## **REGULATORY PROGRAMS**

The cleanup of subsurface contamination in the United States is regulated by U.S. EPA; state, territorial, and tribal environmental agencies; and in many cases, for petroleum releases, local agencies. In addition, local land use jurisdictions, such as municipalities, may impose environmental conditions on projects within their boundaries. Finally, parties engaging in property transactions and development frequently follow federal and state environmental laws voluntarily, with no regulatory oversight, as a pre-emptive defense against future sanctions or litigation.

The primary federal laws governing subsurface cleanup are the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as Superfund) and the Corrective Action provisions of the Resource Conservation and Recovery Act (RCRA). The states have similar laws. The laws are interpreted further by voluminous regulations. The programs established by these laws vary widely both in legal language and in implementation.

In general, U.S. EPA oversight of remedial action under CERCLA is the most robust form of regulation, but this happens only when a facility is placed on the "Superfund" National Priorities List (NPL). While many vapor intrusion investigation sites are on the NPL, in most cases EPA has listed them because of the risk posed to humans through the drinking water pathway. Historically, the risk of vapor intrusion has not been part of the Hazard Ranking System that EPA uses to evaluate sites for NPL listing. Reportedly, as of late 2015 EPA is poised to propose changes to its Hazard Ranking System so that vapor intrusion will be a factor in qualifying sites for the NPL.

Some projects are overseen by both EPA and state agencies, and in most cases other state and federal environmental laws also guide the work.

If there is a recognized, or even suspected, vapor intrusion problem in your community, it's important to learn which agency is overseeing the response under which laws and regulations. If no agency has taken charge, it's essential to find one to do so.

In our experience, there are three particular ways that the regulatory framework affects the typical vapor intrusion response:

1) Potential vapor intrusion sites can slip through the cracks. For example, the cleanup of an old industrial site (a brownfield) may be conducted by a "volunteer," an enterprise that is redeveloping the site but did not cause the contamination. The volunteer may be submitting workplans and reports to environmental regulators to ensure proper cleanup of the site which is the source of contamination, but there might be no requirement for the volunteer to investigate vapor intrusion above a groundwater plume that *migrated* from the site.

Similarly, there may be a small site, such as a former dry cleaner, where there is no responsible party. The site might be eligible for government funds, but funding is

limited. That site is likely to be ignored unless the community insists that action be taken. Such sites may suffer from the chicken vs. egg problem: No agency will take the site seriously until there is evidence that vapor intrusion exposures are occurring; no one will collect evidence because the site is not part of an agency program.

In such cases a community can make a difference by generating its own, low-cost evidence or by finding evidence in existing documents, and also by organizing politically to generate regulator involvement. Alternatively, a community can ask that a site be investigated and addressed in concert with other nearby projects, such as road construction, sewer upgrades, or utility repairs.



City investigation associated with utility work in Winston-Salem, North Carolina confirmed subsurface contamination in this neighborhood.

2) Different agencies and programs use different exposure standards and different attenuation assumptions as part of their risk-based cleanup decisions. Some states and EPA's Emergency Response program use 10<sup>-4</sup> excess lifetime cancer risk (see the Action Levels discussion on page 15 of <u>http://www.cpeo.org/pubs/SGVI/SGVIU.pdf</u>) as the target cancer risk level, while others use 10<sup>-5</sup> or 10<sup>-6</sup>. The action level (measured indoor air concentration requiring mitigation) for the 10<sup>-4</sup> target would be 100 times as high (less protective) as for the 10<sup>-6</sup> target.

U.S. EPA's carefully worded *Technical Guide* creates a more complicated, sometimes flexible, standard:

EPA generally uses a cancer risk range of  $10^{-6}$  to  $10^{-4}$  as a "target range" within which to manage human health risk as part of site cleanup.... Once a decision has been made to undertake a response action, *EPA has expressed a preference for cleanups that are at the more protective end of the cancer risk range*. Thus, EPA recommends using an individual lifetime cancer risk

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of  $10^{-6}$  as a point of departure for establishing cleanup levels based upon potential cancer effects.

Furthermore, sometimes state and federal toxicologists come to different conclusions based on their laws, policies, and mandates, as well as different assumptions or regional differences in populations, behaviors, or other factors. In 2012, U.S. EPA promulgated a cancer slope factor (from which the exposure standard is calculated) for PCE that was about 20 times less protective than the old slope factor, which was based upon the findings of California's Office of Environmental Health Hazard Assessment. California stuck with the old number. In August 2015, New York State's Department of Health established a new vapor exposure standard for TCE. It matches EPA's non-cancer standard for residences, and it roughly matches EPA's 10<sup>-6</sup> cancer standard for non-residential exposures. It's not clear yet how it will apply.

Similarly, each agency establishes its own soil-gas screening levels, based upon attenuation factors from either mathematical models or, in the case of U.S. EPA's *Technical Guide*, real-world data. Historically, these thresholds have varied by orders of magnitude. Thus, a soil gas reading that would cause Connecticut to require indoor sampling or mitigation might be ignored by Michigan.

There are even cases where regulatory agencies delayed vapor intrusion investigations because they lacked the capacity. Arizona's Department of Environmental Quality, at the time the lead agency for part of the Motorola 52<sup>nd</sup> Street Superfund site in Phoenix, for years delayed initiating a vapor intrusion investigation there. Eventually U.S. EPA took over. In a slightly different twist, in Sunnyvale, California U.S. EPA recently assumed the lead over the Triple Site Superfund Area because the responsible parties were not responding to the requests of the Regional Water Board, a state agency,

In some situations, responsible parties are able to choose or influence the agency that oversees the response at a site. Communities seeking proper protection may also wish to provide input or even apply pressure to get action and screening levels they feel appropriate.

3) Environmental regulatory agencies do not always have the authority or capability to impose restrictions on construction, even where the protection of building occupants requires vapor barriers or mitigation systems. Local governments have the power and the capability to place conditions on construction, but most lack the expertise to know what to require. EPA's Technical Guide highlights EPA Region 9's relationship with the city of Mountain View, California, which has overcome that disconnect:

[Mountain View's] permitting procedures oblige those proposing new building construction within the MEW Study Area to obtain EPA approval of construction plans to ensure that, where necessary, the appropriate vapor intrusion control system is integrated into building construction. Thus, it is possible for environmental regulators and land use planning jurisdictions to work together to ensure that new construction is designed and built to address vapor intrusion. But Mountain View is the exception, not the rule. Members of other communities may need to ask their agencies to form such a partnership.

These are just a few of the ways that the regulatory framework can influence vapor intrusion response and other cleanup decisions. Community members need to understand the rules and programs if they are going to influence those decisions as well. They also need to know that property developers and their lenders and insurers can sometimes be persuaded to incorporate preventive approaches, such as sub-slab depressurization, additional sealing of foundations, or a project design that minimizes exposures, where local government, responsible parties, or others do not act.

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