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Environmental contamination and vapor intrusion into buildings in New Jersey

By now, property owners, tenants, and building managers reading this may have had experience dealing with the complexities behind Vapor Intrusion into buildings. Vapor Intrusion is a relatively new environmental concern for buildings and is caused by the presence of volatile organic compounds (VOCs) in soil or groundwater beneath a building. In some cases, the presence of VOCs in soils or groundwater offers the potential for chemical vapors to migrate through the subsurface soils and into the building foundation, potentially impacting the indoor air quality of affected buildings. The accumulation of volatile vapors in impacted structures can result in more immediate health concerns associated with high levels of contaminants, as well as the potential for chronic health effects associated with lower levels of site related contaminants.

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In October of 2005, the New Jersey Department of Environmental Protection (NJDEP) published its final Vapor Intrusion guidance document. The guidance document is intended to walk the user through the vapor intrusion evaluation process when addressing subsurface contamination at VOC contaminated sites, and to assist in determining whether impacts to indoor air quality may be present that require additional actions to mitigate or eliminate actual or potential human health impacts. The regulatory basis for the evaluation of vapor intrusion is rooted in the various sections of the NJDEP's "Technical Requirements for Site Remediation".

The guidance document uses a risk based approach to investigate the vapor intrusion pathway and incorporates the use of calculated screening values for groundwater and soil gas that may be used to "flag" if vapor intrusion is a likely issue for building occupants. More detailed analysis is typically needed when these screening values are exceeded and typically includes; adequate sampling and analytical testing, site specific screening, monitoring and maintenance requirements, community outreach, and a methodology to evaluate background air levels at a site. The NJDEP has indicated that the final guidance document will be updated routinely based on toxicological updates used in development of calculated screening levels. The NJDEP will also update the guidance document as the state of the science advances in the evaluation of the vapor intrusion pathway.

Although the concept of vapor intrusion is a relatively new and rapidly changing science, it is advisable to secure the services of a reputable environmental consultant when evaluating the vapor intrusion pathway for potential impacts to your building. The publication of the guidance document over two years ago appears to have been successful in enabling the environmental consulting community to standardize their approach used when investigating the likely impacts to buildings from vapor intrusion.

Michael C. Nines joined Manko, Gold, Katcher & Fox, LLP in 2005 as an in-house technical consultant. Nines is a member of the Air & Waste Management Association, the Water Environment Federation, the National Society of Professional Engineers, and the Pennsylvania Society of Professional Engineers. ■