

# StayCurrent

A Client Alert from Paul Hastings

## ASTM Releases Vapor Intrusion Standard

By Jesse Hiney and Michael Lukens

Over the past several years, vapor intrusion has become a hot-button issue among regulators and private parties as both sectors have attempted to come to terms with a lack of consensus on how best to assess and manage the risk posed by vapor intrusion. Caused by the migration of the impacts of soil or groundwater contamination into indoor environments, vapor intrusion has stymied parties dealing with the issue due to a lack of uniform assessment and mitigation standards as well as competing theories on migration patterns of subsurface vapors.

ASTM International (“ASTM”) took a major step in developing an industry standard with its release on March 3, 2008, of “Standard Practice for the Assessment of Vapor Intrusion into Structures on Property Involved in Real Estate Transactions,” (ASTM E 2600-08). The standard, unlike the Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM E 1527-05) (“Phase I”) is not specifically targeted towards satisfying legal obligations such as “all appropriate inquiry,” but offers varying levels of investigation and mitigation as a means of identifying, evaluating and addressing potential liability associated with vapor intrusion.

The liabilities faced by parties legally or financially connected to properties with vapor intrusion issues extend beyond remedial obligations to a host of statutory and common-law liabilities, property value diminution claims and toxic exposure lawsuits from on-site personnel. Assessing and managing vapor intrusion as early as possible during development, or as soon as discovered at established sites, will help to limit liability. To this end, owners, developers and investors should give serious consideration to amending their customary due diligence activities to incorporate the new vapor intrusion standard.

### BACKGROUND

Vapor intrusion occurs when contamination in soil or groundwater volatilizes and enters overlying buildings as a gas, creating indoor air quality problems and potential health risks to occupants or employees. The seepage of harmful vapors often occurs through cracks or openings in foundations, such as utility conduits, and is exacerbated by pressure differentials created by heating and air conditioning systems that literally suck contaminated vapors into subsurface structures. Vapor intrusion can be a problem at any contaminated property, though it is encountered primarily at sites contaminated with volatile and semi-volatile organic compounds (e.g., chlorinated solvents, metal treatments and coatings, and plasticizers), petroleum fuels and a small range of volatilizing inorganic compounds such as mercury.

### CURRENT REGULATORY ENVIRONMENT

At the federal level, the EPA took the first step in managing vapor intrusion when it issued draft assessment and mitigation guidance in November of 2002. EPA’s 2002 guidance set out a baseline standard for assessing the existence of vapor intrusion at contaminated sites using a fairly conservative, rigid set of default risk-assumptions, based on modeling of study sites, to determine the necessity of mitigation. EPA’s reliance on these rigid risk-assumptions has drawn much criticism. It is expected that industry and development stakeholders will try to convince the EPA to implement more site-specific mitigation targets into their next guidance publication scheduled for public comments this year. In a March 2008 release of draft site-database documents, however, the EPA appeared to be leaning towards retaining some variation of the rigid default models in the new guidance.

Another wrinkle in the federal regulations of vapor intrusion may develop if potential jurisdictional issues between OSHA and EPA come to a head. Historically, EPA has conceded jurisdiction over indoor air quality at commercial and industrial properties to OSHA - a posture seen in the EPA's decision to not regulate radon in workplaces. If OSHA chooses to exert jurisdiction over vapor intrusion, owners and developers of commercial and industrial properties may find that they will need to comply with both OSHA and EPA regulations.

At the state level, nearly half of states have issued regulations or guidance on vapor intrusion, though the manner in which states have chosen to tackle the issue varies greatly. Some states have chosen to defer to the federal guidance, including Florida, Illinois and North Carolina, while other states, including New York, New Jersey and Colorado, have chosen stringent regulatory regimes. New York, in particular, has questioned the validity of modeling techniques that were long used as tools to predict vapor migration and is setting the standard by which other jurisdictions will be measured. New York has developed a regulatory scheme that calls for the reevaluation of vapor intrusion risks at targeted contaminated sites, including sites that have already achieved regulatory closure (See May 7, 2007 Client Alert, *New York Agencies Take Lead in Addressing Soil Vapor Concerns*).

## **ASTM STANDARD**

The recently issued ASTM standard uses a four-tiered approach for identifying and mitigating vapor intrusion conditions ("VICs"). The standard's tiered approach is designed so that each level is a successive refinement of the assessment of the property for vapor intrusion risks, moving from information screening to on-site sampling and modeling to mitigation possibilities. The standard does not require that each tier be progressed through sequentially, and for properties with known volatile contamination the initial screening tiers may be unnecessary.

### ***Tier One***

Tier One provides an initial screening of the possibility that potential vapor intrusion conditions ("pVICs") exist at a property and is structured to serve as a relatively inexpensive add-on investigation to coincide with a

Phase I. The information required to conduct the Tier One assessment includes current and historical site use data, governmental records and physical setting information. These are many of the same information sources that a Phase I would require. Using this non-invasive information, the Tier One assessment determines if sources of contamination are located near enough to on-site buildings to create a pVIC. If a pVIC is found to exist, or can not be ruled out, further assessment will be warranted.

### ***Tier Two***

The Tier Two process is a more refined pVIC screening assessment. The Tier Two assessment attempts to identify pVICs by determining if existing or newly collected soil or groundwater contamination data exceeds risk-based concentrations ("RBCs"). The RBCs may be either generic (e.g., culled from state guidelines) or site-specific RBCs developed by an environmental professional. If the Tier Two screening indicates that a pVIC exists, the user may wish either to confirm using the more exacting Tier Three analysis or to proceed to mitigation per Tier Four.

### ***Tier Three***

Tier Three calls for a sophisticated investigation to determine definitively if a VIC exists at a property. The investigation uses data collected during interior or exterior testing and compares the data to either site-specific modeling or site-specific indoor air quality standards. As this type of vapor intrusion investigation is parallel to guidance issued by the EPA and several states, the standard directs users to scope the investigation to adhere to any applicable guidelines.

### ***Tier Four***

Tier Four is the mitigation segment of the standard, detailing types of mitigation techniques proven to be effective in treating vapor intrusion issues. The categories of mitigation techniques discussed in Tier Four are institutional controls, engineering controls and intrinsically safe building design. Institutional controls are legally enforceable restrictions or conditions placed on property, such as restrictions on the use of groundwater, zoning or use restrictions and conditions on the depth or location of excavations. In contrast to the legal nature of institutional controls, engineering

controls are physical systems installed to reduce or eliminate vapor issues, including the removal of the contamination sources, placement of vapor barriers, vapor collection systems and indoor treatment systems. Intrinsically safe building designs include such building features as ventilated basements, vapor barriers and other systems to reduce or eliminate vapor intrusion issues.

Tier Four does not provide guidance to users on which of the mitigation techniques to select, or how a technique should be designed or implemented. The selection and design of mitigation techniques will need to be a site-specific decision that takes into account development stage, cost, chemicals of concern, and the regulations of the local jurisdiction.

### **PRACTICAL IMPLICATIONS**

Vapor intrusion is an issue that property owners, developers and investors must take seriously. As our understanding of the risks to human health and the environment posed by vapor intrusion increases, the issue will gain increased attention from regulators, investors and employees. The identification of indoor air quality problems caused by subsurface contamination opens property owners, employers and parties responsible for contamination to statutory and common-law liability, toxic torts claims, employee complaints and potentially costly mitigation.

To avoid or minimize liability, it is imperative to identify and manage potential or actual vapor intrusion issues as early as possible. To this end, ASTM has done a service to users by crafting the standard so that the Tier One assessment can be included in a standard Phase I Environmental Site Assessment. In conducting diligence on anything but the most pristine of properties, users should seriously consider taking advantage of the add-on nature of the Tier One assessment. While the assessment is not yet required by federal rules to be included in the “all appropriate inquiry” component of the Bona-Fide Prospective Purchaser defense to Superfund liability, the assessment uses the same information as gathered during the Phase I, and the cost should not be prohibitive. We would warn users, however, that as the vapor intrusion standard is brand new, particular attention will need to be paid to the conclusions drawn during the Tier One assessment.

Where a Tier One assessment reveals that pVICs exist, users should be mindful that there is a direct relationship between the stage of development at a property and the cost of mitigating vapor intrusion issues. If the pVICs are identified prior to, or during construction, users should act diligently to determine if mitigation is necessary. Developing a mitigation plan before a property is fully developed will give the user a wider range of cost-effective mitigation options. For properties that are fully developed, or where development plans are inflexible, a more advanced, site-specific modeling may be indispensable in determining exactly how intrusive mitigation must be, if necessary at all.

At clean properties where construction or redevelopment has not occurred, but on-site or surrounding operations pose a risk of future subsurface contamination, the inclusion of low-cost, low-tech mitigation techniques, such as vapor barriers, should be considered as a prophylactic measure to prevent future vapor intrusion issues.

Finally, it is important for users to remember that the standard is voluntary and not legally binding. Where pVICs or VICs are identified, state and federal guidelines must be considered in developing assessment models or mitigation techniques.

### **CONCLUSION**

In the past, vapor intrusion has remained out of the spotlight of state and federal regulators, chiefly due to the difficulty of reaching definitive answers to the question of how to assess the risks of vapor intrusion, the apparent mischaracterization of vapor migration pathways, and the impact of vapor intrusion on human health and the environment. The finalization of the ASTM standard and the upcoming release by the EPA of new assessment guidelines should be taken as a signal to property owners, developers and investors that vapor intrusion is an issue that can no longer be ignored. Users should be ready to incorporate assessment and mitigation into their due diligence activities for all properties where contamination exists or is suspected. Doing so will greatly reduce the risk of liability posed by vapor intrusion.



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