

Building above the Speonk Solvent Plume in Southampton, New York

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February 2011

The Speonk Solvent Plume is a two-mile or longer stretch of groundwater contamination in the hamlet of Speonk, in Southampton, New York—on the southeastern coast of Long Island. Discovered by the Suffolk County Department of Health Services (SCDHS) in 2001, the plume contains tetrachloroethylene (PCE), trichloroethylene (TCE), 1,1,1-trichloroethane (TCA), chloroform, and carbon tetrachloride. Initially, five of 45 private wells tested exceeded state groundwater standards, with one measuring 1,673 parts per billion (ppb) total chlorinated volatile organic compounds (CVOCs). Impacted residents were provided with alternate water.

The New York State Department of Environmental Conservation (DEC) began investigating the site as a potential Inactive Hazardous Waste Disposal Site, and it contracted with Environmental Resources Management to conduct field sampling. In 2005 ERM conducted a targeted vapor intrusion study, confirming vapor intrusion in two homes. ERM produced a preliminary site assessment in 2007, but as is typical at New York sites without a responsible party or identifiable source, progress toward cleanup has been slow.



Proposed development site above the Speonk Solvent Plume

DEC has told the public that it believes the CVOCs were released through illegal dumping 30 to 40 years ago, but the sources of the contamination are unknown. One may lie in a wooded area with no known development history, and another site appears to sit in the middle of the impacted residential area. Long-time residents say the U.S military used the land during World War II. The state considers the nearby BB&S Treated Lumber Site a source of chromium and arsenic groundwater contamination, but not CVOCs.

Today the area is ripe for development. Developers are proposing at least five residential projects totalling more than 100 housing units. Anywhere above the plume, there is a potential for vapor intrusion, so sound public policy suggests that all new structures be built with vapor barriers and at least passive sub-structure depressurization systems. That's because the cost of designing vapor mitigation into new buildings is minimal, compared to retrofitting later.



Part of the neighborhood above the Speonk Solvent Plume

Some have argued that the depth of contamination makes vapor intrusion unlikely, but the confirmation of intrusion in existing homes suggests otherwise. The geospatial and temporal variability of soil gas concentrations typically found at CVOC plumes is a strong argument for taking a precautionary approach. Perhaps a builder could be given the opportunity to do extensive characterization, to prove that vapor intrusion is impossible at each building, but that would be more expensive than simple mitigation.

Nationally, I am finding growing support for this position: Passive mitigation (if not active) should be built into all new structures above CVOC plumes. The problem is: Who is in a position to require it? At the Speonk plume, as elsewhere, the lines of governmental responsibility are confusing:

New York State Department of Health (DOH). DOH is the principal agency responsible for evaluating vapor intrusion in New York state, but it does not have the authority to restrict or mandate elements of new construction. In November 2007, DOH wrote the Southampton Planning Board about one of the proposed developments: “To date, the data are not indicating this is a significant concern and a recommendation for a vapor barrier to be incorporated into the design would be precautionary only.” It added, “If a structure was to be built over this location, it is possible a sub-slab soil vapor sample, coupled with an indoor air sample, may be recommended to determine if soil vapor intrusion was an inhalation exposure concern.”

New York State Department of Environmental Conservation. DEC may require vapor mitigation in new construction as part of an approved remedial action, but at this site it will be years before a remedy is developed, largely because DEC is funding all site activity. The 2007 Preliminary Site Assessment recommended: “A soil vapor survey should be conducted on the planned development for residential housing undeveloped land [sic] to identify the potential source area where contaminants were released/discharged.” DEC reportedly conducted such additional soil gas sampling, but the results have not yet been made public.

In fact, at this stage—still conducting site characterization—DEC cannot even place the site into its Environmental Remediation Database. Furthermore, according to the activist Group for the East End:

New York State Environmental Conservation Law (Article 27 Title 13) governing Inactive Hazardous Waste Disposal Sites does not require official notification to affected property owners impacted by contamination until the site has officially been classified following the completion of the Site Characterization Phase. Our experience has illustrated that the Site Characterization Phase can take years to complete. Meanwhile, the impacted public may not be aware of circumstances that can affect their health and the environment. Unknowing property owners, future property owners, in some cases the municipality and others are not provided information regarding the circumstance unless an agency has to access private property for testing or an agency agrees to hold a public information session (which is not required).

Town of Southampton. In July 2010 the Southampton Planning Board was poised to require soil vapor barriers and depressurization systems for one of the proposed developments, as a condition of subdivision. The town clearly has the authority, but the Town Attorney convinced the Board to drop the conditions, in the belief that they would expose the town to litigation. I find it ironic, since in many localities—such as my own—city governments have been sued for *not* taking adequate protective action against vapor intrusion in new construction.

Suffolk County Department of Health Services. SCDHS is the one agency that wants to take action, but its trailblazing approach requires shoehorning vapor intrusion oversight into other permitting authorities. In August, 2009, a SCDHS hydrogeologist

wrote the town: “It is our recommendation that all proposed developments constructed on or in proximity to significant groundwater contamination be constructed with sub-slab soil vapor depressurization systems in order to mitigate any potential vapor intrusion.” Disappointed in the Town’s failure to act, SCDHS reportedly will incorporate vapor mitigation mandates into its sanitary permit process. It appears that SCDHS believes it can require design review by a licensed Professional Engineer and impose some form of deed notice to inform future property owners about the mitigation systems.

Understandably, policy-makers attempting to protect the public against vapor intrusion first focused on existing buildings, many of which clearly suffered from completed toxic pathways. But the experience at the Speonk Solvent Plume demonstrates that policies and lines of authority must be developed to prevent vapor intrusion in new structures. Mitigation should be routine wherever people are to live, work, or study in a CVOC environment. Agencies responsible for reviewing planning, design, and construction should incorporate mitigation oversight into their standard operating procedures. Developers should welcome regulation that protects their investments and reduces their long-term liabilities.

Furthermore, as the Speonk case also illustrates, communities cannot afford to let migrating plumes lie for years under the cover of slow, incomplete characterization. The Speonk response has been hindered because it is essentially an orphan site. No one expects the developers to remediate the area’s groundwater, but that means resources have to be found elsewhere. Or the public will remain unprotected.