

**Northrop Grumman-Bethpage Facility  
Site No. 1-30-003A  
Naval Weapons Industrial Reserve Plant Site No.  
1-30-003B**

**PROPOSED REMEDIAL ACTION PLAN**

**Operable Unit No. 2: Groundwater Remedy**

**Prepared by:**

**Division of Environmental Remediation**

**New York State Department of Environmental Conservation**

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# **New York State Remediation Process under CERCLA /SARA (Federal Law) and NYS Environmental Conservation Law**

- **Preliminary Site Assessment**
- **Listing on NYS Registry of Inactive Hazardous Waste Disposal Sites**
- **Negotiate a Consent Order or refer to NYS Superfund**
- **Remedial Investigation**
- **Interim Remedial Measures (IRMs), Operable Units (OU)**
- **Feasibility Study: Screening and evaluation of remedial alternatives**
- **Proposed Remedial Action Plan (PRAP)/ Record of Decision (ROD)**
- **Remedial Design/ Remedial Action**
- **Operation, maintenance and monitoring (OM&M)**

## **Site History**

- **1930's: Grumman begins manufacturing at the Bethpage facility**
- **Past Operation and disposal practices generated hazardous wastes that resulted in releases to the environment**
- **1994: Northrop Corporation merges with Grumman Aerospace forming the Northrop Grumman Corporation**
- **1996: Northrop Grumman announces closure of manufacturing at the Bethpage facility**
- **1996 to Present: RCRA closure of interior Grumman and Navy manufacturing buildings**

## **Remedial Investigation and Feasibility Study (RI/FS)**

- **1987: Listed on NYS Registry of Inactive Hazardous Waste Disposal Sites. Northrop Grumman and the Navy had already started treating their non-contact cooling waters**
- **1990: Bethpage Water District installs air stripper at BWD wellfield 6**
- **1990: Grumman signs an RI/FS Order on Consent with the NYSDEC**
- **1992: NYSDEC enters into a Memorandum of Understanding (MOU) under the Navy's Installation Restoration Program (IRP)**
- **1992-4: Remedial investigation installs monitoring wells. Soil, soil gas and groundwater samples are collected as part of the Northrop Grumman and NWIRP investigations**
- **1993-4: Grumman initiates Plant 2 Soil Vapor Extraction IRM, Grumman completes RI**

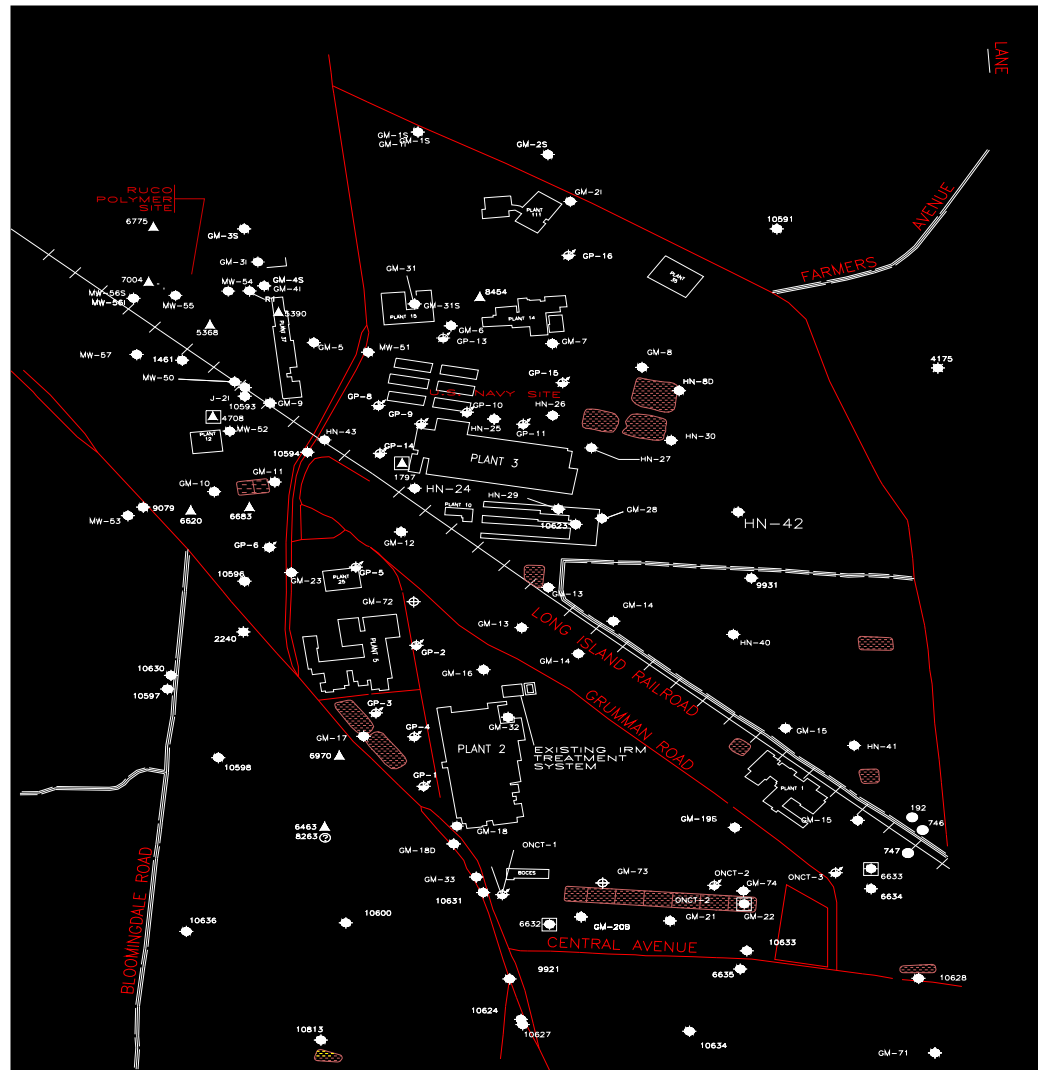
## **Remedial Investigation and Feasibility Study (RI/FS) (Continued)**

- **1994: Navy completes NWIRP-Plant 3 RI/FS for site soils**
- **1995: Soils RODs for Northrop Grumman and NWIRP-Plant 3**
- **1996: Began the joint, Operable Unit (OU) 2 Regional Groundwater FS for Northrop Grumman, Navy and the Hooker Ruco Corporation**
- **1997: Northrop Grumman initiates groundwater IRM extraction and treatment design and construction for the on-site containment (ONCT) system**
- **1997: BWD installs air strippers at BWD wellfields 4 and 5**

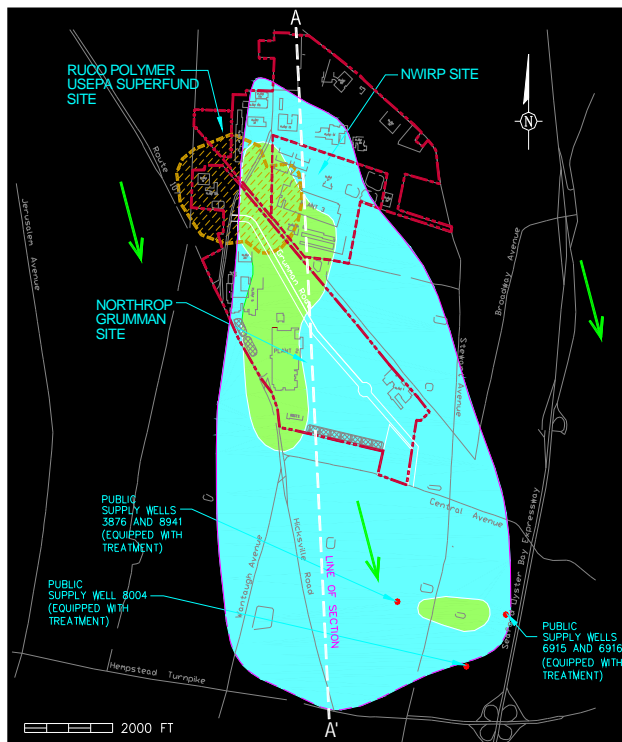
## **Remedial Investigation and Feasibility Study (RI/FS) (Continued)**

- **1998: Northrop Grumman ONCT system goes online**
- **1998: USEPA and NYSDEC decide to separate the Northrop Grumman/NWIRP and the OXY Hooker RUCO groundwater issues into two separate feasibility studies**
- **1999: Northrop Grumman submits draft OU2 Groundwater FS for Northrop Grumman and NWIRP sites**
- **September 2000: USEPA completes the OXY Hooker Ruco OU 3 RI/FS, PRAP & ROD**
- **November 2000: OU2 groundwater FS finalized and NYSDEC issues the Proposed Remedial Action Plan (PRAP)**

# Monitoring Well Network



# Remedial Investigation Groundwater Contamination



**EXPLANATION**

- TVOCs GREATER THAN 1,000 PARTS PER BILLION
- TVOCs GREATER THAN 5 PARTS PER BILLION (DASHED LINE INDICATES PLUME EXTENT IS INFERRED)
- ESTIMATED FOOTPRINT OF VCM SUBPLUME ATTRIBUTABLE TO RUCO POLYMER USEPA SUPERFUND SITE
- PROPERTY BOUNDARY OF THE NWIRP SITE
- PROPERTY BOUNDARY OF THE RUCO POLYMER SITE
- FORMER PROPERTY BOUNDARY OF FORMER GRUMMAN AEROSPACE CORPORATION SITE
- TVOC TOTAL VOLATILE ORGANIC COMPOUNDS
- NWIRP NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
- VCM VINYL CHLORIDE MONOMER
- GENERALIZED LINE OF SECTION WITH IMPACTED AREAS AND KEY WELLS PROJECTED ONTO LINE
- DIRECTION OF GROUNDWATER FLOW

**NOTE:**  
DATA BASED ON INFORMATION PROVIDED IN THE SEPTEMBER 1994 REMEDIAL INVESTIGATION REPORT.

WHAT IS ONE PART PER BILLION?

One part per billion (1 ppb) could be expressed in the following terms:

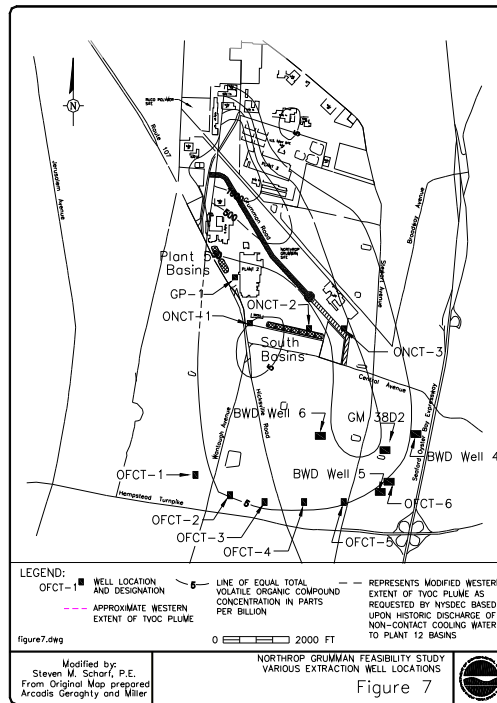
- 1 cent in \$10,000,000
- 1 minute in 2,000 years
- 1 pound in 500,000 tons
- 1 inch in 16,000 miles

On a smaller scale, one drop in a 33 foot by 16 foot by 3 foot swimming pool would equal 1 ppb.





# Proposed Remedial Action Plan



## **Proposed Remedial Action Plan**

- **On-site containment system for groundwater contamination**
- **Off-site groundwater pump and treat for elevated groundwater contamination area located at the GM-38 monitoring well area**
- **Continued operation maintenance and monitoring of the wellhead treatment for the Bethpage Water District.**
- **Long term operation, maintenance and monitoring**
- **Monitoring includes on-site containment (ONCT) system and GM38 area treatment performance, overall groundwater quality monitoring and outpost monitoring**
- **Comprehensive monitoring for affected groundwater attenuation**
- **Municipal Wellhead treatment contingency via the outpost monitoring**

## **PRAP SUMMARY & CONCLUSIONS**

- Alternative 3 is proposed as the groundwater remedy because it is protective of human health and the environment, satisfies the evaluation criteria and is feasible
- Remedial measures have been and will be implemented Northrop Grumman and the Department of the Navy.

## **NEXT STEPS**

| Record of Decision         | → | First quarter 2001 (estimated)  |
|----------------------------|---|---------------------------------|
| Consent order              | → | Second quarter 2001 (estimated) |
| Pre-design studies         | → | On-going                        |
| Remedial design            | → | To be determined                |
| Construction and operation | → | To be determined                |

# WATER TREATMENT FACILITIES

## CONCEPTUAL OVERVIEW OF A PUBLIC WATER SUPPLY SYSTEM

