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Long Island

State Checking Dozens of Sites for Hidden Contaminants

By JOHN RATHER

WITH satellite photographs all over the Internet, images of Long Island as seen from above are only a few mouse clicks away. Views beneath the Island's surface and a clear picture of what may be seeping up and down are not so easy to come by.

The need for a better view of what is going on below ground has assumed new urgency in New York as environmental officials move to evaluate the threat of volatile chemical vapors rising into homes and businesses from contaminated soil and water — some at sites the state said had already been cleaned up.

The potential for contamination is far worse than state environmental officials previously believed, and homes could be at risk from vapors that can migrate from industrial and commercial sites where contaminants were dumped or spilled years or even decades ago. The chemicals most commonly found in the volatile vapors have been linked to health problems that include cancer, organ damage and birth defects, a state assemblyman's report says.

In an effort that has received little attention on Long Island, the State Department of Environmental Conservation is making plans and setting priorities for investigating 400 hazardous waste sites, including more than 80 on Long Island. The department wants to determine whether vapors are moving — a process called vapor intrusion — and tainting indoor air in buildings on or near the sites. Authorities had deemed many of the sites sufficiently cleaned up but will now take a second look.

The sites are scattered across the Island but are predominantly in Nassau County and western Suffolk. There are no estimates for the cost of their cleanup.

"Historically, we thought that vapor intrusion was only an issue where the source of contaminants was very shallow and the magnitude of contamination was very great," Carl Johnson, the conservation department's deputy commissioner for air and waste management, said in testimony at a State Assembly hearing last April. "We now know that our previous assumptions about the mechanisms that could lead to exposure to vapor intrusion were not complete."

The environmental conservation department and the State Health Department have devised a strategy to look at the sites for what are called vapor intrusion pathways — essentially, the paths that the vapors from chemical contaminants like industrial solvents can follow from the soil and groundwater to the surface and, in the worst cases, into buildings.

Sites ranked most likely to have problems will be dealt with first. The rankings are due by December. Cleanup costs would be borne by business owners and past owners identified as responsible for contaminants; they would be assumed by the state as a last resort.

Additional cleanup efforts could include the excavation of contaminated soil and groundwater treatments generally referred to as air stripping, in which volatile organic compounds in groundwater are exposed to the air and evaporate.

At sites where problems are suspected or found, soil and basements, crawl spaces and lower-level living areas in commercial buildings and nearby homes could be tested. Indoor air samples are usually collected during the heating season.

Steps to evaluate the risks of vapor intrusion are part of current cleanups, including brownfield sites, the former commercial or industrial sites that have been cleaned up for reuse. In some cases, demolition and excavation can provide paths for vapors.

The state environmental conservation and health departments said their comprehensive approach would make New York a national leader in addressing vapor intrusion. But critics said the problem only underscored how much contamination was allowed to remain even after state-approved cleanups.

Walter Hang, the president of Toxics Targeting in Ithaca, N.Y., a company that compiles government information on 500,000 toxic sites in New York for clients ranging from water districts to home buyers, said the state was reaping the results of inadequate cleanup of contaminated sites. "The state should have cleaned up these sites decades ago, given that everyone knew the sole source of Long Island drinking water had to be protected," Mr. Hang said.

Now, he said, the vapor problem was compounding the risks residents already faced from contaminants that are seeping farther down toward public water supplies.

"The question is, are these solvents penetrating into nearby homes and buildings as a soil gas vapor?" Mr. Hang said. He said Long Island's sandy and highly permeable soils were "an ideal environment for allowing contaminated water and soil vapor to spread to the maximum degree."

"These chemicals are very persistent, particularly when they are underground and there is no breakdown of the compounds," he said. "They can migrate slowly but surely through the groundwater and cause continuing contamination hazards."

The new view of soil vapor intrusion began emerging in the late 1990's when the federal Environmental Protection Agency found a far wider problem at a Colorado cleanup site than agency officials had anticipated or computer models had predicted. The findings set off alarms among environmental agencies across the country, but nowhere more than in New York, where solvent dumping associated with heavy industry and manufacturing is well documented.

In 2001, the State Department of Environmental Conservation investigated soil vapor at an industrial plant in Endicott where I.B.M., the former owner, had reported a 4,100-gallon solvent spill in 1979. By the summer of 2004, I.B.M. had discovered measurable levels of vapors in 470 homes and buildings in the vicinity of the plant in the Village of Endicott and the Town of Union. It has spent about $40 million so far to clean up the site.

Among Long Island sites where vapors have become an issue is a large industrial park in Plainview near residential areas south of the Long Island Expressway. An engineering consultant hired by the environmental

conservation department, O'Brien & Gere of Syracuse, asked property owners in December for access to test groundwater and poke underground with heated probes that draw out vapors.

The industrial park, like many of the other Long Island sites on the state list for evaluation, has a long history of contamination.

Reports supplied by Toxics Targeting, compiled from Department of Environmental Conservation records, show that one tenant in the Plainview industrial park, a lithography company, disposed of unknown quantities of contaminants in four leaching pools for about 25 years, ending in 1990.

Some contaminated soil was removed and some groundwater monitoring was performed under the direction of the Nassau County Health Department, the reports said.

The contaminant that worries state officials most is trichloroethylene, which is also known as trichloroethene or TCE. It is found in solvents used to clean machine parts, strip paint, make adhesives and mix in paints and varnishes, among other applications. The state health department says long-term exposure to high levels of TCE in the air can cause nausea, headaches, dizziness, reduced coordination and in some studies, increased risks for certain cancers.

Other contaminants, which like TCE are also volatile organic compounds, include xylene, toluene, tetrachlorethylene (a common dry-cleaning solvent, also known as perchloroethylene, PCE or perc), and trichloroethane (TCA).

Another manufacturer at the industrial park dumped unknown quantities of perc and TCA into a leaching pool over an unknown length of time, contaminating soil and groundwater, the reports said. The documents say that a voluntary cleanup of soil and groundwater at the site met objectives, but that contaminated soil was left in place, because it was "primarily subsurface" and "direct exposures are not likely to occur."

The records show that employees of a manufacturer of paint and industrial coatings dumped solvents on the ground and into storm drains, a situation that came to light in the late 1980's. In 1993, a cleanup ordered by the Department of Environmental Conservation removed contaminated soil as well as hazardous wastes from leaking underground tanks. The site is within 500 yards of a public well.

In all cases, the conservation department eventually "delisted" the sites, meaning they were deemed sufficiently cleaned up.

Carol Meschkow, the president of the Concerned Citizens of the Plainview-Old Bethpage Community, said she was unaware of state-ordered testing for vapor intrusion at the industrial park and did not know of the state's concern about vapors. She added that she had never heard a complaint from any area resident about confirmed or suspected vapors in a home.

Paul Granger, the superintendent of the Plainview Water District, also had not heard of the testing. "I am surprised I am not hearing more about this, and I'm surprised there is not more information for the public," he said.

Mr. Granger, a former chairman of the Long Island Water Conference, an association of water companies, has tried for years to compel the conservation department to do more to clean up the industrial park.

"We are very concerned with that facility," he said. "But these spills are decades-old, and it appears the horse is out of the barn. Here we are in 2006, and it seems like things are only getting worse."

He said that a water district pumping station drawing water at a depth of 700 feet about a half mile northeast of the industrial park began picking up traces of TCE in 2001. He said the amount had steadily increased since then, requiring the district to spend $1 million to build a stripping tower to remove the contaminant.

Mr. Hang of Toxics Targeting said that the Plainview park was not unique. "It is one of dozens of sites that will require further investigation and probably further cleanup," he said. "Long Island had so many companies that used these solvents."

Assemblyman Thomas P. DiNapoli, a Democrat from Great Neck and the chairman of the Assembly's Committee on Environmental Conservation, called on the State Health Department on Tuesday to enact stricter standards for exposure to TCE in indoor air.

Mr. DiNapoli said the recommendation came out of hearings the committee held in Endicott in November 2004, in Ithaca last April and in Hopewell Junction last May. All three communities have had major problems with vapor intrusion from contaminated industrial sites.

He urged the environmental conservation and health departments to "adopt the strictest guidelines that are out there" and to agree to any requests for tests of indoor air by any resident living near a contaminated site with possible vapor intrusion.

A report Mr. DiNapoli scheduled for release on Thursday also said that once vapors had been blocked or diverted from homes, an aggressive cleanup of soil and groundwater contamination should begin as soon as possible.

The report noted that the current State Health Department air guidelines for TCE were half as stringent as those in California, Colorado and New Jersey. The report said the stricter standards in those states were warranted in New York because of uncertainties about the toxicity of TCE.

Mr. DiNapoli said that the contamination of indoor air by volatile chemicals like TCE was "the most significant public health threat from contaminated Superfund and brownfield sites."

His report said that TCE, PCE and TCA, chemicals commonly found in vapors, were linked to the serious health effects including cancer, organ damage and birth defects.

At the federal level, the Environmental Protection Agency's regional office for New York and New Jersey is appraising vapor intrusion at Superfund sites in both states. "Even on sites we have completed active remediation of, we feel there is a need to go back and look," said Michael Sivak, a risk assessment specialist for the agency.

There are 15 Superfund sites in Nassau County and 11 in Suffolk.

Mr. Sivak said that the risks from vapor intrusion varied from site to site depending on local geology and other factors the agency is still learning about. He said the agency had done recent testing for indoor vapors at a groundwater contamination site in Smithtown but found little or no sign of problems inside homes there.

In 1998, the agency found PCE in water from private wells in contaminated areas in Nissequogue, Head of the Harbor and St. James.

The agency plans more indoor air sampling near Lawrence Aviation Industries in Port Jefferson Station, a former titanium plant that is on the federal Superfund list. The testing is proposed for about 25 homes and Earl L. Vandermeulen High School in Port Jefferson.