

# Project Update for the Community

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December 14, 2023

# Agenda

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- Historical Overview
- Routine Groundwater Sampling Program
- Decades of Groundwater Treatment
- RW-21 Offsite Groundwater Treatment System Operations
- In-soil Thermal Remedy Phase 2
- Vertical Profile Borings in Southeast Quadrant
- Connecting NYSDEC Extraction Well to RW-21 System
- Community Participation Working Group Meetings
- Questions

# Historical Overview

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In the 1980s and 1990s, Grumman Aerospace and, later, Northrop Grumman, sought to understand how legacy military production operations (which were consistent with America's standard industrial manufacturing practices) may have contaminated soil and groundwater.

Detailed research, funded by Northrop Grumman, found evidence of volatile organic compounds (VOCs), metals, and polychlorinated biphenyls (PCBs) in soil and VOCs and metals in groundwater at the site.

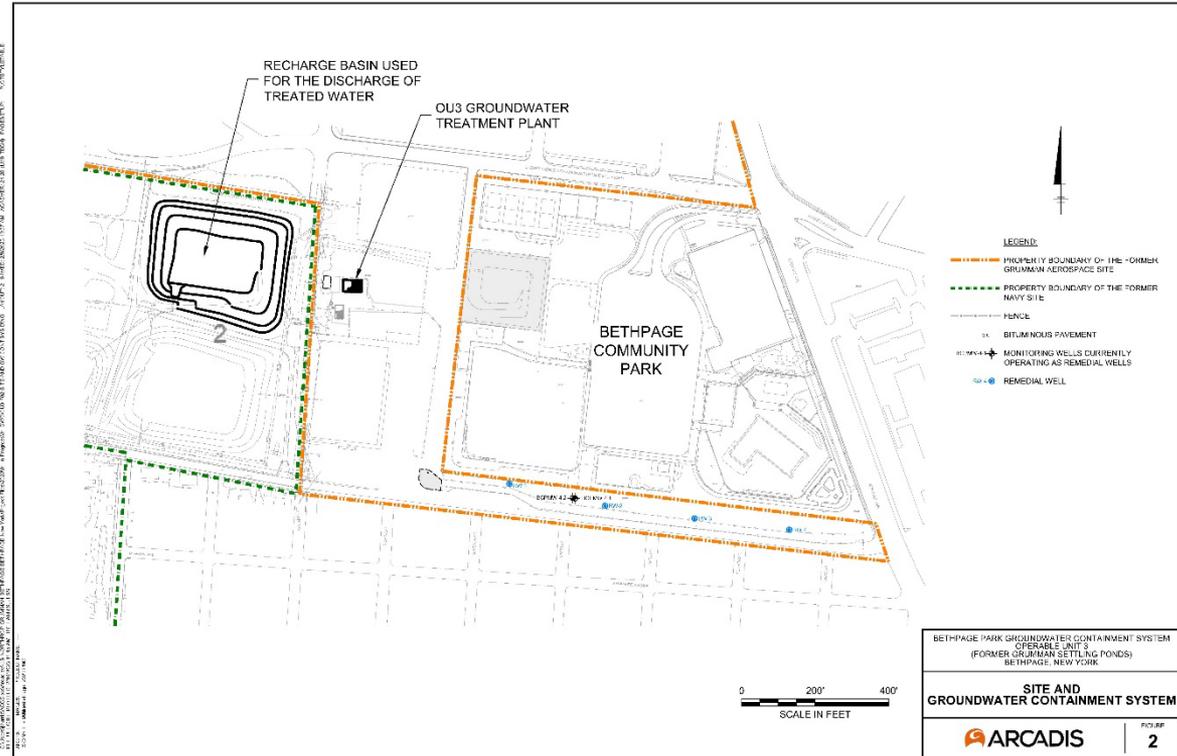
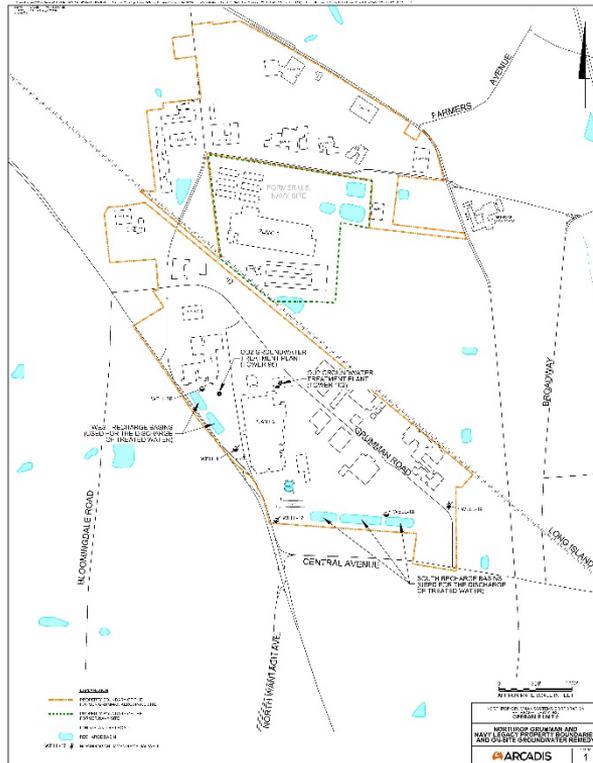
Northrop Grumman funded, installed and operates:

- On-site (main facility) groundwater containment and remediation systems
- On-site soil vapor and groundwater treatment systems (southern/western boundaries of Park)

Funded wellhead treatment at two Bethpage Water District Plants.

In partnership with US Navy, implemented, funds and manages a routine groundwater sampling program.

# Current On-Site Groundwater Remediation Operable Unit 2 (left) and Operable Unit 3 (right)



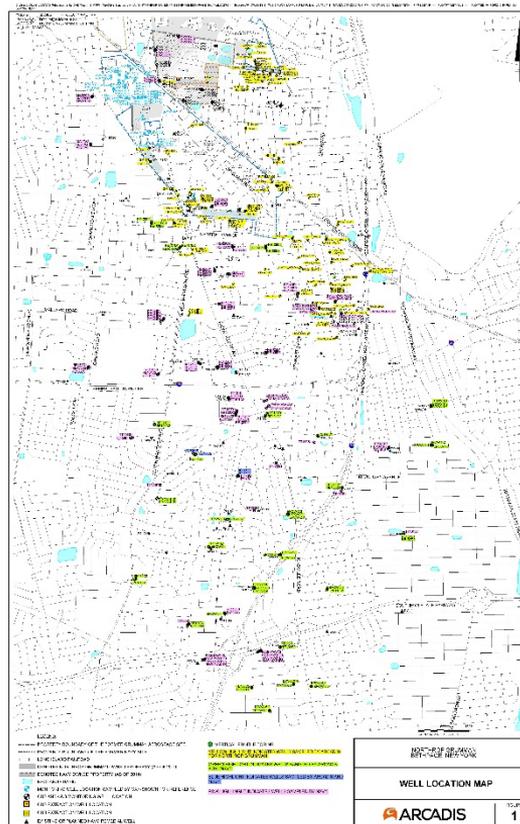
This slide applies to groundwater remediation work only. The scope of our remedial activities for OU2 and OU3 is broader.

# Routine Groundwater Sampling Program

Northrop Grumman and the U.S. Navy sample and measure groundwater levels from a network of 228 groundwater monitoring wells in Bethpage, South Farmingdale, Hicksville, Levittown, Massapequa and Seaford. Additional wells are installed as required by the New York State Department of Environmental Conservation (NYSDEC).

The sampling and level measurements occur on a monthly, quarterly, bi-annual or annual basis depending on the well location and in accordance with the NYSDEC and Navy - approved-sampling programs.

Data collected from these wells are analyzed at an independent laboratory. The findings are shared with NYSDEC, NYS Department of Health, and the Nassau County Department of Health. Northrop Grumman data is also held in an electronic repository at the Bethpage Library and are available on the NYSDEC's website.



Typical set-up of Northrop Grumman/US Navy groundwater sampling operations on a residential street.

# Groundwater Treatment

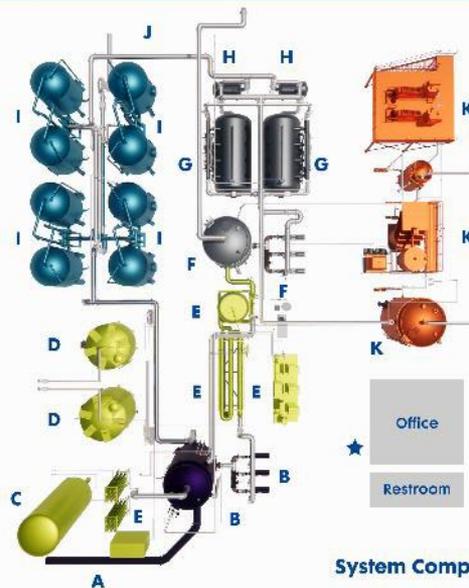


- Existing OU2 system treats approximately 5.8 million gallons per day.
- Processed approximately 2.1 Trillion gallons since operations commenced in November 1988.
- Treated water is discharged to the local aquifer via five recharge basins.

# RW-21 Groundwater Treatment System



## RW-21 Groundwater Treatment System



### System Components

- A – Inlet Pipe
- B – Inlet Tank and Pumps
- C – Liquid Oxygen Storage
- D – Chemical Storage
- E – Advanced Oxidation Process
- F – Filter Feed Tank and Pumps
- G – Pressure Filters
- H – Cartridge Filters
- I – Carbon Filters
- J – Discharge Pipe
- K – Solids Handling
- ★ – You are here

# Elements of the RW-21 System

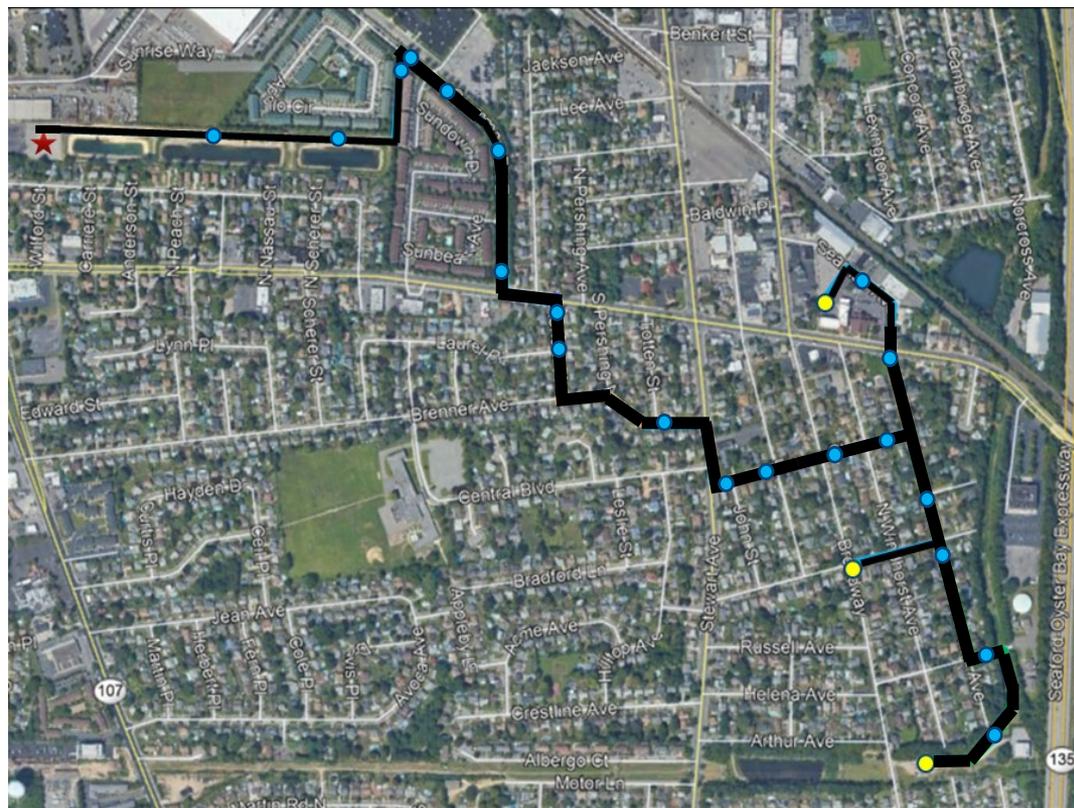
Three extraction wells (**yellow dots**) pump water into underground piping connected to the facility.

The leak detection system monitoring manholes (**blue dots**) are an additional safety measure should the system notice a change.

The underground dual-walled piping (**black lines**) bring the pumped water from each well to our treatment facility.

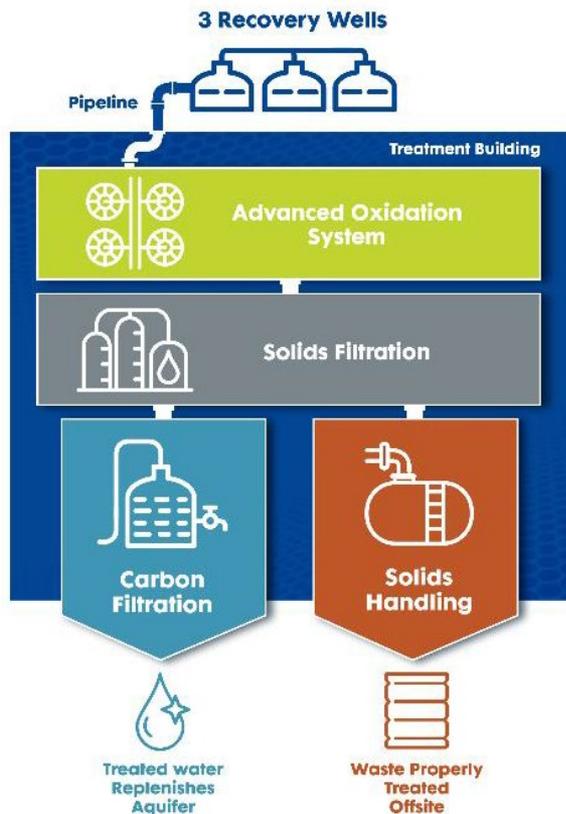
The facility (**red star**) treats the water and replenishes the aquifer below using our basins.

Thank you for your support during the installation of the piping and system testing and start-up.



● System Monitoring Manhole ● Extraction well ★ Groundwater Treatment Facility

# RW-21 System Status Start Up



- Three wells are operational as of 8/7
- Pumping 1,800 gallons per minute
- 2.74 million gallons per day
- 19.2 million gallons per week
  
- Pumped and treated 245.5 million gallons as of December 14, 2023

# Community Park Soil Mapping and Thermal Remedy



Data from extensive soil sampling drove our scientific analysis: the design and installation of a NYSDEC-approved VOC remedy, and the successful execution of the technology.



In Phase 1 Northrop Grumman exceeded the cleanup requirements set by NYSDEC

# Thermal Remedy Phases 1 and 2

- NYSDEC approved completion of the ISTR Phase 1 remedy in the ballfield area.
- Completed soil sampling north of the ballfield area to determine the scope of the ISTR Phase 2 remedy.
- The Phase 2 treatment areas are defined in the Phase 2 remedial action work plan.
- Began installing the Phase 2 equipment in late October, which is ongoing.
- Identical to Phase 1, the Phase 2 system will heat VOC contaminants in the soil well below ground surface.
- The heated VOCs and vapor condensate will be collected and then treated in a vapor treatment system located on NG McKay Field property.



# Thermal Remedy Project Schedule

Activity	Start	End
Remove Phase 1 System Equipment	Fourth quarter 2022	Complete
Begin Construction of Phase 2 System	Underway	Second quarter 2024
Treat Soil in Phase 2 Areas	Second quarter 2024	Fourth quarter 2024
Collect Confirmation Samples and shut down Phase 2 Treatment System	Fourth quarter 2024	First quarter 2025
Remove Phase 2 Equipment	First quarter 2025	Third quarter 2025

Schedule as of December 14, 2023 is dependent on work plan approvals, weather, and supply chain

# Southeastern Quadrant Data Collection

Drill deep vertical boreholes in six locations to allow us to collect and analyze groundwater samples.

Data collected will be provided to NYSDEC and NYSDOH and shared with Navy.

Data evaluation will determine next steps which could be:

- 1) Close the location with no additional work
- 2) Install monitoring well(s)
- 3) Install extraction well(s) and piping to connect well(s) to future treatment system



***Borings 2 and 4 are done. 6 is underway.  
1, 3, 5 are scheduled for Q1 2024***

**This effort supplements our continuing RW-21 Program efforts**

# Connecting NYSDEC Extraction Well (EX06)

Northrop Grumman will connect the NYSDEC's existing extraction well located in the municipal lot at Stewart Avenue and Benkert Street to the RW-21 groundwater treatment system. Work plan and schedule is pending.

Contractors are conducting routine groundwater sampling in this area.



# Community Participation Working Group

- Established by the NYSDEC Amended Record of Decision to share project information with the public via residents acting in a voluntary “ambassador” role and to receive feedback via ambassadors
- Northrop Grumman-funded facilitator hired by NYSDEC
- Attended by NYSDEC, Northrop Grumman, US Navy and resident volunteers
- First meeting held May 10, 2023
- Second meeting August 23, 2023
- 2024 meeting schedule is pending



**Northrop Grumman has hosted 17 community meetings since June 2016 including tonight**

## Our Continued Commitment

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Northrop Grumman continues to work closely with the NYSDEC, the U.S. Navy and other federal, state, and local government regulatory authorities, to address environmental conditions in the area.

We remain committed to pursuing scientifically sound, targeted and effective remedial approaches that protect the health and well-being of the community and avoid unnecessary disruption.

**For ongoing updates, visit our project web site**  
**[www.northropgrumman.com/bethpage](http://www.northropgrumman.com/bethpage)**

**Opt-in email to [Dianne.baumert-Moyik@ngc.com](mailto:Dianne.baumert-Moyik@ngc.com)**