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The Impact of NJDEP's Vapor Intrusion Guidance

Vapor intrusion issues factor into any environmental due diligence, investigation, remediation or development

By Douglas I. Eilender

Do you have an existing facility undergoing investigation or remediation? Are you or your client in the process of conducting environmental due diligence activities? Are you planning to develop a contaminated site? If so, the vapor intrusion issue must be fully evaluated. The reason for the heightened sensitivity is that in October 2005, the New Jersey Department of Environmental Protection (NJDEP) issued its final "Vapor Intrusion Guidance" (NJDEP Guidance). The NJDEP Guidance is available at <http://www.nj.gov/dep/srp/guidance/va-porintrusion>.

Gone are the days of solely addressing contaminants in soil, groundwater and surface water and assessing their impact on natural

Eilender is an attorney in the environmental law department in Cole, Schotz, Meisel, Forman & Leonard of Hackensack, where his practice is concentrated in transactions involving contaminated property.

resources. New Jersey is another state following the federal government's lead in focusing on the evaluation of vapor intrusion impact on the indoor air quality from the subsurface of contaminated sites.

What is Vapor Intrusion?

Vapor Intrusion is the process by which chemical compounds, primarily volatile organic compounds (VOCs), enter the indoor airspace of buildings after evaporating from underlying contaminated groundwater or soils. The vapors typically migrate into the building through utilities, sumps, cracks in the foundation, building footings and other conduits. Obviously, the main concern is the long-term health affects to building occupants of exposure to these toxic vapors. Several factors are considered when assessing the risk of vapor intrusion, but the main focus is on: What type of contamination is present? What media is impacted by the contamination (e.g., soil or groundwater)? Where is the contamination present (e.g., shallow or deep)? What are the existing site conditions (e.g., soil type, moisture, fluctuating water table)? These factors, and others, are utilized by risk assessors to assist them in performing their evaluation.

The Vapor Intrusion Program

The United States Environmental Protection Agency's (USEPA) Office of Solid Waste and Emergency Response issued its comprehensive draft guidance on vapor intrusion in November 2002 entitled "Guidance for Evaluating Vapor Intrusion To the Indoor Air Pathway from Groundwater and Soils" (USEPA Guidance). The USEPA Guidance sets forth a three-step process for evaluating vapor intrusion potential sources and for identifying potential exposure pathways and receptors to determine whether an unacceptable health risk exists. Generally, the first step is a primary screening which determines whether there is soil or groundwater contamination near structures on the property. The secondary screening includes the collection of air samples within the building and/or possibly under the slab. Depending on the results of that assessment, the third step involves a specific pathway assessment to determine what abatement measures would need to be taken, if any.

The NJDEP Guidance is intended to assist interested parties with determining whether vapor intrusion impacts are present and requires additional actions to mitigate or eliminate actual or potential human health impacts. See NJDEP Guidance at 3. The NJDEP's regulatory basis for the evaluation of vapor intrusion is the New Jersey

Technical Requirements for Site Remediation, N.J.A.C. 7:26E-1.11 (Tech Regs), which state that the primary goal during any remediation is to ensure that "contaminants and all media should be contained and/or stabilized to prevent contaminant exposure to receptors and to prevent further movement of contaminants through any pathway." The NJDEP Guidance further relies on the Tech Regs in stating that "the site investigation of building interiors shall be conducted when contaminants...outside the building have the potential to migrate into the building." N.J.A.C. 26E-3.5. Therefore, since the Tech Regs govern the investigation and remediation of contaminated sites, the evaluation of vapor intrusion must be integrated into any environmental due diligence, investigation, remediation or development.

Assessing Vapor Intrusion

NJDEP's Guidance builds on the federal process by incorporating a risk-based, staged approach to evaluate the potential for vapor intrusion at sites under review. The NJDEP Guidance provides a decisional flow chart designed to assist the investigator in assessing the appropriate steps for evaluating the vapor intrusion pathway. The process is very similar to the one set forth in the Tech Regs for site investigation and remediation activities. The initial steps are the preparation of a Preliminary Assessment (PA), a Remedial Investigation (RI) and Remedial Action Workplan (RAW), discussed below. For a vapor intrusion pathway to exist, there must be a source of contamination, a potential pathway involving soil, groundwater and/or soil gas and an impacted receptor close to the source pathway. See NJDEP Guidance at 24.

The first step of the vapor intrusion process is to conduct a PA, which consists of two stages: First, a general assessment confirming contaminants of concern represent a potential risk due to vapor intrusion. The second stage of the PA is collecting indoor air samples to confirm whether "rapid action" is war-

ranted to address a health risk emergency. NJDEP has compiled Rapid Action Levels that are threshold concentrations of specific contaminants that, if exceeded, require further vapor intrusion investigation and/or abatement. See NJDEP Guidance at 24.

Based on the results of the PA, if warranted an RI is performed, which includes the evaluation of the entire vapor intrusion pathway by comparing the existing data against the screening levels developed by NJDEP (lower concentrations than rapid action levels). If the levels detected are above the screening levels, a vapor intrusion investigation work plan is developed, which may include further delineation of groundwater contamination, an investigation of sub-slab soil gas and additional indoor air sampling. See NJDEP Guidance at 26-29. After the RI data is evaluated, the preparation and implementation of a site specific investigation and further evaluation is used to identify the risk of vapor intrusion. If remediation and monitoring are required based on the data evaluated, a determination of the most appropriate remedial action is made, along with the implementation of that remedial action. The remedial action selected is incorporated into the RAW that will be submitted to NJDEP for review and comment. NJDEP stresses that all RAWs must include provisions for long-term monitoring and maintenance for the proposed remedial action. Clearly, the NJDEP is requiring interested parties not only to install a remedial system that is protective of human health, but to also ensure an appropriate means of monitoring the system in the future. This may include official notification of the property owner/occupant or the implementation of a deed notice that restricts the use and/or future development of the site in question. See NJDEP Guidance at 140.

Residential vs. Nonresidential

As with the soil remediation standards in the Tech Regs, the NJDEP Guidance requires the use of residential Indoor Air Screening Levels

(IASL) in the evaluation of residential properties, schools and day care centers. See NJDEP Guidance at 35. The nonresidential IASL are applicable to industrial/commercial facilities where the sensitive receptor is not children, but adults. *Id.* at 36. Obviously, the residential IASL are more stringent than the nonresidential IASL. In addition, as with the Tech Regs, an assessor may elect to utilize site specific screening options, if approved by NJDEP (e.g., if the only contaminant of concern is trichloroethylene, there may not be a need to sample for petroleum-related compounds). *Id.* at 29.

The nonresidential screening levels can only be utilized by a responsible party if they obtain an agreement with the property owner and they implement an institutional control (e.g., deed notice) at the impacted property. See NJDEP Guidance at 137. The responsible party must continue to conduct system verification sampling, monitoring and maintenance. Further, depending on the institutional control in place and the impacted property, the responsible party may have to periodically monitor changes in ownership and building conditions and provide NJDEP with status reports in the form of PA Progress Reports, biennial (i.e., every 2 years) certifications or other means. See NJDEP Guidance at 138. Typically, these ongoing monitoring/maintenance issues are uncovered in the context of a real estate transaction where the Seller must conduct post-closing cleanup. Thus, access to implement any monitoring or maintenance of any system must be agreed upon up front by the parties. However, this situation can get more complicated if the property subsequently changes hands or the contamination is migrating off-site toward potential receptors.

Conclusion

The vapor intrusion pathway assessment must be added to the list of investigation requirements to be performed when confronted with a contaminated property. This will undoubtedly increase costs in performing any

investigation or remediation at these properties. Thus, whether you are in the process of cleaning up a site or conducting due diligence associated

with a proposed purchase of property or planning to develop a contaminated property, you must make sure that vapor intrusion is fully evaluated in

conjunction with the typical environmental concerns so that all of the environmental risks have been adequately assessed. ■