

## WHAT'S IN STORE FOR THE ASTM VAPOR INTRUSION ASSESSMENT STANDARD?

6/10/09, Page Perry and Ladd Cahoon

**Over one year ago, in March 2008**, ASTM International published a new "Standard Practice for Assessment of Vapor Intrusion into Structures on Property Involved in Real Estate Transactions" (Designation E 2600-08)("the Standard"). The Standard was developed as a supplement to a Phase I Environmental Site Assessment (ESA), but can also be performed independently of a Phase I ESA. The Standard's stated purpose is to define commercial and customary practice for conducting a Vapor Intrusion Assessment (VIA). It is meant to be a voluntary, flexible, tiered approach to evaluating the potential for vapor intrusion to affect a property being investigated for a real estate transaction. However, use of the Standard as currently formulated can create the risk of identifying a potential vapor intrusion issue where one does not exist. As a result, property owners and prospective buyers are encouraged to ensure their consultants exercise professional judgment where allowed by the Standard, especially in interpreting results generated by the methodology set forth in the Standard. In addition, users of the Standard are encouraged to consider using alternatives, at least until shortcomings in the Standard identified below are addressed by ASTM.

### VAPOR INTRUSION

Vapor intrusion (VI) occurs when contamination in soil or groundwater volatilizes and enters into overlying buildings as a gas. This becomes a concern when chemical concentrations rise to levels which may create air quality problems and potential health risks to visitors or occupants of the overlying buildings. For owners, lessees, and other parties legally or financially connected to a property, vapor intrusion potentially can result in liability and can diminish property value.

## OVERVIEW OF THE VAPOR INTRUSION STANDARD

The ASTM Standard offers a process for identifying, evaluating and responding to potential vapor intrusion issues in a relatively uniform manner. The four-tiered Standard attempts to discover as early as possible whether a potential vapor intrusion condition (pVIC) exists on a particular property, and if so, what action should be taken to determine whether an actual VIC exists. The Standard also provides suggestions on how to mitigate the problem if a VIC is found.

The Tier 1 assessment is an initial, non-numerical, non-invasive screening meant to determine whether a pVIC exists. The Tier 1 screening is structured to make use of information gathered in the Phase I ESA process – including current and historical site use data, government records, and information on the surrounding area and physical setting. However, the vapor intrusion assessment (VIA) process set forth in the Standard is designed to be used independently of, or to supplement, but not to replace, a Phase I ESA.

Tier 1 sets out three tests to determine if a pVIC exists: a search distance test; a chemicals-of-concern test; and a plume test. If use of these tests results in a determination that there is no pVIC, then the Standard requires no further assessment. However, the three Tier 1 tests are very conservative – if certain criteria are met, the tests presume that a pVIC exists, and further analysis is required.

The first test – the “search distance test” – is to identify any present or former sites within a specified distance of the target property that used or uses volatile chemicals, e.g., a dry cleaner or gas station. If any such site is located within prescribed distances, then a pVIC is presumed to exist.

Second, the “chemicals-of-concern test” determines whether volatile chemicals are present at known or suspect contamination sites within the search distances. If a source of contamination is found within the search distances and chemicals of concern are present, then a pVIC is presumed to exist.

Third, the “plume test” determines whether a chemical of concern in a contaminated plume is within a specified search distance. If there is existing information available about the boundaries of the contaminated plume, and the lineal distance in any direction from the nearest edge of this plume is within 100 feet (for volatile chemicals), or 30 feet (for petroleum hydrocarbons), then a pVIC is presumed to exist.

If a Tier 1 evaluation identifies a pVIC, then further investigation is warranted. The user may conduct a Tier 2 evaluation, or proceed directly to pre-emptive mitigation alternatives (Tier 4). Tier 2 “applies semi-site specific numeric screening criteria to existing or newly collected soil, soil gas and/or groundwater testing results” to assess whether a pVIC still exists. Tier 3 is a full vapor intrusion assessment, which may include interior and/or exterior vapor sampling, depending on the property at issue. Finally, if, as a result of the prior Tier 1-3 evaluations, a potential or actual vapor intrusion condition is determined to exist, the Standard calls for proceeding to mitigation under Tier 4.

This Standard is voluntary, and is intended to provide a uniform way to assess vapor intrusion concerns. However, there are several aspects of the Standard that could lead to unintended results, arising primarily from the conservative assumptions included in the Tier 1 evaluation.

#### **PRACTICAL IMPLICATIONS OF THE VI STANDARD**

As these presumptions are based upon a review of existing information only, and not actual screening for chemicals of concern located beneath a property, this process can be over-inclusive: essentially, it has been described as "screening in" potential VI conditions, rather than screening them out.

Use of the Tier 1 evaluation procedure, with its conservative assumptions, can result in potentially troublesome conclusions for both buyers and sellers of property. For a potential purchaser considering a property within the prescribed distances to a source, Tier 1 will conclude there is a pVIC, and the buyer will face what can be a difficult choice: whether to further assess the property (spending time and incurring further costs in the process), to purchase the property despite the pVIC finding, or to abandon the potential deal. A buyer may abandon a potential deal upon a finding of a pVIC to avoid incurring the additional expense of further assessment, or if there is insufficient time to conduct further analysis before the scheduled close of the transaction. At properties where there is in fact no actual VIC at the property, delaying or abandoning a deal often conflicts with brownfield redevelopment policy. Such results can be avoided if the mechanical presumptions of the Standard are supplemented with the judgment of an environmental professional, who can assess the particular circumstances and the likelihood of an actual VIC – thereby potentially avoiding abandonment of a potentially clean property or conducting a potentially unnecessary and costly and time-consuming VIA through Tier 2, 3 and 4.

Property owners can be impacted by the Standard as well. For a property owner trying to sell or lease property within the prescribed distances to a source, use of the Standard will find a pVIC. If a potential buyer began a vapor intrusion assessment under the Standard on the property and found a pVIC, but decided not to pursue the evaluation further and terminated negotiations, the pVIC finding would remain. The pVIC determination may trigger disclosure requirements, and leaving the pVIC determination in place could make it more difficult for the property owner to sell or lease the property and diminish the property value. Even if the owner may prefer not to incur the additional expense of further investigation, he owner may be compelled to complete the VIA process to confirm and mitigate, or refute the existence of a vapor intrusion condition, and bear the associated costs. Again, by being overly conservative, the Standard can create issues and expenses that otherwise would not have arisen.

The Standard mentions that professional judgment should be applied in Tier 1 "as part of" the pVIC determination, but does not specify how or to what degree such judgment can be used. This language has been described as vague and ambiguous, as it is not clear from the wording whether the environmental professional can actually override the presumption of a pVIC if he believes that, based on

the particular details of the target property, there is no potential for a VIC and it should be "screened out" from further analysis under the Standard.

The Standard has also been criticized as being overly conservative in an additional way: the approximate minimum search distances in Tier 1 tend to overstate the risks posed by petroleum hydrocarbons. The Standard identifies a "secondary area of concern" which calls for a minimum search distance up-gradient of the target property. This test can overestimate the risk posed by petroleum hydrocarbons, as the Standard calls for a search up to ½ mile for certain petroleum hydrocarbons, and up to 1 mile for other petroleum hydrocarbons up-gradient of the target property. However, petroleum hydrocarbons often are not as mobile as some other constituents of concern. Thus, a presumption that a pVIC exists if petroleum hydrocarbons are found 1 mile, or even ½ mile up-gradient of the target property is considered by many to be overly cautious, over-estimating the risk of a pVIC. Again, an environmental professional can offer a more specific opinion as to the mobility of the particular petroleum hydrocarbons located within the prescribed up-gradient distance, and could determine that no risk exists where a mechanical application of the Standard would conclude otherwise.

#### **THE FUTURE OF THE ASTM VI STANDARD**

Based on feedback from the field, the ASTM Vapor Intrusion Task Group responsible for developing the Standard is currently working to revise the Standard to eliminate the "secondary area of concern" evaluation and assess any other potential issues encountered to date. The revised Standard went out to a broader group within ASTM (the Real Estate Assessment and Management Sub-committee) in April, 2009, and the Task Group reportedly will accept feedback throughout the summer. The Standard still must undergo final revisions based upon the feedback received, and then must be placed on a ballot for approval by the full ASTM Committee on Environmental Assessment, Risk Management and Corrective Action; which the Task Group hopes would happen in late summer. Accordingly, a revised Standard likely will not be approved and published until at least late 2009.

#### **CONCLUSION**

Assessment of a potential vapor intrusion condition is a prudent part of due diligence for many potential purchasers of property, and early detection of a potential problem can save significant costs and efforts in the long run. However, as is, the advantages of the uniformity provided by the ASTM Standard are outweighed in some circumstances by the Standard's conservative assumptions and its potential to unnecessarily presume pVICs on certain properties. Perhaps the revised Standard will address some of these concerns and create a more workable model, but until then, property owners and prospective buyers would be well-advised to carefully consider the issues raised above before deciding to apply the Standard in the context of a property transaction and, if they do, to also use the professional judgment of environmental professionals, to insure that a mechanical application of the Standard as currently formulated does not raise unnecessary issues or result in unnecessary expenditures.

**JUNE 10, 2009**