapor-forming chemicals from a subsurface source, such as soil or groundwater, migrate into an overlying building through cracks in the foundation or utility lines. Volatile chemicals are most susceptible to vapor intrusion because they evaporate easily. Common examples of vapor-forming chemicals include volatile organic compounds (i.e., trichloroethylene and benzene), semivolatile organic compounds (i.e., naphthalene), and pesticides.

The New Rule

Adding vapor intrusion to the Hazard Ranking System arose out of a May 2010 report of the Government Accountability Office (GAO) concluding that if vapor intrusion is not assessed, there is a concern that sites posing a serious human health risk will not be addressed. The GAO asked the EPA to consider adding vapor intrusion and the effect that it may have on the number of sites that it might add to the National Priorities List. On January 31, 2011, the EPA published a notice asking for public comments on the potential addition of vapor intrusion. In the rationale, the EPA noted that there are contaminated sites that did not qualify for listing on the National Priorities List under the current Hazard Ranking System, but they may be listed if the exposure threat from vapor intrusion is included in the ranking system. Before the new rule, the Hazard Ranking System evaluated four exposure pathways: (1) groundwater migration, (2) soil exposure, (3) surface water migration, and (4) air migration. None of these exposure pathways captured threats from vapor intrusion.

On February 29, 2016, the EPA published a proposed rule to add vapor intrusion, and it received comments from 15 parties. The commenters included state and federal agencies, industry associations, community groups, consultants, and private citizens. The EPA made no conceptual or structural changes based on the comments received. Many of the comments addressed the sampling methods to be used during the site investigation. The EPA explained that it cannot determine actual exposure for all possible receptors, or perform a site-specific, quantitative risk assessment at each candidate site. The Hazard Ranking System is not designed to require that level of site-specific data. The EPA will consider the need for future guidance on implementation of the vapor intrusion component, and it will likely examine the existing procedures used by states.

A number of comments asked about reevaluation of sites previously assessed under the Hazard Ranking System but not placed on the National Priorities List. The EPA said that it does not plan to reevaluate sites categorically to determine whether placement on the National Priorities List is now appropriate. However, sites not on the National Priorities List, whether under oversight of federal agencies or not, may need to be reevaluated if new information or consideration of vapor intrusion threat indicates that the overall threat at the site may be unacceptable. In response to a comment on resource implications, the EPA acknowledged that by adding vapor intrusion to the Hazard Ranking System, the number of National Priorities List-qualifying sites may increase, and thus, the number of sites in the CERCLA inventory may increase.

After considering public comments, the EPA published the final rule on January 9, 2017. The new vapor intrusion component expands the number of available options for the EPA and state and tribal organizations to evaluate actual and potential threats from releases of hazardous substances. Vapor intrusion is added as a component of the preexisting soil exposure pathway. The amended pathway is called the “soil exposure and subsurface intrusion pathway,” and it considers exposure through direct contact with contaminated soil and inhalation of gas vapors from subsurface contamination. It identifies two areas in which exposure to vapor intrusion exists or is likely to exist: (1) areas of observed exposure; contaminant intrusion into regularly occupied structures has been documented; and (2) areas of

subsurface contamination; subsurface contamination underlying regularly occupied structures has been documented, but indoor intrusion has not been confirmed. An area of subsurface contamination is an area where subsurface contamination exists at levels significantly above background concentrations, and the increase is attributed at least in part to the site. Therefore, the vapor intrusion component considers observed exposure and *potential* exposure. Evaluating potential exposure involves predicting the probability of exposure based on structural features of the building, a hazardous substance's physical and chemical properties, and the physical subsurface properties that influence the probability of intrusion. Factors considered include structure containment, depth to contamination, vertical migration, and vapor migration potential. With respect to targets for exposure, the evaluation includes individuals living, attending school or daycare, or working in a regularly occupied structure. Workers are weighted to reflect that their exposure is limited to the time present in the workplace. There is no similar limitation for individuals attending school or daycare, likely because children are a vapor intrusion-sensitive population.

Practical Implications

The potential effects of the new rule are (1) more sites being listed on the National Priorities List; (2) increased costs at sites being remediated under CERCLA, the Resource Conservation and Recovery Act (RCRA) or a similar state statute; (3) increased toxic tort lawsuits alleging exposure to vapor intrusion; and (4) increased due diligence costs in real estate transactions in which the buyer or lessee demands investigation and mitigation.

While the EPA downplayed some of these practical implications in its response to comments and the final rule, these concerns are not unwarranted. For example, a site with groundwater contamination from volatile compounds may not have a Hazard Ranking System score warranting listing on the National Priorities List (28.5 or higher) based on the groundwater pathway alone. However, such a site also may have vapor intrusion concerns. The combination of Hazard Ranking System scores for groundwater and vapor intrusion could qualify a site for listing. Further, CERCLA § 121 requires a five-year reevaluation of remediated sites where hazardous substances remain on site to determine if the remedy is and will continue to protect human health and the environment. Sites that already have a final remedy in place may require vapor intrusion evaluation or remedial action as part of the five-year review process.

Lastly, while the Trump administration could have an effect on the EPA's resources and the level of regulation, the focus on vapor intrusion is sure to pique the interests of environmental groups and plaintiffs' attorneys, who are expected to be more active under the new administration.



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