Brookhaven National Laboratory

Community Involvement Plan

Brookhaven National Laboratory Superfund Site

Upton, New York

2024

Managed by Brookhaven Science Associates
for the U.S. Department of Energy

U.S. Department of ENERGY

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Acronyms and Abbreviations

Acronym	Formal Name
ABCO	Affiliated Brookhaven Civic Organizations
AGS	Alternating Gradient Synchrotron
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate (federal and state regulations)
BER	Brookhaven Executive Roundtable
BMRR	Brookhaven Medical Research Reactor
BNL/The Lab	Brookhaven National Laboratory
BSA	Brookhaven Science Associates
CA	Cost Analysis
CAC	Community Advisory Council
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIP	Community Involvement Plan
CPP	Community Participation Plan
DEI	Diversity, Equity and Inclusion
DOE	US Department of Energy
EA	Environmental Assessment
ECL	Environmental Conservation Law
EDB	Ethylene Dibromide
EE	Engineering Analysis
EIS	Environmental Impact Statement
EJ	Environmental Justice
EO	Executive Order
EPA	US Environmental Protection Agency
EPD	Environmental Protection Division
ESD	Explanation of Significant Differences
FFA	Federal Facilities Agreement
FS	Feasibility Study
HFBR	High Flux Beam Reactor
HSWA	Hazardous and Solid Waste Amendment of 1984
IAG	Interagency Agreement
LTS	Long-Term Stewardship
NCP	National Contingency Plan
NEAR	Neighbors Expecting Accountability Remediation
NEPA	National Environmental Policy Act
NPL	National Priorities List
NSLS-II	National Synchrotron Light Source II
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	Operation and Maintenance
OU	Operable Unit
PCB	Polychlorinated Biphenyls
PCE	Tetrachloroethylene
PFAS	Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctanesulfonic Acid
PRAP	Proposed Remedial Action Plan
RAO	Remedial Action Objectives
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RHIC	Relativistic Heavy-Ion Collider
RI	Remedial Investigation
ROD	Record of Decision
RSD	Response Strategy Document
SARA	Superfund Amendments and Reauthorization Act of 1986
SBR	Site Baseline Report
SC	Office of Science
SCDHS	Suffolk County Department of Health Services
Sr-90	Strontium-90
STEM	Science Technology Engineering & Math
STP	Sewage Treatment Plant
TAG	Technical Assistance Grant
TCRA	Time Critical Removal Action
VOC	Volatile Organic Compound

1 PREFACE

It is Brookhaven National Laboratory's (the Lab's) policy to ensure that the ideas, interests, and concerns of the public are considered during the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) clean-up (commonly referred to as Superfund) activities being performed at the Lab. The community involvement element of the Superfund program is important because it keeps members of the public informed, provides a mechanism to have their comments and concerns heard and considered, and integrates a broad range of viewpoints and values into the program planning and decision-making process. This helps the Lab to make informed decisions and to build mutual understanding among the Lab and the public.

The Lab will:

- Actively seek and consider input regarding clean-up decisions that affect the community.
- Inform the public in a timely manner of key upcoming decisions.
- Provide opportunities for the public to have input in an open, two-way exchange of information.
- Take into consideration the views of regulators, elected officials, and stakeholders in making decisions.
- Provide reasonable access to relevant reports, records, and documents.
- Seek to provide non-technical explanations when requested by the community and the public.

1.1 HOW TO USE THIS DOCUMENT

This Community Involvement Plan (CIP) provides general guidance and an outline of how the Lab intends to conduct community involvement as part of its ongoing Superfund clean-up activities. This CIP is organized into the following sections:

Section 2 – Introduction

This section summarizes the purpose of this document and provides a description of the site's location, its geographic characteristics, and a brief history of the site. It also discusses its environmental history and how it became a Superfund site.

Section 3 – Community Profile

This section provides an overview of the surrounding community and its demographics, and summarizes the historic and current community concerns.

Section 4 – Community Involvement at the Lab

This section details the ways the Lab will keep the community involved throughout the Superfund clean-up process and comply with the requirements of applicable regulations. It also highlights the Lab's efforts to keep the community apprised of its actions and provides ways for members of the community to share their opinions and concerns they may have, as well as learn more about the Lab in general. Communications forums, other forms of public outreach, media, and communications surveys will all be covered in this section.

Appendices

The appendices contain additional information or reference material, specifics about accessing the Administrative Record, as well as key contact people.

2 INTRODUCTION

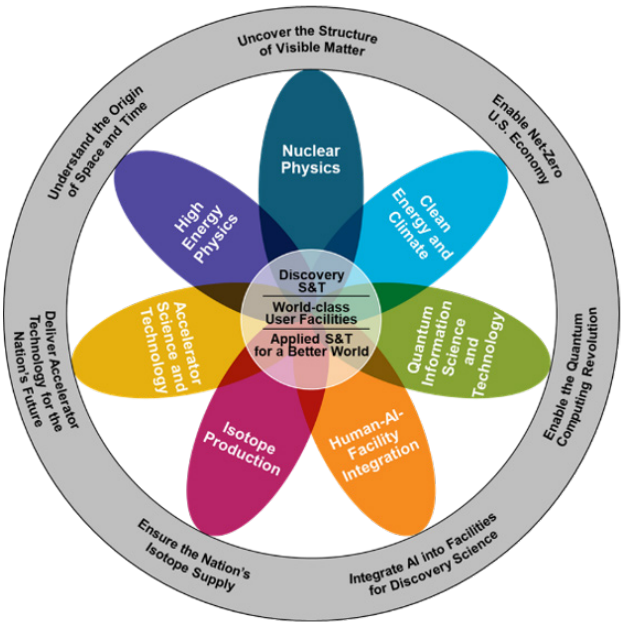
2.1 PURPOSE

The purpose of this CIP (formerly known as a Community Relations Plan) is to provide clear guidance for engaging and informing the community during the Superfund clean-up activities being performed at the Lab. Since being listed on the CERCLA National Priorities List (NPL) in 1989, establishing opportunities for public involvement and decision making throughout the Superfund clean-up process has been a priority of the Lab.

The original Community Relations Plan was created in 1991, prior to the signing of the Interagency Agreement (IAG) between the United States Environmental Protection Agency (EPA), the New York State Department of Environmental Conservation (NYSDEC), and the United States Department of Energy (DOE), and established the basis for communication between the public, the Lab, and DOE personnel involved in Superfund clean-up activities. This revised CIP is intended to account for the 30+ years of clean-up and community involvement history and ensure that it is aligned with the Lab's and the DOE's commitment to community involvement, the public's needs and interests, and current regulations and guidance.

2.2 ABOUT BROOKHAVEN NATIONAL LABORATORY

The Lab is a multidisciplinary basic research laboratory founded in 1947 to support the DOE mission to ensure the nation's security and prosperity by addressing its energy, environmental, and nuclear challenges. Among its current research initiatives are nuclear science, energy science, particle physics, accelerator science and technology, nanoscience, quantitative plant science, and quantum information science. These initiatives are supported by constructing large-scale research facilities such as the Relativistic Heavy-Ion Collider (RHIC), the National Synchrotron Light Source II (NSLS II), Alternating Gradient Synchrotron (AGS), and the under-construction Electron-Ion Collider (EIC). Historic facilities no longer in-use at the Lab include the



Brookhaven Graphite Research Reactor (BGRR), the High Flux Beam Reactor (HFBR), and the Brookhaven Medical Research Reactor (BMRR).

2.2.1 Ownership and Operation

The Lab is owned by the DOE and is primarily funded by the DOE Office of Science (SC). It is operated under contract to DOE by Brookhaven Science Associates (BSA), a non-profit partnership between the Research Foundation for the State University of New York (SUNY) on behalf of Stony Brook University, and Battelle Memorial Institute. BSA also engages six research universities (Columbia, Cornell, Harvard, Massachusetts Institute of Technology, Princeton, and Yale) in the governance and oversight of the Lab. The Lab represents one of 10 DOE SC national laboratories.

BSA currently employs over 3,000 full time employees to manage, operate, and conduct research, including scientists, engineers, technicians, tradespeople, and others in both technical and non-technical fields. The Lab also hosts more than 5,000 visiting researchers each year from universities, industry, and government agencies. The DOE operates a Site Office on Lab property which oversees operations at the Lab.

The Lab strengthens Long Island's position as a center of innovation in energy, materials sciences, nanotechnology, and other fields crucial to the growth of the Nation's and New York State's economy. With an annual budget of over $700 million, the Lab has a significant economic impact in New York State.

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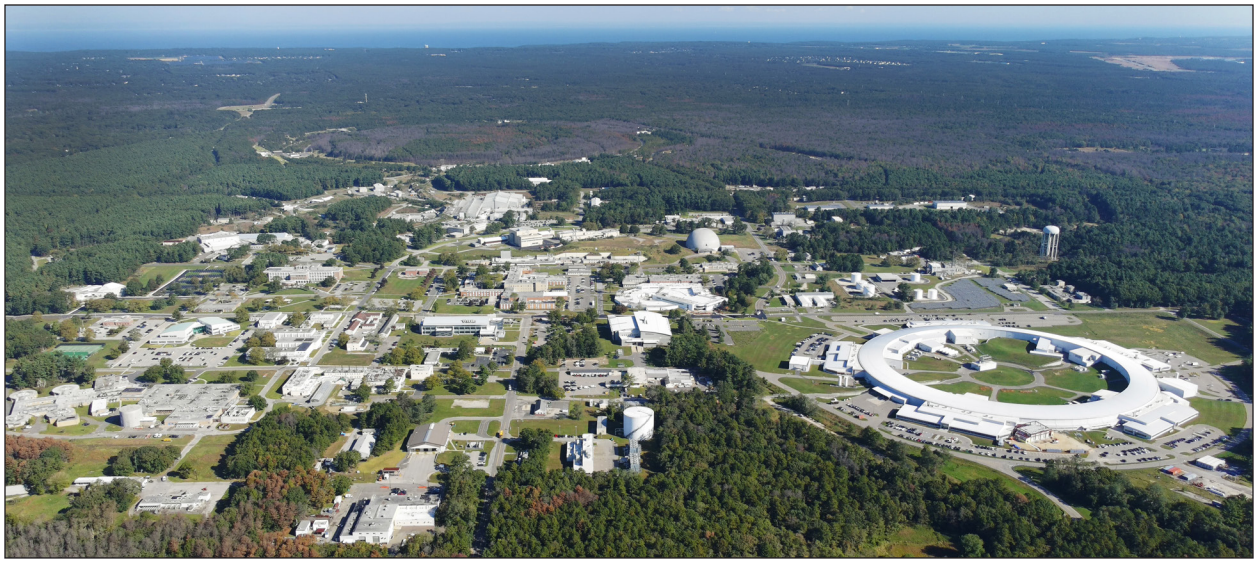
2.2.2 History

Prior to the founding of the Lab in 1947, the site operated as Camp Upton, a U.S. Army induction and training center during World War I and World War II. Camp Upton was established in 1917 to serve the needs of the Army and operated from 1917 to 1920, and again from 1940 until 1946. Toward the end of World War II, Camp Upton was converted to a convalescent hospital and rehabilitation center for returning Army personnel. In 1946, the United States permanently closed Camp Upton, and in 1947 transferred the property to the Atomic Energy Commission for the establishment of the Lab. The Lab was again transferred to the Energy Research and Development Administration in 1975, and to the DOE in 1977.

The original mission of the Lab under the Atomic Energy Commission was to explore the peaceful applications of atomic energy and establish a national laboratory in the northeastern United States to design, construct, and operate large scientific machines that individual institutions could not afford to develop on their own. Throughout its history, Brookhaven's scientists and researchers have used these facilities to make groundbreaking discoveries in biology, physics, chemistry, geophysics, medicine, and materials science. As a result of their research at the Lab, seven scientists have won Nobel Prizes and many others have won awards of national and international scientific significance.



2.2.3 Site Description

The Lab site comprises an area of 5,265 acres located in Upton, in the Town of Brookhaven, Suffolk County, New York. The Lab is situated in the central-eastern portion of Long Island and is approximately 60 miles east of New York City. The approximately 900-acre central portion of the Lab includes the developed areas of the site and the principal Lab facilities. Outlying facilities include an apartment area, sewage treatment plant, waste management facility, former landfill areas, a solar farm, and undeveloped wooded areas.

The Lab is bounded by County Road 46 (William Floyd Parkway) to the west, by Interstate Highway 495 (Long Island Expressway) to the south, a residential area to the north, and the Peconic River County Park to the east. An industrial park is also located immediately south of the Lab. The Peconic River begins just east of the site, within the boundaries of the county park, and flows to Flanders Bay and Great Peconic Bay. The Lab, along with the rest of Long Island, is situated above a sole-source aquifer as designated by the United States Environmental Protection Agency (EPA), which serves as the primary source of Long Island's drinking water.

2.3 SUMMARY OF ENVIRONMENTAL HISTORY

Much of the environmental contamination at the Lab is associated with accidental spills and historic storage and disposal of chemical and radioactive materials during past operations that caused releases to the environment. These past operations include research and support activities that were conducted prior to current environmental regulations, policies, and concerns, and some may date back to the site's usage as an Army training camp. These historic releases to the environment have caused soil and groundwater contamination that can be categorized into four main areas:

1. Groundwater contamination, primarily volatile organic compounds (VOCs), per- and polyfluoroalkyl substances (PFAS), 1,4-dioxane, ethylene dibromide (EDB), strontium-90 (Sr-90), and tritium. Some of the groundwater contamination has migrated off the Lab property (e.g.: VOCs, PFAS, and 1,4-dioxane).
2. Soil contamination, primarily polychlorinated biphenyls (PCBs), tetrachloroethylene (PCE), PFAS, metals, cesium-137 (Cs-137), and Sr-90.

3. Peconic River sediment contamination, primarily mercury and PCBs.
4. Radiological Facilities (e.g., research reactors) contamination, primarily Sr-90 and tritium.

2.3.1 Initial Response

In 1980, the Lab site was placed on the NYSDEC list of Inactive Hazardous Waste Disposal Sites from past operations. In 1989, the Lab was also included on the CERCLA NPL list for soil and groundwater contamination. The NPL is a roster of hazardous waste sites assigned a priority for clean-up under CERCLA.

The early response actions included an evaluation of the entire site to determine the initial Areas of Concern (AOCs) and developing a Response Strategy Document (RSD) that determined the structure of the Operable Units (OUs).

An AOC, under CERCLA, is the term used to describe an area where releases of hazardous substances may have occurred or a location where there has been a release or threat of a release of a hazardous substance, pollutant, or contaminant (including radionuclides). AOCs may include, but are not limited to former spill areas, former landfills, surface impoundments, waste piles, land treatment units, transfer stations, wastewater treatment units, incinerators, container storage areas, scrap yards, cesspools, tanks and piping, that are known or suspected to have caused a release to the environment, or whose integrity has not been verified.

An OU is the organization and division of AOCs into separate areas based on their nature or complexity of the problem(s). During cleanup, a site can be divided in to a number of discrete areas (OUs) which may address distinct geographic areas, specific problems, cleanup timeframes, or areas where specific or related actions are required.

The January 1992 RSD grouped the 24 then known AOCs into seven OUs and four removal actions that were geographically contiguous or otherwise related to facilitate more timely and efficient response actions. Details on the 24 initial AOCs comprising the Removal and Remedial Actions are documented in the Lab's Site Baseline Report (SBR), dated January 1992.

To reduce the risk of contamination source areas and minimize their impact to human health and the environment, early response actions included the DOE using its removal action authority in several situations. These activities included the closure/capping of landfills, fencing to restrict access, tank removals, soils remediation, groundwater treatment, public water hookups, sewage treatment plant (STP) remediation, Peconic River sediment remediation and response, and actions at the BGRR and HFBR. In several cases, the removal action became the final remedial action.

2.3.2 Federal Facilities Agreement

The Lab's CERCLA investigation and cleanup is currently being performed as Long-Term Stewardship (LTS) activities under a Federal Facilities Agreement (FFA) among the DOE, the EPA, and the NYSDEC, CERCLA Section 120 (Administrative Docket Number: II-CERCLA-FFA-00201). The FFA is also commonly referred to as an Interagency Agreement (IAG). The purpose of the IAG is to ensure that the impacts to the public health, welfare, or the environment associated with past and present activities at the Lab are thoroughly investigated and appropriate actions are taken as necessary to protect the public health, welfare, or the environment.

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The IAG became effective in 1992 and established the framework and schedule for characterizing, assessing, and remediating the site in accordance with the requirements of CERCLA and the Superfund Amendments and Reauthorization Act of 1986 (SARA). The IAG also includes clean-up requirements under the Corrective Action Program of the Resource Conservation and

Recovery Act (RCRA) and the Hazardous and Solid Waste Amendments of 1984 (HSWA), EO 12580, the National Oil and Hazardous Substance Pollution Contingency Plan, otherwise known as the National Contingency Plan (NCP), National Environmental Policy Act (NEPA), the Atomic Energy Act of 1954 (AEA), and New York State Environmental Conservation Law (ECL) Article 27, Title 9 and 13, and ECL 3-0301. The IAG also states that the Lab will conduct the Superfund clean-up in compliance with all Applicable or Relevant and Appropriate (ARAR) Federal and State regulations. The DOE is the lead agency for the clean-up activities and the EPA and NYSDEC provide oversight and ensure compliance with applicable regulations and guidance.

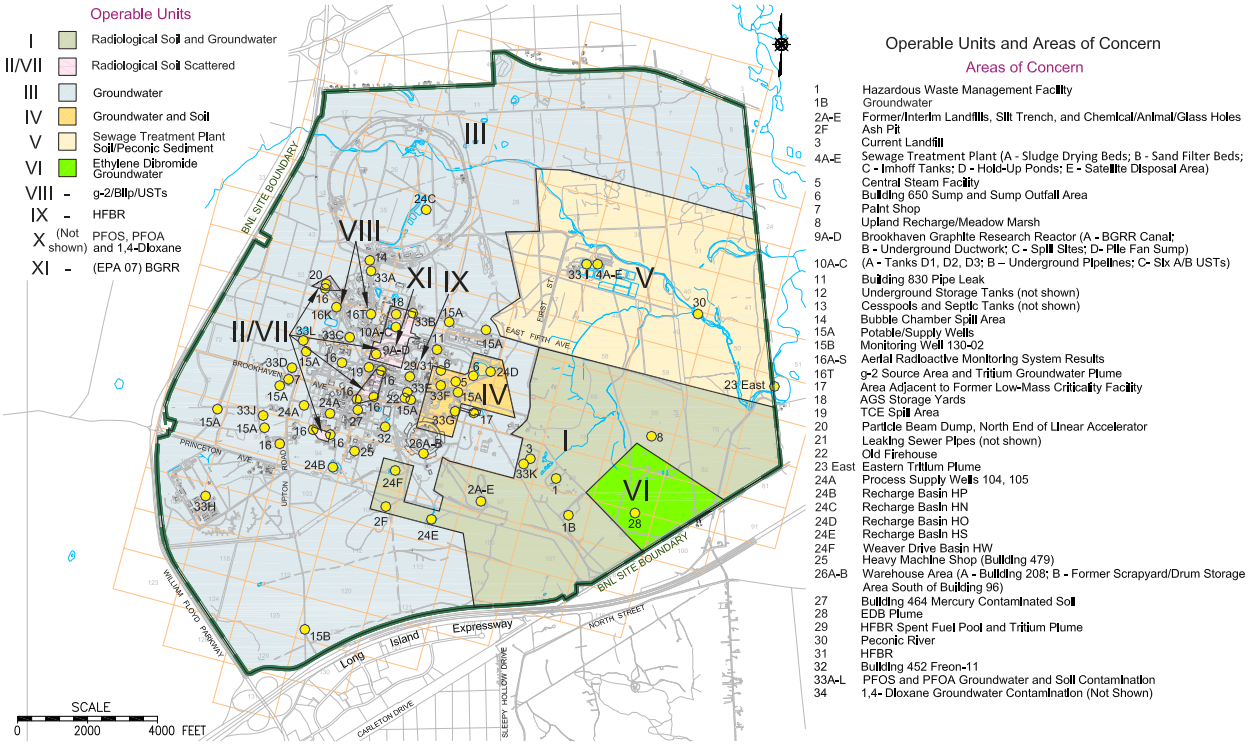
Also, while not formal IAG partners, the Suffolk County Department of Health Services (SCDHS) and the New York State Department of Health (NYSDOH) are actively involved with the Lab investigation and clean-up decisions.

A copy of the IAG can be found here: *https://www.bnl.gov/gpg/files/misc_reports/iag.pdf*

2.3.3 Current Conditions

Since the January 1992 RSD, 10 AOCs and several sub-AOCs have been added. Most recently, the DOE recommended the addition of AOC 33 for perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS), and AOC 34 for 1,4-dioxane, based on newly identified contaminants of concern. AOC 33 includes 12 sub-AOCs. A Time Critical Removal Action (TCRA) is currently underway to address PFOS and PFOA groundwater contamination from the current and former firehouse sub-AOCs.

The remedies performed to-date have been fully implemented in accordance with the nine signed Record of Decisions (RODs) and four OU III Explanation of Significant Differences (ESDs), except for remaining actions at the HFBR. They include excavation and offsite disposal of contaminated soil, sediment, tanks, and structures, capping of landfills and other contaminated soil areas, installation and operation of groundwater treatment systems, groundwater monitoring, public water hookups, and implementation of institutional controls. As of 2021, the DOE has invested approximately



$620 million to implement the groundwater, soil, Peconic River, and reactor remedies. OU X (OU 10) (including AOCs 33 and 34) was recently created to address PFOS, PFOA, and 1,4-Dioxane contamination in soil and groundwater. An RI/FS is anticipated to commence in the coming years. As mentioned above, a TCRA is currently underway to address PFOS and PFOA groundwater contamination and includes the operation of two groundwater treatment systems.

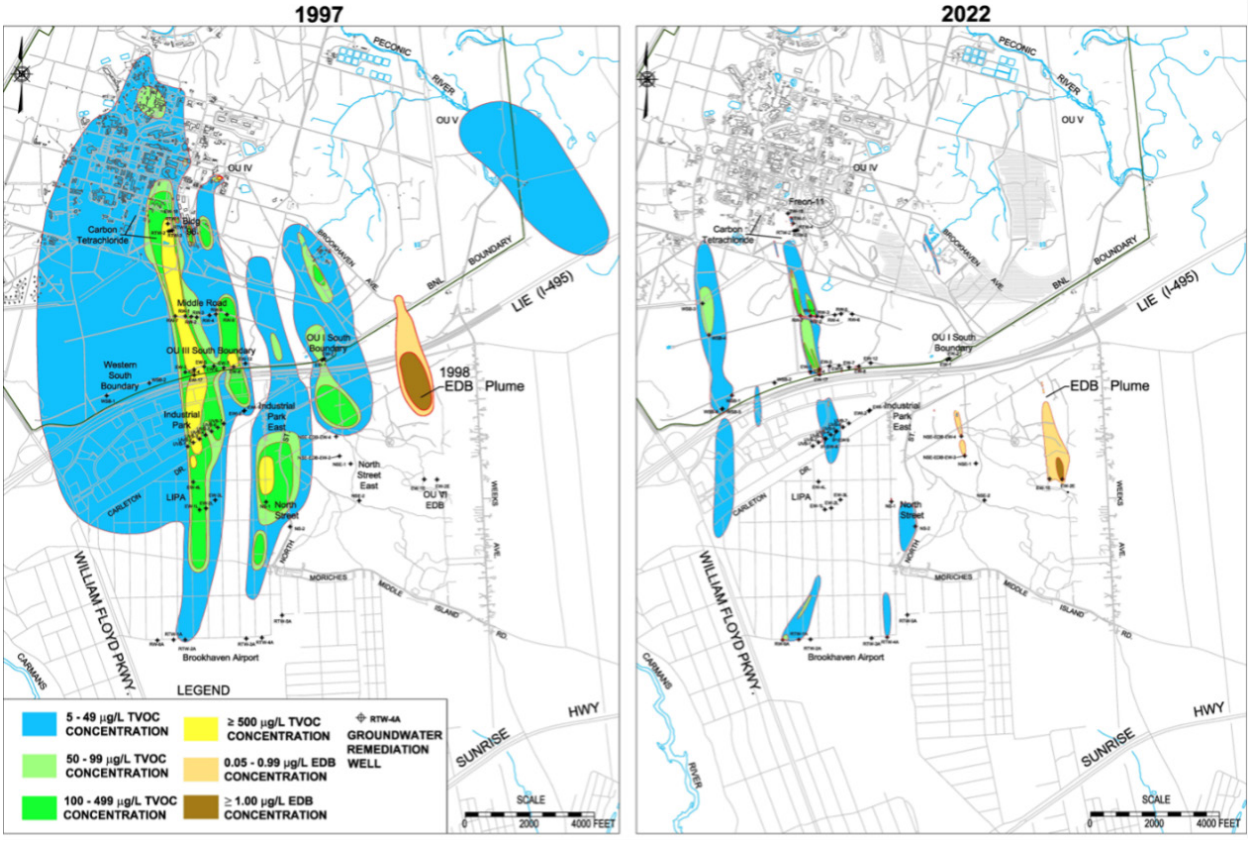
Soil clean-up levels have been met, several groundwater remediation systems have met their cleanup goals and were decommissioned, and the operating systems continue to meet the Remedial Action Objectives (RAOs) identified in each ROD. As of October 2024, a total of seven VOC, one Sr-90, and two PFOA/PFOS groundwater remediation systems were in operation and their RAOs are expected to be met.

A comprehensive summary of clean-up status, progress, and remaining issues for each of the Lab's OUs and their associated AOCs is available in the Lab's June 2021 CERCLA Five-Year Review Report.

In addition, a "Crosswalk" was prepared to develop consistency and clarity among the BNL designated OU numbers and the descriptions that are used by the EPA and the NYSDEC. The Crosswalk is provided in **Appendix A**.

A chronology of clean-up activities is provided in **Appendix B**. The June 2021 Five-Year Review Report is available here:

https://www.bnl.gov/gpg/files/2021_five_year_review/five-year-review-for-regulator-review-06-01-21.pdf



3 COMMUNITY PROFILE

The Lab is situated within the Town of Brookhaven, Suffolk County, Long Island, New York. Suffolk County has a total population of approximately 1,500,000 people and the Town of Brookhaven is the largest of ten towns by area in Suffolk County. The population of the Town of Brookhaven is just under 500,000 people and is comprised of many diverse communities. The Lab is bordered by the hamlets of Yaphank, Ridge, Shirley, Calverton, Middle Island, and Manorville.

Suffolk County has a total population of approximately 1,500,000 people and the Town of Brookhaven is the largest of ten towns by area in Suffolk County.

3.1 LOCAL GOVERNMENT

From a governmental perspective, the Suffolk County government includes an elected County Executive as well as an elected Legislature. There are 18 legislative districts, determined by area populations. Districts may not conform to the village or hamlet borders. Several representatives of the Suffolk Legislature have also served on the Lab's Community Advisory Council (CAC).

The Town of Brookhaven operates under a Town Council form of government. There are six councilors elected by their districts. Councilors are elected to a two-year term. The Town also has a professional planning, development, and environmental department, as well as a planning board appointed by the Town Council. The Town has a representative on the Lab's CAC.

Most villages and hamlets have citizen-run "civic" or "civic and taxpayer" organizations. These organizations, referred to as civics, often have large memberships in their community, and work to further activities or causes beneficial to that community. Many civics in the Lab's immediate surrounding area to the west are members of an "umbrella" group called Affiliated Brookhaven Civic Organizations (ABCO). A representative of ABCO also serves on the CAC.

3.2 DEMOGRAPHICS

The area around the Lab is predominantly medium density residential with pockets of agricultural and conservation land. Residences are found to the south, north, east, and west of the site, and an industrial park is found immediately south of the Lab. Commercial development and strip-mall shopping areas are generally located along major roads.

Based on EPA Environmental Justice (EJ) Screening data dated February 6, 2024, the following community information is summarized for the immediate area (three-mile buffer) surrounding the Lab:

Population	51,712
Number of Households	19,195
Owner Occupied	81%
Low Income	16%
Unemployment	6%
Per Capita Income	$48,643
Limited English Households	1%
Less than Highschool Education	7%
Persons with Disabilities	10%
Unemployment	6%
White	78%
Hispanic	12%
Black	6%
Asian	2%
Two or More Races	2%
Hawaiian/Pacific Islander	0%
Other Races	0%

The breakdown of household Languages spoken:

English	86%
Spanish	7%
Russian, Polish, or Other Slavic	2%
Other Indo-European	2%
Chinese (Mandarin, Cantonese)	1%
Total non-English	14%

Of the limited English-speaking households:

Spanish Speaking	18%
Speak Other Indo-European Languages	54%
Speak Asian-Pacific Languages	21%
Speak Other Languages	8%

The household breakdown by age:

Ages 1 – 4	5%
Ages 1 – 18	20%
Ages 18 and up	80%
Ages 65 and up	17%

The EPA EJ Screen Community Report dated February 6, 2024, is provided in **Appendix C**.

3.3 SUMMARY OF COMMUNITY CONCERNS

3.3.1 Summary of Historic Community Concerns

Historically, residents in the local and greater Long Island area were highly aware of environmental issues, especially as they relate to groundwater protection. Based on the initial community interviews performed during the onset of the Superfund program at the Lab, all of those interviewed expressed concern regarding contamination that had potential impact to off-site areas and the greatest source of concern was groundwater contamination.

Historically, residents in the local…area were highly aware of environmental issues, especially as they relate to groundwater protection.

All the people interviewed at the time stressed the importance of protecting groundwater and specifically that Long Island sits on a sole-source aquifer. Individuals indicated that protection of drinking water was the top priority environmental issue. In addition, most expressed concerns about pollution to the Peconic River, the types of wastes present at the site, and an explanation of how wastes are stored, treated, and disposed.

Since the start of the Superfund program at the Lab, the general perception from the community has improved greatly based on the 30+ years of investigation, clean-up, and monitoring activities, and the improved relationship and transparency between the Lab and the community.

3.3.2 Technical Assistance Grant

In May of 1999, the EPA awarded a three-year, $50,000 Technical Assistance Grant (TAG) to a local community activist group called Neighbors Expecting Accountability Remediation (NEAR). NEAR used the grant to improve community understanding of the technicalities of the Superfund clean-up and to monitor operations at the Lab. At the time, NEAR defined itself as a "coalition of community residents committed to monitoring operations at the Lab, and to ensuring protection of the environment and the health and safety of community residents and Lab workers." They were an umbrella group that included 40 civic organizations. EPA awards only one TAG per Superfund Site

3.3.3 Community Interviews and Summary of Current Concerns

As part of the Superfund process, the Lab solicits input from the community through surveys conducted during the CERCLA five-year review. This review is conducted to determine whether the remedies implemented at the Lab continue to be protective of human health and the environment. This is a CERCLA requirement when hazardous substances remain on site above levels that permit unlimited use and unrestricted exposure. The methods, findings, and conclusions of reviews leading to such determinations are documented in Five-Year Review Reports. The last CERCLA Five-Year Review was completed in June 2021.

The June 2021 CERCLA Five-Year Review Report and many other clean-up related documents are shared via the Lab's website and can be viewed here: *https://www.bnl.gov/gpg/reports.php*

June 2021 CERCLA Five-Year Review Survey Questions:

1. What is your overall impression of Brookhaven National Laboratory's clean-up, and do you feel well informed about the clean-up activities and progress?

2. Are there any specific aspects of the clean-up that you feel should be of particular focus during the review? (e.g. Records of Decision, clean-up goals, community input, etc.)
3. Do you feel confident in Brookhaven National Laboratory and the Department of Energy's management of the long-standing clean-up operations for the site?
4. Do you have any comments, suggestions, or recommendations regarding BNL/DOE's management and communications of the clean-up?

The Community indicated that overall, they believe that the Lab has done an excellent job keeping them informed of all progress regarding clean-up activities and about new and exciting science and discoveries taking place there.

Respondents emphasized how important it is to keep working with public officials and different levels of government to continue serving the public well.

In general, the community has a heightened sensitivity to groundwater issues because the Lab is situated in the Pine Barrens, which serves as a groundwater recharge for Long Island's sole-source aquifer that supplies all its drinking water.

Regarding specific requests, some survey respondents indicated they would like the Lab to continue providing updates about newer, emerging contaminants of concern such as PFAS and 1,4 Dioxane. They would also like to be informed about any new RODs, and for the Lab to continue addressing any public health impacts from radionuclides in the soil.

The Community indicated that overall, they believe that the Lab has done an excellent job keeping them informed of all progress regarding clean-up activities and about new and exciting science and discoveries taking place there.

4 COMMUNITY INVOLVEMENT AT THE LAB

Many of the community involvement activities presented are not specifically required by law or suggested by policy guidance. The Lab's CIP is designed to provide opportunities for public involvement that go beyond the minimum requirements and provide for a comprehensive, transparent, and accessible community involvement program that addresses the public concerns and interests.

4.1 ONGOING COMMUNITY INVOLVEMENT ACTIVITIES

4.1.1 Communication Forums

To create opportunities for effective dialogue between the Lab and its stakeholders, several forums for communication and involvement have been established, such as the following:

Community Advisory Council:

Like a Site-Specific Advisory Board, a CAC was created early in the CERCLA clean-up process to provide consistent and understandable information to the public and interested parties affected by the Superfund investigation and clean-up being conducted at the Lab.

The CAC advises Lab management primarily on environmental, health, and safety issues related to the Lab that are of importance to the community. The CAC is comprised of 26-member organizations and individuals representing civic, education, employee, community, environmental, business, and health interests. Every five years, the member organizations are polled to see if they would like to continue serving and many step down to allow new people to serve. While individual member organizations may step down, the slots that they fill are defined by the by-laws (e.g., civic associations, education, etc.) so they are filled by new people in those same categories. The Lab regularly seeks new membership to ensure the community is aware of their opportunity to participate and that it is fairly represented.

When the CAC was first formed in 1998, and for the first decade, it met 12 times a year. However, as the clean-up activities moved into primarily the long-term Operations and Maintenance (O&M) phase, the CAC decided not to meet over the summer months and met nine times a year, until the Covid-19 pandemic began in March 2020. During the pandemic, the CAC met virtually six times a year, (three times in the spring and three times in the fall). Since resuming hybrid meetings (offered both in-person and virtually), the CAC has kept the six-times a year structure with the caveat that special meetings can be called at any time.

The Lab regularly seeks new membership to ensure the community is aware of their opportunity to participate and that it is fairly represented.

The CAC is one of the primary ways the Lab keeps the community informed and provides a venue for community members to share their concerns during the public comment period during every meeting. Meetings are open to the public and are announced on the Lab's homepage calendar and the website provides links to the CAC webpage, which includes meeting agendas, and past meeting presentations and minutes. Organizations interested in participating in the CAC are encouraged to attend meetings and make their interest known by emailing: *community@bnl.gov*.

The 26-member organizations that comprise the CAC and information on how to participate is provided in **Appendix D**.

Interagency Meetings:

Monthly videoconference calls are held with parties to the Lab's IAG and other federal, state, and local regulators and stakeholders to update them on program status. The meetings also provide the opportunity to gather input and feedback, and to discuss emerging environmental findings and initiatives.

4.1.2 Other Public Outreach Initiatives

The Lab's Stakeholder Relations Office also manages several outreach programs that provide opportunities for stakeholders and the public to become familiar with the Lab's facilities and research projects. Outreach programs include:

Tour Program:

Opportunities to learn about the Lab are offered to college, university, professional, and community groups. Tour groups visit the Lab's scientific machines and research facilities and meet with scientists to discuss research. Agendas are developed to meet the interests of the groups and may include sustainability and environmental stewardship issues.

Speaker's Bureau:

Local civic groups, libraries, rotary groups, senior centers, and other interested parties can request a speaker to attend their meetings to provide an overview of the Lab and its science by contacting the email: *community@bnl.gov*. Additionally, more technical, scientific presentations can be requested and if there is availability among our scientific community, a presentation will be scheduled.

Open Houses:

Typically held on four Sundays during the summer, these open houses enable the public to visit the Lab's science facilities, experience hands-on activities, and learn about research projects and environmental stewardship programs. On average, more than 5,000 visitors participate in the program each year.

Science in the Community:

Lab scientists give lectures and attendees have an opportunity to take part in hands-on scientific activities. Bringing the show "on the road" gives the Lab an opportunity to bring its science into underserved communities and to increase its reach. The Lab partners with external organizations such as the Vanderbilt Planetarium, the Jones Beach Energy and Nature Center, Stony Brook University's University Communication Day, and the solar array at the Sisters' of St. Joseph's. The Lab also participates in and hosts various outreach events throughout the year such as festivals and workshops.

Internal Communications:

Internally, brown bag lunch meetings for employees are held periodically and cover topics of interest, including project updates, newly proposed initiatives, and wildlife management concerns.

4.2 CERCLA COMMUNITY INVOLVEMENT ACTIVITIES

Superfund community involvement is the process established in CERCLA that describes how the communities affected by Superfund sites are engaged. The NCP describes EPA's process for conducting Superfund community involvement. The NYSDEC Inactive Hazardous Waste Site Community Participation Plan (CPP) process is also consistent with the NCP. The Key Goals of community involvement are to:

- Ensure the community is made aware of the Superfund activities.

- Ensure that the community has opportunities to influence site clean-up and reuse decisions.
- Ensure that the community's concerns are understood and considered in the site decision making processes.

4.2.1 Community Involvement Activities During the Remedial Process

In general, Remedial Actions are long-term actions taken to clean-up sites that don't pose an immediate threat to public health or welfare. Remedial action activities have distinct phases, each with its own set of community involvement elements.

The intent stated in CERCLA is for EPA to provide opportunities for members of affected communities to become active participants in the Superfund clean-up process and to have a say in the decisions that affect their communities. The intent of the law is restated in the NCP, in provisions such as 40 Code of Federal Regulations (CFR) 300.430(c)(2)(ii) for remedial actions:

1. Ensure the public appropriate opportunities for involvement in a wide variety of site-related decisions, including site analysis and characterization, alternatives analysis, and selection of remedy.
2. Determine, based on community interviews, appropriate activities to ensure such public involvement.
3. Provide appropriate opportunities for the community to learn about the site.

Generally, during a Remedial Action, the public is informed about the activities through fact sheets and notices distributed at significant milestone points during their implementation:

- **Public Notices and Fact Sheets:** Help the affected community and interested public understand the nature of the contamination issues and the progress of efforts to investigate and perform an appropriate clean up.
- **Public Forums, Comment Periods, and Contact with Project Managers:** Provides opportunities for the public to contribute information, opinions, and perspectives that have potential to influence decisions about investigation and clean-up activities.

A summary of the of the planned Community Involvement Activities related to the Superfund Remedial Process at the Lab is provided in the table below:

Remedial Action Community Involvement Provision	Timing of Provision
Prior to Field Work for and at the Commencement of Remedial Investigation Work	
• *Community Interviews*: Conduct interviews to solicit concerns/information needs and learn how people want to be involved. At the Lab, this will generally be performed through the CAC. • *CIP:* Prepare CIP based on community interviews and other information (this CIP). **The original Community Relations Plan was established in 1991.** • *Information Repository*: Ensure that relevant RI documents are made available through the information repository and that the public is aware of how to access it. **Established in 1989 and accessible in-person on-site and at the EPA Region 2 office.** • *Technical Assistance Grants (TAG)*: Inform the public of TAG and make the application information available to the public in the information repository. **The community group NEAR received a 3-year $50,000 TAG in 1999.** • *Administrative Record*: Ensure that all relevant RI decision documents are added to the existing Administrative Record. **Established in 1989 and accessible in-person on-site and at the EPA Region 2 office.** • *Public Notice*: Publish a public notice in local newspaper to announce the availability of the Administrative Record files.	After the RI/FS Work Plan is approved and before the start of RI activities.

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Remedial Action Community Involvement Provision	Timing of Provision
Proposed Remedial Action Plan	
• *Public Notice*: Publish a public notice in a local newspaper that: (1) announces the availability of the RI/FS Report(s) and the Proposed Remedial Action Plan (PRAP); (2) includes a summary of the PRAP; and (3) announces a public comment period. • *Public Comment Period*: Hold a public comment period on the PRAP and RI/FS for at least 30 days and extend by 30 days upon timely request. • *Public Meeting*: Provide an opportunity for a public meeting regarding the PRAP. • *Meeting Transcript*: Prepare a transcript of the public meeting and make it available to the public. • *Response Summary*: Prepare a written response to comments and include it in the ROD.	Following IAG approval of the RI/FS Report(s), and the Draft PRAP.
Pre-ROD Significant Changes (if necessary)	
• *OD Significant Changes*: Include in ROD a discussion of significant changes that could have been reasonably anticipated by the public. • *Revised PRAP*: Issue a revised PRAP when changes could not have been reasonably anticipated by the public. • *Public Comment Period*: Hold a public comment period on the revised PRAP.	Following the initial PRAP public comment period and after any revisions are approved by the IAG.
After the ROD is Signed	
• *ROD Availability*: Make the ROD available for public inspection and copying at or near the site. • *Public Notice*: Publish a public notice in a local newspaper that announces the availability of the ROD. • *Administrative Record*: Add the ROD to the Administrative Record.	After the ROD is signed by the IAG.
Post ROD: Explanation of Significant Differences (if necessary)	
• *Public Notice*: Publish a public notice in a local newspaper that summarizes the Explanation of Significant Differences (ESD). • *Administrative Record/Information Repository*: Make the ESD available to the public in the Administrative Record file and the information repository.	After the ESD is approved by the IAG.
Post ROD: Amendment to the ROD (if necessary)	
• *Public Notice*: Publish a public notice in a local newspaper that announces the availability of the amended ROD and provides a brief description of the ROD amendment. • *Public Comment Period*: Hold a public comment period for at least 30 days on the proposed amended ROD and extend the period by 30 days upon timely request. • *Public Meeting*: Provide an opportunity for a public meeting regarding the amended ROD. • *Meeting Transcript*: Keep a transcript of comments made during the public meeting. • *Responsiveness Summary*: Prepare a response to comments and include the response summary in the amended ROD. • *Public Notice*: Publish a public notice in a local newspaper to announce the availability of the final amended ROD. • *Administrative Record/Information Repository*: Make the amended ROD available to the public in the Administrative Record file and the information repository.	After the ROD amendment and final amended ROD are approved by the IAG.

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Remedial Action Community Involvement Provision	Timing of Provision
Remedial Design/Remedial Action	
• *Fact Sheet*: Issue a fact sheet prior to beginning remedial action. • *Public Briefings*: Provide a public briefing, as appropriate, prior to remedial action.	Following IAG approval of the Remedial Design/ Remedial Action Work Plan (RD/RAWP) and before commencing remedial action activities.
Remedial Action and O&M Phase	
• *Continue Public Engagement*: Provide regular updates to the public through CAC meetings and inclusion of relevant documents on the information repository. • *CIP Review/Revision*: Review the CIP and consider revisions (if necessary) based on changes to remedial action and O&M activities and/or public needs	Routinely throughout a Remedial Action and/or ongoing O&M.
NPL Deletion	
• *Federal Register Notice*: Publish a notice of intent to delete in the Federal Register. • Inform the Community of the Intent to Delete: Publish a public notice in a local newspaper to announce the Federal Register notice of intent to delete. • *Public Comment Period*: Hold a public comment period of 30 days on the proposed rule or intent to delete. • *Information Repository*: Make the site deletion documentation and the final deletion (or docket) available to the public in the information repository. The final deletion docket must be made available in the information repository once the notice of final deletion has been published in the Federal Register. • *Response Summary*: Prepare a response to comment and include the response summary in the deletion docket.	At the time the IAG proposes to delete the site from the NPL

4.2.2 Community Involvement During the Removal Action Process

Removal actions are responses to releases that threaten the public health or welfare or the environment. The type and frequency of community involvement activities during removals will vary with the urgency and type of removal action. The community involvement approach for a removal action should be flexible and responsive to changing site conditions and to the needs of the surrounding community.

CERCLA Section 104 authorizes a removal action when:

1. There is a release or substantial threat of release of a hazardous substance into the environment.
2. There is a release or substantial threat of release of a pollutant or contaminant which may present an imminent and substantial danger to the public health or welfare.

In general, removals are initiated when the lead response agency determines that a removal is the appropriate response action, and an "Action Memorandum" (Action Memo) is signed. This determination is based on a removal site evaluation, which is an assessment of a release or threatened release and the potential threat to human health and the environment.

Assessing community involvement needs usually encompasses many factors, such as the nature and extent of the threat and the need for immediate action; location of the incident or site; the expected duration of the removal action; the degree of the communities and media interest; the potential impact of clean-up activities on the community; and other factors.

The NCP addresses certain community involvement activities for each type of removal action, as summarized in the following table:

Removal Action Community Involvement Provision	Timing of Provision
Emergency Responses	
• *Agency Spokesperson*: Designate a spokesperson to inform the community about actions taken, respond to inquiries, and provide information concerning the release. • *Administrative Record*: Add relevant documentation to the existing Administrative Record.	After the Action Memo is signed.
Time-Critical Removals (Planning Period Less than Six Months) ***Expected to Extend 120 Days or Less After the Start of Removal Activities***	
• *Agency Spokesperson*: Designate a spokesperson to inform the community about actions taken, respond to inquiries, and provide information concerning the release. • *Administrative Record*: Add relevant documentation to the existing Administrative Record. • *Notify the Public*: Publish a public notice in the local newspaper or use one or more mechanisms to give the community adequate notice of the availability of the Administrative Record file. • *Public Comment Period*: As appropriate, hold a public comment period of at least 30 days once the Administrative Record documents are made available. • *Response Summary*: Prepare a written response to comments and include it in the Administrative Record.	After the Action Memo is signed.
Time-Critical Removals (Planning Period Less than Six Months) ***Expected to Extend More than 120 Days After the Start of Removal Activities***	
• *Agency Spokesperson*: Designate a spokesperson to inform the community about actions taken, respond to inquiries, and provide information concerning the release. • *Administrative Record*: Add relevant documentation to the existing Administrative Record. • *Notify the Public*: Publish a public notice in the local newspaper or use one or more mechanisms to give the community adequate notice of the availability of the Administrative Record file. • *Public Comment Period*: As appropriate, hold a public comment period of at least 30 days once the Administrative Record documents are made available. • *Response Summary*: Prepare a written response to comments and include it in the Administrative Record. • *Community Interviews*: Within 120 days of the start of on-site removal activity, conduct community interviews to solicit concerns/information needs and learn how and when people want to be involved. • *Administrative Record/Information Repository*: Provide a notice of the availability of the Administrative Record file and information repository documents.	After the Action Memo is signed and following any public comment periods/ interviews.
Non-Time Critical Removal (Planning Period of at Least Six Months)	
• *Agency Spokesperson*: Designate a spokesperson to inform the community about actions taken, respond to inquiries, and provide information concerning the release. • *Administrative Record*: Add relevant documentation to the existing Administrative Record no later than the signing of the Engineering Evaluation (EE)/Cost Analysis (CA) • *Community Interviews*: Prior to the completion of the Engineering Evaluation EE/CA, conduct community interviews to solicit concerns/information needs and learn how and when people want to be involved. • *Information Repository*: No later than the signing of the EE/CA, add relevant documentation to the information repository. • *Notify the Public*: The Administrative Record file shall be made available for public inspection when the EE/CA is made available for public comment. At such time, publish a public notice in the local newspaper or use one or more other mechanisms to give the community adequate notice of the availability and a brief description of the EE/CA. • *Public Comment Period*: Hold a public comment period of at least 30 days once the EE/CA is made available and extent the comment period by at least 15 days upon timely request. • *Response Summary*: Prepare a written response to comments and include it in the administrative record file.	After the EE/CA is signed and following any public comment periods/ interviews.

4.3 ADMINISTRATIVE RECORD

The Lab's Administrative Record (40 CFR 300.800-300.825) is the complete body of documents that forms the basis for selecting a CERCLA response action (e.g., documents considered or relied upon in selecting a remedy). The Administrative Record serves two primary purposes. First, it limits the judicial review of the adequacy of a response action. That is, when a response action is challenged in court, the court can only review the information that is contained in the Administrative Record. Secondly, it acts as a vehicle for public participation in selecting a response action because the Administrative Record must be made available for public inspection and comment during the appropriate comment periods.

An index of what documents are included in the Lab's Administrative Record can be found on the Lab's website: *https://adminrec.bnl.gov/SelectRecord.aspx* Administrative Record (bnl.gov). The complete Administrative Record can be viewed in-person at the Lab or at the EPA Region 2 office. Many of the documents that are part of the Lab's Administrative Record are also available through the Lab's website: *https://www.bnl.gov/gpg/reports.php*.

Interested parties can contact either the EPA Region 2 or the Lab's Research Library to view specific documents of interest.

An information repository is a record storage area at or near a Superfund site that contains all correspondence, reports, and documents pertaining to the site that are made available to the public, the Administrative Record, and/or the Superfund program in general. At the Lab's information repository, people can access and research the site and applicable laws, learn how to participate in the clean-up process, and copy any information found at the repository. The information repository is accessible to the public and is maintained throughout the Superfund process.

In addition to the physical information repository located onsite at the EPA Region 2 office, the Lab maintains a website that is accessible by the public and provides site clean-up, O&M, and monitoring related documents, as well as several Administrative Record files such as the RODs for each OU. The annual Groundwater Status Reports are available on this site, which includes a comprehensive summary of the previous calendar year's monitoring data, remediation system status, progress, and recommendations for any changes or modifications required to optimize the clean-up and achieve clean-up goals.

Access the Brookhaven Lab website: *https://www.bnl.gov/gpg/reports.php*. Contact and repository locations are provided below and in **Appendix E** and **Appendix F**.

4.4 ENVIRONMENTAL JUSTICE

EJ is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations, and policies.

Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the adverse environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local and tribal programs and policies. Federal agencies must identify and address disproportionately high and adverse effects of federal projects on the health or environment on minority and low-income populations (EO 12898).

The Lab is committed to increasing EJ efforts and creating avenues for participation for disadvantaged and marginalized communities in environmental decision making. In 2022, the Lab launched a new program, Science in the Community, to bring its programs into the field and make them more accessible to disadvantaged communities. All of the Lab's Science in the Community programming is free and features hands-on activities for students.

The Lab also has a robust workforce development program, which includes many programs specifically designed to give opportunities to students from traditionally underrepresented and underserved communities. These programs include the following: STEM PREP Summer Institute, Alliances for Graduate Education, and the Professoriate Predominantly Undergraduate

Institutions, Community College Internship, Student Partnership for Advanced Research and Knowledge, Day in the Life of a River, and a science at home program with activities and lessons that students and their parents can do almost anywhere.

The Lab also has Memorandums of Understanding with Historically Black Colleges and Universities and Minority Serving Institutions to further establish diverse and inclusive workforce development programs. The Lab's Diversity, Equity, and Inclusion (DEI) Office coordinates additional programs such as the National Consortium for Graduate Degrees of Minorities, the Professional Associates program for Women and Minorities, the African American Advancement Group Scholarship Program, and the Mow Shiah Lin Scholarship.

4.5 REVIEW AND REVISION FREQUENCY

The CIP is a living document, and will be amended or revised as the need arises to reflect changes in community concerns or clean-up activities. To ensure that this document is reviewed on a regular frequency and is current with regulations, guidance, and the community's needs, it will be reviewed at a minimum every five years in conjunction with the CERCLA Five-Year Review and revised as appropriate.

4.6 CONTACTING THE LAB

In addition to the public's opportunity to attend CAC meetings (virtually or in-person) and comment during the public comment periods, there are several other ways members of the community may share their opinions about how they think the Lab is managing its programs. These mechanisms include: The Lab's telephone hotline 631-344-2345, and its dedicated community engagement email: *community@bnl.gov* to which concerns can be shared.

In addition, contact information for each member of the IAG is listed in **Appendix E**.

4.6.1 Media and Communications

The Lab's Stakeholder Relations Office and Media & Communications Office issues press releases to news and media outlets and publishes electronic and printed weekly employee newsletters, such as Brookhaven This Week and The Brookhaven Digest. In addition, a Director's Office web-based publication, Monday Memo, is issued bi-weekly to employees and focuses on topics important to the Lab population. Additionally, several all-hands meetings are held each year and offered both in-person and virtually to maintain communications with staff.

Lab Website

The Lab maintains an informative website at *www.bnl.gov*, where these publications, as well as extensive information about the Lab's science and operations, past and present, are posted. In addition, employees and the public can subscribe to the Lab's e-mail news service.

Community members can ask questions or comments by clicking on the "Let us know" link found under "Listening to you" on the Stakeholder Relations website at *http://www.bnl.gov/stakeholder/*. Community members can also subscribe to the weekly e-newsletter Brookhaven This Week, found on the Media Communications webpage at *https://www.bnl.gov/newsroom/thisweek* which keeps Lab employees and the public informed about happenings at the Lab, explains some of the science behind Lab research, and invites subscribers to educational and cultural events.

Appendix A

OPERABLE UNIT "CROSSWALK"

Table 1-3
Brookhaven National Laboratory
Operable Unit Crosswalk

BNL Revised OU Number	Description	EPA OU Number/Description	Notes
00	Sitewide (Removals/Five Year Reviews)	00 - Sitewide (Removals/ Five Year Reviews)	
I	Radiological Soil and Groundwater	01 - Radiological Soil	
II/VII	Radiological Soil, Scattered	02 - Radiological Soil	Decision documented in OU I ROD
III	Groundwater	03 - Sitewide Groundwater	
IV	Groundwater and Soil	04 - Soils	
V	Sewage Treatment Plant Soil/Peconic Sediment	05 - Peconic River/STP	Two RODs.
VI	Ethylene Dibromide (EDB) Groundwater	06 - EDB Plume/Upland Recharge Area	
VII	Covered Under OU II/VII	07 - BGRR	Decision documented in OU I ROD
VIII	g-2/BLIP/USTs	08 - g-2/BLIP/USTs	
IX	HFBR	09 - HFBR	
X	PFOS, PFOA and 1,4-Dioxane	10 - PFOS, PFOA and 1,4-Dioxane	
XI	BGRR	07 - BGRR	

Appendix B

CHRONOLOGY OF CLEAN-UP ACTIVITIES

General Site Information	
Site of future BNL serves as Army Camp Upton for World Wars I and II, operated by the Civilian Conservation Corps between wars	1917 – 1940s
Site transferred to the Atomic Energy Commission, BNL developed	1947
BNL transferred to the Energy Research and Development Administration	1975
BNL transferred to the DOE	1977
BNL added to NYSDEC list of Inactive Hazardous Waste Sites	1980
BNL listed on EPA National Priorities ("Superfund") List	1989
DOE entered into Interagency Agreement with EPA and NYSDEC under CERCLA	1992
Operable Unit I	
RA for "D-waste" tanks removal	1994
RA for Landfill capping	1995–1997
RA for South Boundary groundwater treatment system construction and public water hookups	1996
RA for Chemical/Animal Pits and Glass Holes excavation	1997
ROD signed	1999
Completed excavating landscape soil; Closeout Report issued	2000/2001
Completed excavating sludge from Building 811 USTs; Closeout Report issued	2001
Completed excavating soil and pipeline associated with Building 650; Closeout Report issued	2002
Completed capping Ash Pit; Closeout Report issued	2003/2004
Completed excavating soil and reconstructed Upland Recharge and Meadow Marsh; Closeout Report issued	2003/2004
Completed excavating former HWMF soil; Closeout Report issued	2005
Completed excavating Building 811 USTs/soils; Closeout Report issued	2005
Completed excavating former Chemical Holes residual surface soils; Addendum to Closeout Report issued	2005
Completed decontamination of the Merrimack Hole at the former HWMF	2006
RA completed for excavating the former HWMF Phase I Perimeter Soils; Completion Report issued	2009
Completed excavating the former HWMF Phase II Perimeter Soils; Completion Report Addendum issued	2010
Former HWMF Perimeter Soils designated as Sub-Area of Concern 1J	2013
Petition approved for shutdown of the South Boundary groundwater treatment system	2013
Completed excavating the former HWMF Phase III Perimeter Soils; Completion Report Addendum issued	2014
Completed demolition of former WCF and soil removal; Closeout Report issued	2017
Completed excavating soil north of former WCF; Addendum Closeout Report issued	2019
Petition approved for closure of the South Boundary groundwater treatment system	2019
Operable Unit II/VII	
RA for BLIP Facility (AOC 16K) cap, drainage control, grout injection; Closeout Report issued	1998/2002
Remedial Investigation performed; RI Report issued	1999
Evaluation of alternatives included under OU I Feasibility Study	1999
Operable Unit III	
RA for Building 479 PCB-contaminated soil excavation	1992
RA for Building 464 mercury-contaminated soil excavation	1993
RA for cesspools/septic tanks completed; Closeout Report issued	1994–1999

RA for USTs completed; Closeout Report issued	1994–1999
RA for public water hookups	1996–1998
RA for South Boundary groundwater treatment system construction	1997
RA for HFBR tritium plume groundwater treatment system	1997
RA for Carbon Tetrachloride groundwater treatment system construction	1999
RA for Industrial Park groundwater treatment system construction	1999
ROD signed	2000
Completed constructing Building 96 groundwater treatment system	2000
Completed constructing Middle Road groundwater treatment system	2001
Completed constructing low-flow pumping system for HFBR tritium plume	2001
Completed constructing Western South Boundary groundwater treatment system	2002
Completed constructing Chemical Holes Sr-90 groundwater treatment system (Pilot Study)	2003
Petition approved for shutdown of the Carbon Tetrachloride treatment system	2004
Completed constructing four remaining off-site groundwater treatment systems: Industrial Park East, North Street, North Street East, LIPA/Airport	2004
Completed constructing BGRR/WCF Sr-90 groundwater treatment system	2004
Completed excavating and off-site disposal of Building 96 PCB-contaminated soil; Closeout Report issued	2005
ESD issued for Magothy, Sr-90, Building 96 geophysical anomalies	2005
Building 96 Groundwater Treatment System Shutdown Petition Issued	2005
Completed construction of additional extraction wells for the HFBR, Chemical Holes, and Airport groundwater treatment systems	2007
ESD issued for Building 96 VOC soil excavation	2009
Petition approved for shutdown of the Industrial Park East groundwater treatment system	2009
Petition approved for closure of the Carbon Tetrachloride groundwater treatment system; system dismantled	2009-2010
Completed excavating and off-site disposal of Building 96 VOC-contaminated soil	2010
Completed construction of additional extraction wells for the WCF Sr-90 groundwater treatment system	2011
Building 452 Freon-11 Source Area and Groundwater Plume designated as Area of Concern 32	2011
Issued ESD; completed construction of Building 452 Freon-11 groundwater treatment system	2012
Completed construction of additional deeper extraction wells for the OU III South Boundary and Middle Road groundwater treatment systems	2012-2013
Petition approved for shutdown of the Industrial Park groundwater treatment system	2013
Petition approved for closure of the Industrial Park East groundwater treatment system	2013
Petition approved for shutdown of the North Street groundwater treatment system	2013
Petition approved for shutdown of the HFBR Pump and Recharge groundwater system	2013
Petition approved for shutdown of the North Street East groundwater treatment system	2014
Completed construction of additional deeper extraction wells for the Industrial Park groundwater treatment system	2015
Petition approved for shutdown of the Building 452 Freon-11 groundwater treatment system	2016
Petition approved for shutdown of the Sr-90 Chemical Holes groundwater treatment system	2018
Completed construction of additional deeper extraction wells for the Western South Boundary treatment system	2019
Petition approved for closure of the Building 452 Freon-11 groundwater treatment system	2019
Petition approved for closure of the HFBR Tritium Pump and Recharge groundwater system	2019
Petition approved for closure of the North Street groundwater treatment system	2020
Completed construction of additional extraction wells for the North Street East groundwater treatment system to address an EDB plume (North Street East EDB is considered a separate treatment system)	2020
Completed administrative closeout of the North Street East original VOC groundwater treatment system	2020

Operable Unit IV	
RA for fence around Building 650 Sump Outfall area soil	1995
ROD signed	1996
Completed constructing AS/SVE remediation system	1997
Petition approved for shutdown of AS/SVE remediation system	2000
Five-Year Review submitted to EPA and NYSDEC	2002
Petition for closure of AS/SVE Remediation System approved by EPA and NYSDEC; system dismantled	2003
Operable Unit V	
RA for Imhoff Tanks	1995
ROD signed for STP	2002
Completed excavation of STP soils; Completion Report issued	2003/2004
RA for Peconic River sediment excavation on site (Phase 1); Completion Report issued	2004/2005
RA for Peconic River sediment excavation off site (Phase 2); Completion Report issued	2004/2005
ROD signed for Peconic River	2005
Closeout Report for Peconic River Phase 1 and 2 Remediation issued	2005
Initiated post-cleanup Peconic River monitoring program to demonstrate the effectiveness of the cleanup	2006
Completed sediment trap removal and Peconic River Supplemental Remediation: Closeout Report issued	2011/2012
Completed supplemental sediment remediation at Peconic River Area PR-WC-06: Closeout Report issued	2017
Operable Unit VI	
RA for public water hookups	1996-1997
ROD signed	2001
Completed constructing EDB groundwater treatment system off site	2004
Operable Unit VIII	
TCRA for PFAS Groundwater Systems at Current and Former Firehouses	In progress
Brookhaven Graphite Research Reactor	
RA for BGRR primary cooling fans and equipment	1999
RA for pile fan sump	1999–2000
RA for above-grade ducts	2000–2002
RA for canal house and water treatment house	2001–2002
RA for coolers and filters	2002–2003
RA for BGD primary liner	2004
RA for fuel canal and subsurface soils	2005
ROD signed	2005
Graphite pile removal; Closeout Report issued	2009-2010
Engineered cap installed; Closeout Report issued	2011
Issued ESD; Biological shield removed; Closeout Report issued	2012
Began Long-Term Surveillance and Maintenance	2012
g-2/BLIP/USTs	
Impermeable caps placed over BLIP and g-2 source areas	1997 and 1999
Groundwater monitoring, cap inspections and maintenance	1999-2010
ROD signed	2007
ROD contingency triggered; additional groundwater monitoring initiated in downgradient plume segment	2011
Downgradient plume monitoring complete	2015

High Flux Beam Reactor	
Dismantlement and removal of several ancillary buildings	2006
RA completed for excavating former HWMF Waste Loading Area soils; Completion Report issued	2007-2009
ROD signed	2009
Removal of Bldgs. 801-811 underground waste transfer lines (A/B waste lines with co-located piping) and associated soil; Closeout Report issued.	2009
RA for removal/disposal of control rod blades and beam plugs; Completion Report issued	2009-2010
Began Long-Term Surveillance and Maintenance for Confinement Building and Stack	2010 and 2012
Fan houses (Bldgs. 704 and 802), above- and below-ground structures, soil removal; Closeout Report issued	2011
Confinement Building stabilization; Closeout Report issued	2011
Underground utilities and associated soil removal; Closeout Report issued	2011
Stack Silencer Baffles and survey of outside areas; Closeout Report issued	2012
Stack demolition complete (Draft Closeout Report to be issued in fall 2021)	2021

Appendix C

EPA ENVIRONMENTAL JUSTICE SCREENING TOOL COMMUNITY REPORT

EPA

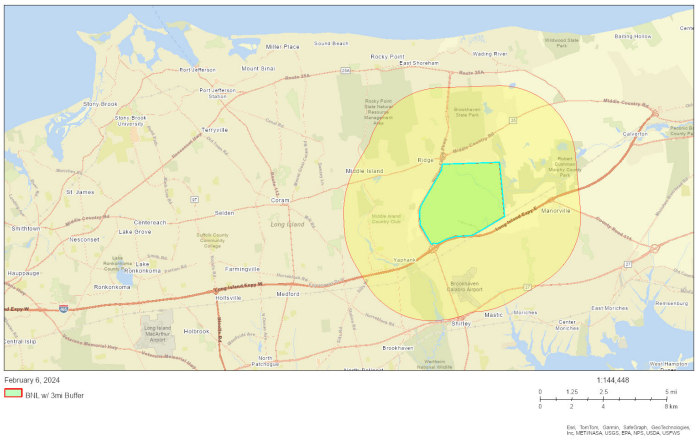
EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

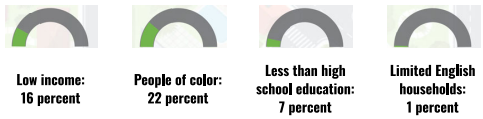
Suffolk County, NY

3 miles Ring around the Area
Population: 51,712
Area in square miles: 69.44

A3 Landscape



COMMUNITY INFORMATION



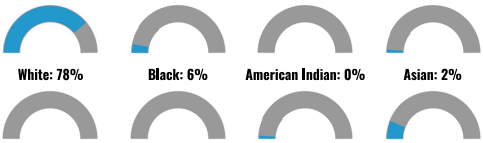
74 years
Average life expectancy

$48,643
Per capita income

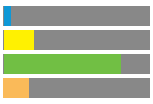

Number of households: 19,195


Owner occupied: 81 percent

BREAKDOWN BY RACE

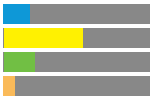


BREAKDOWN BY AGE



From Ages 1 to 4	5%
From Ages 1 to 18	20%
From Ages 18 and up	80%
From Ages 65 and up	17%

LIMITED ENGLISH SPEAKING BREAKDOWN



Speak Spanish	18%
Speak Other Indo-European Languages	54%
Speak Asian-Pacific Island Languages	21%
Speak Other Languages	8%

Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, American Community Survey (ACS) 2017 -2021. Life expectancy data comes from the Centers for Disease Control.

LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	86%
Spanish	7%
Russian, Polish, or Other Slavic	2%
Other Indo-European	2%
Chinese (including Mandarin, Cantonese)	1%
Total Non-English	14%

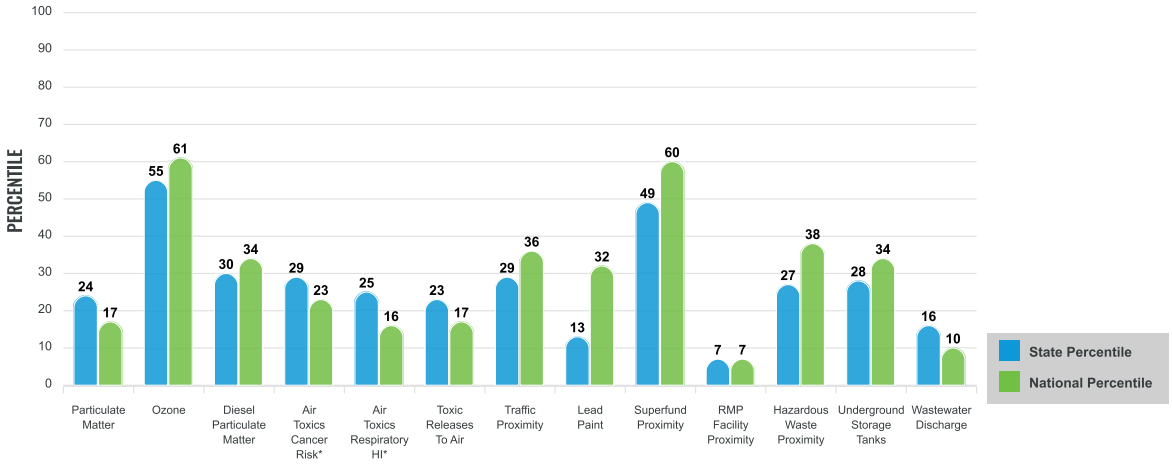
Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the EJScreen website.

EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

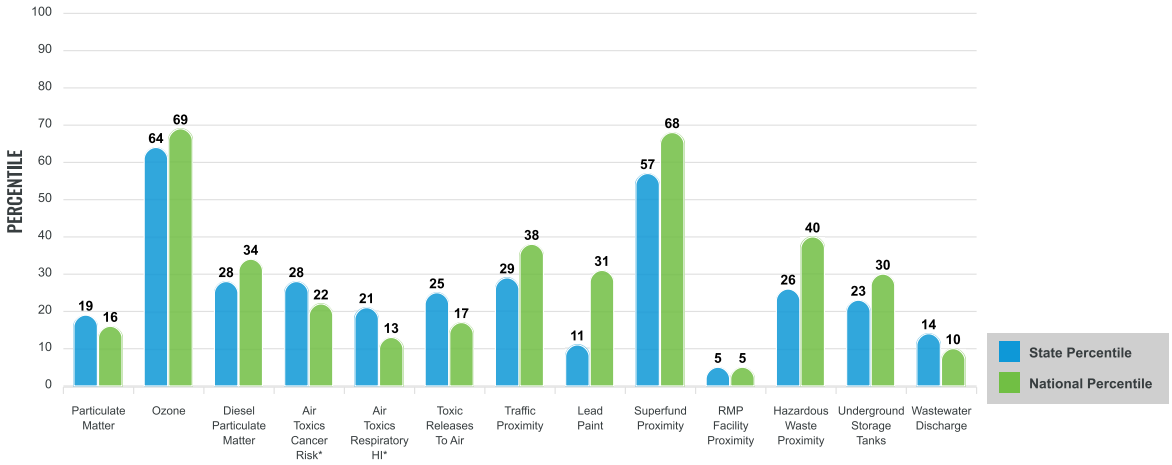
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for 3 miles Ring around the Area

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter (µg/m^3)	6.71	7.71	16	8.08	15
Ozone (ppb)	67.6	62.6	79	61.6	87
Diesel Particulate Matter (µg/m^3)	0.159	0.525	24	0.261	34
Air Toxics Cancer Risk* (lifetime risk per million)	20	25	5	25	5
Air Toxics Respiratory HI*	0.2	0.33	5	0.31	4
Toxic Releases to Air	91	450	22	4,600	23
Traffic Proximity (daily traffic count/distance to road)	60	430	29	210	44
Lead Paint (% Pre-1960 Housing)	0.14	0.55	11	0.3	40
Superfund Proximity (site count/km distance)	0.21	0.24	71	0.13	86
RMP Facility Proximity (facility count/km distance)	0.036	0.21	5	0.43	6
Hazardous Waste Proximity (facility count/km distance)	0.41	4.3	24	1.9	47
Underground Storage Tanks (count/km^2)	0.29	7.7	24	3.9	34
Wastewater Discharge (toxicity-weighted concentration/m distance)	2.3E-06	5	14	22	11
SOCIOECONOMIC INDICATORS					
Demographic Index	19%	35%	34	35%	30
Supplemental Demographic Index	10%	14%	36	14%	33
People of Color	22%	42%	40	39%	41
Low Income	16%	28%	36	31%	30
Unemployment Rate	6%	6%	59	6%	62
Limited English Speaking Households	1%	7%	48	5%	59
Less Than High School Education	7%	12%	44	12%	46
Under Age 5	5%	5%	51	6%	49
Over Age 64	17%	17%	58	17%	58
Low Life Expectancy	18%	17%	64	20%	40

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

Sites reporting to EPA within defined area:

Superfund	1
Hazardous Waste, Treatment, Storage, and Disposal Facilities	2
Water Dischargers	45
Air Pollution	18
Brownfields	0
Toxic Release Inventory	8

Other community features within defined area:

Schools	8
Hospitals	0
Places of Worship	8

Other environmental data:

Air Non-attainment	Yes
Impaired Waters	Yes

Selected location contains American Indian Reservation Lands*	No
Selected location contains a "Justice40 (CEJST)" disadvantaged community	No
Selected location contains an EPA IRA disadvantaged community	Yes

Report for 3 miles Ring around the Area

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS					
INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	18%	17%	63	20%	40
Heart Disease	5.2	5.6	39	6.1	33
Asthma	9.7	10	43	10	43
Cancer	6.3	6	53	6.1	52
Persons with Disabilities	9.9%	11.8%	42	13.4%	32

CLIMATE INDICATORS					
INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	7%	11%	56	12%	52
Wildfire Risk	37%	1%	98	14%	84

CRITICAL SERVICE GAPS					
INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	10%	13%	47	14%	45
Lack of Health Insurance	3%	5%	40	9%	21
Housing Burden	Yes	N/A	N/A	N/A	N/A
Transportation Access	Yes	N/A	N/A	N/A	N/A
Food Desert	Yes	N/A	N/A	N/A	N/A

Report for 3 miles Ring around the Area

www.epa.gov/ejscreen

Appendix D

COMMUNITY ADVISORY COUNCIL MEMBER ORGANIZATIONS

ABCO (Affiliated Brookhaven Civic Organizations)

Brookhaven Chamber of Coalitions

Brookhaven National Lab's Diversity, Equity, and Inclusion Council

Brookhaven Retired Employees Association

Brookhaven Village Association

Citizens Campaign for the Environment

Colonial Woods Whispering Pines

Cornell Cooperative Extension of Suffolk County

East Yaphank Civic Association

FOREST

Foundation for Economic Education

Gordon Heights Civic Association

Individual spots (4)

Long Island Pine Barrens Society

Longwood School District

Middle Island Civic Association

National Grid

National Synchrotron Light Source II User Committee

New York League of Conservation Voters

Ridge Civic Association

Stony Brook Hospital

Suffolk County Legislature

Town of Brookhaven Council

The CAC meets at 6:30 p.m. on every second Thursday of the month for the months of March, April, May, September, October, and November. Community members interested in participating can watch the Lab's calendar of events located on the website for the link to participate: BNL | Laboratory Events the links to participate are updated within a few days of each meeting.

Appendix E

CONTACT INFORMATION

The designated contact person for Superfund Community Relations Activities at the Lab are:

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US. Environmental Protection Agency (EPA)

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U.S. Environmental Protection Agency (EPA)

Region 2
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New York State Department of Environmental Conservation

Aphrodite Montalvo, Community Relations
SUNY @ Stony Brook
50 Circle Road,
Stony Brook, NY 11790-3490
aphrodite.montalvo@dec.ny.gov
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New York State Department of Environmental Conservation

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Division of Environmental Remediation
625 Broadway,
Albany, NY 12233-7015
Alexander.Klein@dec.ny.gov
Phone: 518-402-9374

Appendix F

LOCATIONS OF INFORMATION REPOSITORIES

Brookhaven National Laboratory Research Library
Technical Information Division Building 477A Upton, NY 11973
Contact: 631-344-3483
Call for appointment

U.S. EPA – Region II
Administrative Records Room
290 Broadway
New York, NY 10007-1866
Contact 1-877-251-4575
Call for appointment

Stony Brook University
Frank Melville Jr. Memorial Library
Special Collections Room E2320
100 Nicolls Road
Stony Brook University
Stony Brook, NY 11794-3323
Phone: 631-632-7119
Contact: Kristen Nyitray: *Kristen.nyitray@stonybrook.edu*

Appendix G

LIST OF RELEVANT LAWS, AGREEMENTS, REGULATIONS, AND GUIDANCE

Federal

- Atomic Energy Act of 1954 was the original congressional declaration of the country's policy with respect to Atomic Energy.
- CERCLA As referenced by The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.
- Corrective Action Program of the Resource Conservation and Recovery Act (RCRA) As referenced on the EPA website, the RCRA Corrective Action Program requires facilities that treat, store or dispose of hazardous wastes to investigate and clean up contaminated soil, groundwater, and surface water.
- U.S. EPA National Priorities List (NPL) As referenced in the National Priorities List (NPL) is the list of sites of national priority among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. The NPL is intended primarily to guide the EPA in determining which sites warrant further investigation.
- Executive Order (EO) 12580 as referenced in EO 12580, is an executive order that authorizes several federal agencies to implement provisions related to CERCLA.
- Federal Facilities Agreement (Administrative Docket Number: II-CERCLA-FFA-00201) Includes link to the Lab's Federal Facilities Agreement with other agencies.
- Hazardous and Solid Waste Amendments of 1984 (HSWA) As referenced by the HSWA, this law authorizes the EPA to carry out the general hazardous waste management, and support for State, regional, local, and interstate agency solid waste plans.
- National Contingency Plan (NCP) As referenced by the NCP website, the National Oil and Hazardous Substances Pollution Contingency Plan, more commonly called the National Contingency Plan or NCP, is the federal government's blueprint for responding to both oil spills and hazardous substance releases. The NCP is the result of efforts to develop a national response capability and promote coordination among the hierarchy of responders and contingency plans.
- National Environmental Policy Act (NEPA) As referenced by the National Environmental Policy Act (NEPA) requires that all federal agencies consider the potential environmental impacts of their proposed actions. NEPA regulations are located at 40 CFR 1500 through 1508 and DOE's implementing regulations for NEPA are located at 10 CFR 1021, which also includes requirements for public participation.
- Superfund Amendments and Reauthorization Act of 1986 (SARA) As referenced by the EPA's website, the Superfund Amendments and Reauthorization Act of 1986 (SARA) reflected EPA's experience in administering the complex Superfund program during its first six years and made several important changes and additions to the program. It also required EPA to revise the Hazard Ranking System to ensure that it accurately assessed the relative degree of risk to human health and the environment posed by uncontrolled hazardous waste sites that may be placed on the National Priorities List (NPL).

New York State

- New York State Department of Environmental Conservation Inactive Hazardous Waste Disposal Sites (IHWDS) As referenced on the NYS DEC website, IHWDS is the State's program for identifying, investigating and cleaning up sites where consequential amounts of hazardous waste may have been disposed. These sites go through a process of investigation, evaluation, cleanup and monitoring that has several distinct stages.
- New York State Environmental Conservation Law (ECL) Article 27, Title 9 and 13, and ECL3-0301 According to the Law of the State of New York, Article 27 addresses the collection, treatment and disposal of refuse and other
  solid waste.