Community Involvment Plan

Former Naval Weapons Industrial Reserve Plant (NWIRP)

2024 - 2029

NAVFAC
Naval Facilities Engineering Systems Command
NAVFAC MID-ATLANTIC

Submitted to:

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BETHPAGE, NY

HAMLET OF THE TOWN OF OYSTER BAY,
NASSAU COUNTY

Population: 17,281
Land Area: 3.58 sq mi
Climate: Varies from 26°F to 83°F

Population Density: 4,832 people per sq mi
County Executive: Bruce Blakeman
Time Zone: Eastern Standard Time (EST)

PROFILE

Bethpage, NY, is 2 miles NE of Levittown, NY and 26 miles E of New York, NY. Bethpage is part of the surrounding Nassau-Suffolk metro area. Thomas Powell, a devout Quaker was the original owner of what is today parts of Farmingdale, Bethpage, Old Bethpage, Plain-

Community

Bethpage is a medium-sized town located in the state of New York with five constituent neighborhoods; it is the 112th largest community in New York.

Families

Bethpage is considered a great place for families with children because of the good schools and large college-educated population.

Diversity

Bethpage is a very ethnically-diverse town. The people who call Bethpage home describe themselves as belonging to a variety of racial and ethnic groups.

Real Estate

Home prices are not only among the most expensive in New York, but Bethpage real estate also consistently ranks among the most expensive in America.

Daily Commute

While many use the train to get to work, most drive and spend an average of 34.3 minutes daily on their commute.

Career

Most common job groups in Bethpage are Management, Office & Administrative Support, and Education Instruction & Library Occupations.

DEMOGRAPHIC DATA

Households in Bethpage, NY have a **median annual income** of

$128,428

The **median age** in Bethpage, NY is

47.8

Households in Bethpage, NY have a **median value** of

$574,800

Home ownership rate **93.8%**

The **3 largest ethnic groups** in Bethpage, NY are

White (74.9%)
Asian (12.9%)
Hispanic (4.1%)

People **below poverty** level

4.1%

Bethpage, NY has a large population of **military veterans** who have served in

Vietnam (46.3%)
Gulf (20.2%)
Korea (19.8%)

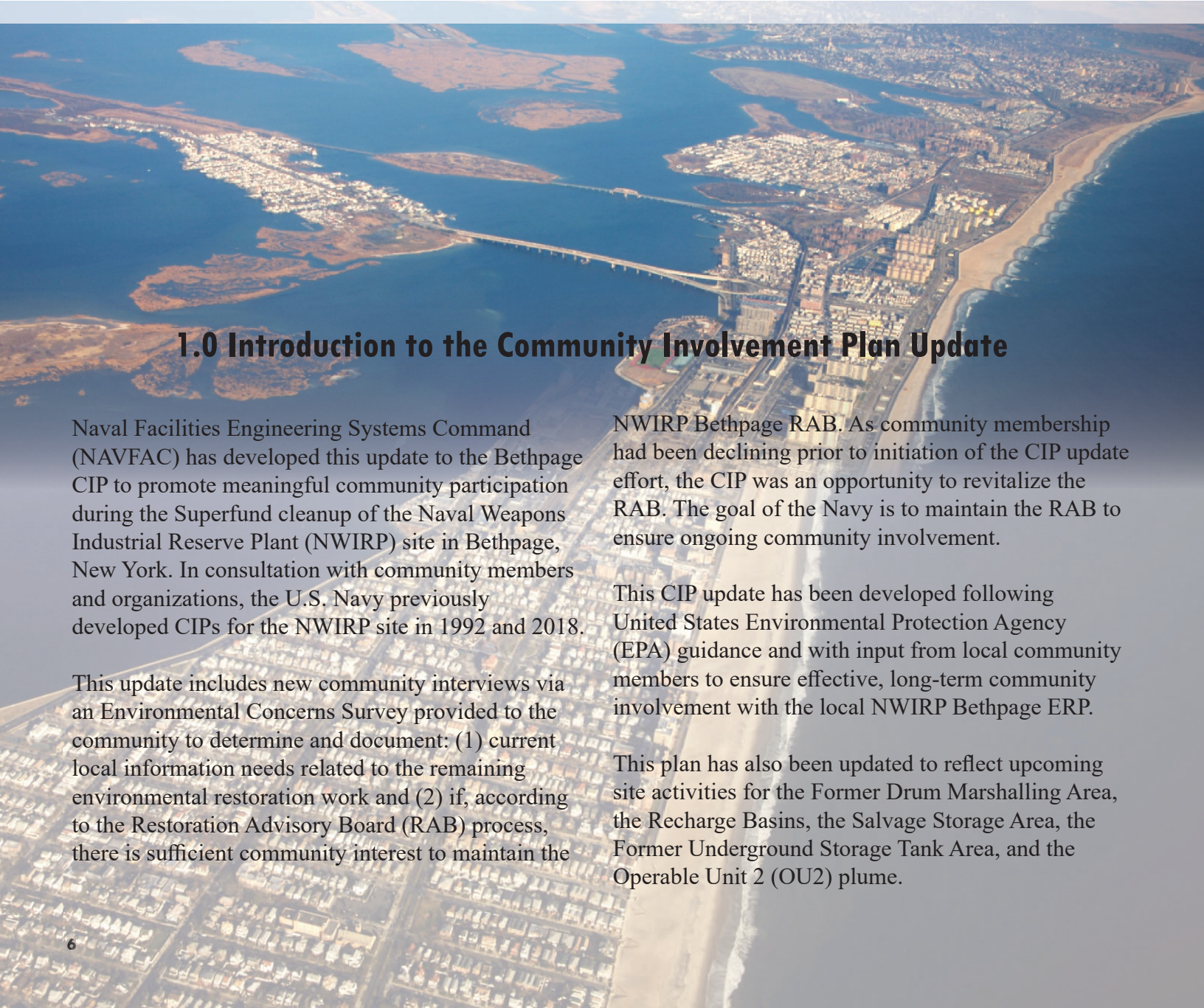
**Information is from DATA USA and Census Reporter*

SECTION I.

Overview of the Updated Bethpage Community Involvement Plan

The Department of the Navy recognizes all Americans have the right to be involved in government decisions that may affect their lives. Because of this, the Navy develops site-specific Community Involvement Plans (CIPs) for installations undergoing environmental restoration activities. This ensures nearby community members have opportunities to learn about and participate in this important clean-up process. The development and execution of a CIP promotes community involvement and provides information on how community members can stay informed and share information or concerns. This is an important component to the overall success of the Navy's Environmental Restoration Program (ERP).

Note: *For ease to the reader most acronyms are spelled out throughout this document. There is an additional list of common acronyms used, found on page 33.*



1.0 Introduction to the Community Involvement Plan Update

Naval Facilities Engineering Systems Command (NAVFAC) has developed this update to the Bethpage CIP to promote meaningful community participation during the Superfund cleanup of the Naval Weapons Industrial Reserve Plant (NWIRP) site in Bethpage, New York. In consultation with community members and organizations, the U.S. Navy previously developed CIPs for the NWIRP site in 1992 and 2018.

This update includes new community interviews via an Environmental Concerns Survey provided to the community to determine and document: (1) current local information needs related to the remaining environmental restoration work and (2) if, according to the Restoration Advisory Board (RAB) process, there is sufficient community interest to maintain the NWIRP Bethpage RAB. As community membership had been declining prior to initiation of the CIP update effort, the CIP was an opportunity to revitalize the RAB. The goal of the Navy is to maintain the RAB to ensure ongoing community involvement.

This CIP update has been developed following United States Environmental Protection Agency (EPA) guidance and with input from local community members to ensure effective, long-term community involvement with the local NWIRP Bethpage ERP.

This plan has also been updated to reflect upcoming site activities for the Former Drum Marshalling Area, the Recharge Basins, the Salvage Storage Area, the Former Underground Storage Tank Area, and the Operable Unit 2 (OU2) plume.

The following are the three primary goals of the CIP:

1. **Inform:** To provide the community with balanced and objective information to assist them in understanding the problem, alternatives, opportunities, and/or solutions for each environmental restoration site.
2. **Involve:** To work directly with the community throughout the process to ensure that public concerns and aspirations are consistently understood and considered.
3. **Consult:** To obtain community feedback on analysis, alternatives and/or decisions.

Please refer to the website for historical information: LINK

Bethpage Community Engagement Objectives

- Provide understandable information about site cleanup and activities.
- Provide opportunities for meaningful public participation.
- Respond in a timely manner to community questions and concerns.

Key Audiences

- Residents and businesses in Bethpage, NY, and nearby surrounding neighborhoods
- Agricultural land and livestock owners
- Riverhead Chamber of Commerce
- New York State Department of Environmental Conservation
- Local water districts
- NYS Departments of Health, Ecology, and Agriculture
- Local, state and federal elected officials

Point of Contact

Public Affairs Office
(757) 341-1410 or 1411
NAVFAC_ML_PAO@navy.mil

Photo: Canva

SECTION II.

Facility History and Description

2.0 Facility History and Location

Established in 1942, the former Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage is located in Nassau County on Long Island, approximately 30 miles east of NYC. Operations were shut down in September 1998. During its lifetime, the facility was leased and operated by Northrop Grumman Corporation to research prototype, test, design engineer, fabricate and assemble of military aircraft.

NWIRP Bethpage was located within the secure portion of the Grumman complex, and between Northrop Grumman and the Navy, totaled 605 acres.

The 105-acre main parcel included the former Northrop Grumman main aircraft manufacturing building, ancillary facilities, as well as all of the facilities designated as Plants 10 and 17. Plant 10 consisted of a former quality control laboratory building (Building 10-01) plus associated support structures in the southwestern part of the main parcel. Plant 17 consisted of a cluster of six warehouses in the northwestern part of the parcel (Plant 17 North) and a cluster of ten warehouses in the southeastern part of the parcel (Plant 17 South).

2.1 Installation Restoration and Cleanup Program

Regulation of Cleanup

The cleanup of NWIRP Bethpage is conducted under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (see page 10), and to the extent practicable, the National Oil Hazardous Substances Pollution Contingency Plan. The site is not included on the U.S. Environmental Protection Agency (EPA) National Priorities List (NPL).

Lead Agency: U.S. Navy

The Navy is the lead federal agency and conducts cleanup work in consultation with New York State Department of Environmental Conservation (NYSDEC), Nassau County Department of Health (NCDOH), and New York State Department of Health (NYSDOH).

Environmental Restoration Program (ERP)

Naval Facilities Engineering Systems Command (NAVFAC) manages and executes the Navy's ERP and coordinates all actions. The ERP identifies, investigates and cleans up former waste disposal sites on military property with the objectives to reduce the risk to human health and the environment.

Naval Facilities Engineering Systems Command

NAVFAC is a global command that supports the Navy and Marine Corps through technical and acquisition solutions. They support environmental planning and compliance, marine, natural and cultural resource management, and environmental restoration. Their planners, engineers, architects, environmental and contract specialists, tradesmen, and many other highly trained professionals strive to ensure they meet or exceed the Navy's environmental goals. They also work with other agencies, partners, and stakeholders to ensure the Navy and Marine Corps complies with federal, state, local, and host nation regulations.

2.2 Comprehensive Environmental Response, Compensation and Liability Act:

Also known as Superfund, authorizes the Federal government to resond to releases or possible releases that may be hazardous to the environment.

The Department of Defense (DOD) complies with the CERCLA cleanup process, as a framework for environmental investigation and cleanup in the ERP. Sites can become part of the Navy's ERP in one of three ways: **(1)** EPA lists an installation on the Federal Facilities Agency Hazardous Waste Compliance Docket **(2)** the Navy discovers a waste disposal site, former training range, or potential hazardous materials release, or **(3)** A petition is made by an affected person. The ERP is overseen by the Office of the Secretary of Defense.

The overall goals of the Navy's ERP program are as follows:

- Identify, investigate, and cleanup contamination from a hazardous substance, pollutant or contaminant.
- Correction of other environmental hazards (such as detection and disposal of unexploded ordnance (UXO) which create an imminent and substantial endangerment to public health/ welfare or the environment.
- Demolition and removal of unsafe buildings and structures, including buildings and structures at sites formerly used by or under the jurisdiction of the DoD.

This process is consistent with other DoD agencies and by the EPA at non-DoD sites. The process the Navy uses for sites like Bethpage can be broken down into three primary stages. (*Review page 12 for a general overview of the CERCLA process*):

Stage 1 – Investigation: The purpose of the investigation stage is to identify and study locations which may require environmental cleanup action. *A Preliminary Assessment (PA)*, which involves collecting and reviewing historical data and information for each location, is conducted to decide whether or not further study is needed. If historical information supports the potential for environmental contamination, then more information, often including limited sampling and laboratory analysis, is collected during a *Site Inspection (SI)* to determine if there has been a release.

If there has been a release that may impact human health or the environment, then the location will be designated as an official ERP Site, and a *Remedial Investigation (RI)* may be conducted. The RI uses both data gathered previously during the PA and SI and additional sampling and investigation information to answer four primary questions:

1. *What wastes are present?*
2. *Where is the waste?*
3. *Is the waste moving into the groundwater?*
4. *Is there a risk to public health and the environment?*

A *Feasibility Study (FS)* uses the information learned about the site to identify and evaluate potential cleanup alternatives. Risk Assessments may be conducted as part of the FS to determine if cleanup action or management actions are needed to reduce risks to human health or the environment to acceptable levels and to help evaluate cleanup alternatives.

After the RI/FS Report is completed, a *Proposed Plan (PP)* is prepared to describe the preferred cleanup method. Community input on the PP is requested during a public comment period. A *Record of Decision (ROD)* is then developed to explain and document the cleanup alternative chosen for the site.

Stage 2 – Cleanup: The cleanup and/or management actions needed to reduce risk or prevent exposure to contaminants at the site are designed, planned, and conducted during the cleanup stage. A *Remedial*

Design document is prepared providing details of how the remedial action will be constructed and/or conducted. Monitoring is typically conducted following the remedial action to ensure the effectiveness of the cleanup. Not all sites require a physical cleanup action.

The cleanup alternative chosen may include management actions called Land Use Controls (LUCs), which prevent or limit future exposure at the site. Some examples of LUCs include:

- Legal deed restrictions on the type of future use of the property (e.g. residential, industrial, recreational, etc.).
- Restrictions on activities that can occur such as "no digging" or "no fishing."
- Installation of physical controls such as signage or fencing to limit access or exposure.

Stage 3 – Site Closure or Long-Term Monitoring: After the selected remedy has achieved cleanup goals identified in the ROD, Site Close-Out occurs or the site enters into *Long-Term Monitoring (LTM)*. Sites where hazardous substances, pollutants, or contaminants remain above levels that would allow unlimited use and unrestricted exposure require LTM.

Five Year Reviews are conducted for all LTM sites to evaluate the performance of the implemented remedy, verify that the remedy remains protective of human health and the environment (as stated in the ROD), and modify the remedy if it is no longer protective of human health and the environment.

It is important to note that not all stages or steps of the ERP process are required at each site. There are decision points throughout the Navy's process to eliminate sites where *no further action is needed* (see page 21) because risks to human health or the environment are at low, acceptable levels or to accelerate the process for any sites where immediate action is needed to protect human health and/or the environment.

DID YOU KNOW? The mission of the U.S. Navy is to protect America at sea, defend freedom, preserve economic prosperity, and keep the seas open and free. To complete this mission, the Navy recognizes the importance of responsible stewardship of the land, waterways, and resources with which it is entrusted, and **Navy environmental programs play a vital role in the achievement of the U.S. National Defense Strategy.** Good stewardship includes compliance with federal and state environmental regulations as well as Department of Defense and Navy policy. This includes the Environmental Restoration Program, that serves to conserve, protect ,and restore the environment, and natural, and cultural resources for future generations.

2.3 Remedial Project Managers

NAVFAC Remedial Project Managers (RPMs) are responsible for the management of the ERP at the installation and/or site level.

The RPM coordinates the work of Navy technical support agencies and contractors to accomplish ERP goals and policies. The RPM is the single individual involved in all aspects of the project, including interagency relationships, funding, scheduling, design, and remedial action.

The RPM's core responsibility is to identify the resources needed to effectively implement the environmental restoration process.

FACT SHEET

Overview

CERCLA PROCESS

Comprehensive Environmental Response Compensation and Liability Act

Law passed in 1980 to address releases, or potential releases, of hazardous substances into the environment. Provides the Federal Government authority to respond to sites that exist due to the improper disposal or management of waste. These sites include former military bases, manufacturing facilities, processing plants, landfills and mining sites. CERCLA is the framework for the Federal Government to follow in order to assess and cleanup contaminated sites.

STAGE I: INVESTIGATION

(1)
DISCOVERY
(Site identified through The Federal Agency Hazardous Waste Compliance Docket)

Certain sites are identified as requiring evaluation. The evaluation determines if the site poses a risk to public health or the environment under CERCLA, and ensures this information is available to the public.

(2)
PRELIMINARY ASSESSMENT/ SITE INSPECTION (PA/SI) ♦
(Is there a Problem?)

PA/SI involves review of historical records, field visits, possible interviews with current or former employees, and limited sampling of soil and/or water to determine the likelihood of chemicals, and identify possible contamination sources. Some sites, based on results may be placed on *The National Priorities List by the EPA.

(3)
REMEDIAL INVESTIGATION (RI)/ ♦ RISK ASSESSMENT (RA)
(What are the Risks?)

Involves more intensive sampling and analysis of soil and water at the site. Once this data is collected, a Risk Assessment is conducted. These studies determine which wastes are present, where they are, whether they are moving into the groundwater, and whether there is a risk to public health and the environment. Sites that pose an imminent threat to public health are cleaned up immediately with removal actions.

(4)
FEASIBILITY STUDY
(How can it be Cleaned Up?)

This study determines the best technology for cleaning up a site. Project managers consider risk, compliance with federal and state regulations, ability to reduce the toxicity, mobility, and volume of the chemical(s), ability to implement a remedial alternative, long-term effectiveness, short-term effectiveness, cost, state acceptance, and community acceptance. Project managers plan strategies to reduce or prevent risk by limiting or stopping exposure to chemicals.

STAGE II: CLEANUP

(5)
PROPOSED PLAN ♦
(Comment Period)

Identifies and explains the rationale for the preferred cleanup method. to address any threats to human health and the environment at the site. Describes all remedial alternatives that were evaluated, and the criteria used to conduct the evaluation and comparison. Solicits public review and comment on all alternatives presented. Written expressly for public review.

(6)
RECORD OF DECISION (ROD) ♦
(Legal Certification of Final Decision)

Identifies selected cleanup remedy. Provides a plan for site design and remediation, and documents the extent of human health or environmental risks posed by the site.

The National Priorities List (NPL), an information management tool, contains a list of the most serious sites identified for long-term cleanup. Sites receiving a Hazard Ranking System (HRS) score of 28.50 or greater are eligible for placement on the NPL. Sites are listed on the NPL only after, completion of the HRS, public solicitation of comments, and after all comments have been addressed. Following the NWIRP Site Investigation, it was determined NWIRP would not be included on the NPL.

The diamond symbol ♦ on this page represents when and where public involvement will be key during the process.

STAGE III: SITE CLOSURE or LONG-TERM MANAGEGEMENT

(7)
REMEDIAL DESIGN/ACTION (RD/RA) ♦
(Detailed Plan and Cleanup Actions)

The design specifications for the selected cleanup remedy to approved environmental standards. Implementation of the cleanup remedy through construction.

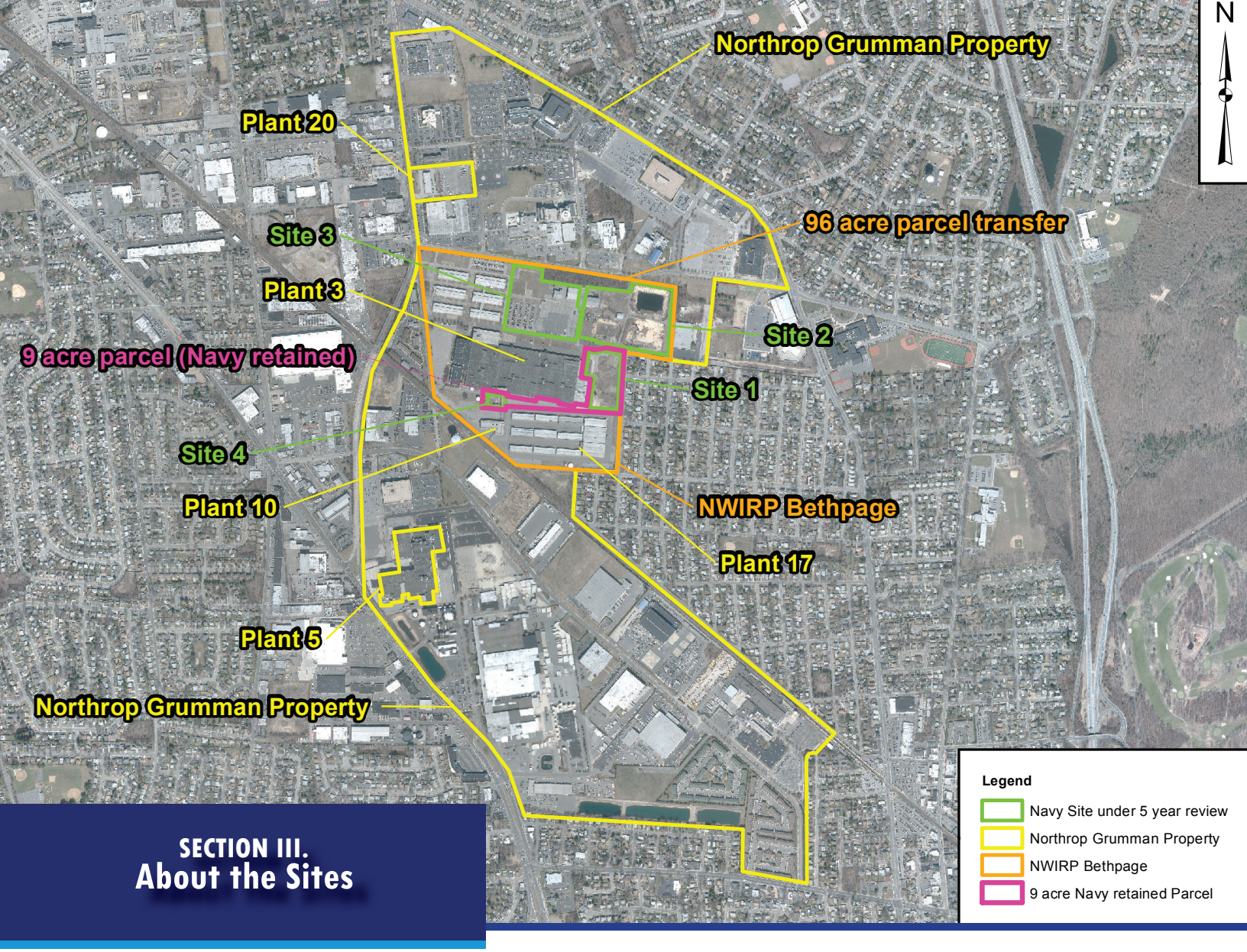
(8)
OPERATION AND MAINTENANCE MONITORING
(Cleanup Goals Achieved; May Include Land Use Controls)

Ongoing monitoring requirements for post-remediation are based on the effectiveness of the Remedial Action. Sampling and analysis may be required to confirm the site chemicals are no longer present above acceptable action levels and to begin site closure activities.

Each action item (numbers 1-7) can take anywhere from 1 to 5 years to complete, and action item number 8 may occur over an extended period of time.

This page may be printed for reference during community meetings.

(Above) **Technicians perform Soil Gas Sampling in a Nassau County residential neighborhood.** Soil gas can be tested in different ways. The most common method uses a hollow metal rod that is inserted into the soil. To measure the soil gas holes are drilled and the rod is pushed into the soil. A pump draws the soil gas through the hollow rod into a sampling container or canister. The gas is then either analyzed by the testing equipment on-site or the sampling container is brought to an off-site laboratory for analysis.



SECTION III. About the Sites

3.0 Current Active Sites

In 2008, the Navy transferred 96 acres of the 105-acre main parcel to Nassau County, leasing them the remaining nine acres. These nine acres (*see map above*) are being retained by the Navy for environmental investigations and remediation and include:

Navy-Retained Acres:

- Site 1 – Former Drum Marshalling Area
- Site 4 – Former Underground Storage Tank area south of Plant 03

Investigations on Acres & Non-Navy Retained Acres that require no further investigation/remediation:

- Site 2 – Recharge Basins
- Site 3 – Salvage Storage Area

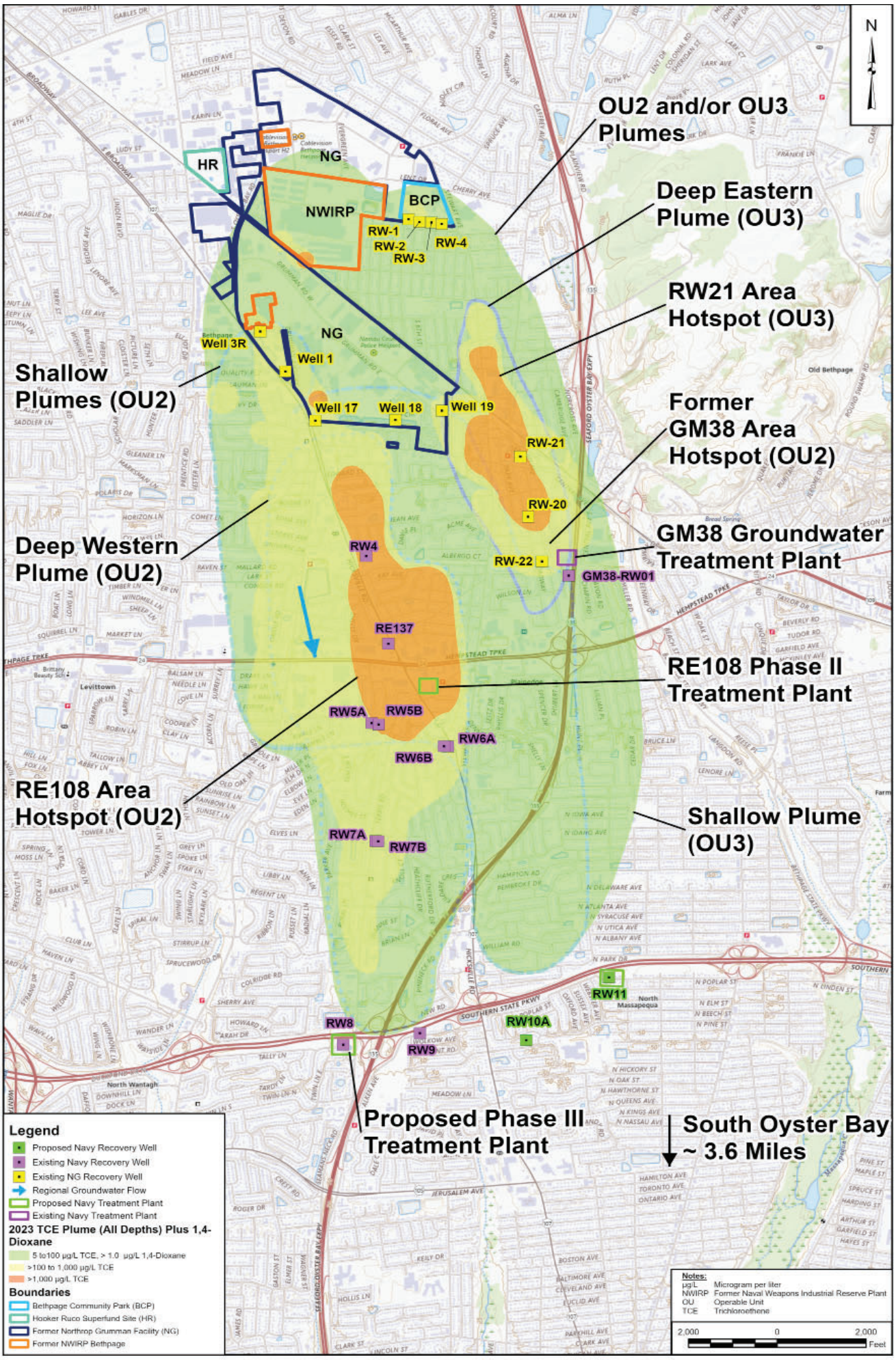
NWIRP Bethpage also includes four Operable Units (OUs) (*see map page 15*). OU2 consists of site-related volatile organic compound (VOC) contaminated groundwater that has migrated south and east off-property, and mixed with contamination from Grumman property. It forms an area of approximately 3,000 acres extending south of Hempstead Turnpike, at varying depths, some areas as much as 700 feet.

The Groundwater plume includes contamination from several sources:

- Site 1 – (*does not include petroleum-contaminated groundwater associated with OU3, Site 4 – Former Underground Storage Tanks [subject of separate Navy ROD for OU3]*).
- Northrup Grumman area facilities

Other non-OU2 sources include:

- Hooker Ruco Superfund Site
- Bethpage Community Park OU3 Groundwater
- Local dry cleaners
- Local gasoline stations
- Residential properties (including septic systems)


N
OU2 and/or OU3 Plumes
Deep Eastern Plume (OU3)
RW21 Area Hotspot (OU3)
Shallow Plumes (OU2)
Former GM38 Area Hotspot (OU2)
Deep Western Plume (OU2)
GM38 Groundwater Treatment Plant
RE108 Phase II Treatment Plant
RE108 Area Hotspot (OU2)
Shallow Plume (OU3)
Proposed Phase III Treatment Plant
South Oyster Bay ~ 3.6 Miles
HR
NG
NWIRP
BCP
RW-1
RW-2
RW-3
RW-4
Well 3R
Well 1
Well 17
Well 18
Well 19
RW-21
RW-20
RW-22
GM38-RW01
RW4
RE137
RW5A
RW5B
RW6A
RW6B
RW7A
RW7B
RW8
RW9
RW10A
RW11
Legend
Proposed Navy Recovery Well
Existing Navy Recovery Well
Existing NG Recovery Well
Regional Groundwater Flow
Proposed Navy Treatment Plant
Existing Navy Treatment Plant
2023 TCE Plume (All Depths) Plus 1,4-Dioxane
5 to100 µg/L TCE, > 1.0 µg/L 1,4-Dioxane
>100 to 1,000 µg/L TCE
>1,000 µg/L TCE
Boundaries
Bethpage Community Park (BCP)
Hooker Ruco Superfund Site (HR)
Former Northrop Grumman Facility (NG)
Former NWIRP Bethpage
Notes:
µg/L Microgram per liter
NWIRP Former Naval Weapons Industrial Reserve Plant
OU Operable Unit
TCE Trichloroethene
2,000 0 2,000
Feet


2013 ESRI DRG Map Imagery Service
Nort
Plant 20
Hooker Ruco
S Broadway
Site 3
Plant 3
Site 4
Plant 5
Northrop Grumman
Property
0 500 1,000 2,000
Feet


hrop Grumman
Property
96 acre parcel transfer
Site 2
Bethpage
Community Park
Site 1
9 acre parcel (Navy retained)
Plant 17
Former
NWIRP Bethpage
State HWY 135
N
Legend
Bethpage Community Park
Hooker Ruco
9 acre Navy Retained Parcel
1997 NWIRP Bethpage Property
1997 Northrop Grumman Property
Navy Site under 5 year review

Site 1: FORMER DRUM MARSHALLING AREA (see map, right)

SITE SUMMARY

** associated with OU1 and OU4*

The Former Drum Marshalling Area consisted of two former drum marshalling pads used to store drums containing waste materials from operations. The site also contains an abandoned septic system that was in use from the early 1950s to 1978. This area was first identified in the 1986 Initial Assessment Study (IAS), and covers approximately 5.5 acres. The site is relatively flat with a 6-foot high vegetated windrow located along the east-central portion of the former NWIRP Bethpage, and slopes to the south and west. The site is enclosed by a facility perimeter fence along the east, and interior facility fences along the north, south, and west. The interior fence was installed as an interim measure to restrict exposure of facility personnel to areas with residual soil contamination. Originally, the drum marshalling areas and extent of the leach field (cesspool) the boundary of Site 1 but it was expanded in 2005 to include adjacent Areas of Concern (AOCs) which include:

- Dry Well/AOC 34-07 and 20-08 (part of stormwater management system to discharge stormwater into soil).
- AOC 23 – Six Former Aboveground Storage Tanks (stored waste oil).
- AOC 30 – Three former Storage Sheds (stored pesticides and petroleum).
- AOC 35 – Former Sludge Drying Beds (received sludge from septic system; closed and backfilled in 1980).

TIMELINE: What cleanup actions has the Navy already taken?

- **1986** Initial Assessment Study (IAS)
- **1992** Phase 1 Remedial Investigation (RI)
- **1992** Baseline Human Health Risk Assessment (HHRA)
- **1993** Contamination discovered in surface soils
- **1994** Feasibility Study (FS)
- **1995-96** Soil sampling (part of Remedial Design)
- **1997** AS/SVE system Pilot Study installed
- **1998** Two PCB-contaminated dry wells removed
- **2007** Five-year review
- **2008** Soil Vapor Investigation conducted near the facility boundary
- **2009** Soil vapor investigation conducted along Town of Oyster Bay rights-of-ways adjacent to the NWIRP
- **2010** Soil Vapor Extraction (SVE) Containment System installed on Navy property
- **2012** Southern fence moved for parking by request of property lessee
- **2012** Tow underground storage tanks (USTs) found and removed
- **2015** RI Addendum conducted related to the 1995 OU1 ROD
- **2018** Remedial plans defined in the 2018 OU4 ROD
- **2019-20** PCB-contaminated soils excavated
- **2021** Six additional SVE wells installed

TERMS ON THIS PAGE EXPLAINED

Air Sparging (AS): Drilling one or more injection wells into the groundwater-soaked soil below the water table. An air compressor at the surface pumps air underground through the wells. Air bubbles carry contaminant vapors upward into the soil above the water table. The mixture of air and vapors is then pulled out of the ground for treatment using SVE.

Soil Vapor Extraction (SVE): Involves drilling one or more extraction wells into the contaminated soil to a depth above the water table, which must be deeper than three feet below the ground surface. Attached to the wells is equipment (blower or vacuum pump) that creates a vacuum and pulls air and vapors through the soil, and up the well to the ground surface for treatment.

Land Use Control (LUC): government ordinances, codes, and permit requirements that restrict private use of land and natural resources, to protect human health from any remaining contaminants that could pose an unacceptable risk)

Vegetated windrow: A continuous row of plant (or mineral) residue spread out over a plot of land.

Compounds related to site

Chlorinated and non-chlorinated solvents, and liquid cadmium and chromium wastes, polychlorinated biphenyl (PCB), volatile organic compounds (VOCs). *(Refer to pages 33-35)*

Way Ahead: Natural flushing of VOCs in soil and shallow groundwater, ongoing; annual groundwater samples collected from select monitoring wells, analyzed for metals and PCBs; quarterly vapor samples and vapor pressure measurements; weekly Operation and maintenance (O&M) activities of SVE Containment System; Land use controls (LUCs) along with annual inspections; Five-year Review.


Site 3
Site 2
BPS1-TT-MW301D
BPS1-TT-MW301S
BPS1-TT-MW301I
Dry-Well-20-08
Sanitary
Settling Tank
AOC 23 (Former ASTs)
AOC 35 (Sludge Drying Beds)
BPHNMW27I
Plant No. 3
Site 1
BPS1SVPM2004I
BPS1SVPM2004D
SVPM11
SVPM11S
SVPM11
SVPM11S
BPHNMW28S
BPHNMW28I
SVPM12
SVPM12S
BPS1FWMW03
BPS1FWMW02
BPS1FWMW01
BPS1SVPM2002S
BPS1SVPM2002I
BPS1SVPM2002D
BPS1HNMW29I
BPS1HNMW29D
Plant 17 South
BPS1SVPM2003D
BPS1SVPM2003S
BPS1SVPM2003I
BPS1-TT-MW303D
BPS1-TT-MW303I2
BPS1-TT-MW303I1
BPS1-TT-MW303S
BPS1-TT-MW304S
BPS1-TT-MW304I1
BPS1-TT-MW304I2
BPS1-TT-MW304D
Legend
Monitoring Well
Soil Vapor Pressure Monitor
Dry Well
Fence
NWIRP Bethpage
2009 Property Line
Site Boundary
100
0
100
Feet

Site 1, Operable Unit 4, Deep Soil Excavation. Excavation of contaminated waste, such as soil, sludge and debris from a site, involves digging it up for "ex situ" (aboveground) treatment or for disposal in a landfill. Excavation also may involve removing old drums of chemicals and other buried debris.


CAT
CAT

Site 2: RECHARGE BASIN AREA (see map, right)

SITE SUMMARY

** associated with OU1*

Located on the 96-acre parcel that was transferred to Nassau County, in the northeast corner of the Navy's former property, this site covers approximately 16 acres. The site consists of three recharge basins and former sludge drying beds. Except for three recharge basins, the site is relatively flat. Historically, the recharge basins were used for disposal of storm water and single pass non-contact cooling water for air conditioning units from onsite production wells. Recharge basins also received rinse waters from Grumman operations. Currently, the recharge basins receive storm water from catch basins located on current and former Navy and Northrop Grumman Corporation (NGC) property to the north. The sludge drying bed area has been re-developed as a paved parking area associated with the FedEx hub located to the west of the site. The site is enclosed by a facility perimeter fence along the north, east and south and an interior facility fence along the west.

TIMELINE: What cleanup actions has the Navy already taken?

- **1986** Assessment Study (IAS)
- **1991** Sludge drying beds filled
- **1994-95** Feasibility Study and a Record of Decision (ROD) for OU1 Soils
- **1996** Tons of PCB-contaminated soil removed that had concentrations in excess of 10 ppm
- **2001** Soil and gravel cover completed
- **2007** Five-year review
- **2008** conveyed as part of the 96-acre transfer to Nassau County

TERMS ON THIS PAGE EXPLAINED

Sludge: solid material in sanitary wastewater, either from wastewater treatment plants or on-site septic tanks.

Sludge Drying Bed: provide sludge dewatering by allowing the liquid to both drain under gravity through a permeable medium on which the sludge sits, and to evaporate under ambient conditions. The sludge is spread as a thin (up to 300 mm) layer over a porous bed made up of layers of sand and gravel.

Recharge Basin: temporarily store runoff, but release at least a portion of that runoff by infiltrating the water into the ground. The recharge volume is stored and allowed to infiltrate into the underlying soils over a period of time following a storm event.

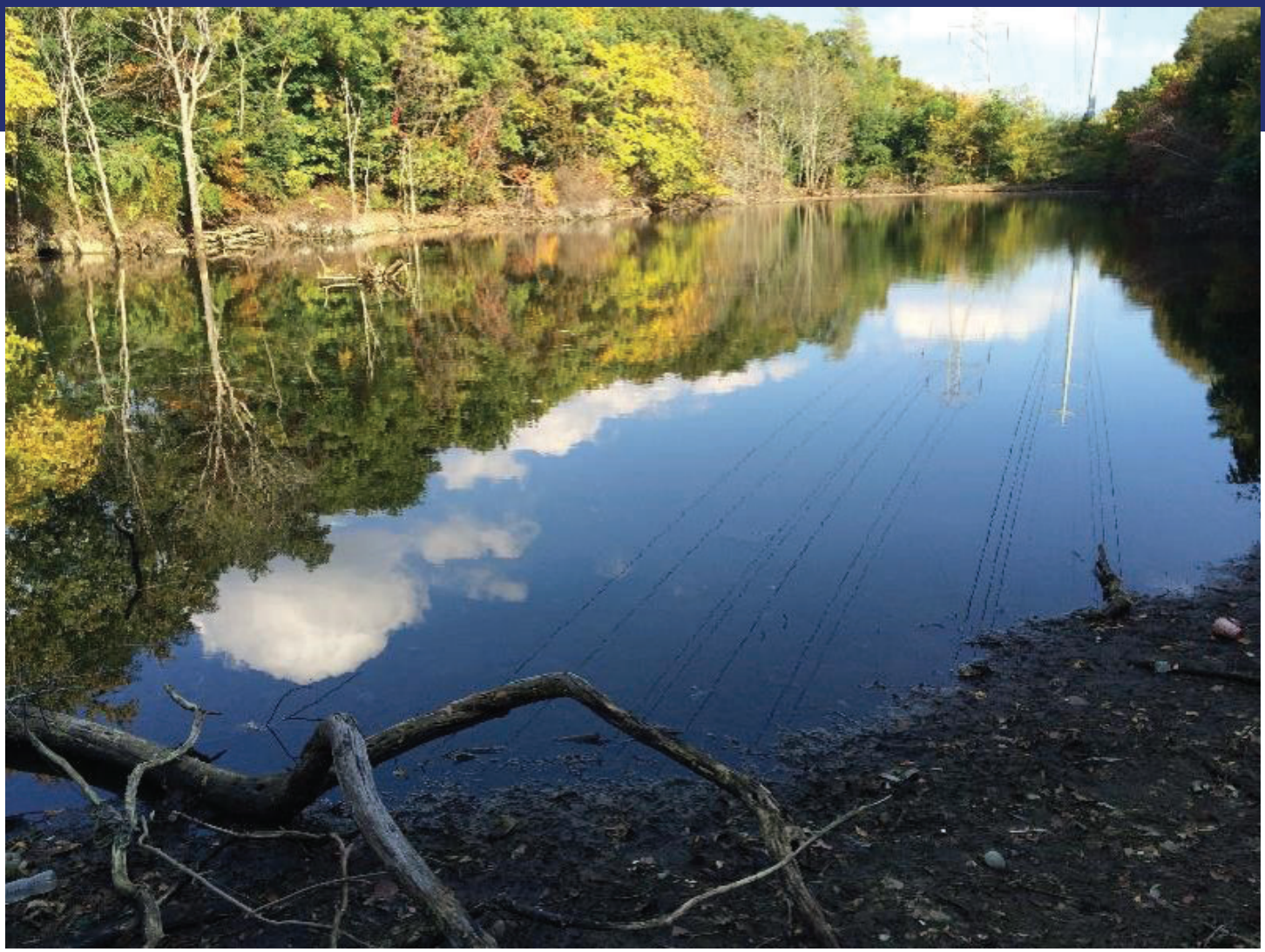
Catch Basin: a storm drain used to redirect water in an aim to prevent flooding and are common on public streets.

Compounds related to site

VOC (TCE only), Polychlorinated biphenyls (PCB), semi-volatile organic compounds (SVOCs): primarily polycyclic aromatic hydrocarbons (PAHs), pesticides, metals: arsenic and beryllium *(Refer to pages 33-35)*

Way ahead for the site: Currently, land use controls (LUCs) are in place and include annual inspections as well as administrative controls to include a restriction in the Deed of Transfer to Nassau County, New York. The deed states the county and its transferees and lessees cannot excavate or disturb subsurface soils without submitting a written request to NYSDEC for review and approval; it also restricts the use of groundwater underlying the site; Five-Year Review.


BPS1MW309S
BPS1MW309D
BPS1MW309I
FORMER SLUDGE DRYING BEDS
RECHARGE BASIN
FEDEX BUILDING
Site 2
BPS1MW308S
BPS1MW308I
BPS1MW308D
SITE 3
SITE 2
RECHARGE BASIN
RECHARGE BASIN
BPS1-TT-MW301D
BPS1-TT-MW301S
BPS1-TT-MW301I
SITE 1
Legend
Monitoring Well
Fence
NWIRP Bethpage 2009 Property Line
Site Boundary
100
0
100
Feet



(Below, right) A technician operates the Operable Unit 2's, Advanced Oxidation Process Reactor (left) for 1,4-Dioxane Treatment, GM38 Area Hotspot Treatment System for the Recharge Basin (above).

Site 3: SALVAGE STORAGE AREA (see map, PAGE XX)

SITE SUMMARY

** associated with OU1*

From 1950 to 1969, fixtures, tools, and metallic wastes were stored at the site, drum marshalling also occurred in this area. Stored materials included aluminum and titanium scraps and shavings. While in storage, cutting oils dripped from some of this metal. The site is located on the 96-acre parcel that was transferred to Nassau County. In 2018 to 2019 a hub for FedEx was constructed. The site is relatively flat and consists of a parking area, office space, salvage storage area, and three warehouses as well as a large building surrounded by paved parking areas and a few small grassy areas.

Way ahead for the site: Currently, land use controls (LUCs) are in place and include annual inspections as well as administrative controls to include a restriction in the Deed of Transfer to Nassau County, New York. The deed states the county and its transferees and lessees cannot excavate or disturb subsurface soils without submitting a written request to NYSDEC for review and approval; it also restricts the use of groundwater underlying the site; Five-Year Review.

TIMELINE: What cleanup actions has the Navy already taken?

- **1986** Initial Assessment Study (IAS)
- **1992** Phase I Remedial Investigation (RI)
- **1992** Baseline Human Health Risk Assessment (HHRA)
- **1993** Phase II RI was conducted
- **1994-95** Feasibility Study and Record of Decision (ROD) for Operable Unit 1 Soils
- **1995** OU1 ROD for Site 3 soil was signed
- **1998** General cleanup of the facility by Northrup Grummon
- **2007** Five-year review
- **2008** conveyed as part of the 96-acre transfer to Nassau County
- **2008** Land use controls (LUCs) implemented
- **2018** site cover of asphalt and soil was altered , during construction of the FedEx hub.
- **2018-19** FedEx hub constructed

TERMS ON THIS PAGE EXPLAINED

Drum Marshalling: pads used to store drums containing waste materials from operations.

Land Use Control (LUC): government ordinances, codes, and permit requirements that restrict private use of land and natural resources, to protect human health from any remaining contaminants that could pose an unacceptable risk)

Compounds related to site

VOCs: tetrachloroethene (PCE) only, SVOCs: primarily polycyclic aromatic hydrocarbon (PAH), Pesticides, Metals: arsenic, beryllium and manganese
(Refer to pages 33-35)

Site 4: UNDERGROUND STORAGE TANKS (UST) (see map, PAGE XX)

SITE SUMMARY

** associated with OU1*

This site is also referred to as Area of Concern (AOC) 22 and covers approximately 0.14 acres. This once contained USTs which reportedly stored Nos. 4 and 6 Fuel Oils. The tanks were used to fire several boilers inside of Plant 03 to generate steam from 1941 to 1966 when a new Central Steam Plant became operational. The tanks were were then used to store reserve quantities of No. 4 fuel oil. Between 1980 and 1984 the tanks were removed. The area is relatively flat with a gentle slope to the south, is paved and located south of Plant No. 3 and west of Site 1. There is a building present on site which houses the Site 1 soil-vapor extraction (SVE) Containment System equipment and office/equipment storage trailers.

Way ahead for the site: Currently, Annual groundwater monitoring, and soil monitoring conducted twice over 10 years prior to property transfer, land use controls (LUCs) are in place and include annual inspections as well as administrative controls to include a restriction in the Deed of Transfer to Nassau County, New York. The deed states the county and its transferees and lessees cannot excavate or disturb subsurface soils without submitting a written request to NYSDEC for review and approval; it also restricts the use of groundwater underlying the site; Five-Year Review.

TIMELINE: What cleanup actions has the Navy already taken?

- **1980-84** Removal of USTs
- **1997** Environmental Baseline Survey (EBS)
- **1999** Groundwater monitoring wells installed
- **2003** Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Focused Feasibility Study (FFS)
- **2004** Closed-loop bioreactor (CLB) pilot-scale system study
- **2006** Closed-loop bioreactor (CLB) shut down
- **2006-07** Post-operation soil sampling event of the CLB system
- **2010** PAH soil investigation conducted
- **2011** Bench-scale testing conducted on Site 4 soils
- **2015** OU3 Site 4 Former Underground Storage Tanks ROD was finalized and accepted by NYSDEC
- **2019-20** Steam injection system installed and in operation
- **2021** Steam injection system was converted to a biosparging system and began operation

Compounds related to site

VOCs: benzene, ethylbenzene, xylenes, SVOCs: naphthalene, pentachlorophenol, polycyclic aromatic hydrocarbons (PAHs), Metals: cobalt, manganese. (Refer to pages 33-35)

TERMS ON THIS PAGE EXPLAINED

Resource Conservation and Recovery Act (RCRA): Gives EPA the authority to control hazardous waste from cradle to grave and set forth a framework for the management of non-hazardous solid wastes. 1986 amendments enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

Closed-loop bioreactor system: a modified form of the extended aeration complete mix activated sludge process. Its design is based on a single sludge system in a closed loop reactor and consists of one or more reactors with a single feed point for raw wastewater and return sludge.

Steam injection system: involves the introduction of steam into injection wells and the removal of mobilized groundwater, contaminants, and vapor from the recovery wells. Initially, when steam is injected into the subsurface, it gives up its latent heat of vaporization to the soil. As the steam loses heat, it condenses into a hot water phase that moves radially into the soil, displacing air and water in front of it.

Biosparging system: injection of pressurized air or gas into a contaminated zone in order to stimulate in situ (original place) aerobic biological activity. This remediation technique applies to dissolve and residual contamination in the saturated zone, and targets chemical compounds that can be biodegraded under aerobic conditions.


FedEx Building
SITE 3
SITE 2
Fence
NWIRP Bethpage 2009 Property Line
Site Boundary

SITE 3


BPTTAOC22MW03
Plant No. 3
Former UST Area
Building 03-35
BPTTAOC22MW04
BPTTAOC22MW09
BPTTAOC22MW10
BPTTAOC22MW08
BPTTAOC22MW06
Legend
Monitoring Well
NWIRP Bethpage 2009 Property Line
Site Boundary
Notes:
1. The LUC Area is defined by the areal extent of TPH soil contamination. The steam injection has not changed the boundary of the extent of areal contamination from 2010.

SITE 4

(Above) Recharge Basins at Site 2 which used to temporarily store runoff. Recharge Basins release at least a portion of runoff by infiltrating water into the ground. The recharge volume is stored and allowed to infiltrate into the underlying soils over a period of time following a storm event (see below example). The storage volume above this level may be released by an outlet structure designed to bypass all excess flows.

SECTION IV.

Community Outreach and Involvement

4.0 Introduction

Governance: Public participation as well as public affairs and community involvement activities are necessary to the success of the Navy Environmental Restoration Program (ERP). Public involvement is required by Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) provisions at specific stages of response actions (42 USC §9613 and §9617) and is the framework for how the Navy establishes its community involvement program.

The Office of the Chief of Naval Operations Manual (OPNAV M-5090.1) and Marine Corps Order (MCO P5090.2A) provide public participation guidance.

CERCLA requires public participation at specific stages of the process. The Navy's community involvement practices exceed the minimum requirements established under CERCLA.

Avenues of Communication: To keep the public informed, the Navy actively communicates information about actions taken, responds to inquiries, and provides information about actions and any releases of hazardous substances. There are several avenues the Navy uses to help keep the public informed. These include:

- Information Repositories and Administrative Records
- Community Involvement Plans (CIPs)
- Restoration Advisory Boards (RABs)
- Department of Defense Technical Assistance for

4.1 Environmental Justice

The Environmental Justice Act of 1992 obligates federal agencies to make environmental justice part of their overall mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. Environmental justice refers to 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.

The EPA has developed an environmental justice program for all Federal facilities, which uses the following qualifiers to determine if an area likely has environmental justice concerns:

- Demographic information
- The definition of a minority population as one having at least 51 percent non-white and/or greater than 50 percent of the population below the national poverty level.
- Disposal practices of the site(s).

Bethpage Minority Population: 83 percent of residents in Bethpage are white, 11.1 percent are Hispanic, 9.85 percent are Asian, 1.18 percent are Native American, .58 percent are Black, and 2.7 percent identify as "other."

DID YOU KNOW?

Opportunities for technical assistance through the Technical Assistance for Public Participation (TAPP) program are made available to RAB community members in accordance with 10 USC §2705(e). TAPP provides funding for RABs to obtain independent (third-party) technical expertise to assist them in understanding or evaluating technical documents, concepts, or other information related to the restoration activities. TAPP must be requested by a majority of community members on a RAB.

Bethpage Poverty Level: 4.1 percent of residents live below the poverty line as compared to 14.3 percent of New York State as a whole, and 12.6 percent nationally (2022). By demographics those who live below poverty level include White (25.3 percent), Asian (16.7 percent), Hispanic (3.5 percent), and Black (1.4 percent). There are more males living in poverty (5.3 percent) than females (3.0 percent).

Potential Environmental Justice Areas: Geospatial Information System (GIS) is a data system that collects related information like demographics that is linked to specific geographic locations. For the purpose of this document, a GIS that shows Potential Environmental Justice Areas (PEJA) was used. PEJA's are currently identified based on data from the 2014 to 2018, five-year American Community Survey (ACS), conducted by the US Census Bureau. More information, along with resources about Long Island PEJAs, can be obtained at the New York State Department of Environmental Conservation website.

NWIRP Bethpage is located within three and a half miles of identified PEJAs. To be identified as such, these areas meet or exceed at least one of the three EPA qualifiers from page 29. These areas include Plainview, Hicksville, and Bethpage.

According to the 2017 Equity Profile of Long Island Report, people of color with a family income at or above 100 percent of the federal poverty level have the highest exposure to pollution. Whites living below the federal poverty level have lower rates of exposure than people of color regardless of their poverty status.

This information is significant to Navy decision-makers when developing plans for environmental cleanup at sites like Bethpage NWIRP. The holistic approach to environmental justice extends to remedial technology and action plans.

Sources: EPA's Environmental Justice Screening and Mapping Tool; NYSDEC Potential Environmental Justice Area Maps; Data Source for Potential Environmental Justice Areas: U.S. Census Bureau, ACS 5-year estimate; 2017 Equity Profile of Long Island Report.

4.2 Community Involvement Plan (CIP)

A CIP is a site-specific strategy that supports meaningful community involvement throughout the CERCLA cleanup process. Department of the Navy CIPs are prepared and implemented on an installation-wide basis rather than for a specific Environmental Restoration action.

The CIP is based on information gathered from the community through interviews with local officials, residents, public interest groups, and other interested or affected parties to ascertain community concerns, community information needs, and how or when citizens would like to be involved in the CERCLA process.

In the CIP, the Navy specifies the activities it expects to undertake during the response/removal process. CIPs are considered "living documents," and are reviewed and updated periodically. In general terms, a CIP provides a means to:

- Inform the public of planned and ongoing actions
- Provide the public with an opportunity to express comments on and provide input to technical decisions
- Identify and resolve conflicts

4.3 Information Repositories and Administrative Record File

As the lead agency for environmental cleanups at Navy and Marine Corps installations, NAVFAC creates installation-specific Administrative Record Files that includes documents for environmental cleanup sites. Bethpage records are available on the Bethpage NWIRP website.

Administrative Record Files contain documents that form the basis for the selection of actions for sites. They also serve as vehicles for public participation in response to actions.

NOTE: Should a Department of the Navy Freedom of Information Act pop-up message appear in lieu of a document, please follow the Freedom of Information Act link for directions on how to request a copy of the document:
http://www.secnav.navy.mil/foia/Pages/default.aspx

4.4 Restoration Advisory Board (RAB)

Introduction: RABs play an essential role and are one of the primary mechanisms to help the Navy both communicate its restoration plans and allow community responses and concerns to be addressed. They provide input to installation decision makers and have direct access to environmental agencies overseeing the cleanup. While RABs do provide valuable information, input, and ideas, it is not a decision-making body.

Department of Defense (DOD) published a regulation addressing RABs called the "RAB Rule" (70 FR 27610) that addresses the overall scope, characteristics, composition, funding, establishment, operation, and adjournment/dissolution of RABs. The RAB Rule applies to all DOD RABs regardless of when they were established.

RAB members should be a cross-section of local community residents who represent diverse community interests. This means a RAB member can be a teacher, environmental advocate, business owner, grocery clerk, parent, member of a community organization, or farmer. These are just some examples. This not only ensures equitable representation of the community but also ensures information reaches the entire community.

Bethpage RAB History: The NWIRP Bethpage RAB has been operating since 1999, with meetings held two to three times a year (typically in April and November, with additional meetings held as necessary). The RAB was formed from the original Technical Review Committee for NWIRP Bethpage, which began operation in the early 1990s.

In accordance with the RAB process, a primary reason for initiating the CIP update was to determine if there is sufficient community interest to maintain the RAB. The goal of the Navy is to sustain a RAB and so the CIP update is also used to solicit RAB membership.

When conducting a CIP, a survey process allows the Navy to determine, when RAB participation is low, if it is due to lack of awareness or interest. TAdditinally, the survey informs Navy decision-makers on the community's awareness of cleanup actions and gathers top concerns.

Survey results are provided on pages 36-39. The RAB revitalization drive, and survey ran from March 5, 2024 to June 5, 2024.

For NWIRP Bethpage, beginning in August of 2015, the Navy hosts an Open House prior to each RAB meeting. This consists of several poster displays, often introduced and explained by subject matter experts. While RAB members often have more detailed knowledge of the the Navy's environmental actions concerning NWIRP Bethpage, the Open House provides information to assist community imembers n understanding what is occuring or has occured at teach of the sites.

RAB Process Overview and Anticipated Official RAB Meetings

- Meetings, date, time, and location are determined by the U.S Navy and agreed upon by the RAB. Bethpage meetings typically occur bi-annually in the spring and fall.
- For Bethpage, meetings are held in as convenient a location as possible. The typical locations is the Bethpage Senior Community Center, 103 Grumman Road West, Bethpage, NY 11714 [***Note:*** If needed, the Navy may opt to host meetings using a virtual platform].
- RAB members and regulators are notified approximately 30 days prior to a meeting.
- Approximately 14 days prior to the meeting, an additional notification is sent to RAB members, regulators, and an email distribution list, that includes the invitation, agenda, and previous meeting minutes. A press release is also sent to local media outlies as well.
- During the meeting, the U.S. Navy prepares meeting minutes. (***Note:*** RAB members review and approve meeting minutes prior to them being posted. They are provided to the RAB no later than one month before the next meeting).
- Meeting presentations are posted to the NWIRP Bethpage website at least one day prior to the meeting.

SPRING	FALL
For your convenience, blank spaces are provided to fill in the dates of upcoming meetings as they become available.	
_____2025	_____2025
_____2026	_____2026
_____2027	_____2027
_____2028	_____2028
_____2029	_____2029

The flyer on page 35 can be used during the RAB drive and should be distributed as needed.

Anticipated Clean Up Schedule

Additional information or updates on cleanup actions will be provided periodically, either through email or Official RAB members. Information will also be located on the NWIRP Bethpage website.

Document or Activity	*Schedule*
Preliminary Assessments (PA)/Site Inspections (SI)	
Facility Wide PFAS	Final Completed 2023 Final
Facility Wide 1,4 Dioxane	Completed 2024
Facility Wide Radiological	In Progress, Finalizing 2024
Remedial Investigations (RI)	
PFAS	Scheduled for 2027
Remedial Actions	
Long-Term Monitoring (LTM)	
Phase I - GM38 Groundwater Treatment System - 3 Recovery Wells	Currently Operating
Phase II - 11 Union Avenue Groundwater Treatment System - 6 Recovery Wells	Scheduled Completion in 2025
Phase III - South of Southern State Parkway Groundwater Treatment System - 3 Recovery Wells	Scheduled Completion in 2026
Site 1 - Soil Vapor Extraction System	Currently Operating
Site 4 - Biosparge System	Currently Operating
Land Use Control (LUC) Inspections	
Sites 1, 2, 3, and 4	Annual

4.5 THE NAVY'S COMMITMENT TO HELP YOU GET INVOLVED AND STAY INFORMED

Indicate the U.S. Navy's primary mechanisms that serve to keep the community informed.

ACTION	MORE INFORMATION
Briefings	As permitted by official's schedules or upon request.
Public Repository	Reports, and other technical documents for public review can be accessed at: Bethpage Public Library 47 Powell Avenue Bethpage, NY 11714 (516) 931-3907
Administrative Record File	The U.S. Navy makes reports, documents, and other relevant materials accessible to the public by posting them on the NWIRP Bethpage website. RAB members may assist in notifying the public through notification on their social media channels/websites. Access documents at: https://www.navfac.navy.mil/Business-Lines/Environmental/Products-and-Services/Environmental-Restoration/Mid-Atlantic/Bethpage-NWIRP/Administrative-Record/
Website	NAVFAC maintains project websites where the community can access site information. Access the NWIRP Bethpage website at: https://go.usa.gov/xSd6H
***Restoration Advisory Board (RAB)** **(see pages 31 and 32)**	RAB members have the opportunity to provide input to installation decision makers. If interested, learn about requirements and complete a membership request form found at https://www.navfac.navy.mil/Business-Lines/Environmental/Products-and-Services/Environmental-Restoration/Mid-Atlantic/Bethpage-NWIRP/Community-Outreach/
***Email List**	NAVFAC may send periodic updates to the community email list to make sure stakeholders and neighbors receive information about cleanup progress. To join please request by email to NAVFAC_ML_PAO@navy.mil.
***Open House**	NAVFAC will continue to host formal public meetings and periodic informal open houses to help make information widely available at significant milestones during the NWIRP Bethpage cleanup process.
Newsletter/Fact Sheets	NAVFAC may issue periodic newsletters and fact sheets about cleanup activities, significant milestones, technical information, and project findings. Both will be added to the NWIRP Bethpage website. Hard copies of fact sheets may be distributed at meetings and provided to community groups and individuals upon request. Archived information, to include meeting minutes, presentations and fact sheets can always be obtained on the website.

THIS FLYER IS PROVIDED COURTESY OF

NAVFAC
Naval Facilities Engineering Systems Command

THE FORMER NAVY/GRUMMAN SITE BETHPAGE RESTORATION ADVISORY BOARD SEEKS NEW MEMBERS!

If you are interested in serving on the Bethpage RAB, please complete a membership request form. Upon submission, forms will be reviewed and approved by a selection panel who reviews the applicants' commitment level, and ensures members represent interests of community. Use the QR code to access the NAVFAC website for more information and the link to the form.

WHERE & WHEN?

Typically there are two annual meetings for the Bethpage RAB held in April and November. All meetings are announced and held at a location within the community; some meetings may be held virtually.

All residents are encouraged to attend RAB meetings which are open to the public. The public is also encouraged to contact official RAB members with questions or concerns throughout the cleanup process.

WHAT IS A RESTORATION ADVISORY BOARD (RAB)?

A RAB is a collective forum of residents, government agencies, tribes, and installation decision makers that discuss, and identify the best way to restore the environment at a site formerly owned by the Department of Defense (DOD).

RAB members should be a cross-section of the local community who embody diverse community interests. This ensures equitable representation and that information reaches all residents.

A RAB is not a decision-making body, however, members do provide input to installation decision makers and have direct access to environmental agencies overseeing the cleanup. They also share community questions, concerns, and ideas with those agencies involved in the cleanup.

WHY IS A RAB IMPORTANT?

The Navy encourages community involvement throughout the entire environmental restoration process. Residents, who understand their community, and volunteer to represent it, provide meaningful input regarding the cleanup activities within their community. While the public can comment on the DOD's efforts, RABs are a focused and interactive opportunity to participate in the process.

NAVFAC_ML_PAO@navy.mil

BETHPAGE COMMUNITY ENVIRONMENTAL CONCERNS SURVEY SUMMARY

SURVEY METHOD

To help better understand the community's level of awareness and concerns about former NWIRP Bethpage environmental restoration activities, the Navy conducted an Environmental Concerns Survey online using the Qualtrics XM platform. The survey was available March 5, 2024, through June 5, 2024. A link and QR code to access the survey were provided to the public through local print/online news outlets, via email to the Restoration Advisory Board list, and on the former NWIRP Bethpage Environmental Restoration Program Public Website.Additionally, participation requests were made, and flyers were distributed at both the former NWIRP Bethpage Restoration Advisory Board meeting and the New York State Department of Environmental Conservation's Community Working Group Meeting in May 2024.

The survey included 20 questions with 2 providing more information about how to get involved and 2 allowing for comments. The survey was broken down into 4 sections:

- General (questions 1-5): to get an idea of the individual's relationship to former NWIRP Bethpage
- Environmental (questions 6-12): to understand the individual's awareness and concerns and to gauge interest in RAB membership
- Information/Communication – to find out how best to communicate to the public
- Closing – to provide more information and allow for the individual to provide open comments

As of June 5, 2024, 45 surveys were at least partially completed, and a report was pulled from Qualtrics XM. The following is a summary of the results.

PURPOSE

- **Goal –** Ensure community input is provided for the former NWIRP Bethpage Community Involvement Plan update.
- **Objective –** Assess overall issues most important to residents of Nassau County related to the U.S. Navy efforts to clean up the former NWIRP Bethpage site under the Environmental Restoration Program based on their awareness.
- **Audience** – Nassau County and neighboring Suffolk County residents, those near, affected by or who have a stake in the former NWIRP Bethpage site.

ENVIRONMENTAL SURVEY SUMMARY RESULTS

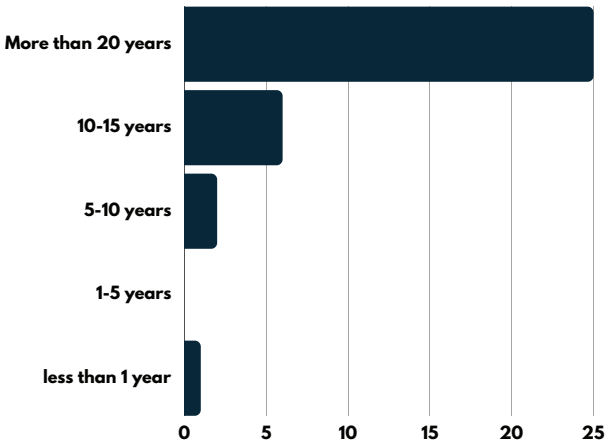
Questions 1 & 3: 82% of the participants indicated they were residents of Bethpage or the surrounding area. Zip codes provided show the majority are from Nassau County or the neighboring Suffolk County. Specifically, 34 respondents were Nassau County (Garden City, Bethpage, Farmingdale, Levitown, Seaford, Wantagh, Hicksville, Plainview and Old Bethpage) and 2 were from Suffolk County (East Islip and Bay Shore). The remaining 4 were from outside of Long Island, NY.

Question 2: When asked how long they've been a Bethpage resident, the majority indicated more than 20 years or between 10 and 15 years. (Figure 1)

Questions 4 & 5: Most of respondents were local residents that live within five miles of the former NWIRP Bethpage (Figure 2). Three public/elected officials responded.

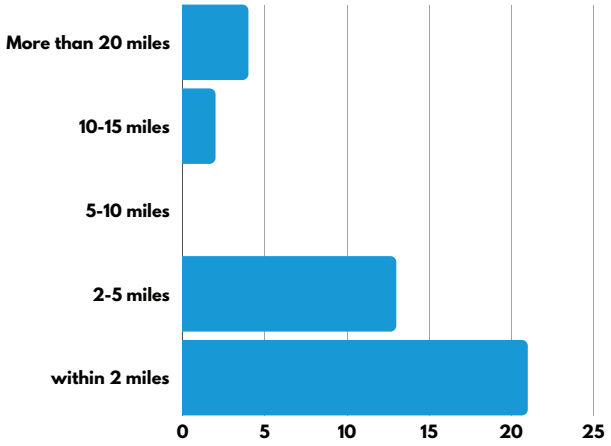
Question 6: When asked how important environmental issues were using a scale of extremely important, very important, moderately important, slightly important, not important, or unaware/not applicable, 97% indicated that drinking water was extremely important, 89% indicated that ground water was extremely important, 76% indicated that surface water was extremely important, 71% indicated that soil was extremely important, and 68% indicated that soil vapor was extremely important. Further breakdown can be found in (Figure 3).

Q2 - HOW LONG HAVE YOU BEEN A BETHPAGE RESIDENT?



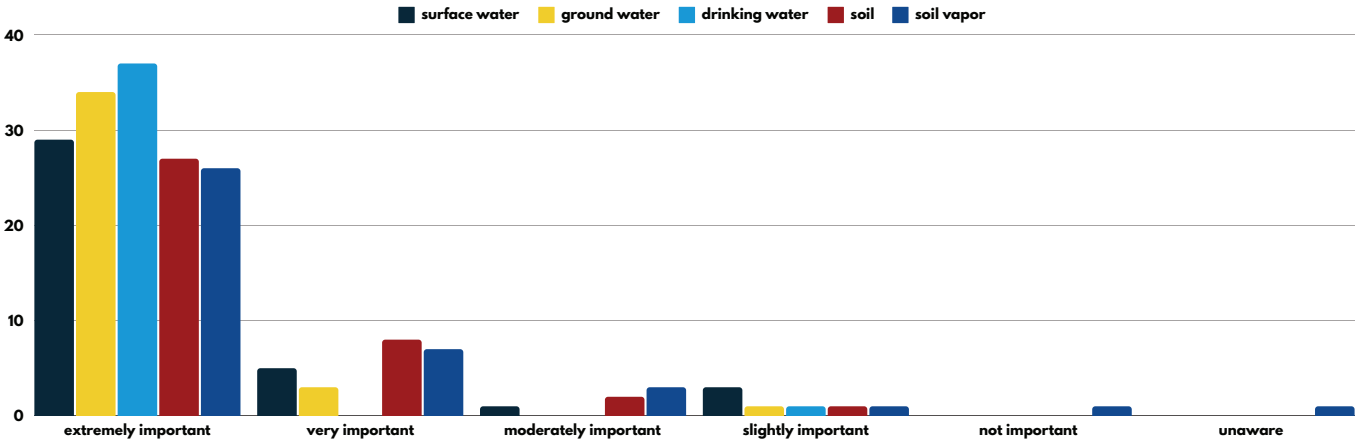
(Figure 1)

Q4&5 - HOW FAR DO YOU LIVE FROM THE FORMER NWIRP BETHPAGE



(Figure 2)

Q6 - BASED ON YOUR AWARENESS OF THE FORMER NWIRP BETHPAGE HOW IMPORTANT IS EACH ENVIRONMENTAL ISSUE TO YOU?



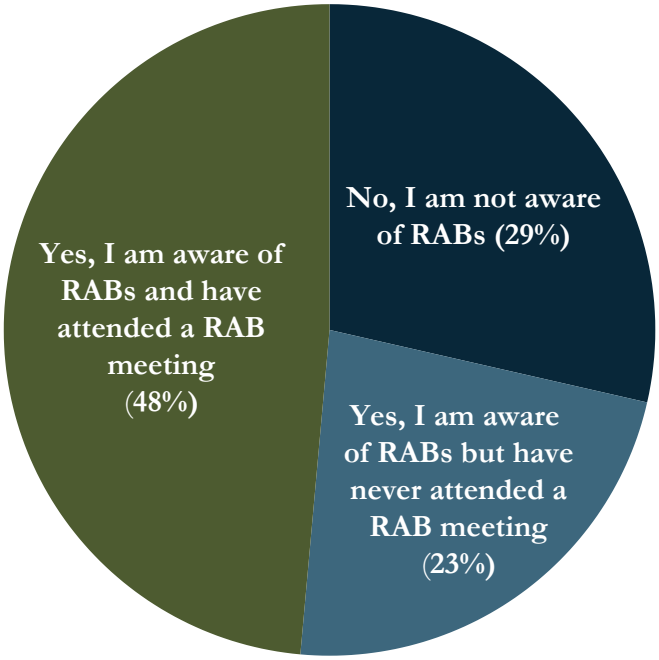
(Figure 3)

ENVIRONMENTAL SURVEY SUMMARY RESULTS (CONT'D)

Questions 7 & 8: 78% of respondents said there were specific chemicals that they were concerned about. Chemicals listed included trichloroethylene, tetrachloroethylene, dichloroethylene, (poly)vinyl chloride, hexavalent chromium, 1,4-dioxane, nitrates, and radium/radon.Chemical classes/categories listed included carcinogens, neurotoxins, volatile organic compounds, and per and polyfluoroalkyl substances.

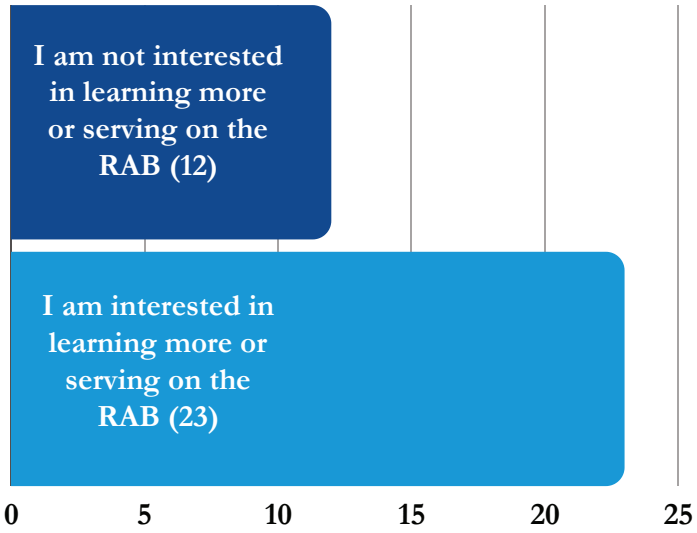
Questions 9-12: 89% of respondents were already aware that the Navy had an Environmental Restoration Program in place and 71% were aware that DoD established Restoration Advisory Boards (RABs). Figure 4 shows a breakdown of RAB awareness and Figure 5 shows the respondents interest in the RAB. 24 people saved the information provided on how to learn more about the RAB.

Q7&8 - PRIOR TO TAKING THIS SURVEY WERE YOU AWARE THE DOD ESTABLISHED RABS ACROSS THE COUNTRY THAT CONSIST OF COMMUNITY MEMBERS WHO HELP ADDRESS ENVIRONMENTAL RESTORATION AT MILITARY INSTALLATIONS AND FORMER INSTALLATIONS?



(Figure 4)

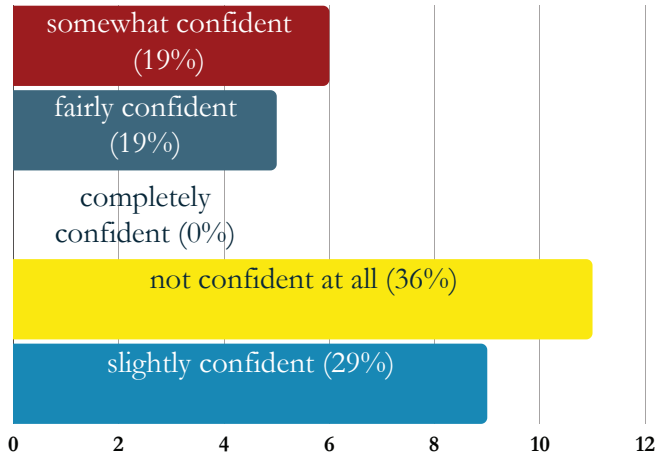
Q9-12 - WHICH STATEMENT BEST DESCRIBES YOUR INTEREST IN THE RAB SUPPORTING FORMER NWIRP BETHPAGE?



(Figure 5)

Questions 13 & 14: Participants were asked to rate their confidence in the Navy to address environmental issues at former NWIRP Bethpage and to keep the public fully informed. Figures 6 and 7 show how 31 people responded to each question.

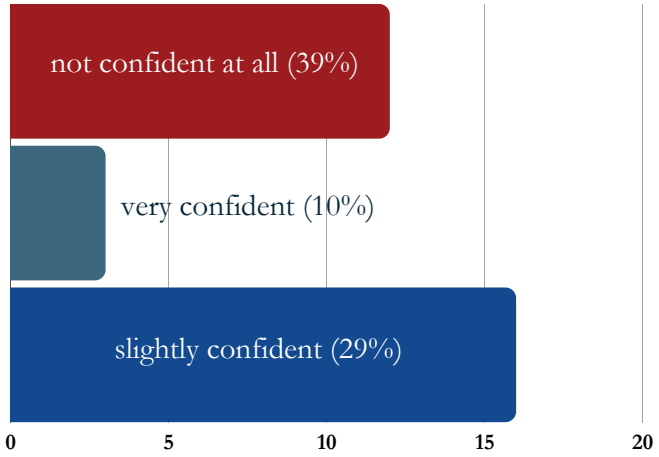
Q13 - RATE YOUR CONFIDENCE IN THE NAVY TO ADDRESS ENVIRONMENTAL ISSUES AT FORMER NWIRP BETHPAGE. >>>



(Figure 6)

ENVIRONMENTAL SURVEY SUMMARY RESULTS (CONT'D)

Q 14 - ARE YOU CONFIDENT THE NAVY WILL KEEP YOU FULLY INFORMED ABOUT ENVIRONMENTAL ISSUES AT FORMER NWIRP BETHPAGE? >>>



(Figure 7)

Questions 15 & 16: When asked how they were currently kept informed about the Navy's efforts to address environmental issues at former NWIRP Bethpage:

- 48% responded through RAB members/meetings 16% through social media
- 16% through email
- and 10% through news media.
- 10% said they were not kept informed, and no one indicated that they are informed through the Navy website.

When asked how they would like to be kept informed in the future:

60% chose through regular emails.

20% through RAB members/meetings.

6-7% through the Navy's website.

6-7% through news media.

6-7% through social media.

Questions 17 & 18: 70% of respondents indicated they had not visited the Navy's former NWIRP Bethpage website. Those who answered that they had been on the site were provided an option to give feedback on how it can be improved. In summary, the comments provided indicate the website is too technical and overwhelming so the average resident cannot fully understand the information and the site is not updated routinely. Additionally, they felt the website is not advertised well enough to the local community and since it isn't updated often, it would be helpful to get real-time notifications when something is updated.

Question 20: Participants were given an option to leave any other comments, concerns or suggestions related to former NWIRP Bethpage. 12 comments were provided that were mostly negative. The main concern expressed was that the cleanup actions are progressing too slowly, and the Navy is not communicating well enough.

SECTION V.

Acronyms, Terms, and Measurements Commonly Used

Although some of the acronyms on the below list may not be used specifically within this document, they are related to this site and may be used during community meetings, within official documentation, and other occasions.

AFFF	Aqueous Fire-Fighting Foam
ESI	Extended Site Investigation
FS/CMS	Feasibility Study/Corrective Measures Study
GOCO	Government Owned/Contractor Operated
GQCC	Groundwater Quality Cleanup Criteria
IAS	Initial Assessment Study
N/A	Not Applicable
NG	Northrop Grumman
NFA	No Further Action
NTCRA	Non-Time Critical Removal Action
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
O&M	Operation and Maintenance
PCG	Proposed Closeout Goal
PFAS	Per- and polyfluoroalkyl substances
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonic acid
RCRA	Resource Conservation and Recovery Act
SAP	Sampling and Analysis Plan

The following section consists of **an overview of compounds**, referred to on pages 14 to 17, at the current sites being cleaned-up and monitored by the Navy. All term definitions in section five are from the most recent, publicly available scientific information; additional information can be obtained from both Navy and EPA Websites. Information for some compounds may be found on the Agency for Toxic Substances and Disease Registry (ATSDR) Website. This section is not intended to be used as a primary source of information and is not intended, nor can it be relied on, to create any rights enforceable by any party in litigation with the United States. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

1,4-dioxane -- (What) Byproduct; a synthetic industrial chemical, mixes easily in water. Found at many federal facilities because of its widespread use as a stabilizer in certain chlorinated solvents. (Where) Typically found at solvent release sites and in groundwater at sites throughout the United States. (How) Exposure may occur through ingestion of contaminated food and water, or dermal contact.

Metal: Arsenic -- (What) a semi-metal and is used as a doping agent in semiconductors (gallium arsenide) for solid-state devices. It is also used in bronzing, pyrotechnics and for hardening shot. Arsenic compounds can be used to make special glass and preserve wood. (Where) naturally occurring element found in combination with either inorganic orrganic substances to form many different compounds found in soil, sediments or groundwater related to industrial use; organic come mainly from fish and shell fish. (Where) exposure to inorganic arsenic is most likely to occur through drinking water and to a lesser extent through various foods.

Metal: Beryllium -- (What) a silvery-white metal used in gears and cogs particularly in the aviation industry. (Where) occurs naturally but is also used in consumer and industrial products including aerospace

For more information on compunds, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-800-232-4636, Fax: 770-488-4178. ToxFAQs Internet address http://www.atsdr.cdc.gov/toxfaq.html. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Acronyms, Terms, and Measurements Commonly Used

components, transistors, nuclear reactors, and golf clubs. (Where) the major route of human exposure is through airborne particles of beryllium metal, alloys, oxides, and ceramics. Beryllium particles are inhaled into the lungs and upper respiratory tract. Hand-to-mouth exposures and skin contact with ultrafine particles can also occur.

Metal: Cobolt -- (What) A lustrous, silvery-blue metal that is magnetic; can be used in jet turbines and gas turbine generators, where high-temperature strength is important. (Where) Cobalt is used in many industries in cutting and grinding tools, pigments and paints and more. As it is dispersed in the environment humans may be exposed by breathing air, drinking water, and/or eating food that contains cobalt or from skin contact; exposure to high levels is rare.

Metal: Manganese-- (What) Manganese is a very hard, brittle, gray-white transition metal that is naturally found in a variety of minerals, but never on its own. Manganese is vital to human and animal life in metabolic functions. Many alloys containing manganese are used in steel production, glass making, and even to make the aluminum in soda cans thinner and stronger. (Where) While manganese is a part of the environment, some may be exposed to low levels in air, water, soil and food often through breathing dust or fumes or through skin contact of some pesticides.

PAHs -- (What) Polycyclic Aromatic Hydrocarbons are found naturally in the environment but are also man-made. (Where) They are created when products like coal, oil, gas, and garbage are burned but the burning process is not complete. PAHs are a concern because they are persistent and do not burn easily, and can stay in the environment for long periods of time; most do not break down easily in water. (How) One of the most common ways PAHs can enter the body is through breathing contaminated air. Individuals may also be exposed through contaminated food or water, or dermal contact with contaminated soil.

PCBs -- (What) Polychlorinated Biphenyls are a group of more than 200 similar manmade chemicals. They are oily liquids or solids, clear to yellow in color, with no smell or taste. Found as mixtures, and are very stable and resistant to extreme temperature and pressure. Commercial production of PCBs ended in 1977. (Where) PCBs have been released into the environment through spills, leaks from electrical and other equipment, and improper disposal and storage. (How) PCBs can enter the body by eating or drinking contaminated food, through breathing the air, or dermal contact; are easily absorbed by the body and are stored in fatty tissue; not eliminated well, can accumulate in the body.

Petroleum -- (What) Petroleum-based oil describes a broad range of natural hydrocarbon-based substances and refined petroleum products, each having a different chemical composition. As a result, each type of crude oil and refined product has distinct physical properties. (Where) Discharges to the environment may occur from natural seeps, and land-based sources. (How) Exposure occurs via inhalation, ingestion (of liquid droplets in the air), and direct skin contact.

PFAS -- (What) Per- and polyfluoroalkyl substances are a group of man-made chemicals that includes PFOA, PFOS, GenX, and many other chemicals. PFAS have been manufactured and used in a variety of industries around the globe, including in the United States since the 1940s, from food packaging to house hold and industrial products. They are also present in fire-fighting foams (or aqueous film forming foam; AFFF) used by both civilian and military firefighters. (Where) PFAS can enter the environment through production or waste streams and are very persistent in the environment and the human body. PFAS can be found throughout the world and has been identified across the U.S. to include on or near military installations. (How) There are a variety of ways to be exposed to these chemicals and at different levels of exposure. Please see the Assistant Secretary of Navy (Energy, Installations and

Acronyms, Terms, and Measurements Commonly Used

Environment) Website for more detailed information: https://www.secnav.navy.mil/eie/Pages/PFAS-FAQs.aspx.

TCE -- (What) Trichloroethylene is a volatile organic compound used mostly in industrial and commercial processes. For the DoD, it has been used widely as a degreasing agent in metal cleaning in industrial and maintenance processes. (Where) It has been widely found in groundwater, surface water, and soil across the US through spills, dumping, and evaporation. (How) Exposure may be through drinking TCE-contaminated water; or by breathing it when released to the air from water.

Toluene -- (What) Added to gasoline, used to produce benzene, and used as a solvent. (Where) Automobile emissions are the principal source of toluene to the ambient air. It may also be released to air during the production, use, and disposal of industrial and consumer products that contain the chemical. (How) Exposure to toluene may occur from breathing ambient or indoor air affected by such sources; maximum concentrations usually occur in indoor air from the use of common household products (paints, paint thinners, adhesives, synthetic fragrances, and nail polish) and cigarette smoke.

VOCs -- (What) Volatile organic compounds are any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. (Where) Common emissions sources of VOCs include dry cleaners; auto body shops; cars, trucks, and buses; lawn mowers and other landscaping equipment; and industrial painting and coating operations. Natural processes like plant and animal respiration and organic decomposition also release VOCs into the atmosphere. (How) The primary route of exposure to VOCs is by breathing in these gases; less common is dermal exposure.

Xylenes -- (What) A colorless liquid that has a sweet odor. Xylenes are flammable and practically insoluble. Xylenes are primarily a synthetic chemical; however, it can occur naturally in petroleum, coal tar, and during forest fires. Xylenes are primarily used as a solvent (a liquid that can dissolve other substances), particularly in the printing, rubber and leather industries. (Where) Xylenes are released into the atmosphere as fugitive emissions from industrial sources, from auto exhaust, and through volatilization from their use as solvents. Xylenes are sometimes released into water and soil as a result of the use, storage, and transport of petroleum products; not commonly found in drinking water. (How) Individuals may be exposed to Xylenes by breathing in contaminated air, or by drinking/eating Xylene-contaminated water/food.

PFAS EXPOSURE INFOGRAPHIC

Source: https://www.wrd.org/pfas-remediation-program

CURRENT NAVY POLICY FOR PFAS

- **(2014)** Assistant Secretary of the Navy (Energy, Installations and Environment) issued a policy. Required on-base drinking water sampling for PFOA and PFOS for bases where groundwater was used as drinking water, and where PFAS could have been released.
- **(2015)** Drinking water samples expected to be completed if not previously tested under Third Unregulated Contaminant Monitoring Rule (UCMR3) or if an identified/suspected PFAS release was within approx one mile upgradient to drinking water source.
- **(2016)** Navy issued a policy to require Navy installations not previously tested under UCMR3, or the 2014 policy. To test their finished drinking water, regardless of water source (installation or municipal) and proximity to potential/known PFAS release to environment.
- **(2016)** Navy issued a policy to prioritize sites for investigation if drinking water resources, on/off-installation were thought to be vulnerable to PFAS contamination from past known or potential releases. Sites with drinking water sources within one-mile downgradient were assigned highest priority.
- **(2020)** Interim Per- and Polyfluoralkyl Substances (PFAS) Site Guidance for NAVFAC Remedial Project Managers (RPMs); NAVFAC.

For more information see Department of Defense Frequently Asked Questions:
https://www.acq.osd.mil/eie/eer/ecc/pfas/faqs.html

SECTION V. (continued)

Information on this page are common units of measure that may be discussed at meetings, found on the website, used in official documentation or indicated on maps. For further information, reach out to the Navy POC.

NUMBERS

Million	1,000,000
Billion	1,000,000,000
Trillion	1,000,000,000,000
One millionth	0.000001
One billionth	0.000000001
One trillionth	0.000000000001

MASS

28 grams	about 1 ounce
1 kilogram (kg)	1,000 grams
1 milligram (mg)	1/1,000 gram = 0.001 gram
1 microgram (ug)	1/1,000,000 gram = 0.000001 gram
1 nanogram (ng)	1/1,000,000,000 gram = 0.000000001 gram
1 picogram (pg)	1/1,000,000,000,000 gram = 0.000000000001gram

VOLUME

One liter (L)	1.06 quarts
One cubic meter (m^3)	35.31 cubic feet (ft^3)
One cubic meter (m^3)	1,000 liters (L)
One liter (L)	1,000 milliliter (ml) = 1,000 cubic centimeters

overview
UNITS OF MEASURE

Concentrations in Soil

Concentrations of chemicals per mass of soil. Mass of chemical (milligrams or micrograms) per mass of soil (kilogram) - written as mg/kg or µg/kg. Concentrations in soil may also be measured in parts per million (ppm) or parts per billion (ppb). These may be written in a conversion form, for example 1 ppm = 1,000 ppb.

Concentrations in Water

Concentrations of chemicals in water are typically measured in units of mass of chemical (milligrams or micrograms) per volume of water (liter); written mg/L or µg/L. Concentrations in water may also be measured in parts per million (ppm) or parts per billion (ppb). These may be written in a conversion form, for example 1 ppm = 1,000 ppb.

Concentrations in Air

Concentrations of chemicals in air are typically measured in units of the mass of chemical (milligrams, micrograms, nanograms, or picograms) per volume of air (cubic meter or cubic feet). Concentrations may also be expressed as parts per million (ppm) or parts per billion (ppb) by using a conversion factor based on the molecular weight of the chemical, which is different for each chemical; atmospheric temperature and pressure affect the calculation.

VISUAL ASSISTANT

One part per billion (ppb) is like one drop in one billion drops of water or about one sugar cube-sized drop of water in an Olympic swimming pool. One part per million (ppm) is about 1 cup of water in an Olympic swimming pool.

One part per trillion (ppt) is the equivalent of one drop of impurity in 500,000 barrels of water or it is like to traveling 6 inches out of a 93-million-mile journey toward the sun.

HOW REMEDIAL EFFICIENCY IS MEASURED

pounds/year	Contaminant mass naturally degraded
pounds/year	Contaminant mass removed*
acre-feet/year	Groundwater removed*
acre-feet/year	Groundwater added (injected)*
acre-feet/year	Net groundwater removed/added
percentage	Groundwater removed per year vs. plume volume expansion per year
percentage	Contaminant mass removed per year vs. pre-remedial contaminant mass transported downgradient per year

**by or through remediation*

FACT SHEET

GROUNDWATER AND GROUNDWATER FLOW BASICS

Water level elevations are used to determine the direction of groundwater flow. Groundwater flows from higher to lower elevation and typically flows the same direction that land surface slopes (down hill).

TERMS

Aquifers Aquifers are defined as units of rock or soil where groundwater can be extracted for use. These uses may include drinking water, irrigation water, or water used in industrial processes.

Hydraulic conductivity Hydraulic conductivity is a measure of how easily water can pass through soil or rock: high values indicate very permeable (porous/absorbant) material through which water can pass easily; low values indicate that the material is less permeable (porous/absorbant).

Groundwater Some of the precipitation (rain, snow, sleet, and hail) that falls on the land soaks into Earth's surface and becomes groundwater.

Piezometers Used to measure the elevation of groundwater relative to sea level.

Water Table The level below which the ground is saturated with water.

Contour Lines (see map): The blue lines and numbers indicate groundwater elevation in feet above mean sea level. Measurements are found by using wells to measure ground surface elevation which in turn is used to measure the depth to groundwater (elevation). By calculating the groundwater elevation for multiple wells, groundwater flow can be determined. The blue arrows on the map indicate groundwater flow direction.

Long Island Aquifers: are also called the Upper Glacial Formation, the Upper Magothy Formation, and the Lloyd Sand Formation and are the major regional aquifers. Glacial and Magothy are of principal importance in Nassau County because they are the most accessible aquifers for groundwater; Lloyd on the other hand is much deeper. The water table beneath NWIRP lies within the Upper Glacial aquifer.

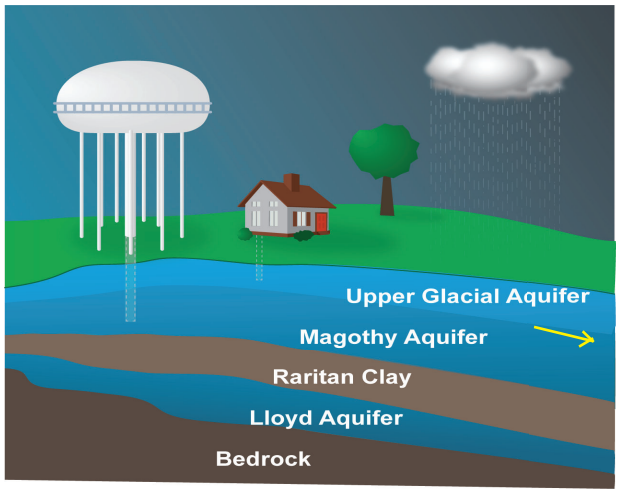
Nassau County Water Source: The Magothy aquifer supplies more than 90% of the water used in Nassau County.

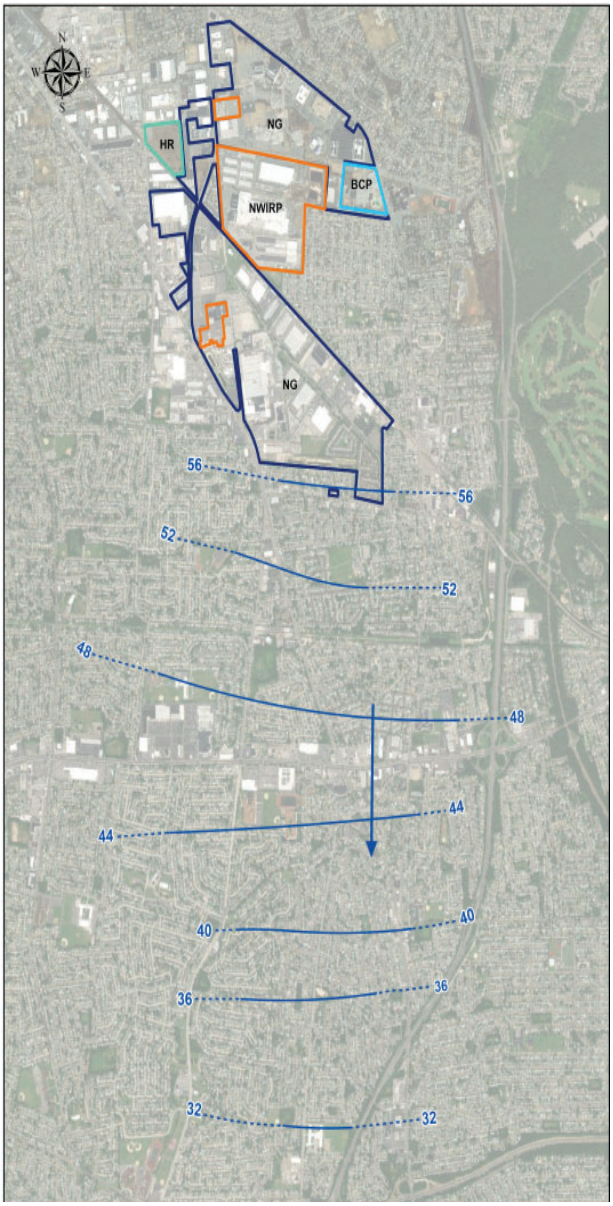
Sediments: The Upper Glacial aquifer sediments contain sand, pebbles, and occasionally boulders; Magothy aquifers sediments are loose sands with some layers of silts and clays; the bottom 50 to 100 feet is made of coarse sand and gravel. Below the Magothy Aquifer is the Raritan clay followed by the Lloyd Sand Member, which overlies bedrock.

Groundwater Flow Speed: Groundwater within the sands and gravels of the Upper Glacial and Magothy aquifers flow from areas of higher to lower groundwater elevations. While both sands and gravels provide an efficient media for groundwater to flow through, groundwater flow is faster in gravels compared to sands. Groundwater flow has been calculated to be up to 300 feet per year.

Groundwater Flow Direction (see blue arrows on map) The NWIRP Bethpage is located south of the regional Long Island groundwater divide, with groundwater beneath the Site flowing to the south.

Discharge Points: The groundwater in the area is fairly deep with the shallowest groundwater located 30 to 40 feet below ground surface. This precludes shallow streams and basins in the area from intersecting groundwater. South Oyster Bay is the likely discharge point for groundwater in the shallow aquifer zones in the southern portion of NWIRP Bethpage.





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Back Cover