

# IBM Spill

## History of the Endicott Spill

*by Scott Lauffer, RAGE, WBESC and Sierra Club member*

September 14, 2006

In 1979, the IBM manufacturing plant in the Village of Endicott reported a spill to the DEC of chemicals involving about 4,100 gallons of volatile organic chemicals (voc's), including trichloroethylene (TCE). IBM, with oversight from the DEC, installed 3 extraction wells by 1982 and began pumping and filtering water from the contaminated site. After the spill, Endicott received a fire truck from IBM, after which the village seemed to lack interest in the spill. IBM has since reported that they have pumped over 80,000 gallons of voc's overall, so obviously there was far more contamination than a single spill could produce. For some reason that the DEC has never adequately explained, in 1986 the site was downgraded from a Class 2 (posing a public threat) to a Class 4 (case closed) on the state's hazardous waste registry. It was only in January 2004, with the assistance of Congressman Maurice Hinchey and pressure from citizen's groups that it has been rightfully reclassified to a Class 2.

The state Department of Health and the DEC felt that the pollution did not pose a threat to public health as it was believed to be trapped in the ground. Then early in 2003, traces of chemicals, including TCE, were found entering homes and businesses through a process called vapor intrusion. This is a phenomenon that was little understood by the scientific community. Public concerns immediately surfaced about the safety of the air in homes and possible health affects of drinking water in Endicott. At least 480 properties in a 300 acre plume area between the IBM facility and the Susquehanna River are affected by this vapor intrusion. IBM has installed ventilation systems, similar to those used for radon gas, in most of these properties, intended to prevent chemicals from entering the properties.

It was mainly through the outcry of a couple of citizens groups, Residents Advocacy Group of Endicott (RAGE) and Citizens Acting to Restore Endicott's Environment (CARE) that pushed the state to fully address the pollution and potential health risks to the community. The state and county DOH, the

Agency for Toxic Substances and Disease Registry (ATSDR), the DEC and the EPA have stepped up their efforts to address the situation. They have held a series of public meetings, where the public has voiced their dissatisfaction at the slow pace of the cleanup and the unanswered questions concerning health risks to the community. The DOH is mainly conducting health studies, which pose difficulties in pinpointing causes that contribute to diseases found in the population, and the process to gather measurable data is slow. The most comprehensive study of cancer rates within the plume area was completed in 2005, and showed an elevated level of testicular and kidney cancers as well as heart birth defects. A Stakeholders Planning Group, originally consisting of 23 members of the community was formed to provide a community perspective to the agencies addressing the spill and cleanup.

In August of 2004, a hearing was conducted by the state Assembly's Standing Committee on Environmental Conservation in Endicott that focused on chemical vapor contamination. At the core of the problem are conflicting pollution standards between state and federal agencies, resulting in differing numbers on the standard for a safe level of TCE exposure. TCE is suspected of being carcinogenic, and is known to cause central nervous system problems, birth defects and other chronic health conditions. Community activists, educators and politicians called for a continued, aggressive, coordinated drive to clean up chemical pollution sites in Endicott, East Fishkill and other areas across the state. The effort was spearheaded by Assemblyman Thomas DiNapoli, chair of the committee and committee member Patrick R. Manning of East Fishkill, who said the hearing focused attention on the need for the state to take a strong stance in the chemical cleanup effort across New York. Manning said the Legislature would likely will pursue legislation that will mandate stricter environmental standards. Similar hearings were held in the Hopewell Junction and Ithaca, other areas where airborne chemical pollution has been detected. There are certain to be more polluted sites needing attention in New York due to an industrial history with little or no environmental oversight of industry.

The hearing revealed a glaring lack of the Environmental Protection Agency's ability to address chemical air pollution standards for TCE. Federal standards, first proposed in 2002, are still non-existent. New York's guideline, which is 5 mcg/cubic meter of air, allows concentrations of TCE

nearly 300 times higher than a draft guideline in California. A truly safe level is unknown, and children and adults with lower functioning immune systems could be at risk at relatively low levels. Harmful effects caused by exposure to lower levels of voc's over a long period of time or exposure to a "cocktail" of more than one voc are also unknown. Many advocates think that in lieu of adequate protection from EPA standards, New York should set it's own guidelines for what constitutes a safe level of TCE. Congressman Maurice Hinchey blasted the DOH in February 2006 for their "failure to revise air safety guidelines to protect state residents from TCE chemical contamination. Hinchey said Wednesday the state has not acted to lower the threshold to address the problem, even though the federal EPA five years ago determined TCE to be five to 65 times more toxic than originally thought. "We are pressing hard to get them to recognize how dangerous TCE is and to bring about a responsible standard that will protect people who may be living with particular poison in their homes as a result of inappropriate disposal of this toxic substance by manufacturing agencies," he said. In August of 2004, the DEC issued a consent order requiring IBM to take additional steps to speed up the cleanup process. It outlines specific steps the company must take, and was critical of IBM's cleanup efforts to date. The company is installing more extraction and monitoring wells, but even with more aggressive cleanup efforts, it will probably take at least ten more years to eliminate 80% of the voc's from the groundwater. According to Bill Wertz, Senior Engineer with the DEC, it may take technology that hasn't been developed yet to finish cleaning the pollution. "While pumps have reduced concentrations of a subterranean plume of trichloroethylene (TCE) spanning about 300 acres between the microelectronics factory and the Susquehanna River, they have been less effective pulling the pollution from the ground at its source," Wertz said.

The DEC had also asked IBM to conduct air monitoring within the Huron campus to determine the levels of voc's that workers are exposed to. IBM said that all levels of voc's were within OSHA standards. The OSHA standard for "safe levels" of TCE for example is about 537,000 mcg/cu.meter over an 8 hour period. After IBM refused, the DEC conducted the tests themselves. The testing revealed that TCE levels in some areas in the plant were "elevated" - over the New York guidelines. Subslab levels were extremely high, as expected (over 800,000 mcg/cu. m) and there is concern about levels in elevator shafts, as they weren't tested. Due to insistence from Rick

White of Alliance@IBM, the DEC has said they would evaluate elevator shafts further.

First-quarter results of a yearlong outdoor air-monitoring program were presented in March 2006. The study will run for a year to assure testing can reveal seasonal variations. As reported in the Press & Sun Bulletin by Tom Wilbur on March 29: Trichloroethylene (TCE) vapors have been found consistently above background levels at two of four outdoor air-monitoring stations that began taking readings over the polluted site last year, according to a report from the state Department of Environmental Conservation. But on average, the readings are below the agency's guideline that warrants action. The information was included in a report presented to a community group Tuesday evening at the First United Methodist Church by Reginald Parker, an engineer with the DEC. "We know vapors are impacting the air. The only thing we can say conclusively is those impacts are not resulting in levels above our guideline," he said. For some advocates, however, the results were more evidence that the pollution problem is far reaching and lasting, and more has to be done to clean the subterranean plume of chemicals leaching into the commercial and residential neighborhood south of the former IBM site on North Street. "They need to speed the cleanup. They can't do this fast enough, as far as I'm concerned," said Betty Havel, a village trustee and member of the group called the Western Broome Environmental Stakeholders Coalition. TCE was found most consistently - 76 percent of the time - in a monitoring station near Monroe Avenue, about a block south of the plant now owned by Huron Real Estate Associates. Levels ranged from nondetectable to 0.61 micrograms per cubic meter of air. On average, they were below the DEC guideline of 0.45. Another station further south registered TCE readings 47 percent of the time. Two other stations within the plume registered TCE readings 18 percent and 6 percent of the time, respectively. Measurable TCE was not recorded at all at one station west of the plume intended to measure background levels. Another background station, also to the west, recorded measurable TCE 12 percent of the time. The guideline for indoor air - set by the Department of Health - is 5 micrograms per cubic meter of air. But other important factors are taken into consideration. A preliminary review of data from the second quarter showed that levels during that time were also below guidelines, according to a summary of the report issued by the DEC. Parker cautioned that the results, beginning in May of 2005, are incomplete and a

final assessment cannot be made until data from the entire year are collected and analyzed. An Outdoor Air Study by the ATSDR was concluded in July 2006. It looked at past air pollution levels from the IBM Endicott facility and used a modeling technique to estimate local air quality before 1994, as no outdoor air pollution measurements were known prior to 1994. Furthermore, emissions data from the plant was not reported prior to 1987, and although it is known that the levels of toxic chemicals released were among the highest of all industrial facilities nationwide, the ATSDR could not quantify exposures in years prior to 1987. An internal memo from IBM indicated that exposure to TCE between 1965 to 1968 may be greater than for any other chemical and for any other timeframe. The ATSDR concluded (or did not conclude) that there was an indeterminate public health risk during this earlier period. They also stated, "Moreover, there is also much uncertainty regarding health implications of combined exposures from indoor air, outdoor air and drinking water." Since 1987, the amount of toxic chemicals released was greatly reduced, and with sufficient data for modeling air quality impacts, the ATSDR found that air quality impacts were greatest in 1987 and 1988, and decreased considerably in the following years. Although the ATSDR concluded that from 1987 to 1994, there was no "apparent public health hazard" and cancer risk was "low", it also noted that further evaluation would be needed for certain chemicals other than TCE.

Some positive spin-off has occurred with some new legislation in New York. The RAGE organization investigated a spill that occurred on the EIT (former IBM) campus in January 2006 of at least 10,000 gallons of ethylene glycol, but could be more in the 15,000-20,000 gallon range. As a result of this, and thanks to RAGE and efforts by Assemblywoman Donna Lupardo of Endwell the state has passed a law requiring the DEC to notify the public of spills within 48 hours. Lupardo was also a co-sponsor in legislation passed in the Assembly to create a cancer incidence map, it has yet to go onto the floor for a vote in the Senate. This bill will require the departments of health and environmental conservation to maintain detailed computerized data bases on key factors which may contribute to cancer incidence in the State of New York. Although Gov. Pataki "strongly supports" a bill passed in both the Assembly and Senate requiring landlords to notify renters who are potentially exposed to chemicals and who qualify for a mitigation system. He said it needs more work before he would sign it into law.

Fortunately, the Endicott Spill has garnered much attention from officials, local, state and federal. Of course it has been the citizens though who have forced the needed action. The State of New York has used the Endicott situation as a learning mechanism for dealing with similar spills across the state. Places like Hillcrest, Ithaca, Hopewell Junction and East Fishkill are a few require similar state oversight. Efforts continue to address the many aspects of the spill relating to public health and pollution cleanup. Further investigation of pollution beyond the IBM plume is taking place in the Endicott area by the DEC in an effort called the "Area Wide Study". Findings indicate that other hot spots exist within the area, a reminder that toxic chemicals in the ground are not only associated with large industrial spills. RAGE has repeatedly pushed for further testing in the western part of Endicott.

A long-awaited assessment by the National Academy of Sciences released in late July {a number of Endicott residents had testified before their panel in 2005) citing a growing body of evidence on health risks from TCE shows the urgent need for a more protective health policy for places such as Endicott. The committee's evaluation states:

RAGE has a petition that urges the EPA, as recommended by its Science Advisory Board to finalize their study in order to establish health standards that are protective to all segments of the community most importantly our children. This can be done online at <http://www.rage-ny.org>. It's too soon to say if or when the recommendations from the NAS will result in new federal standards of TCE toxicity providing the public the utmost protection from cancer and other health risks. Meanwhile there are over 2,000 known TCE-contaminated sites across the country. The the hope is that all residents and workers in Endicott will be safeguarded against TCE and other voc's in their homes, drinking water and the air they breathe.

## **Response to NYSDOH PHRP (Jan 2004)**

Draft Public Health Response Plan for Endicott:  
<http://www.health.state.ny.us/nysdoh/gas/soilgas.htm>

Below is a response from me representing the Sierra Club on the PHRP for Endicott.

In reviewing the list of community concerns, I feel these should be added:

Occupational exposure investigations should include IBM workers as well as any other businesses using toxic chemicals.

There should be an emphasis on speeding up the cleanup at the source using newer technology. Both to prevent this from dragging out for an excessive number of years and to minimize further exposure by residents and workers.

There should be additional testing for voc's outside the plume area around all the borders, not just west of Jefferson. The boundaries of the plume(s) could change and additional properties affected.

We would also like a seat on the stakeholders committee, and express concern that this committee not be formed in a limited way where residents won't get a vital role.

-Scott Lauffer

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### **IBM Spill - What can IBM do? (from Sept 2003)**

*by: Jack Davis*

After talking to some of the people involved in cleaning up the Endicott Spill, I believe there is more that can be done.

The chemicals that have been found in the groundwater were traced to leaks at IBM in 1979 or before. The chemicals include: methylene chloride; 1,1,1-trichloroethane; trichloroethylene; vinyl chloride; and tetrachloroethylene. IBM took responsibility for the spill then, and installed several filtration plants to clean the groundwater. An examination of the test data indicates the ground water is getting cleaner, but it will take a long time to finish the cleanup. In the past year, IBM tested the air in many basements in the area, and found trace amounts of the chemicals in the air. Now IBM is installing basement ventilation in 480 homes.

IBM has in the past done a commendable job to clean up the groundwater, but now more should be done to increase the rate that the groundwater is cleaned up. IBM installed equipment to clean up the groundwater in the 1980's, and it was state of the art then. Now better equipment is available, and the original equipment should be replaced. More could be done at isolating the original spill site. A wall could be built around the area where the site occurred, that would greatly reduce the migration of the chemicals from that area.

Local residents have suffered a loss of property value when fumes were detected in their basements. Kodak, in a similar situation, provided a value protection plan for local residents, guaranteeing the value of the property, before the fumes were detected in the homes involved. IBM could and probably should do this also.

Endicott has taken a proactive step in hiring a consultant to advise them and an environmental lawyer to consider legal recourse. Local residents have formed the group The Resident Action Group of Endicott (RAGE) to apply pressure and consider legal steps. Lawyers have met with local residents to address health and property loss issues. It will become very expensive for IBM to defend itself if it doesn't take more steps to do the right thing now!

IBM and the NY DEC were invited to speak at the September Meeting of the Susquehanna Group and refused. IBM has limited the area of their responsibility and DEC is investigating other responsible parties. IBM also maintains that others are responsible for part of the pollution in the area they are cleaning up.

### **Websites:**

- Press & Sun Bulletin Articles:  
<http://www.pressconnects.com/special/endicottspill>
- General information and an overview of the Endicott spill site is available from the state Department of Environmental Conservation at:  
<http://www.dec.state.ny.us/website/dshm/sldwaste/endicottfacts.htm>
- On February 26, 1981, the Purity of Water ad-hoc Committee petitioned the Administrator of the United States Environmental



Protection Agency (EPA) to designate the Clinton StreetBallpark Aquifer Extension, which constitutes an area whose aquifer systems are the sole or principal drinking water source for the area which, if contaminated, would create a significant hazard to health. This group later started the Susquehanna Group of the Sierra Club.

<http://www.epa.gov/region02/water/aquifer/clinton/clinton.htm>

- Video "Endicott Spill Public Response Plan" by Essential Dissent. A public forum held January 21, 2004 in Endicott, NY. Various agencies discuss their plans to deal with the aftermath of the IBM spill with a sometimes skeptical and angry public.

<http://essentialdissent.blogspot.com/search/label/IBM%20Spill>