BROOKHAVEN NATIONAL LABORATORY
BROOKHAVEN SCIENCE ASSOCIATES

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May 26, 1998

Dear Community Member,

As part of Brookhaven National Laboratory's ongoing effort to keep its neighbors informed about the continuing cleanup process at BNL, I am writing to notify you that the U. S. Department of Energy is seeking public comment on the *Operable Unit V Remedial Investigation/Risk Assessment Report.*

This document reports the results of an investigation of soil, sediment, surface water and groundwater in the eastern central portion of the BNL site, which includes the lab sewage treatment facility, and the Peconic River. The document also assesses the potential risk to human health and the environment if no cleanup action is taken in this area.

The report is available for review at public libraries in Shirley and Middle Island, the BNL Research Library, and the U.S. Environmental Protection Agency's library in Manhattan (see enclosed fact sheet for library addresses and phone numbers). The public comment period begins May 27, 1998 and ends July 27, 1998.

Based on the findings of the investigation, remediation alternatives will be compared and evaluated in the *Operable Unit V Feasibility Study* and the *Operable Unit V Proposed Plan*, which will be available in mid-1998. After these documents are released, DOE will be seeking public input on proposed remediation alternatives during public comment periods, information sessions, and a public meeting. You will be notified of the release of the Feasibility Study/Proposed Plan and the dates for information sessions and public meetings.

I hope you will take the time to review the enclosed fact sheet, which summarizes the report, or visit one of the libraries to view it in its entirety. If you have any comments on the report, please send them to:

Dean Helms
Executive Manager
U.S. Department of Energy-Brookhaven Group
P.O. Box 5000
Upton, NY 11973

Thank you in advance for your input on this matter.

Sincerely,

James R. Kannard
Manager
Environmental Restoration Division

Enclosures: Public Notice
Fact Sheet

Notice of Availability
The United States Department of Energy
announces the availability of documents
relating to the investigation of the
Brookhaven National Laboratory Inactive Hazardous Waste Site,
Operable Unit V for public review and comments:

The U.S. Department of Energy announces the availability of a document for public review and comment. This document describes the remedial investigation of Operable Unit V, an area in the eastern-central portion of Brookhaven National Laboratory. Classified as an Inactive Hazardous Waste Site by the N.Y.S. Department of Environmental Conservation, BNL is on the U.S. Environmental Protection Agency's National Priorities List. The U.S. Department of Energy is seeking comments from the public on the *Operable Unit V Remedial Investigation/Risk Assessment Report.*

The Remedial Investigation/Risk Assessment Report presents an evaluation of: (1) the nature and extent of contamination from past practices related to the operation of the Lab's Sewage Treatment Plant, and (2) the potential risks and hazards to human health, wildlife, and the environment.

Operable Unit V includes the Sewage Treatment Plant, an active facility used to process sewage from Lab facilities. The plant discharges approximately 800,000 gallons per day of treated water into the Peconic River, located on BNL property north of the plant. The plant includes several processing buildings, a settling tank, six active sand filter beds, and two storage ponds. The Sewage Treatment Plant was upgraded in 1997. The new design employs two aeration tanks to significantly reduce the amount of nitrogen and organic matter discharged from the plant and includes ultraviolet disinfection, which eliminates the use of chlorine.

During the remedial investigation, elevated levels of heavy metals (including mercury and silver) and low levels of radionuclides (including cesium-137) were detected in soils at the Sewage Treatment Plant. Downstream of the discharge area, polychlorinated biphenyls (PCBs), low levels of radionuclides, and heavy metals (mercury and silver) were found in sediment samples.

The remedial investigation results also indicated the presence of volatile organic compounds, including trichloroethene (TCE), and low levels of tritium (a radionuclide) in groundwater in the southeastern portion of Operable Unit V and off-site areas east and southeast of BNL. TCE was commonly used in industry and at the Lab as a degreasing agent to remove oil and other petroleum products from metal parts and machinery. Home and business owners in this area have been provided with free hookup to the public water supply as a precautionary measure.

The risk assessment determined that fish in the on-site headwaters of the Peconic River showed a bioaccumulation of PCBs and mercury that could pose a hazard to wildlife preying on these fish. Because the on-site waters are unfishable and the fish are too small for human consumption, on-site fish do not pose a hazard to human health. Water-flow patterns and barriers impede the travel of these contaminants and fish off-site (The river is dry at the site boundary for much of the year). The contaminant concentrations in off-site fish do not pose a hazard to human health.

The comment period for the *Operable Unit V Remedial Investigation/Risk Assessment Report* is May 27, 1998 through July 27, 1998. Written comments can be sent to: Mr. Dean Helms, U.S. Department of Energy, P.O. Box 5000, Upton, NY 11973.

The *Operable Unit V Remedial Investigation/Risk Assessment Report* can be found in the following libraries:

BNL Research Library
Building 477A
Upton, NY
(516) 344-3483

Longwood Public Library
800 Middle Country Road
Middle Island, NY
(516) 924-6400

Mastics-Moriches-Shirley Community Library
301 William Floyd Parkway
Shirley, NY
(516) 399-1511

U.S. EPA Region II Library
290 Broadway, 18th Floor
New York, NY
(212) 637-4296

For further information or to be added to the mailing list in BNL's Environmental Restoration Division, contact:

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

For further information about this project or other environmental restoration projects at BNL, contact:

John Carter
Community and Government Relations Manager
U.S. Department of Energy
Brookhaven Group
(516) 344-5195

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

Jim Lister
Environmental Engineer
New York State Department of Environmental Conservation
(518) 457-3976

Brookhaven National Laboratory

REMEDIAL INVESTIGATION AND RISK ASSESSMENT OF THE EASTERN AREA OF THE LABORATORY

Operable Unit V

Revised 5/15/98

What is Operable Unit V?

Operable Unit V is the administrative name given to an area located in the eastern-central portion of Brookhaven National Laboratory (BNL). This area includes BNL's Sewage Treatment Plant, an active facility used to process sewage from the Lab's facilities. The plant discharges approximately 800,000 gallons of treated water per day into the headwaters of the Peconic River, on BNL property north of the plant. The plant includes several processing buildings, a settling tank, six active sand filter beds, and two storage ponds.

What is the *Operable Unit V Remedial Investigation/Risk Assessment Report*?

The Operable Unit V Remedial Investigation/Risk Assessment Report presents an evaluation of the nature and extent of contamination from past practices related to the operation of the Lab's sewage treatment system. It also evaluates potential risks and hazards to human health and the environment.

What are the findings of the remedial investigation?

The remedial investigation, conducted between 1995 and 1997, found elevated levels of heavy metals (e.g., mercury and silver) and low levels of radionuclides, including cesium-137, in soils at the Sewage Treatment Plant. Downstream of the plant's discharge area, sediment samples indicated the presence of polychlorinated biphenyls (PCBs), radionuclides, and heavy metals, including mercury and silver.

The investigation also found that low levels of volatile organic compounds, including trichloroethene (TCE), and tritium (a radionuclide) are present in groundwater in the southeastern portion of Operable Unit V and in off-site areas east and southeast of BNL. TCE was commonly used in industry and at the Lab as a degreasing agent to remove oil and other petroleum products from metal parts and machinery.

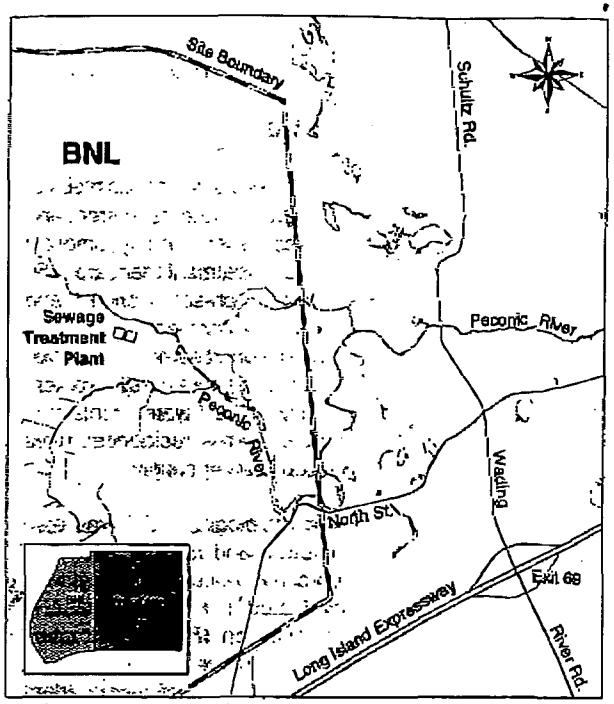
As part of the remedial investigation, groundwater monitoring wells between Wading River Road and the Sewage Treatment Plant were sampled and tested for tritium, low levels of which are routinely discharged from the Sewage Treatment Plant. The highest tritium concentrations detected were approximately one-tenth of the drinking water standard. Home and business owners in the area have been provided with free public water hookups as a precautionary measure.

What has been done?

Several actions have been taken to address contamination at the Sewage Treatment Plant. In 1996, 64,000 gallons of sludge, some of which contained low levels of radioactivity, were removed from two World War II-era settling tanks (Imhoff tanks) and shipped to an off-site, permitted waste disposal site. In 1997, the tanks were dismantled and the area was filled with clean soil.

The Sewage Treatment Plant was upgraded to a tertiary treatment plant in 1997. The new design employs two aeration tanks to reduce the amounts of nitrogen and organic matter that are discharged from the plant. It also includes ultraviolet disinfection to disinfect the effluent before it is discharged to the Peconic River.

As part of BNL's ongoing pollution prevention program, potential sources of contaminants at the Lab are being identified and removed or replaced. Potential sources of mercury (e.g., thermometers, fluorescent light bulbs, and



The Sewage Treatment Plant is located in the eastern-central portion of the Lab.

electronic components), which is one of the contaminants found at the Sewage Treatment Plant, are included in this program. Solvents and degreasers that are safer for the environment are being selected and used in ways that minimize their potential for environmental release. The goal is to minimize use of potential contaminants throughout the site.

What is a baseline risk assessment?

Risk assessments are statistical tools used in conjunction with actual data to estimate potential risks to human health and the environment. Baseline risk assessments assume that no remediation actions are undertaken and assess current and future risks from the contamination. Baseline risk assessments conducted for OU V and described in the report

included evaluations of chemical and radiological risks, as well as ecological risks (risks to wildlife and the environment).

What risks, if any, were identified?

A risk assessment was performed to evaluate various types of exposure to chemicals in soil and groundwater for current and future on-site workers, possible trespassers, and hypothetical future residents living in the Sewage Treatment Plant area (50 years from now). Risks to current on-site workers and trespassers are less than the U.S. Environmental Protection Agency's (EPA) guidance values. The only chemical risk above these EPA guidance values would be to future on-site workers or hypothetical residents ingesting groundwater containing manganese over a long time period. Area residences have already been connected to the public water supply.

A risk assessment to evaluate radiological risks was also performed for both current and future land use scenarios. The current use scenario was for on-site workers and trespassers. The future use scenario evaluated risk for hypothetical residents, 50 years in the future, living on BNL property, using groundwater as a potable water source and consuming homegrown fruits and vegetables, fish, and game (deer meat), as significant portions of their diet. No radiological health risks were found above the EPA's carcinogenic risk criteria of 1 in 10,000. In other words, the amount of added risk above the average one-in-four chance that Americans have of getting cancer would be less than 1 in 10,000 for these hypothetical future residents.

An ecological risk assessment was conducted to evaluate bioaccumulation of contaminants in Peconic River fish, both on- and off-site. Fish were collected from stations in the river located between the Sewage Treatment Plant and Forge Pond in Riverhead (12 miles downstream from the plant) and analyzed for inorganics (including mercury and metals), pesticides, PCBs, and radionuclides.

The ecological risk assessment determined that fish in on-site headwaters of the Peconic River showed a bioaccumulation of PCBs and mercury that could pose a hazard to wildlife preying on these fish. Because the on-site waters are unfishable and the fish are too small for human consumption, on-site fish do not pose a human health hazard. Water-flow patterns and barriers impede the off-site travel of contaminants and fish. Contaminant concentrations in off-site fish do not pose a hazard to human health.

An additional study was conducted to determine the reason that concentrations of metals in fish are lower than expected relative to the metal concentrations in the sediment. The results indicated that sulfides naturally present in the river sediments reduce the bioaccumulation of metals in the fish.

What's next?

Remediation alternatives will be compared and evaluated in the Operable Unit V Feasibility Study and the Operable Unit V Proposed Plan, which will be available in mid-1998. After these documents are released, the U.S. Department of Energy and BNL will be seeking public input on the remediation alternatives during public comment periods, poster sessions, and a public meeting.

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. BNL 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."