



Newsletter from the Monroe County Department of Health
Reviewed by the Brockport Consultation Group

Fourth Issue

Brockport Environmental News

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The Superfund and RCRA clean up processes

Monroe County Health Department
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Off-site Groundwater Remediation Begins

The groundwater treatment system located at 98 Lyman Street is currently operating and successfully removing the volatile organic compounds from the groundwater plume that has migrated off-site from the former G.E. and Black & Decker site.

Background Information

During the period from 1949 to 1986, General Electric (1949-1984) and Black & Decker (1984-1986) manufactured small household electrical appliances at the facility located at 200 State Street. Because of the various cleaning, degreasing, electroplating and metal finishing processes that were done at the site, both G.E. and Black & Decker operated a treatment, storage and disposal (TSD) facility. Six wastewater holding lagoons and one sludge drying bed were part of this wastewater treatment system.

The New York State Department of Environmental Conservation (NYSDEC) under the Resource Conservation and Recovery Act (RCRA), which was enacted in 1976, regulates TSD facilities. When a TSD facility discontinues manufacturing operations, the facility operators must apply to the NYSDEC application for a post-closure permit. A permit specifies the post-closure care requirements of a site including a time period (30 years), investigation of areas where chemicals or hazardous waste were stored, and any monitoring or remedial actions to address known and potential areas of contamination.

The post-closure permit for the G.E. and Black & Decker site, which was issued by the NYSDEC in February 1994, required on-site groundwater monitoring and an off-site groundwater investigation to determine the extent of the known groundwater contamination beyond the site's northern boundary. The on-site groundwater monitoring verified that the wastewater holding lagoons, which had 3-inch linings, had leaked over time. The off-site investigation confirmed that the contamination plume, containing primarily volatile organic compounds (VOCs), trichloroethylene (TCE) and cis-1,2-dichloroethylene, had migrated from the site under the Erie Barge Canal and underneath the residential neighborhood north of the canal.

To date, the documented boundary of the plume, which has been defined by the placement of groundwater monitoring wells along Lyman Street and Barry Street, extends from under the canal to Lyman Street in the bedrock layer and continues to the south side of Barry Street.

The term **bedrock** is defined as the solid rock lying underneath surface materials such as soils, sand or gravel. No site-related contaminants were detected in the monitoring wells drilled down to bedrock on Barry Street.

Based on these findings an initial plan was proposed to construct a groundwater treatment system on Lyman Street. In anticipation of this remedial action, G.E. purchased the property at 98 Lyman Street for the installation of a treatment system. This location coincided with the highest VOC concentrations in the contamination plume.

Groundwater Treatment System Design

The groundwater treatment system is designed to collect impacted groundwater, transfer it to a treatment system that reduces the concentration of contaminants to within the NYSDEC Class GA groundwater standards, and discharge the treated groundwater to the sanitary sewer or storm sewer system. **NYSDEC Class GA** means that groundwater meeting these standards is considered a drinking water source.

After receiving public comments and the NYSDEC's final approval, the construction of the groundwater treatment system at 98 Lyman Street began in the fall of 2000. The collection and treatment of groundwater began on May 31, 2001. This system has been constructed as follows:

Collecting the groundwater

- A trench to collect groundwater was installed in the fall of 2000. This T-shaped collection trench is approximately 13 feet deep and extends downward through the overburden and into the top layer of bedrock. (The soil that overlies the bedrock is called **overburden**.) The portion of the trench forming the top of the 'T' is parallel to Lyman Street and approximately 100 feet long. The stem of the 'T' is approximately 200 feet long and runs in a north/south direction along the center of the property.

Before the trench was filled with crushed stone, two drainage pipes were placed along the bottom of the trench. These pipes, which are perforated, collect groundwater and funnel it to a sump pump.

The sump pump is connected to a main pipe that carries the groundwater from the collection trench to the treatment system equipment located in a small concrete building on the site.

10-inch diameter plastic pipes were inserted vertically into the trench every 20 feet. In the

near future, a small drilling device will be lowered through these vertical pipes and used to drill holes deeper into the bedrock. It is thought that this will enhance the upward movement of the groundwater. The technical name for these drilled holes is **open bore holes**. After the open bore holes have been drilled caps will be placed on the tops of the vertical plastic pipes.

- The trench was filled with crushed stone to approximately 5 feet below the ground's surface. A layer of geotextile fabric was placed between the crushed stone and the soil used to fill in the remaining portion of the trench. The fabric prevents the soil from settling into the crushed stone and clogging the areas where groundwater gathers.

Removing contaminants from the groundwater

- After the groundwater is pumped to the treatment system, it is filtered to remove any particles and then it enters an air stripper to remove the contaminants. **Air stripping** is a treatment system that removes VOCs from contaminated groundwater or surface water by forcing an airstream through the water and causing the compounds such as TCE to evaporate.

After leaving the air stripper, the groundwater passes through a carbon filter before it is discharged to the storage tanks.

The air containing the VOCs passes through a filter containing activated carbon to remove contaminants before it is released to the outside.

Because the treatment system is computer operated, system alarms have been incorporated to ensure that the system functions properly at all times. If at any stage the treatment system malfunctions then the entire system will be shut down and a G.E. representative will automatically be notified through an autodialer system.

Discharging the treated groundwater

- In October 2000, the NYSDEC issued a State Pollutant Discharge Elimination System (SPDES) permit to G.E. to discharge the treated groundwater to the storm sewer system. Prior to proceeding with this plan, the treated groundwater has been pumped from the air stripper into two temporary storage tanks located outside the building that houses the treatment equipment and samples of the treated groundwater have been collected and analyzed to confirm that the VOCs have been removed.

The laboratory results from the treated groundwater samples indicated that there were no detectable levels of TCE or cis-1,2-dichloroethylene present. However, elevated levels of manganese and total dissolved solids were detected. Although these are naturally occurring, they were detected at levels that were above the limits in the SPDES permit preventing the discharge of the treated groundwater to the storm sewer system.

G.E. proposed discharging the groundwater to the sanitary sewer system and the NYSDEC approved their request. The discharge requires a Sewer Use Permit from the Monroe County Department of Environmental Services (MCDES). Any discharge to the sanitary sewer system is treated at Van Lare Treatment Plant. However, there is no limit for total dissolved solids and the limit for manganese is lower than the concentration detected in the samples of treated groundwater.

Manganese, which is found in rocks in the area, can be toxic in very high amounts. Therefore, three additional treatment methods have been identified to remove manganese in the groundwater before discharging it to the sanitary sewer system. These methods are currently being tested at the site and to date, all three appear to be equally efficient.

Treated groundwater will continue to be discharged to the storage tank to allow for the testing of the treatment system to ensure that the manganese level does not exceed the Sewer Use Permit limits. After this has been confirmed, the groundwater treatment system will be placed into routine operation, the treated groundwater will be discharged directly to the sanitary sewer system, and the temporary storage tanks will be removed from 98 Lyman Street.

Monitoring Remediation Activities

- Groundwater samples will be collected on a quarterly basis from monitoring wells installed on the G.E. site and north of the canal along Lyman Street and Barry Street. The results will be used to assess the effectiveness of the groundwater treatment system. Quarterly monitoring of the groundwater in the Lyman Street area began in February 1997.

The groundwater treatment system on Lyman Street is an interim corrective measure. **Interim Corrective Measures (ICMs)** are performed to control or minimize threats to human health or the environment while other site investigations are underway or before final remedies are selected. ICMs may be temporary or they may become permanent remedial actions.

The groundwater treatment system will operate between 2 and 4 years. This time period is dependent on how rapidly the conditions in the groundwater change. After this point, the system will be shut off for 1 to 2 years to see if contaminant levels remain low or increase. The system will then be restarted and remain in operation while the effectiveness of this system is evaluated. During this period, other remedial options will be evaluated and a final recommendation for remediating the off-site groundwater contaminant plume will be prepared for recommendation. Before making a final decision on this issue, the NYSDEC will solicit public input.

Groundwater Treatment System Video Tour

G.E. plans to prepare a short video tour of the groundwater treatment system. Copies of the video will be available at the Seymour Public Library and/or the Village Office. According to a G.E. representative, the company is currently working on completing the start-up activities of the system and restoring the site. However, once these tasks are completed then work on the video tour will begin.

For More Information

The following written information, which was prepared by the NYSDEC, is available at the document repository at the Seymour Public Library:

Meeting Announcement, March 1999, *"Off-Site Groundwater Cleanup Proposed for the Former General Electric/Black & Decker Site"*

Responsiveness Summary, April 2000, *"DEC Responds to Questions About the Former General Electric/Black & Decker Site"*

Meeting Announcement, April 2000, *"Revised Groundwater Cleanup Proposed for the Former General Electric/Black & Decker Site"*

There are also reports summarizing G.E.'s routine groundwater monitoring, the on- and off-site investigations, and proposed remediation activities available at the Seymour Public Library.

What's New

3M Corporation and G.E. agree to work together

The 3M Corp. and G.E. have agreed to collaborate on the investigation of the extent of contamination in Tributary #3 of Brockport Creek. The companies have agreed to coordinate their investigation efforts, which will minimize intrusions to the residential area along the tributary. Both companies will submit revised work plans to the NYSDEC outlining the details of this collaborative effort.

Presentation to Physicians at Lakeside Hospital

The New York State Department of Health (NYSDOH) was invited to the monthly staff meeting for physicians at Lakeside Memorial Hospital in June. Two representatives from the NYSDOH, a research scientist and a physician, presented environmental health information regarding the 3M/Dynacolor site and the G.E. and Black & Decker site. The information focused on the history of the sites including the contaminants present and their levels, potential exposure routes, and suggested clinical steps that physicians may take to determine if a person has recently had an exposure. The presentation was well received.

NYSDOH Offers PCB Blood Tests to Selected Brockport Residents

In order to address residents' concern over potential exposure to PCBs, the New York State Department of Health (NYSDOH) is currently offering blood tests free of charge to individuals whose homes are adjacent to the above ground portions of Tributary No. 3. This is being done in cooperation with the Monroe County Health Department and Lakeside Memorial Hospital. Individuals who lived in this specific area in the past and wish to participate in the blood sampling may contact **Karen Nolan** at the **NYSDOH** at **1-800-458-1158 ext. 27950**. The blood tests will measure the amount of PCBs in an individual's blood. Results will be compared with PCB levels found in the general population to help determine whether or not individuals have been exposed to PCBs to a greater extent than the general population. Laboratory analysis of the blood samples will take approximately six months to complete. Information about the overall findings for the group will be shared with the community provided that an ample number of people participate. Since the need to protect information about individual results is of primary importance, any information shared publicly may be quite limited.

Former G.E. and Black & Decker Site

G.E.'s groundwater treatment system located on Lyman St. is currently operating. For more detailed information see **page 1** of the newsletter.

Former 3M/Dynacolor Site

The NYSDEC approved the work plan submitted by the 3M Corp. for the investigation of soils on eight properties west of Oxford St. Barr Engineering (3M's environmental consultant) collected soil samples and sump water samples from the Oxford Street properties on August 13, 2001. This work was performed under the oversight of the NYSDEC, the NYSDOH, and the Monroe County Health Department. The NYSDEC also collected split samples.

The 3M Corp. has submitted the final Remedial Investigation report (RI) to the NYSDEC and it is currently under review. The RI report focuses on the issues found on-site and on the East Side of Oxford St. After reviewing this report, the NYSDEC will make comments and a Feasibility Study (FS) will follow. The FS allows for the development, screening, and detailed evaluation of alternative remedial actions.

The 3M Corp. and the Village of Brockport are currently negotiating the terms of a demolition permit for the five vacant residential properties on Oxford Street. In addition, the 3M Corp. is negotiating to purchase and demolish the Scout Cabin.



One of the Vacant Houses on Oxford Street

What's New *continued on page 5.*

Community Corner

Sampling Results for Coleman Creek (Trib #2)

In April, the NYSDEC collected sediment samples and a surface water sample from Coleman Creek (Tributary #2 of Brockport Creek). The samples were collected in the segment of the creek between Owens Road and the former village wastewater treatment plant (just north of East Avenue). The results revealed that no PCBs, cyanide or other site-related contaminants were present in the portion of the creek that was sampled.

Lyman/Barry Street Playground Results

In May, the NYSDEC sampled surface soils at the playground located between Lyman and Barry Streets. The samples were tested for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), metals and cyanide. The results revealed that no PCBs, cyanide or site-related VOCs were detected. Several polycyclic aromatic hydrocarbons (PAHs), which are a subgroup of SVOCs, were detected at very low concentrations near the northwestern part of the park. PAHs are combustion by-products and are commonly detected in surface soils. The PAH results are typical of background levels. The results for metals also revealed concentrations typical of background levels. This is good news.



Playground Between Lyman St. and Barry St.

Your thoughts about this newsletter..

In the last issue of *Brockport Environmental News* we included a survey to find out from you how we could improve this newsletter. Out of over 700 recipients of the newsletter, 34 people responded. Here is what they had to say:

Almost all of the respondents thought that the information in the first three issues of the newsletter has been easy to understand. One comment was that there were too many topics covered in each issue.

The majority of respondents did not think that the newsletter was too long. Six people felt that the newsletter should be limited to three pages or less because people are more likely to read a shorter newsletter.

Almost all of the respondents reported that the format of the newsletter is easy to read and a few people included suggestions on how to enhance the layout.

Approximately half of the respondents reported that either all the articles or the *What's New* section have been the most helpful. One quarter of the respondents reported that the information on the contaminants and the associated health effects were the most helpful to them and one quarter reported that articles on the location and movement of contamination were the most helpful.

Future topics of interest ranged from the groundwater treatment system to children and chemicals. However, the most common topics of interest are future clean up plans, the boundaries of the contamination, health information, and progress updates.

Thank you for this valuable input.

Please send, call, or e-mail your health-related questions regarding the 3M/Dynacolor or G.E. and Black & Decker sites to:

Monroe County Health Department
111 Westfall Road, Room 976, PO Box 92832
Rochester, NY 14692-8932
Attn: Karen Paris Tuori

Karen's phone (716) 274-6397
(kptuori@mcls.rochester.lib.ny.us)

The Monroe County Health Department Staff will make every effort to respond in the next newsletter.

A Close Up Look At Polycyclic Aromatic Hydrocarbons (PAHs)

(Health information courtesy of the Agency for Toxic Substances and Disease Registry)

Polycyclic aromatic hydrocarbons (PAHs) are a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco or charbroiled meat. PAHs are usually found as a mixture containing two or more of these compounds, such as in soot.

Some PAHs are manufactured. These pure PAHs usually exist as colorless, white, or pale yellow-green solids. PAHs are found in coal tar, crude oil, creosote, and roofing tar, but a few are used in medicines or to make dyes, plastics, and pesticides.

Where have PAHs been detected in Brockport?

PAHs have been detected in the surface soil samples of the Scout yard, the yards of five houses east of Oxford St., in the sediment of Tributary #3, and in surface soils along the tributary. PAHs are a group of combustion by-products that are semi-volatile organic compounds (SVOCs).

-Monroe County Health Department

How Can You Be Exposed?

People may be exposed to PAHs in the following ways:

- Breathing air containing PAHs in the workplace of coking, coal-tar, and asphalt production plants; smokehouses; and municipal trash incineration facilities
- Breathing air containing PAHs from cigarette smoke, wood smoke, vehicle exhausts, asphalt roads, or agricultural burn smoke
- Coming in contact with air, water, or soil near hazardous waste sites (see **Exposure Issues**)
- Eating grilled or charred meats; contaminated cereals, flour, bread, vegetables, fruits, meats; and processed or pickled foods
- Drinking contaminated water or cow's milk
- Nursing infants of mothers living near hazardous waste sites may be exposed to PAHs through their mother's milk (see **Exposure Issues**)

What Should You Do If You Think You Had An Exposure to PAHs?

Tell your doctor. If you are generally healthy and experiencing no symptoms, the doctor will probably note your potential exposure in your medical record. If you are experiencing symptoms or health problems, your doctor may recommend some laboratory tests.

- Monroe County Health Department

Exposure Issues – PAHs have been detected in soil and sediment samples. It is not expected that people will be significantly exposed to site-related PAHs from breathing the air in Brockport.

The grass cover in the yards of the Scout cabin and residences east of Oxford Street provides a barrier limiting the exposure to PAHs in the soils. In addition, the Scout cabin area is now unused and the affected residential properties are vacant.

The NYSDOH recommends avoiding Tributary #3 and the areas along the tributary prone to flooding. This recommendation was issued primarily due to the PCBs detected in these areas. However, limiting contact with the tributary will significantly reduce exposure to site-related PAHs.

-Monroe County Health Department

Health Effects

Mice that were fed high levels of one PAH during pregnancy had difficulty reproducing and so did their offspring. These offspring also had higher rates of birth defects and lower body weights. It is not known whether these effects occur in people.

Animal studies have also shown that PAHs can cause harmful effects on the skin, body fluids, and ability to fight disease after both *short-* and *long-term* exposure. But these effects have *not* been documented in people.

Potential Site-Related Health Effects – Long-term exposure to elevated levels of PAHs in soil may lead to a slightly increased lifetime cancer risk.

-Monroe County Health Department

Can PAHs Cause Cancer?

The Department of Health and Human Services (DHHS) has determined that some PAHs may reasonably be expected to be carcinogens.

Some people who have breathed or touched mixtures of PAHs for long periods of time have developed cancer. Some PAHs have caused cancer in laboratory animals when they breathed air containing them (lung cancer), ingested them in food (stomach cancer), or had them applied to their skin (skin cancer).

Determining If You Have Been Exposed

In the body, PAHs are changed into chemicals that can attach to substances within the body. There are special tests that can detect PAHs attached to these substances in body tissues or blood. However, these tests cannot tell whether any health effects will occur or find out the extent or source of your exposure to the PAHs. The tests aren't usually available in your doctor's office because special equipment is needed to conduct them.

Information Sources

More on PAHs

Unites States Environmental Protection Agency

<http://www.epa.gov/ttnuatw1/hlthef/polycycl.html>

World Health Organization

http://www.who.int/water_sanitation_health/GDWQ/Chemicals/pahfull.htm

Agency for Toxic Substances & Disease Registry (ATSDR)

- **Fact Sheet**
<http://www.atsdr.cdc.gov/tfacts69.html>
- **Public Health Statement**
<http://www.atsdr.cdc.gov/toxProfiles/pfs9020.html>

Children's Environmental Health



Agency for Toxic Substances & Disease Registry (ATSDR) Office of Children's Health

www.atsdr.cdc.gov/child/ochldhlth

World Health Organization Gateway to Children's Environmental Health

www.who.int/peh/ceh/topics

Children's Environmental Health Network

www.cehn.org

Environmental Health: How do scientists learn how chemicals affect health?

Scientists don't know all the effects of exposure to every chemical. We learn about the health effects of many chemicals from human exposures and animal studies.

Human Exposures

Information about human exposures that have occurred at work or by accident is very useful, even though it may be incomplete. For example, if a person has been exposed to more than one substance, it may be hard to find out exactly which substance caused a health effect. Also, some health effects (such as cancer) don't appear until many years after the first exposure, making the cause of the disease hard to determine. Even when the substance that caused the health effect is known, the exact dose that caused the effect may not be.

Sometimes a human population that has been exposed to a toxic substance (usually at work or from an environmental source) is compared with a population that has not been exposed. If the exposed population shows an increase in a certain health effect, that health effect may be related to the chemical exposure. However, these studies often cannot determine the exact cause of a health effect.

Animal Studies

Many toxicity tests are done on animals. Animal tests are often good indicators of chemical toxicity in humans even though animals may not react exactly like people. Many factors are considered when applying the results of animal toxicity tests to humans. For example, animals are smaller, they have shorter lifespans, and their bodies sometimes handle chemicals differently from humans. Large doses are used in the animal studies to see if there will be any effect. When guidelines or standards for human exposure to chemicals are developed, these differences and others are taken into account.

(Health information courtesy of the New York State Department of Health)

Glossary of Terms

By-product – Material, other than the principal product, generated as a consequence of an industrial process or as a breakdown product in a living system.

Drawdown – The drop in the water table (level of water in the ground) when water is being pumped from a well.

Concentration Gradient – The change in the concentration of a substance over a certain distance. For example, lead can accumulate in the soil near a road due to automobile exhaust. As you move away from the road, the amount of lead in the soil decreases. This change in the lead content is called a concentration gradient.

Lagoon – A shallow pond where sunlight, bacterial action, and oxygen work to purify wastewater. It is also used for storage of wastewater.

Lifetime Exposure – Total length of exposure to a substance that a human would receive in a lifetime (usually assumed to be 70 years).

Protocol– The detailed plan for conducting a scientific procedure. A protocol for measuring a chemical in soil, water or air describes the way in which samples should be collected and analyzed.

Risk Factor – Characteristics (e.g., race, sex, age, obesity) or variables (e.g., smoking, occupational exposure level) associated with increased probability of a toxic effect.

Sludge – A semi-solid residue from any of a number of air or water treatment processes; can be a hazardous waste.

Surface Impoundment – Treatment, storage or disposal of liquid hazardous waste in ponds.

Treated Wastewater – Wastewater that has been subjected to one or more physical, chemical or biological processes to reduce its potential of being a health hazard.

Who to Contact for Site Information

New York State Dept. of Environmental Conservation (NYSDEC)

Linda Vera, Citizen Participation Specialist
(716) 226-5324

New York State Department of Health (NYSDOH)

Mark Van Deusen, Outreach Coordinator
1-800-458-1158 ext. 27530

Monroe County Health Department (MCHD)

Joe Albert, Senior Sanitarian
(716) 274-6904

Neighborhood Contacts

Kathy Snyder	(716) 637-7391
John Lessord	(716) 637-5580
Lynne Gardner	(716) 637-4803
Shawn Lessord	(716) 637-4068
Louise Cardillo	(716) 624-8392
Ken Pike	(716) 395-9080