

PCE Vapors in the Heart of Harlem, New York

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I've often asserted that New York State has the nation's most pro-active program for investigating and mitigating vapor intrusion. In fact, the state quoted me to that effect in a press release. However, most of the vapor intrusion responses have occurred upstate, with relatively little attention paid to potential vapor exposures in New York City. In general, that's because volatile organic compound plumes in the City have not been mapped, and few of them have viable responsible parties to perform or at least pay for the work.

However, at the 2350 Fifth Avenue site, between 141st Street and 142nd Street in the heart of Harlem, the state has known about tetrachloroethylene (PCE) contamination for more than 13 years. There is an official Potentially Responsible Party, the 2350 Fifth Avenue Corporation, and a Proposed Remedial Action Plan. But the Proposed Plan is inadequate, particularly because it ignores the potential for vapor intrusion at the densely populated Savoy Park apartment complex, just across 141st from the source site. This is yet another non-white community where potential vapor intrusion is not getting the attention it deserves.



2350 Fifth Avenue, Harlem, New York

In the early 1960s 2350 Fifth Avenue operated as a Borden's ice cream factory and distribution center. Because of this use, the building contains an unusual amount of insulating material such as cork and styrofoam. Some time in the mid-1960s Borden's vacated the site. It then became the location of an industrial laundry and dry-cleaning facility, which operated continuously from 1970 to 1994. This facility appears to be the source of large quantities of PCE, which not only spread into the soil and groundwater in the area, but which also remain in the building's insulation.

Over community objections, in 1997 the New York City Board of Education leased most of the ground floor for a public school, P.S. 141. Air samples showed high levels of PCE inside, so the school was evacuated and closed early that October. It was added to the state Registry of Inactive Hazardous Waste Disposal Sites in July 1998. A church used the school portion until 2004. Today the entire building appears to be a self-storage facility.

Possible Residential Exposure



West 141st Street

Environmental Justice leader Vernice Miller-Travis grew up in the adjacent residential complex, originally called Delano Village and now known as Savoy Park. She explains:

Directly across Chisum Place and West 141st Street sits Delano Village, a Mitchell-Lama housing development of six buildings, each containing 17 stories and 323 apartment units. The housing complex spans West 139th to West 141st streets from Lenox [Malcolm X Boulevard] to Fifth Avenues. The approximate population of this housing complex is 4,000 people. Delano Village was a part of the City and State of New York's urban renewal housing program. It replaced hundreds of tenement row houses in the Central Harlem community.

There is another high-rise apartment building, part of Riverbank Houses, across Fifth Avenue.

State officials doubt that contamination has migrated under the apartment buildings, but soil gas samples on the 141st Street sidewalk suggest otherwise. A soil-gas sample from the corner of Chisum and 141st, about 35 feet from the 30 West 141st high-rise, showed 1200 $\mu\text{g}/\text{m}^3$ of PCE. Another sample, closer to Fifth Avenue, showed 130 $\mu\text{g}/\text{m}^3$. (Note that soil gas toxic vapors are typically much higher than indoor air levels.)



1200 $\mu\text{g}/\text{m}^3$ PCE in Soil Gas at this Corner

New York State's Department of Health (DOH) still does not recognize PCE as a carcinogen, so its indoor exposure standard is unusually weak—100 $\mu\text{g}/\text{m}^3$ in a residential scenario. Still, its Matrix 2 for selecting PCE vapor intrusion responses indicates a need for mitigation wherever sub-slab soil gas exceeds 1000 $\mu\text{g}/\text{m}^3$. Yet there has been no sampling of soil gas or indoor air at any of the Savoy Park buildings, even

though sampling protocols normally call for investigating structures within 100 feet of known plumes.

Without such data, one cannot be sure what the indoor PCE concentrations are, or whether mitigation—in the form of sub-slab depressurization—is needed. But with three elevators in each building, it is possible that fumes from the subsurface are being sucked up throughout the apartments.

On-Site Remedy

In its Proposed Remedial Action Plan for the storage building, New York State's Department of Environmental Conservation (DEC) proposes Alternative 4, Treatment Plus Partial Insulation Removal, over Alternative 5, Removal plus Treatment for Unrestricted Use. The preferred alternative would require institutional controls. Alternative 5 would cost twice as much, a difference of approximately \$2.8 million. The savings do not seem to justify leaving contamination in place and restricting use, particularly because (as is typical in these proposals) expenses beyond 30 years are entirely discounted. Yet we know that people will be living and working in the area well beyond 30 years. In addition, in reviewing the Proposed Plan and the Remedial Investigation, I was *not* convinced that the contaminated insulation material is *not* the source of continuing releases of volatile organic compounds into the subsurface.

Armory Property



Harlem Armory

DEC and DOH have also concluded that vapor intrusion is not a problem at the Harlem National Guard Armory property, just north of the site, despite the presence of PCE in sub-slab soil gas at $36 \mu\text{g}/\text{m}^3$ and adjacent sidewalk soil gas as high as $6700 \mu\text{g}/\text{m}^3$. The highest indoor air concentration reported was $1.5 \mu\text{g}/\text{m}^3$. This is far below New York DOH's PCE indoor air action level of $100 \mu\text{g}/\text{m}^3$, but it lies between the levels used by EPA and many other states for residential uses and the level used for non-residential occupancy. I believe indoor PCE concentrations are high enough, particularly given the high soil gas concentrations immediately adjacent to the Armory, to merit additional study if not mitigation directly.

DOH's indoor air action level is based on the assumption that PCE is not a carcinogen. Since DOH made that finding, both U.S. EPA and the National Research Council have found otherwise. DOH committed to revisiting its guidance in 2010, but I have seen nothing. Meanwhile, building occupants are possibly being exposed, without response, to levels that would cause concern elsewhere.

Protecting the residents of New York City from vapor intrusion to the same standard as people elsewhere in New York would be a large, costly undertaking. But the solution is *not* to assume that there is no problem. Rather, the state, city, and U.S. EPA should address identified sites thoroughly now while evaluating the larger challenge of unidentified sites. That way they can communicate frankly with the affected public, set priorities, and make informed risk management decisions.