



The Woburn Story

HISTORY OF ENVIRONMENTAL CONTAMINATION IN WOBURN, MA PUBLIC FAILURES AND CITIZEN RESPONSE

By Gretchen P. Latowsky

It is an honor to be able to speak with you this morning and help you understand why the Organizing Committee selected "Connecting With The Community" as the theme of this years conference, but before I begin I would like to ask you to take a few minutes to think about your own professional life. What series of incidents, events, personal experiences, and relationships led you to do the work that you are currently engaged in? What personal commitments led you to pursue environmental epidemiology and exposure analysis? I think all of us lose sight of the ultimate purpose of our work because we get caught up in our professional responsibilities developing new research initiatives, worrying about budgets and grants, or furthering our own careers. So I want to ask you, in the course of your work do you ever ask yourself, "What responsibility do I have to the community, the people, who are the subject of my work or the recipients of my research findings?"

When we work with communities there are many sectors that we need to connect with in order to effectively address environmental health problems from all perspectives. There is the informed activist community that monitors environmental health problems and scrutinizes our work to develop new protective initiatives. There is the political community, made up of elected and appointed officials in local, state, and federal government agencies, with regulatory and enforcement responsibilities. There is the business community that, in many cases, created the problems that are the subject of our research and regulatory responsibilities. There is the research and academic community that reviews our work and uses it to stimulate new research and advocate for new protective regulations. And most important, there is the general public, the uninformed community that is potentially most affected by our work because, without awareness, it falls victim to exposures from environmental problems.

It is the work of the general public and it's ability to become informed and take action to address significant environmental and public health problems in a Massachusetts community that I am going to tell you about today. The community is known as Woburn. Woburn has become very much a part of my life because I have worked for 19 years as a citizen activist on the hazardous waste and public health problems there, and I served for 8 years as Director of the community-based citizens organization known as For A Cleaner Environment, or FACE. I began my work in Woburn 19 years ago when as the mother of a three year old and a newborn baby I came home from the hospital and read in the local newspaper that I lived downwind from one of the largest hazardous waste sites in the United States.

Actually, there were two tragedies that affected the citizens of Woburn. The first was a cluster of cases of childhood leukemia that occurred over a twenty year time period, and the second is the failure of social institutions and public agencies to protect the people of Woburn from extensive environmental contamination that occurred over a two hundred year time period.

SETTING THE STAGE

Woburn is located 12 miles north of Boston. It has a population of 38,000 and covers 14 square miles. It is an old community by United States standards, founded in 1640, and has many beautiful homes and buildings and lovely conservation areas. But Woburn also has a dark side. The Aberjona River runs through Woburn, from the town of Wilmington to the north, through Woburn, and into the Mystic Lakes in Winchester to the south. The abundance of water provided by numerous lakes and streams that flow into the Aberjona River provided a ready water supply for industrial development, and from the mid 1800s into the early 1900s the Middlesex Canal connected Woburn with the port of Boston to the south and industries in the city of Lowell to the north, the city recognized as the site of America's growing industrial revolution. Woburn's location and abundant clean water supply made it ripe for industrial development that has flourished from the mid 1800s into the present.

Woburn's industrial history really began in the late 1600s when the first leather tanning company was formed. Between the mid 1800s and into the mid 1900s there were 100 leather tanning operations located on the banks of the Aberjona river. In 1850 the Woburn Chemical Works began operation in north Woburn. For over 100 years this property was used for manufacturing chemicals for the New England region's leather, textile, and agricultural industries. From the late 1800s into the early 1900s it was the location of the Merrimac Chemical Company, one of the region's largest chemical manufacturing operations where they manufactured, among other things, arsenic and lead based pesticides, sulfuric acid, and explosives used during World War I and II. As was the practice of the past, waste from manufacturing operations was disposed of on adjacent property in pits, ponds, lagoons, and directly into the Aberjona River. Some of the waste was disposed of in landfills where it was burned and buried. As tannery and chemical operations grew, smaller industries were built throughout the community. These operations included chemical barrel cleaning and reclaiming operations, piggeries for supplying leather for the tanneries, and smaller chemical manufacturing operations.

During post World War II re-industrialization Woburn was again the site of increased industrial development because of it's close proximity to Boston and because it was located at the juncture of two major highways, Interstates 93 and 95. Again, because of the abundant water supply much of this newer industry was located along the banks of the Aberjona river and in the Aberjona watershed.

The Aberjona River was actually known to be contaminated as early as the mid-1800s. In the late 1890's reports from the State Board of Health documented death from cholera and typhoid from drinking water supplies contaminated with wastes from the tanneries. In 1922 the Massachusetts Department of Fisheries and Wildlife released a photo essay of 150 photographs documenting contamination the entire length of the Aberjona River. In 1956 the Aberjona River Commission studied and released a report documenting both point and non-point sources of pollution in the Aberjona River Watershed. And in 1982 the EPA released the results of a study of extensive ground and surface water contamination in the Aberjona River Watershed.

THE LEGACY

What is the legacy of this industrial development, this progress that creates jobs and fuels the economy? Woburn has two federally designated Superfund hazardous wastes sites of approximately 350 acres each. It has over 100 smaller state designated Superfund hazardous waste sites. And, for 15 years people of Woburn received drinking water from a supply contaminated with volatile organic chemicals from improper and illegal hazardous waste disposal throughout the Aberjona River Watershed. The people of Woburn have suffered from significant and diverse health problems. The most notable was a cluster of cases of childhood leukemia that the US Centers For Disease Control deemed the most persistent cluster of childhood leukemia in the country. From 1964-1986 there were 28 cases of childhood leukemia, 16 children died, a rate four times the expected rate for a community of it's size. In contrast to Woburn, the six communities that are it's immediate neighbors had a rate ½ the expected rate. This tragedy, in one way or another, touched the lives of almost every family in the community. Studies have also shown that Woburn residents have suffered from increased rates of kidney and liver cancer, birth defects, and heart system, immune system, and nervous system disorders

1979

1979 was the turning point in Woburn's history because of three significant events. It also represented a turning point in the efforts of citizens, the community, to organize and take action to address the legacy of our industrialized society that has created hazardous waste and public health problems across the county similar to those that occurred in Woburn.

In April of 1979 the Massachusetts Department of Environmental Protection closed 2 drinking water wells in east Woburn, Wells G & H, because tests showed high levels of organic chemical contamination. In July of 1979 the United States Environmental Protection Agency identified the 350 acre Industriplex site as one of the largest hazardous waste sites in the country. And in October of 1979 parents of children with leukemia held a meeting at a local church and identified 8 cases of childhood leukemia in a one square mile area.

WELLS G & H

Wells G & H were 2 municipal water supply wells located on the banks of the Aberjona river in east Woburn. From 1964 to 1979, when they were permanently closed, the wells supplied all of the water for one third of the city, and at times, part of the water for the rest of the city. During the entire 15 years that the wells were in use residents complained about the quality of their water; it smelled bad, it looked bad, and it tasted bad. Public complaints led to numerous meetings with city agencies and the Massachusetts Department of Public Health. High coliform bacteria levels led to heavy chlorination. At times the water smelled like bleach, corroded fixtures, and discolored clothes. However, public complaints were based, not only on the quality of the water, but on knowledge of extensive improper and illegal waste disposal along the length of the river and heavy industry nearby. The well area was adequately protected under the law with a ½ mile buffer zone, yet we all know that chemicals leaching into groundwater don't respect buffer zones. The area was ringed with industry. There was an automobile graveyard, an industrial barrel cleaning and reclaiming operation, a waste oil facility, a tannery, a uniform dry-cleaning company, a machinery manufacturer, a plastics manufacturer, and several trucking companies. In 1958, the city of Woburn, in response to the need for additional water supplies to meet the needs of post World II residential and industrial development, hired an engineering firm to study the suitability of the Wells G & H

area to provide additional wells for the water supply. That study concluded that the Aberjona River groundwater was "too polluted to be used for a water supply". Yet, the city ignored the report and the wells went into operation in 1964. When the wells were closed they contained volatile organic contamination in the 100 part per million range. The safe drinking water standard is 5 parts per billion. Later tests by the Environmental Protection Agency identified as many as 56 different chemicals in the water. Additional studies have shown that the wells were contaminated during the entire 15 years they were in use.

INDUSTRIPLEX SITE

The Industriplex site is a 350 acre property containing 2 branches of the Aberjona river, streams, ponds, and wetland areas. It was the site of chemical manufacturing operations for over 100 years and contains the wastes from these operations. There are approximately 55 acres contaminated with high levels of arsenic from the manufacture of arsenic-based pesticides and sulfuric acid, chromium from tanned hides used to make glue, and lead from pesticide manufacturing and other operations. Numerous other organic and inorganic contaminants have been found as well. Approximately 20 acres contain buried animal hides and wastes. Groundwater is contaminated with benzene and toluene, and arsenic and chromium have become soluble from reduced oxygen conditions created by the hide wastes. In re-oxygenated conditions the arsenic and chromium attach to particles in the sediments and are carried downstream in the Aberjona River. Studies by the Massachusetts Institute of Technology have identified tons of arsenic and chromium distributed the entire length of the river. During the 1970s the property was purchased for development of a shopping mall and an industrial park. Excavation uncovered buried animal wastes, creating a hydrogen sulfide gas odor which invaded residential areas and mobilized residents of the community. At times the odor was so bad that children in the local school couldn't go outside to play. People complained of nausea and those with respiratory problems had difficulty breathing. Efforts to stop the development took years. The Department of Environmental Protection issued 43 air pollution violations against the developer, but their hands were tied. The developer had permission from the Massachusetts Department of Public Health, the agency responsible for hazardous waste at the time, to excavate and consolidate material on the property. In doing so he built a pile of animal hides and wastes, commingled with soils containing arsenic, chromium, and lead, which is the size of a football field and 40 feet high. The pile sits in a wetland area adjacent to two ponds.

Area residents took their complaints to local government agencies, warning about an arsenic pit the size of a football field, lagoons containing chromium, and various pits and underground storage tanks. Finally, they took their complaints to the Environmental Protection Agency and the Army Corps of Engineers who filed an injunction against further development of the property.

THE PUBLIC RESPONSE

So, what was the response of the community to these problems? In 1979 when we began to take action, what did we do and what did we know? At the time we didn't know much about toxic wastes, or contaminated groundwater. We had never given much thought about the safety of our drinking water supply. We didn't know about fate and transport of chemicals in the environment. We didn't know anything about toxicology and epidemiology. And, we weren't politically active. But we did know our community and we began to organize. From the beginning of our efforts in Woburn we considered ourselves equal partners, along with government and industry, in the

decision-making process. We used our powers under the democratic process; the power of public opinion, freedom of speech, the power of the press, freedom to assemble and hold meetings, the power of the vote for elected officials who represented us in the legislature and Congress. At first our meetings were around kitchen tables in our homes, or chance encounters at the grocery store, or conversations along the sidelines at children's sporting events. We began to share information we gathered from others in the community and compiled the historical record that I have shared with you today. Through the years we became the institutional memory for events in Woburn.

We identified key people in government, academia, and industry who shared our frustration and concern and we engaged the help the media. On April 1, 1980 we held our first public meeting at a local church. We distributed informational brochures, held demonstrations, and wrote newspaper articles. We invited representatives of the press and radio and television stations. We personally invited our representatives in the state legislature and Congress, our elected and appointed officials in local government in Woburn and neighboring communities, and representatives of environmental and public health agencies in state and federal government. This event marked the beginning of our formerly organized activities and led to the formation of the community-based citizens organization known as For A Cleaner Environment, or FACE. Representatives of FACE testified before Congressional hearings in support of the federal Superfund Act to provide funds to investigate and clean-up hazardous waste sites across the country. We invited the media to the city and gave them tours of the hazardous waste sites and the neighborhoods. We held press conferences and invited the Governor of Massachusetts, our legislators and congressmen, and environmental and public health officials from state and federal agencies. Our efforts led to the establishment of a Cancer Incidence Registry for Massachusetts. We worked with citizens across the country, empowering them to take action in their own communities to address hazardous waste sites, contaminated water supplies, and public health problems. The Woburn story has been well documented. It has been the subject of newspaper and magazine articles and radio and television programs. There have been three books written about Woburn, the most recent, "A Civil Action" by Jonathan Harr documents the law suit filed by families who had children with leukemia against three of the companies responsible for contaminating the water supply. It has been made into a major motion picture that will be released in December starring American actor John Travolta.

Perhaps the most important legacy of community action in Woburn, the one we hope will have the greatest impact on the future, is that we continue to share our experiences with citizens across the United States and in other parts of the world to empower them to do what we did, to become informed and take action in their own communities. We speak at conferences and in workshops and Woburn is being taught as a case study in colleges and universities across the country to students chemistry, engineering, public health, sociology, business, law, and public relations.

THE CHALLENGE FOR YOU

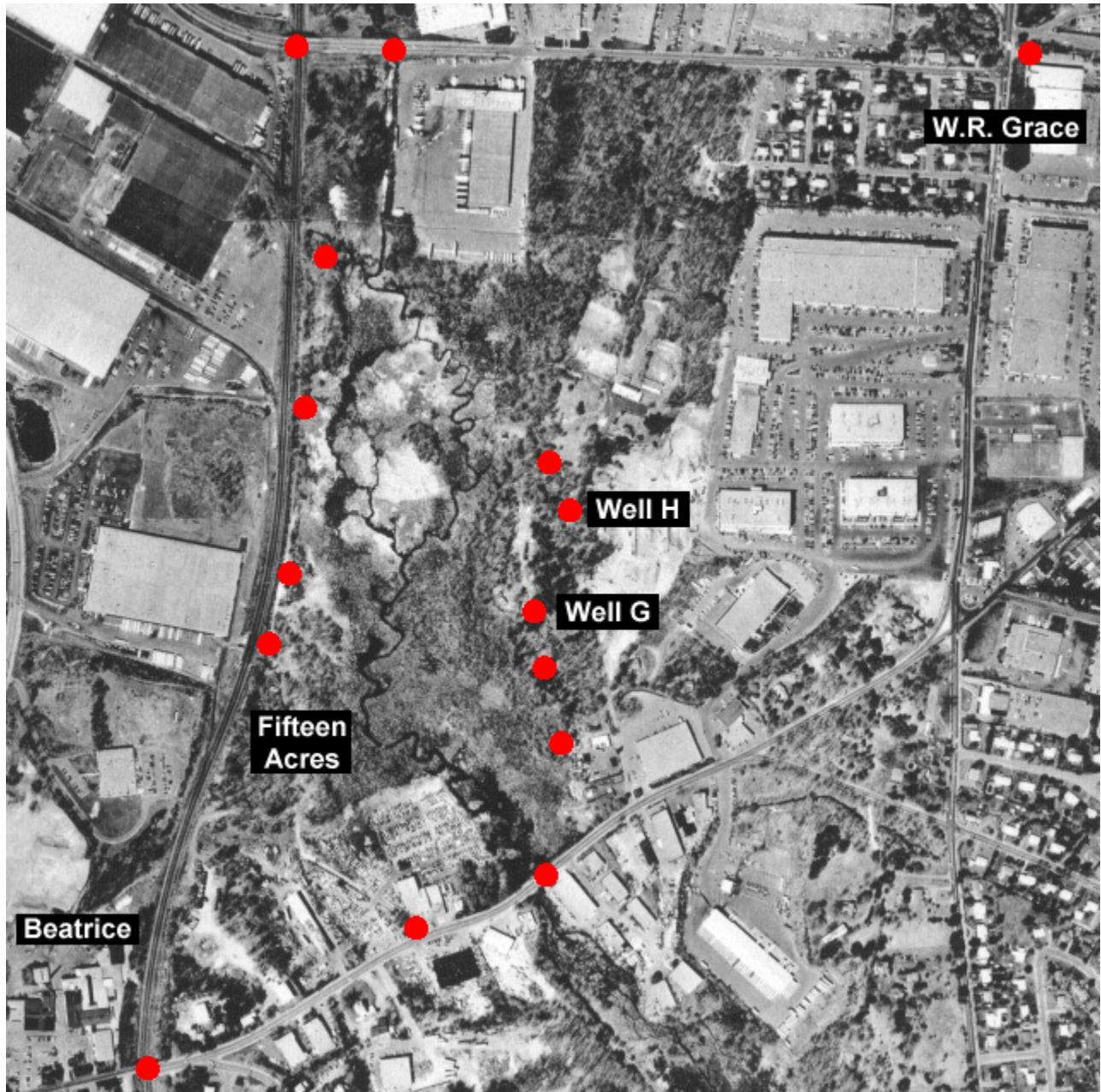
And so I would like to challenge you today. As you attend sessions and symposia talking with colleagues and sharing your work, and when you return to your own places of work and the communities in which you live, please remember to connect with the community, because ultimately it is the community that provides the reason for our work.

Keynote Address presented by Gretchen Latowsky at Connecting with the

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Woburn Industrial Site Look Familiar????



These pictures are so similar to what is on the West St. site that if shown to those familiar with the site they would never know the pictures are actually from Woburn MA. USA.



Remediation at the Wells G & H Superfund Site

In December 1982, shortly after the plaintiffs filed the civil suit against W.R. Grace et al., [U.S. EPA](#) proposed that the 330-acre area around municipal wells G & H be added to the National Priorities List (NPL), also known as the Superfund List. This action was based on studies of the groundwater, sediment beneath the Aberjona River, and soils across the site. The NPL is a roster of the hazardous wastes sites eligible for cleanup under the federal Superfund program. The [Wells G & H Site](#) in Woburn ranked 39th worst on the list, based on EPA's evaluation system, which includes more than 1100 sites. Another NPL site, the [Industri-Plex Site](#), is located in Woburn less than one mile upstream of municipal wells G and H.

In 1985, U.S. EPA ordered a detailed investigation of the properties of the three

defendants in the civil suit, plus other properties owned by the New England Plastics Company and Olympia Nominee Trust, a trucking company. In September 1988, EPA concluded its investigations, which demonstrated that groundwater contamination existed at all five of these properties. The EPA studies conclusively showed that the groundwater is contaminated with volatile organic compounds (VOCs) including TCE, DCE, and PCE, the sediments beneath the Aberjona River contain polynuclear aromatic hydrocarbons (PAHs) and heavy metals including chromium, mercury, and arsenic transported from old waste lagoons and disposal piles at the Industri-Plex Site, and the soils across the site contain PAHs, polychlorinated biphenyls (PCBs), VOCs, and lead. In 1991, the five parties agreed to a **\$70** million cleanup. The remediation plans call for several innovative technologies. The images below show the facilities at Wildwood (formerly Beatrice), UniFirst, W.R. Grace, and New England Plastics that are in place and operational. The Massachusetts Department of Environmental Protection is pursuing cleanup options at several other contaminated sites along Salem Street, just south of well G.

