Vapor Intrusion: Liability determination is key to liability management

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ABSTRACT

Vapor Intrusion (VI) may be an issue for over 100,000 contaminated sites in the United States. Developing a solid strategy for minimizing VI-related liabilities at these sites is imperative. To date, the strategies employed vary and meet with differing levels of success. some try to ignore VI, hoping it will go away; some charge in, hoping to put it to rest; some get some data, and then decide how they are going to interpret it and react; some lay out endless possibilities in flowcharts; some blindly follow regulatory guidance; some follow the lead of experts, when maybe none knows fully what is required; some proactively mitigate; and still others merely try to avoid inappropriate admissions. While extenuating circumstances will inevitably arise in any VI litigation, a rational approach should be developed as a general guide for liability management.

When developing an appropriate strategy, a number of tactical decisions will be driven by site specific issues, including exposure routes and magnitude, and whether health concerns or property damage concerns are driving the litigation. To determine site specific issues, the litigator will require experts and consultants to assist with developing the fate and transport of subsurface vapors, the fate and transport of ground water, and to assess the relationship between the two. Risk assessment and the appropriate causation analysis will also influence the strategies employed and the tactics considered in managing vapor intrusion sites, be they in litigation or subject to regulatory oversight. Issues include appropriateness of standards, the intersection of "guidance", standards and tort law. Lastly, the nature of any claim made in litigation will also influence the litigation-risk management issues.

INTRODUCTION

A. Vapor Intrusion Defined

While vapor intrusion is not a new phenomenon, it is an ever evolving science, field of litigation, and source of enforcement actions. As evidence emerges that the migration of chemical vapors into buildings and structures is a serious and potentially widespread health and economic concern, the need to address the issue has become inescapable. Vapor intrusion ("VI") is the process by which chemicals in gaseous form travel from an underground source, such as contaminated groundwater, up through the soil and into the indoor air of a building or structure above or in close proximity to the underground source.[1] For a VI problem to exist, there must be both a source of underground contamination and a pathway for the contaminants' entry into a building or structure.[2] Chemical spills or leaks often cause this contamination.[3] VI occurs most often when a building is located near a "plume:" a volume of contaminated groundwater that extends downward and outward from a specific source of contamination.[4] VI can also arise from soil contamination without an underlying groundwater source.

The volatilized chemicals are able to migrate vertically and horizontally into aboveground structures because of diffusion and the pressure differential between the indoor air and the soil gas. The contaminated soil vapor can then enter buildings through openings or cracks in building foundations or basements. [4] VI is considered typically less of a concern in warmer climates, where buildings are air conditioned, though this may not be accurate.[4]

Specific types of contaminants, called volatile – or readily evaporative – organic compounds ("VOCs") are capable of VI.[4] There are typically two types of VOCs: chlorinated solvents and petroleum hydrocarbons.[4] The most common, chlorinated solvents, are man-made chemicals found in many household and office products, and are often used for industrial processes.[3] Chlorinated solvents are VI's characteristic contaminant of concern because of their widespread use, resistance to biodegradition, high volatility, and gaseous toxicity potential.[4] Trichloroethylene ("TCE"), trichloroethane ("TCA"), and tetrachloroethylene ("PCE" or "Perc") are extremely common chlorinated solvents. TCE is one of the most common degreasers, and PCE is the chemical universally used in dry cleaning.[1] Some examples of petroleum hydrocarbons include benzene, ethylbenzene, toluene, and xylene. These chemicals are slightly less of a VI threat because of their susceptibility to biodegradation before the vertical migration takes place.[4]

VI has both economic and legal repercussions, and may lead to an array of costs. The presence of VOCs in a home or business poses significant risks to both health and property.[4] It is relatively established that long term exposure to some VOCs may cause chronic health problems. Property values may diminish substantially if completed VI pathways have formed. Increased due diligence, extensive risk assessment and testing, remedial actions, long term monitoring and safeguarding, and the substantial risk of third-party claims and litigation are all costs that are associated with VI.[5] For these reasons, this threat cannot be overlooked.

B. Magnitude of the Problem:

VI is a significant problem in the United States, but both the number of contaminated sites and the fraction of those sites with conditions favorable to VI are uncertain.[6] A total of 374,000 contaminated sites are referenced in the U.S. Environmental Protection Agency's (EPA) 2002 VI guidance document.[7] The National Research Council reports that the number may be as high as 439,000.[8] Preliminary estimates suggest that about one half of these contaminated sites contain volatile contaminants.[6] Of these volatile contaminated sites, *an additional* one-half have conditions that would be conducive to VI.[6] Therefore, VI may be an issue in approximately one-quarter of the total number of contaminated sites, or some 100,000 sites in the United States.[6]

Assessments have concentrated on sites with higher potentials for VI problems (e.g., sites with off-property groundwater sources).[6] If this is the case, the results to date may overestimate the magnitude of the problem.[6] However, VI assessments may *underestimate* the problem because these conditions may be most common in cities where larger populations and more buildings are at risk.[6] Groundwater plumes may continue to spread beyond assumed boundaries.[6] Therefore, buildings directly above plumes may not be the only structures at risk of VI; these risks may exist several miles beyond the supposed plume boundary. [9]

LIABILITIES AND LITIGATION

A. Brownfields and Voluntary Cleanup Programs

Brownfields are former industrial properties that are not fully developed, expanded, or reused due to potentially hazardous contamination.[10] There are an estimated 450,000 brownfields in the United States.[10] In an effort to maximize the utility of these sites, the Environmental Protection Agency (EPA), working with other federal, state, and local redevelopment groups, facilitates cleanup, transferability, and revitalization of these properties. Brownfield cleanup is achieved through regulation, taxation, and technical assistance to stakeholders. Furthermore, Voluntary Cleanup Programs ("VCPs") promote cleanup of contaminated sites and facilitate economic productivity and transferability of brownfield property.

Purchasers of brownfield properties, even those certified under a VCP, should be aware of a continuing elevated risk of VI because it can be a significant hidden source of contamination.[11] The volatile chemicals are underground and may have traveled a significant distance to the site being considered for redevelopment. Because soil vapors may be detected even if ground water is "non-detect" and strong odors are not often associated with VI, VI may be hard to detect. Additionally, the migration and dispersion of a contaminant plume can be complex and difficult to predict or model and may change. Many former industrial sites are in urban areas increasing the likelihood that they may be near other sites contaminated with VOCs. Also, since some of these brownfields contain older buildings that are redeveloped, damaged foundations can provide pathways which assist in vapor migration.

B. All Appropriate Inquiries

By conducting an "all appropriate inquiries" due diligence prior to acquisition, a landowner is afforded certain protections under law. "All appropriate inquiries" is the process of evaluating a property's environmental conditions and assessing potential contamination liability prior to its acquisition.[12] Because property owners may be held strictly liable for releases of hazardous substances at properties that they either currently own/operate or owned/operated at the time of disposal under CERCLA, and because it is required by most lenders, environmental due diligence is routinely performed as a defense for both current and future property owners.

Both the EPA and individual states regulate exactly what constitutes an "all appropriate inquiry." Current and prospective landowners typically follow standards, such as American Society for Testing and Materials' ("ASTM") Phase I Environmental Site Assessment (ESA) Standard (E 1527), to determine if a release of a hazardous substance has occurred. However, this standard does not address VI conditions of which property owners and their consultants should be aware. An ASTM task force was created in October 2005 to develop an official standard to assess VI.[13] The final standard will likely adopt a flexible four-tiered approach for evaluating the presence of conditions leading to VI as is currently reflected in the draft document.[13] The draft document's first tier requires an initial, non-numerical screening of the site to determine appropriate minimum search distances for VI. [13] Tiers 2 and 3 are projected to focus on site-specific numerical screening, mandating on-site sampling and comparisons of collected VI data with predetermined state-specific screening levels.[13] In the event that a VI case is identified under the first three tiers, Tier 4 will assess proper mitigation techniques. Although a final draft standard is expected by July 2007, the publication of the final ASTM “VI Standard” is expected by the end of the year.[14, 37] Once this becomes adopted, compliance is key for companies hoping to establish effective defenses to a VI action. Likewise each state’s VI guidance and regulations vary, so owners and prospective purchasers of contaminated properties should stay up to date with their jurisdiction’s requirements.

C. Tort Liability

A developing issue with VI is the rise of potential tort claims, including negligence, nuisance, and trespass, that may be brought as a result of the intrusion of chemical vapors onto others’ properties or into others’ buildings.

1. Negligence:

Three essential elements must be established to prove an entity negligently caused vapors to intrude on another’s property.[15, 16] First, a legal duty not to release volatile chemicals must be established. Whether the release was a foreseeable consequence is of utmost concern in determining whether any duty exists.[17] Foreseeability should be based on the knowledge extent at the time of the event; however, jurisdictions vary. Second, there must have been a breach of this duty. Traditionally, failing to use ordinary care will establish the breach of the duty.[18] For instance, if most companies using similar types of chemicals would reasonably perform additional safety measures, then it is more likely that a defendant neglecting to perform such measures has breached its duty. Last, and perhaps the most difficult for plaintiffs to establish, the breach of duty must have proximately caused the plaintiff’s injury.[19] A defendant’s negligent act by itself is not actionable unless it was a substantial factor in bringing about the plaintiff’s injury, the injury would not have occurred but for the act, and no other causes could have resulted in the injury.[20]

Other potential causes for increased levels of airborne contaminants should be investigated as should other potential causes for any alleged damages and injuries resulting from VI. In VI cases, the primary issue regarding proximate causation is whether the plaintiff can establish the existence of a VI pathway.[4] Although the uncertainty in the science of VI might appear to help a defendant’s ability to rebut proximate cause, some courts may allow plaintiffs to prove specific causation more circumstantially.[21] For example, plaintiffs might be able to offer general results from studies and show similarities between themselves and the studies’ subjects.[21] This could mean that more claims with less of an established causal link are actionable.

2. Nuisance:

A nuisance is a condition that substantially interferes with the use and enjoyment of land by causing unreasonable discomfort or annoyance to a person of ordinary sensibilities.[22] Nuisances can be either private or public. To prevail on a private nuisance claim, a plaintiff must first prove a private interest in the property in question. Second, the plaintiff must show that the defendant interfered with or invaded the property interest by conduct that was negligent, intentional and unreasonable, or abnormal and out of place in its surroundings.[23] Third, the plaintiff must show the defendant's conduct resulted in a condition that substantially interfered with the plaintiff's private use and enjoyment of the land.[24] Last, the nuisance must have caused injury to the plaintiff. This injury can be either physical injury to the plaintiff's property, physical injury to the plaintiff, or emotional injury to the plaintiff.[25]

A public nuisance is a condition that amounts to an unreasonable interference with a right common to the general public.[26] It concerns an act or condition that subverts public health or public order or that constitutes an obstruction of public rights.[27] A defendant's conduct is unreasonable if it involves significant interference with the public's health, safety, peace, comfort or convenience.[28]

3. Trespass:

A trespass is an intentional physical interference with the exclusive possession of property.[29] First, the plaintiff must establish ownership or a lawful right to possess the property in question at the time the injury accrued.[30] Second, the defendant must have physically, intentionally, and voluntarily entered the plaintiff's land.[31] This entry requirement is met so long as the defendant caused someone or something to physically invade the property or failed to remove a thing from the property when under a duty to do so.[32] Last, the plaintiff must establish that the defendant's trespass caused an injury to the plaintiff's right of possession.[33]

VAPOR INTRUSION INVESTIGATIONS IN LITIGATION

Given the claims available to plaintiffs and the obstacles defendants may face in vapor intrusion claims, it is essential that an investigation into the claims be conducted.[34] Because there are, currently, no one set of standards or minimum contamination levels applicable to all states and situations, it is essential to determine the standards and levels that govern the particular jurisdiction, property conditions and property use.

Certain steps should be considered when investigating vapor intrusion claims.[34] One of the first steps is to evaluate the site conditions and the groundwater conditions. These include site assessment, collection of data regarding historical releases, modeling ground water flow, both current and historically, and modeling contaminant plume fate and distribution.

Analysis of vapor claims will require a different thought pattern than dealing with ground water claims. Soil vapor sampling should be conducted after a thorough understanding of the ground water conditions, including flow pathways. Additionally, before sampling for soil vapor, it is prudent to construct a "site conceptual model" to assist with the placement of soil vapor probes. Probes should be installed a varying depths to determine if the soil vapor source is the ground water plume or other source. Lastly, it is important to understand that soil vapors may be detected even if the ground water shows non-detectable concentrations of plume constituents.

CONCLUSION

To minimize risk exposure, it is imperative that companies with potential VI liabilities develop solid strategies based on their site's unique features.[34, 35, 36] Currently implemented strategies vary significantly and are met with differing levels of success. For example, some companies try to ignore VI, hoping it will go away; some take charge and proactively try to put it to rest; some lay out endless possible scenarios in flowcharts; some blindly follow regulatory guidance; some follow the lead of experts, when perhaps none knows fully what is required; some attempt to mitigate the effects; while others merely try to avoid inappropriate admissions.

While unforeseeable variables will inevitably arise in VI litigation, a company should develop a rational approach as a general guide for liability management. Site specific issues will drive the determination of the appropriate strategy. Such issues include exposure routes specific to the site and whether health concerns or property damage concerns drive the litigation. Lawyers will require experts and consultants to assist in determining the fate and transport of subsurface vapors and groundwater, and to assess the relationship between the two. Risk assessment and causation analysis are important as well, and will influence the strategies used in VI management.

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KEY WORDS

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