BROOKHAVEN NATIONAL LABORATORY
BROOKHAVEN SCIENCE ASSOCIATES

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March 27, 1998

Dear Community Member:

As part of Brookhaven National Laboratory's (BNL) continuing efforts to keep our neighbors informed about activities regarding the Lab, BNL will be holding two informational poster sessions. These sessions will focus on an upcoming groundwater remediation activity in an industrial park just south of the Lab.

At the poster sessions, staff members who are working on this off-site cleanup project will be available to discuss your concerns and answer your questions. I am enclosing a fact sheet that describes this groundwater cleanup project.

I invite you to attend either session to learn more about this groundwater remediation activity. Because we have scheduled these sessions at times when children may be at home, we have arranged for a children's activity corner at each session.

The poster sessions will be held in the Activities Room of the Longwood Middle School at 41 Yaphank-Middle Island Road, Middle Island, on the following dates:

Saturday, April 4, 1998
10 a.m. to 1 p.m.

Monday, April 6, 1998
5:30 to 8:30 p.m.

If you have any questions, please call either Eloise Gmur (344-6336) or Peter Genzer (344-3174) of my staff. They will be happy to help you.

Sincerely,

James R. Kannard
Manager
Environmental Restoration Division

What is the time frame?

Construction of this groundwater treatment system is expected to begin in the summer of 1998. Currently, six wells are planned for the system. The wells will be located in the industrial park, just south of the Lab and the Long Island Expressway. Each well can treat 60 to 100 gallons of water per minute.

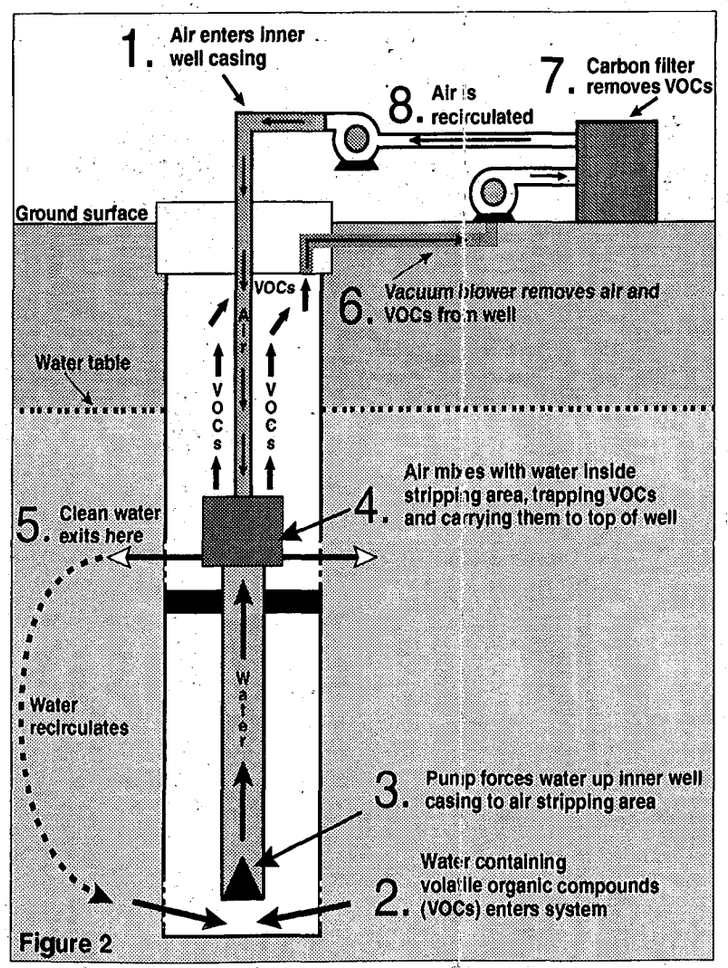

Figure 2

In-well air stripping is an innovative technology that has several advantages over other groundwater treatment systems. One advantage is that the contaminated water is treated within the well itself, and is never brought above the ground surface (numbers 4 and 5 in diagram). In addition, the carbon filter and closed-loop system eliminate air emissions.

A pre-design report, which presents an evaluation of the in-well stripping technology, was released in March 1998. An action memorandum, which describes the plans for treating the carbon tetrachloride in the off-site plume, is expected to be released in April 1998, after being approved by the DOE, U.S. Environmental Protection Agency and N.Y. State Department of Environmental Conservation.

What has been done to clean up the on-site area?

Construction of a pump-and-treat system to address the on-site portion of the plume was completed in June 1997. This system prevents any further off-site migration of higher-level contamination in the on-site portion of this plume. The primary contaminants in the on-site portion of the plume are trichloroethane (TCA) and tetrachloroethene (PCE). These chemicals, like carbon tetrachloride, are solvents once commonly used at BNL and in industry for degreasing equipment.

Pump-and-treat systems work by extracting contaminated groundwater and pumping it to an aboveground treatment system. The contaminants are removed by the treatment system and the clean water is recharged (returned to the ground) through a recharge basin.

General background

BNL is a U.S. Department of Energy laboratory that was placed on the New York State Department of Environmental Conservation's Inactive Hazardous Waste Disposal Sites list in 1980. In 1989, BNL was included on the U.S. Environmental Protection Agency's National Priorities List for cleanup. The Lab site was placed on these lists because of the environmental effects of past practices, some of which could pose a threat to Long Island's sole source aquifer.

The cleanup of BNL is being funded by the U.S. Department of Energy and is overseen by the U.S. Environmental Protection Agency and the New York State Department of Environmental Conservation, under the terms of an "Interagency Agreement."

Contacts and Libraries

For more information about this off-site cleanup or other Superfund projects at BNL, contact:

Eloise Gmur or Peter Genzer
Community Relations
Environmental Restoration Division
Brookhaven National Laboratory
516-344-6336 or -3174

For information about the role of the U.S. Department of Energy in this project, contact:

Mohammad Ali
Project Manager
U.S. Department of Energy-Brookhaven Group
516-344-4085

For information from the U.S. Environmental Protection Agency:

Mary Logan
Project Manager,
U.S. Environmental Protection Agency
212-637-4321

For information from the New York State Department of Environmental Conservation:

Jim Lister
Environmental Engineer
New York State Dept. of Environmental Conservation
518-457-3976

Reports on the activities of BNL's Office of Environmental Restoration are available at the reference desks at:

Longwood Public Library
800 Middle Country Road
Middle Island, New York
516-924-6400

Mastics-Moriches-Shirley Community Library
301 William Floyd Parkway
Shirley, New York 516-399-1511

BNL Research Library
Building 477A
Brookhaven Avenue
Upton, New York
516-344-3483

U.S. EPA, Region II Library
Administrative Records Room
290 Broadway
New York, New York
212-637-4296

Brookhaven National Laboratory
PROPOSED OFF-SITE GROUNDWATER CLEANUP ACTION SUMMARY SHEET
Operable Unit III

3/17/98/OER/PG

What is the Operable Unit III investigation?

Operable Unit III is the administrative name given to about 2,000 acres of Brookhaven National Laboratory's (BNL) central and western area. This area was studied as part of BNL's ongoing Superfund investigation.

During the investigation, a portion of the groundwater in Operable Unit III was found to contain contaminants, including solvents and other chemicals. This body of contaminated groundwater, or plume, is flowing in a southerly direction on- and off-site. This summary sheet will explain what has been done to protect public health, how and where the contaminants are moving off-site, what those contaminants are, what actions are planned for the off-site portion of the plume, and what actions have been taken to remediate the on-site portion of the plume.

What has been done to protect public health?

A 1995 residential well sampling program in this area showed no contamination from BNL above drinking water standards (contamination thought to originate from a local business was found in some wells). However, as a precautionary measure, the U.S. Department of Energy (DOE) offered home and business owners free hookups to the public water supply. The DOE offer was initiated in January 1996. As of January 1998, 1,500 property owners in North Shirley, East Yaphank, and Manorville had been connected to public water.

A recent study by the Brookhaven National Laboratory Environmental Task Force showed no evidence of elevated cancer rates within a 15-mile radius of the Lab. Also, a health consultation on BNL's groundwater contamination released last year by the U.S. Agency for Toxic Substances and Disease Registry found that contamination from the Lab is "not sufficient to produce adverse health effects."

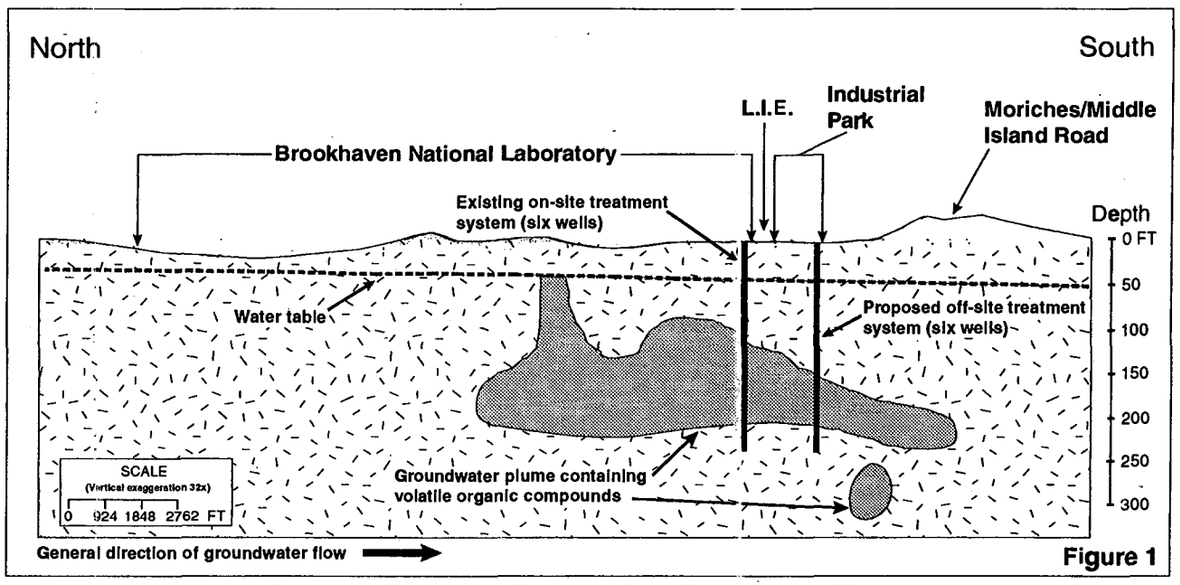

Figure 1

The groundwater plume extends from the center of the Laboratory site to a point just beyond Moriches/Middle Island Road, at depths upwards of 300 feet below land surface. A treatment system at the site boundary is already operating.

Where is the off-site portion of the piume?

A plume (or body of contaminated groundwater) is flowing in a southerly direction from the central, developed portion of BNL into an area south of the Lab's southern boundary (see Figure 1, right). The primary contaminant in the off-site portion of this plume is carbon tetrachloride. The highest concentrations of carbon tetrachloride in groundwater have been found beneath an industrial park, just south of the Long Island Expressway, in North Shirley.

What is carbon tetrachloride?

Carbon tetrachloride is a solvent once widely used at BNL and in industry for degreasing equipment. This solvent, part of a group of chemicals known as volatile organic compounds, has been detected in off-site monitoring wells at depths of 180-300 feet below land surface. Concentrations as high as 5,140 parts per billion (ppb) have been detected in off-site monitoring wells. The U.S. Environmental Protection Agency and the New York State drinking water standard for carbon tetrachloride is 5 ppb.

What will be done to clean up the off-site area?

DOE and BNL are planning to actively remediate the off-site portion of the plume. In-well air stripping, an innovative groundwater treatment technology, will be used to clean up the plume (see Figure 2). This system works by mixing air with contaminated groundwater. The mixing process "strips" or removes volatile organic compounds (i.e., solvents like carbon tetrachloride) from the water. The clean water exits the well and recirculates.

The air carries the volatile organic compounds, now in gaseous form, upward within the well to the ground surface. The air is then removed from the well and sent through a carbon filter to remove the contaminants. The clean air is then directed back into the well, and the cycle repeats. This closed-loop system prevents any air emissions because the air is cleaned and re-used. The contaminated water is treated within the well without ever reaching the ground surface.

An air and groundwater monitoring system will be put in place to ensure the system is operating efficiently.