Naval Weapons Industrial Reserve Plant Bethpage
2021 CERCLA Five Year Review Fact Sheet

February 2021

This fact sheet summarizes the results of the 2021 Five-Year Review at the former Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage. Five-Year Reviews are conducted to ensure current environmental cleanup activities are effectively protecting public health and the environment in accordance with the requirements set forth in the Records of Decisions (RODs). There are four Operable Units (OUs) at NWIRP Bethpage, each with its own ROD. The 1995 OU1 ROD addresses Sites 1, 2, and 3 where contaminated soils are the primary concern. The OU2 ROD (2003) addresses on-property and off-property groundwater contamination. The OU3 ROD (2015) addresses the impact to soils and groundwater from a former underground storage site (Site 4). The OU4 ROD (2018) addresses Site 1 soils not removed during implementation of the earlier remedy from the 1995 ROD. The Five Year Review provides an evaluation of each ROD's remedies and their protectiveness status.

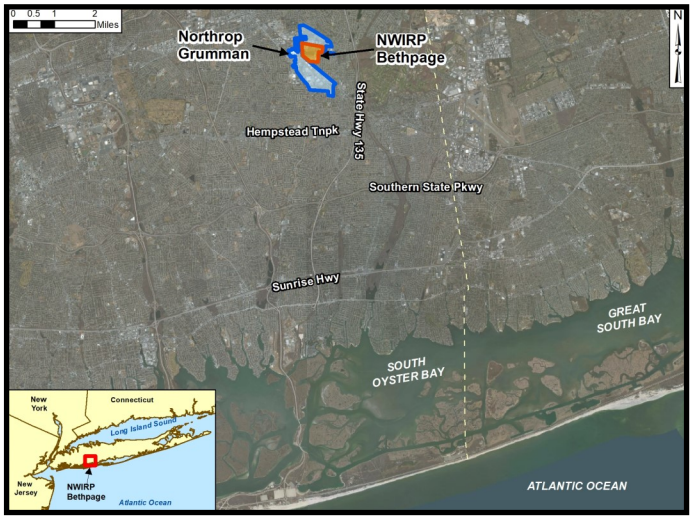
The 2021 Five Year Review involved an extensive review of the remedy components to address OU2 off-property groundwater contamination and assess if the Navy is achieving the 2003 ROD's objectives. Part of this review included examination of the NYS Dept. of Environmental Conservation's Amended Record of Decision for OU2 and OU3. [OU3 groundwater is being addressed by Northrop Grumman]. The Navy determined additional actions are needed and will implement 1) an extension to the planned RE108 Area Hotspot Phase II treatment system, and construction of a Phase III treatment system at the southern extent of the OU2 plumes. The Navy explains these and other recommended actions in a *CERCLA Explanation of Significant Differences* (ESD) decision document to be provided for public review. The ESD will modify the Navy's OU2 ROD accordingly and will serve to document the Navy's commitment to implement this work.

FIVE-YEAR REVIEW

The Department of the Navy (Navy), Naval Facilities Engineering Systems Command Mid-Atlantic, conducted this third five-year review (FYR) for Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage, and non-National Priorities List (NPL) site in the Hamlet of Bethpage, Town of Oyster Bay, Nassau County, Long Island, New York. This review is required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in accordance with CERCLA §121(c), as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan, Part 300.430(f)(4)(ii) of Title 40 of the Code of Federal Regulations (CFR). The purpose of the Five-Year Review is to ensure that the cleanup actions are continuing to protect human health and the environment. A site is included in the Five-Year Review if contaminants remain above levels that would allow for unlimited use and unrestricted exposure and if there is a *Record of Decision (ROD)* in place. Four "operable units" or OUs, covering four sites, were evaluated in this Five-Year Review.

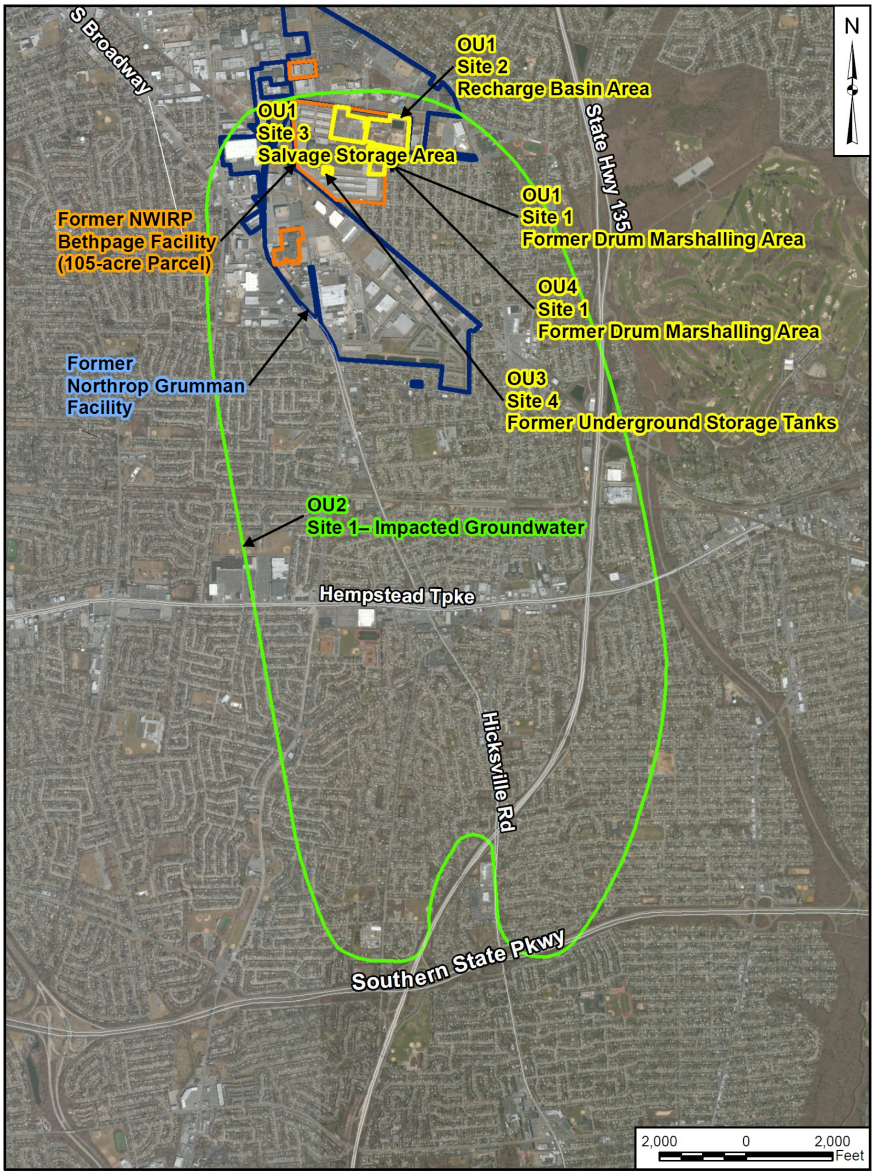
BACKGROUND

NWIRP Bethpage was a 109-acre government-owned, contractor-operated facility. It was operated by Northrop Grumman (NG) and its predecessors, including Grumman Aircraft Engineering Corporation (Grumman) from 1942 until 1996. NWIRP's primary mission was the research, testing, design engineering, fabrication, and primary assembly of military aircraft. The Navy's final land holdings, at the termination of NWIRP Bethpage operations, included a main parcel of approximately 105



General Location Map

acres and a separate parcel of approximately 4.5 acres located north of the main parcel. The 4.5-acre parcel was transferred to Nassau County on December 10, 2002. On April 3, 2008, the Navy transferred 96 acres of the 105-acre main parcel to Nassau County and leased the remaining 9 acres to Nassau County. The 9-acre parcel is currently leased to Nassau County, but ownership is being retained by the Navy for environmental investigations and remediation. Upon successful remediation of the 9 acre parcel, ownership of the parcel will also be transferred to Nassau County. The transfer and lease documents provide land use controls (LUCs) and notifications of areas in which residual contamination is present.



Five Year Review Sites

FIVE-YEAR REVIEW SITES

A brief overview of the six sites evaluated in NWIRP Bethpage's 2020 Five-Year Review are described on the remaining pages. Details are found in the Five-Year Review report, which can be accessed in the Administrative Record (see page 6).

Operable Unit 1

Site 1 is part of OU1, which includes soil at Sites 1, 2, and 3. OU1, Site 1 consists of shallow polychlorinated biphenyl (PCB)- and metals-contaminated soil, and volatile organic compound (VOC)-contaminated soil at Site 1. Because of a significantly greater volume of contaminated media, the PCB and metals portion of the remedy in the 1995 OU1 ROD could not be fully implemented. Therefore, Site 1 is further addressed by OU4 (see page 6, which identifies additional actions to be taken to address deeper PCB-contaminated soil and groundwater, and VOC-contaminated soil vapor at Site 1.

Site 1– Former Drum Marshalling Area

Site 1 originally consisted of two former drum marshalling pads used to store drums containing waste materials from operations at Plant 3 (aircraft assembly and prototype testing) and potentially other sources at the facility. The waste drums contained chlorinated and non-chlorinated solvents and liquid cadmium and chromium wastes. In addition, underlying most of Site 1 is an abandoned septic drainage system consisting of approximately 120 abandoned cesspools that were designed to discharge sanitary waste waters from Plant 3. Based on the widespread distribution of VOCs and PCBs within the cesspools, non-sanitary wastes had been discharged through this system.

Source of contamination

Solvent/Plating Drum Marshalling/Spills, Cesspools, Transformers, and Sludge Drying Beds.

Remedy

The selected remedy from the ROD due to impacted soil, soil vapor, shallow groundwater included excavation/off-property disposal, cover, air sparge/soil vapor extraction (AS/SVE), monitoring, and land use controls (LUCs). Because of a significantly greater than expected volume of contaminated media, the PCB and metals portion of the remedy could not be

implemented as identified in the OU1 ROD. The OU4 ROD was prepared to address this additional contaminated media.

Remedial activities

VOC-contaminated soil and shallow groundwater were treated via AS/SVE from 1997 to 2003. LUCs consist of restrictions on land uses and groundwater uses at Site 1. Annual LUC inspections are being conducted.

Protectiveness Statement

The remedy at Site 1 is protective because LUCs, fencing, and a cover are in place and therefore there is no current or potential exposure. Follow-up actions were necessary to address long-term protectiveness because the remedy could not be implemented as identified in the 1995 ROD due to a significantly higher volume of contaminated media discovered during subsequent investigations. Residual contaminated media at the Site have been designated as OU4; and therefore, there are no additional actions to be conducted at Site 1 under OU1. A ROD documenting the selected remedy for OU4 was issued and signed in 2018.

Follow-Up Actions

This FYR did not identify any issues for OU1 that affect the protectiveness of the remedy.

Site 2– Recharge Basin Area

Site 2 consists of recharge basins that were reported to have been used primarily for disposal of storm water and cooling water for air conditioning units that was derived from on-property production wells. Originally, these basins also received rinse waters from NG operations. There is additional historical evidence of industrial waste discharges to these basins by NG. Former sludge drying beds were also located at Site 2 and reportedly used to dewater sludge from the Plant 2 industrial waste treatment facility prior to being disposed of offsite. The sludge drying beds have been filled since prior to 1991.

Source of contamination

Sludge Drying Beds, Process Rinse Water/Spills.

Remedy

The Selected Remedy from the 1995 ROD included excavation and cover, and LUCs.

Remedial activities

The remedy components included:

- 1996- Excavation of PCB-contaminated soil to be landfilled off site.
- VOC-contaminated soil to undergo natural flushing.
- 2001 - Permeable 6-inch cover over surficial (non-basin) residual contaminated soils in the northwestern portion of the site.
- Ongoing- LUCs consisting of corresponding deed restrictions for site soils and groundwater.

Protectiveness Statement

The remedy at Site 2 is protective of human health and the environment. Excavation and/or covering of PCB-contaminated soil in accordance with the ROD was completed. LUCs have been implemented, and exposure to site soils is prevented by the cover.

Follow-Up Actions

This FYR did not identify any issues for OU1, Site 2 that affect the protectiveness of the remedy.

Site 3– Salvage Storage Area

From the early 1950s through 1969, fixtures, tools, and metallic scrap were stored at Site 3 prior to recycling. Stored materials included aluminum and titanium scraps and shavings. While in storage, cutting oils dripped from some of this metal. During this time period, drum marshalling was also conducted in this area. Wastes stored throughout the area included waste oils as well as waste halogenated and non-halogenated solvents. In the 1960s and 1970s, the Salvage Storage Area was reduced in size to accommodate parking.

Source of contamination

Parts Storage, Incidental Releases, Drum Marshalling/ Spills.

Remedy

The selected remedy from the 1995 ROD includes excavation and cover, and LUCs.

Remedial activities

The remedy components included :

- VOC-contaminated soil to undergo natural flushing.
- 1998 Permeable cover over residual contaminated soils.
- LUCs consisting of corresponding deed restrictions for site soils and groundwater.

Protectiveness Statement

The remedy at Site 3 is protective of human health and the environment. LUCs have been implemented and exposure to site soils is prevented by the cover.

Follow-Up Actions

This FYR did not identify other information that could

call into question the protectiveness of the Site 3 remedy.

Operable Unit 2

Site 1– Impacted Groundwater

OU2 consists of site-related VOC-contaminated groundwater beneath the Navy's former 105-acre parcel and VOC-contaminated groundwater that has migrated and continues to migrate south and east off property, where it becomes mixed with contamination originating on NG property. One primary source of the VOC-contaminated groundwater is Site 1. OU2 does not include petroleum-contaminated groundwater associated with Site 4 (which is the subject of a separate Navy Record of Decision).

The current chlorinated VOC-contaminated groundwater plumes emanating from the Navy and NG sites span more than 3,000 acres and are over 700 feet deep in some places. The plumes emanating from NWIRP Bethpage have impacted or threatened public water supply well fields. Plume migration is ongoing to the south southeast at a rate of approximately 100 to 300 feet per year.

Source of contamination

Solvent Releases from Sites 1, 2, and 3.

Remedy

The ROD for OU2 – Groundwater was signed by the Navy in April 2003. The ROD identified on-property land use controls and continued operation of the NG on-property groundwater containment system (ONCT) for on-property groundwater. The ROD also identified off-property response actions consisting of mass contaminant removal (e.g., GM38), protection of the public water supplies, and continued plume delineation and groundwater monitoring.

Remedial activities

Remedial actions required for OU2 were identified in the 2003 ROD and were separated into on-property and off-property components.

On-Property Components

The ROD specified that on-property groundwater contamination be addressed through Navy implementation of LUCs to restrict groundwater use (implemented by the Navy). Further, the selected remedy for on-property groundwater is also based on the recognition that an existing groundwater extraction and treatment system, known as the ONCT system, continues to contain and remediate VOC-contaminated groundwater originating from the Navy's and NG's properties. The ONCT system was constructed and is being operated by NG. The Navy recognizes that continued operation of the ONCT system is paramount to ensuring that the Navy's selected remedy for on-property groundwater remains protective of human health and the environment. In the event that the ONCT system fails to continue to operate, the Navy also recognizes that its on-property groundwater remedy may no longer be protective, and the Navy would then reevaluate the protectiveness of the remedy for on-property groundwater.

Off-Property Components

- An active remedial program including design, implementation, and O&M of an extraction well system near the GM38 groundwater hotspot location.
- Installation of vertical profile borings (VPBs) and monitoring wells to allow for identification and monitoring of groundwater contamination and placement of outpost wells. Outpost wells provide early (five-year) warning of plume migration towards public water supply well fields.
- Development of a Public Water Supply Contingency Plan (PWSCP).
- A provision for wellhead treatment for public water supply systems or an alternative approach pursuant to the PWSCP.
- Evaluation of the GM-75 Area Groundwater to determine whether another hotspot is present.

Protectiveness Statement

The remedy for OU2 – Impacted Groundwater was evaluated on the basis of whether the remedy is meeting each of the Remedial Action Objectives (RAOs) as defined in the 2003 OU2 ROD. This evaluation determined that the remedy is meeting the RAOs to eliminate to the extent practical the following: site-related chemicals from the affected public water supplies, exposures to contaminated groundwater, off-property migration and where possible restore the aquifer, exceedances of the applicable environmental quality standards, and detections of site-related VOC contamination in affected drinking water supplies. The remedy in the context of these RAOs is protective. However, the RAO to prevent future contamination of public water supplies through offsite groundwater remediation was determined to be short-term protective because an additional treatment system is under design to prevent future contamination of downgradient public water supplies. In addition, the

Navy is pursuing additional actions to intercept and contain as practicable OU2 VOC-impacted groundwater.

Follow-Up Actions
Using new and historic data, including New York State Department of Environmental Conservation (NYSDEC's) Feasibility Study and Amended Record of Decision (AROD), the Navy assessed opportunities to further reduce potential future contamination of public water supplies and migration of contaminated groundwater.

This assessment included evaluating the value of installing additional groundwater extraction wells and treatment facilities to the south and downgradient of the RE108 Area Hotspot.

In particular, the Navy evaluated the potential benefit associated with:

- An extension of the RE108 Phase II System to include a new extraction well (RW07) to be located approximately 3,000 feet south of RW05, and
- A new Phase III System project with extraction wells RW08 through RW11 to be located near Southern State Parkway, approximately 4,000 feet south of RW07.

The Navy will use groundwater flow modeling combined with information from several new VPBs to determine the best location for additional recovery wells that will be positioned to intercept the OU2 plume. The borders of the Southern State Parkway represent open space where it may be practical to install extraction, conveyance, and treatment systems and intercept the migration of the plume. This area is also identified in the NYSDEC AROD for the installation of groundwater extraction wells.

Operable Unit 3
OU3 consists of petroleum hydrocarbon contamination in soil and groundwater at Site 4 that is commingled with CERCLA hazardous substances and is therefore being addressed under CERCLA.

Site 4– Former Underground Storage Tanks
Site 4 consists of former USTs. NG reportedly stored Nos. 4 and 6 Fuel Oils in the USTs, and removed the USTs between 1980 and 1984. Investigations have identified petroleum-contaminated soil and semi-solid petroleum product above and below the water table, which is approximately 50 feet below ground surface (bgs) at the site. Uncontaminated soil has been confirmed at a depth of 73 feet bgs.

Source of contamination
Petroleum commingled with solvents.

Remedy
The selected remedy from the free product removal. biosparging, monitoring, and LUCs Site 4 ROD is free product recovery, biosparging, monitoring, and LUCs. The remedy is currently in place.

Remedial activities
The Remedy Components included the following:

- Steam injection into soils to form free product and enhanced product recovery.
- Biosparging of residual contamination in soil and groundwater.
- Groundwater and soil monitoring.
- LUCs to prevent exposure to contaminated soil and groundwater.

Protectiveness Statement
The remedy at Site 4 currently protects human health and the environment because LUCs have been implemented restricting access to site soils and groundwater. However, in order for the remedy to be protective in the long-term, process and monitoring data for the active remediation systems are needed to evaluate if the systems are operating as designed.

Follow-Up Actions
This FYR did not identify any issues for OU3, Site 4 that affect the protectiveness of the remedy.

Operable Unit 4
Site 1– Former Drum Marshalling Area
Site 1 is being addressed both under OU1 for past response actions and OU4 for current and future actions to address the increase in the volume of soil contamination and other contamination not identified in the OU1 ROD. OU4 consists of PCB-contaminated soil, PCB- and metals-contaminated groundwater, and VOC-contaminated soil vapor at Site 1.

Source of contamination
Solvent/Plating Drum Marshalling/Spills, Cesspools, Autoclaves/ Transformers, and Sludge Drying Beds.

Remedy
The selected remedy from the OU4 Site 1 ROD in 2018 due to impacted soil, soil vapor, and groundwater includes, excavation, off-property disposal, cap, AS/SVE, monitoring, and LUCs. The remedy is in progress.

Remedial activities
The Site 1 remedy was documented in the 2018 OU4 ROD. The required actions consisted of the following

components:

- Limited excavation and offsite disposal of PCB-contaminated soil.
- Reduced permeability cover.
- Continued operation of the existing SVE Containment System.
- Installation of new SVE wells to accelerate source area control following extraction.
- Monitoring of onsite and offsite soil vapor.
- Monitoring of groundwater.
- LUCs consisting of corresponding deed restrictions for site soils and groundwater.
- LUCs to identify future actions to control the potential for vapor intrusion for any newly constructed structures at the site.

Protectiveness Statement

The remedy at Site 1 is expected to be protective of human health and the environment upon completion, and in the interim, exposure pathways that could result in unacceptable risks are being controlled through the implementation of LUCs and operation of the SVE Containment System. Implementation of the selected remedy for OU4 began in 2019 and excavation, offsite disposal, and capping portions of the remedy were essentially complete as of August 2020. Site restoration of the disturbed areas of Site 1, including revegetation, implementation of a soil vapor extraction system, and a groundwater monitoring program are ongoing.

Follow-Up Actions

This FYR did not identify any issues for OU4 that affect the protectiveness of the remedy.

Next Review

The completion of the next Five-Year Review for NWIRP Bethpage is required by February 15, 2026, 5 years from the completion of the current review.

FOR MORE INFORMATION

Copies of all official environmental program documents are available for review at an information repository located at Bethpage Public Library, 47 Powell Avenue, Bethpage, NY 11714, (516) 931-3907.

Additional information on the NWIRP Bethpage Environmental Restoration Program (ERP) is available online at **https://go.usa.gov/DyXF**

For more information on the NWIRP Bethpage ERP, please contact: Public Affairs Officer,
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