



Vapor Intrusion & Property Transactions

Managing a Vapor Issue with your Property Transaction

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Vapor migration into buildings has been the focus of assessment and control for over seven years, so many of our clients are painfully aware of the issues. For those of you that have not dealt with this, or want a broader overview, this edition of *Tech-Bits* covers the process of assessment and mitigation where vapors may impact buildings. Vapor intrusion is an issue that will be around for the foreseeable future, so understanding its impact on real estate timing, costs and operations can help you plan for the design requirements, and often associated delays.

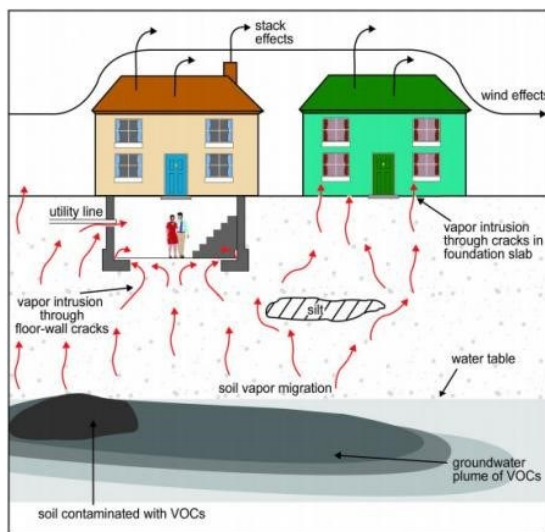


IMAGE FROM WWW.EPA.GOV/VAPORINTRUSION

THE BASICS

Vapor intrusion occurs when vapors from volatile chemicals in soils or groundwater migrate up or through soil, or along underground utilities, toward a building, and then infiltrate through openings and cracks in walls, floors, and concrete slabs. This requires three conditions: 1) that historical release of solvents or petroleum occurred within 30 to 100 feet of the building, 2) that volatile organics from that use are present in sufficient concentration in the subsurface to

cause a vapor issue, and 3) that vapors can actually migrate into the building (for example, HVAC system causes a negative pressure, pulling vapors into the building through cracks in the foundation, but also migrate through concrete floor and walls). The assessment process assumes that this will happen unless proven otherwise, so evaluating these three conditions as early as possible in the development cycle will help to avoid delays and unexpected costs.

EGLE's Remediation and Redevelopment Division (RRD) issued their "Guidance Document for the Vapor Intrusion Pathway" in 2013. Moreover, in 2020, EGLE published their Volatilization to Indoor Air (VIAP) Screening Levels, identifying those levels of volatile chemicals in the subsurface that trigger a concern, which can be very low. These guidance documents changed the way vapor intrusion was assessed in Michigan, and therefore mitigated, in real estate transactions. Previously, look-up tables provided action levels for designing mitigations that would be protective of human health and the environment for an intended future use. Now, where the assumption of vapor intrusion exists, a screening process is used to assess conditions over an extended period. If you are seeking EGLE approval, most everything will be negotiated during this process. If you are not seeking EGLE approval, but are self-implementing under Part 201, EGLE may still request a review based on their evaluation of documents you have previously filed. If you are seeking incentives, EGLE may request that a vapor control system be the first reimbursement cost and therefore require review. In addition, EGLE and DHHS are working together to enforce indoor air quality standards, even when there is only suspected vapor intrusion, creating two different approaches. That is, DHHS' primary concern is the health effects from exposure of building oc-

cupants while EGLE focuses on the subsurface contaminants, and thus indirect impacts to human health.

Consequently, for properties with suspected vapor issues, assessment and mitigation have become a standard part of real estate development for all types of properties. Also be aware, because vapor screening levels have become lower over the past eight years, this can result in EGLE conducting an independent review and requiring mitigation measures to be installed at previously closed sites.

THE ASSESSMENT AND DESIGN PROCESS

It is important to be purposeful about vapor assessment during your Phase I ESA. This will be your first opportunity to identify red flags. Red flags can include petroleum (thus USTs) on or within 30 feet of the property line, or historical solvent (e.g., perchloroethylene or PCE) use, such as dry cleaners or industrial uses, on or within 100 feet of the property line. This could mean that historical impacts on an adjacent property are as much of a concern as those on the subject property, so an assessment of soil types, depth to groundwater, groundwater flow direction, and construction details must also be conducted.

If the potential exists for a vapor issue, the next step is conducting soil and/or groundwater sampling to determine if concentrations of target compounds exceed the screening criteria on the property. Additional assessment, in the form of soil gas monitoring, may then be required if the soil and/or groundwater screening criteria are exceeded.

If you identify a potential issue, and you need EGLE approval in the form of a No Further Action Letter (for example for HUD or MSDHA funding, or SBA lending), negotiating sufficient assessment and design can take up to a year. This is primarily because EGLE requires four quarters or more of extensive monitoring for approval, but also because of changing assessment and system requirements. If you do not require EGLE approval, we recommend that you still gather sufficient data to document your assessment, design, and operation in order to provide defensive documentation in the event that DHHS or EGLE conducts an independent review.

Regardless of whether or not you require EGLE approval, system design must evaluate both installation and operational costs, and will require an additional round of assessments. There are different systems for existing buildings and new construction. New construction allows direct placement of the system under the future building slab, sealed with a vapor barrier before pouring the new building slab. In existing buildings sealants can be applied to further reduce the potential for migration, but ventilation systems will require custom design. For either type of building, passive (no fans) and active (fans that create negative pressure below the slab) collection sys-

tems are options, but passive systems are increasingly less common (and it is harder to prove it is working). Each system requires different amounts of post-installation monitoring and maintenance, and typically require annual system operational checks, backup power systems, and pressure monitoring.

THE ISSUE WITH MERCURY AND PETROLEUM HYDROCARBONS

In addition to petroleum and chlorinated solvents, the metal mercury and some less volatile petroleum hydrocarbons (called “PNAs”) are chemicals of interest to EGLE. Background mercury levels in soil (i.e. not attributable to any release) are often above screening levels, and analysis of total mercury can imply that it is volatile. Additional analysis (e.g., soil-gas testing) can be used to identify if detected mercury is in fact elemental mercury, and therefore volatile, or is the more common mercury salt. The other petroleum hydrocarbons (PNAs) are commonly found in fuels, asphalt, and combustion emissions resulting in their presence being pervasive, particularly in urban areas, or on sites with construction debris, and typical levels in urban area soils can exceed the EGLE screening levels.

THE SOLUTION

Vapor intrusion assessments can add time and cost to properties with the right (wrong?) conditions. We recommend an early assessment of the key conditions and the need for EGLE approval, and then adjusting construction schedules, if necessary. If concentrations exceed screening criteria at any of the steps of the assessment, you can typically assume that you will need a vapor mitigation system, and therefore, for voluntary closures we often recommend a presumptive remedy (that is, installation of a sub-slab vapor intrusion mitigation system) based on site-specific data. But the technical remedy is not typically the issue. Where you will most likely run into delays is with the EGLE approval process. Consequently, early planning for detection, assessment and mitigation of vapor intrusion is a key element for redevelopment.

For more information, please contact ASTI Environmental’s Director of Property Services Group, Rick Welsh at 810-225-2800 or rwelsh@asti-env.com.



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