

August 99
Revision 0

Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage

Restoration Advisory Board



Workbook

**NWIRP Bethpage
Restoration Advisory Board
Workbook**

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- Section 2: RAB Mission Statement and Operating Procedures**
- Section 3: Information Repository**
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 - Site Descriptions
- Section 7: Acronyms and Glossary**

Section 1: List of RAB Members

**RESTORATION ADVISORY BOARD MEMBER LIST
NWIRP BETHPAGE, NEW YORK**

The RAB Membership consists of Community members, and only one (1) representative of regulatory and other cognizant agencies involved in the Navy's IR Program previously as members of the Technical Review Committee (TRC). Representation will be at the agency's discretion and may change based on availability to attend scheduled RAB meetings. This list will be updated periodically to reflect changes to the RAB Membership.

<u>Name or Organization</u>	<u>Representing</u>
Naval Air Systems Command Industrial Facilities/GOCO Branch NAVAIRSYSCOMHQ Building 404, Suite 200 22145 Arnold Circle, Unit 7 Patuxent River, MD 20670-1541 ATTN: Judith Hare (AIR-8.0Y2) 301-757-2152 Fax: 301-757-2178	Property Owner (TRC)
Northern Division, Naval Facilities Engineering Command (NORTHDIV) 10 Industrial Highway Mail Stop 82 Lester, PA 19113-2090 ATTN: Jim Colter (Code 1821/JLC) 601-595-0567 Ext 163	Navy's IR Program (TRC)
New York State Department of Environmental Conservation (NYSDEC) 50 Wolf Road Room 208 Albany, NY 12233-7010 ATTN: Steve Scharf/John Helmeset Work: 518-457-3395 Fax: 518-457-4198	State Regulatory Agency (TRC)
New York State Department of Environmental Conservation (NYSDEC) Region I Headquarters SUNY Campus, Building 40 Stony Brook, NY 11790-2356 ATTN: Stan Farkas/Nick Acampora.	State Regulatory Agency (TRC)

9/99 - Joe K

4/99 Steve

phone #

**RESTORATION ADVISORY BOARD MEMBER LIST
NWIRP CALVERTON, NEW YORK**

<u>Name or Organization</u>	<u>Representing</u>
<i>Bethpage</i> New York State Department of Health (NYSDOH) Two University Place Room 205 Albany, NY 12203-3313 ATTN: William Gilday Work: 518-458-6035 Fax: 518-458-6372	State Health Department (TRC)
Nassau County Department of Health 240 Old Country Road Mineola, NY 11501-4250 ATTN: Bruce Mackay Work: 516-571-2307	Local Health Department (TRC)
U.S. EPA Region II 290 Broadway New York, NY 10007-1866 Fax: 212-637-3966	Federal Regulatory Agency (TRC)
Nassau County Public Works 170 Cantiaque Rock Road Hicksville, NY 11801 ATTN: Tim Kelly Work: 516-571-6850	Local Government (TRC)
Bethpage Water District/H2M Inc 575 Broad Hollow Road Melville, NY 11747 ATTN: John Molloy Phone: 516-756-8000, Ext 600 Fax: 516-694-4122	TRC Member

**RESTORATION ADVISORY BOARD MEMBER LIST
NWIRP CALVERTON, NEW YORK**

Bethpage

Name or Organization

Representing

Defense Contract Management Command (DCMC)
Northrop Grumman Bethpage
Mail Stop: C23-003
Northrop Grumman Corporation
Bethpage, NY 11714-3593
ATTN: Martin Simonson
Work: 516-575-9952
Fax: 516-346-8485

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TRC Member

~~Northrop Grumman Corporation
111 Stewart Avenue
Bethpage, NY 11714-3580
ATTN: John Cofman/Norm Sealander
Work: 516-575-2385
Fax: 516-575-6672~~

~~TRC Member~~

Hon. Edward Mangano
1 West Street, Room 131
Mineola, NY 11501
Home: 516-681-5191
Work: 516-571-6217
Fax: 516-571-6235

9/99

Local Resident/Local Legislator

Ms. Linda Mangano
7 Nicholas Court
Bethpage, NY 11714
Home: 516-681-5191
Work: 516-681-0440

9/99

Local Resident

Hon. John Venditto
Town of Oyster Bay, Supervisor
Oyster Bay Town Hall
54 Audrey Avenue
Oyster Bay, NY 11771
Work: 516-624-6350
Fax: 516-624-6362

9/99 —

Local Legislator

RESTORATION ADVISORY BOARD MEMBER LIST
NWIRP-CALVERTON, NEW YORK

Bethpage

Name or Organization

Representing

Mr. Edward Resch
1158 Stewart Avenue
Bethpage, NY 11714
Work: 516-395-3860

9/99

Local Resident

Mr. Charles Bevilacqua
3 Albert Avenue
Syosset, NY 11791
Home: 516-921-1429
Work: 516-921-5400
Fax: 516-921-8058

Conservation Fund Advisory Board

Mr. Roy Tringali
48 Walter Avenue
Hicksville, NY 11801
Home: 516-433-4784

9/99

Local Resident

~~Work: 516-346-2155~~
~~Fax: 516-575-5513~~

EMAIL CHIEFNR@AOL.COM

Mr. Thomas Clark
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Syosset, NY 11791
Work: 516-677-5935
Fax: 516-677-5878

Oyster Bay Department of Public Works

Ms. Rosemary Styne
15 Shubert Lane
Bethpage, NY 11714
Home: 516-731-5830

Local Resident

reg mail -
Mr. James McBride
P.O. Box 133
Old Bethpage, NY 11804
Home: 516-681-6920
Fax: 516-392-3559

19 York Avenue
Bethpage 11714

9/99

no signature for fedex

Local Resident

Community Co-chair

Mr. John F. Lovisolo
2 CAROL DRIVE
BETHPAGE, NY 11714
516-433-3053
LOVISOLO@HOTLINK.COM

9/99

Non voting
Alternative

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NWIRP BETHPAGE, NEW YORK**

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Patuxent River, MD 20670-1541
ATTN: Judith Hare (AIR-8.0Y2)
301-757-2152
Fax: 301-757-2178

Property Owner (TRC)

Northern Division, Naval Facilities
Engineering Command (NORTHDIV)
10 Industrial Highway
Mail Stop 82
Lester, PA 19113-2090
ATTN: Jim Colter (Code 1821/JLC)
601-595-0567 Ext 163

Navy's IR Program (TRC)

New York State Department of
Environmental Conservation (NYSDEC)
50 Wolf Road
Room 208
Albany, NY 12233-7010
ATTN: Steve Scharf/John Helmeset
Work: 518-457-3395
Fax: 518-457-4198

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TRC Member

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Mr. Edward Resch 1158 Stewart Avenue Bethpage, NY 11714 Work: 516-395-3860 Home 516-935-3860	Local Resident

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Mr. James McBride
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Bethpage, NY 11804
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Fax: 516-392-3559
Email: NF899@AOL.COM

Local Resident
Community Co-Chair

Mr. John F. Lovisolo
2 Carol Drive
Bethpage, NY 11714
Home: 516-433-3053
Email: LOVISOLO@HOFLINK.COM

Non-voting Alternative

Section 2: RAB Mission Statement and Operating Procedures

Mission Statement and Operating Procedures
of the Naval Weapons Industrial Reserve Plant, Bethpage
RESTORATION ADVISORY BOARD

I. NAME

This organization shall be known as the Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage Restoration Advisory Board (RAB).

II. PURPOSE

The NWIRP Bethpage RAB exists to help give the community access to information about the progress of the Navy's environmental program, the Installation Restoration Program (IRP), at NWIRP Bethpage. In addition, the RAB will provide an open forum for discussion of issues and concerns related to the IRP, and will encourage public participation in this forum.

Members of the NWIRP Bethpage RAB shall work in partnership with each other and the decision-making agencies on environmental issues. The RAB will disseminate information to the community and solicit the community for comments.

The decision-making agencies are: Naval Air Systems Command (NAVAIR), Naval Facilities Engineering Command - Northern Division, (NORTHDIV), the New York State Department of Environmental Conservation (NYSDEC), the Nassau County Health Department, and the U.S. Environmental Protection Agency (EPA). *NYSDOH*



Actions taken by the NWIRP Bethpage RAB will be in accordance with all applicable federal, state, and local laws and regulations.

III. STRUCTURE OF THE RAB

A. The RAB is an expansion of the existing Technical Review Committee (TRC), and is specifically created to include more community involvement. RAB membership will be comprised of Technical Review Committee members and representatives from the community.

B. The NWIRP Bethpage RAB shall have a Co-Chairmanship, representing both the Navy and the community. The Navy's Co-chair will be appointed by the Commanding Officer, NAVAIR, and a community Co-Chair will be elected by community members of the RAB. The community Co-Chair position shall be revisited on an annual basis.

C. The RAB is not a decision-making body, but a forum for the open discussion of thoughts and ideas related to the IRP at NWIRP Bethpage. Similarly, the RAB does not vote or reach consensus on cleanup methods or technical issues.

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C. The Navy will make available copies of technical and other documents pertinent to the environmental programs. These documents will be made available in the Information Repository located in the Bethpage Public Library in Bethpage. Members are encouraged to provide written reviews, when possible, to the chairpersons. NYSDEC, Nassau County Health Department, and EPA will review work plans and reports in accordance with their responsibilities as regulatory agencies.

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B. Members will serve without compensation. All expenses related to serving on the board will be borne by the respective member or his/her organization.

VI. EFFECTIVE DATE, AMENDMENTS, FLEXIBILITY

A. The effective date of this mission statement/operating procedures is the date of the last signature in Section VIII below.

B. This mission statement/operating procedures will be amended as required by changes in state, federal and local laws or regulations.

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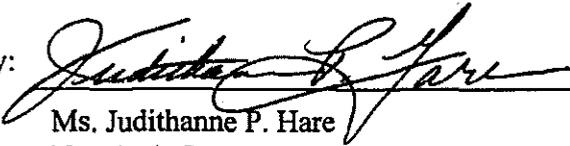
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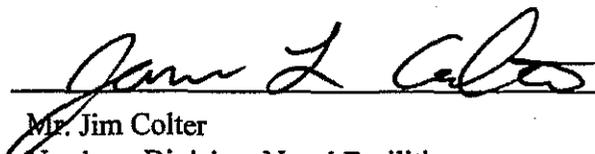
VII. MISSION STATEMENT/OPERATING PROCEDURES TERMINATION

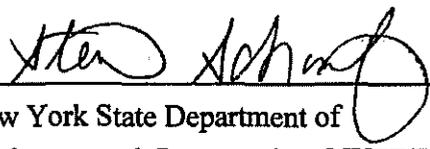
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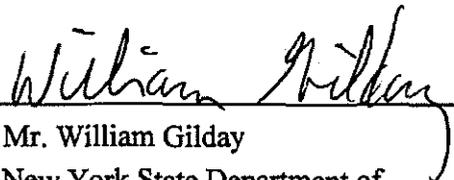
VIII. SIGNATURES

It is as agreed:

By:  9/24/99
Date
Ms. Judithanne P. Hare
Naval Air Systems Command
Navy Co-Chair

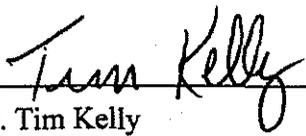
By:  9/30/99
Date
Mr. Jim Colter
Northern Division, Naval Facilities
Engineering Command (NORTHDIV)

By:  9/30/99
Date
New York State Department of
Environmental Conservation (NYSDEC)

By:  10/25/00
Date
Mr. William Gilday
New York State Department of
Health (NYSDOH)

By: _____
Date
Mr. Bruce Mackay
Nassau County Department of Health

By: _____
Date
U.S. EPA Region II

By:  9/30/99
Date
Mr. Tim Kelly
Nassau County Public Works

By: _____
Mr. John Molloy
Bethpage Water District
Date

By: *Martin B. Simonson*
Mr. Martin Simonson
Defense Contract Management
Command (DCMC)
Date
9/30/99

By: _____
~~Mr. John Colman~~ *DEC 9/30/99*
~~Northrop Grumman~~
Date

By: *E. Mangano*
Hon. Edward Mangano
Date
9/30/99

By: *Linda Mangano*
Ms. Linda Mangano
Date
9/30/99

By: *John Venditto (RHP)*
Hon. John Venditto
Date
9/30/99

By: *Ed Resch*
Mr. Edward Resch
Date
9/30/99

By: *Charles Bevilacqua*
Mr. Charles Bevilacqua
Date
2/17/00

By: *Roy Tringali*
Mr. Roy Tringali
Date
Sept 30 1999

By: *Thomas Clark*
Mr. Thomas Clark
Date
10/25/2000

By: Rosemary L Styne 2-17-00
Ms. Rosemary Styne Date

By: James McBride 9-30-99
Mr. James McBride Date

By: John F. Lovisolo 9-30-99
MR. JOHN F. LOVISOLO

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Naval Air Systems Command
Navy Co-Chair
Date

By: _____
Mr. Jim Colter
Northern Division, Naval Facilities
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Mr. Thomas Clark
Date

By:

Ms. Rosemary Styne

Date

By:

Mr. James McBride

Date

By:

Mr. John F. Lovisolo

Date

Section 3: Information Repository

Information Repository

An Information Repository is a collection of documents including reports, fact sheets, and other publications relating to the environmental investigations and cleanup being conducted at NWIRP Bethpage. The information repository is maintained in the reference section of the Bethpage Public Library. Many of the technical documents that will be discussed in RAB meetings will be kept in the Information Repository for RAB member reference and public review.

Bethpage Public Library
47 Powell Avenue
Bethpage, New York 11714
(516) 931-3907

Hours of Operation:
Monday through Friday 9:30 a.m. - 9 p.m.
Saturday 9:30 a.m. - 5 p.m.
Sunday 12 p.m. - 4 p.m. (Oct.-April only)

Section 4: Fact Sheets

FACT SHEET

NAVAL WEAPONS
INDUSTRIAL RESERVE PLANT
Bethpage, New York



INTRODUCTION

This fact sheet provides an update on the progress made at Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage under the Navy Installation Restoration (IR) Program. The purpose of the IR Program is to identify and clean up past hazardous waste sites at Navy installations.

ABOUT NWIRP BETHPAGE

NWIRP Bethpage is a 108-acre site surrounded by the 505-acre Northrop Grumman complex in the Hamlet of Bethpage. NWIRP Bethpage was established in 1943 with the primary mission of assembling military aircraft. These activities involved the use of a number of industrial chemicals and materials that resulted in contamination of several areas of the facility. Three sites and two areas of concern (AOCs) have been identified under the IR Program at NWIRP Bethpage. These sites and AOCs are described below.

SITE AND AOC DESCRIPTION

Site 1 – Former Drum Marshalling Area

Until 1982, Site 1 was used as a marshalling area for drummed waste at NWIRP Bethpage prior to off-site disposal. A sanitary leach field was present underneath the drum marshalling pads and a sludge drying bed was present northeast of the pads.

In the early 1990's, solvents, metals, and PCBs were detected in soils and metals and solvents were detected in the groundwater at Site 1. In 1995, a Record of Decision (ROD)

was signed that identified remedial actions for Sites 1, 2, and 3. The ROD identified excavation and off-site disposal of metal and PCB contaminated soils and in situ treatment of solvents in soils and shallow groundwater for Site 1. Deeper and down gradient groundwater contamination from the site is being addressed by a groundwater containment system on the Northrop Grumman property. As required by the ROD, an air sparging and soil vapor extraction system to remove solvents from Site 1 soils and groundwater has been running since 1997. The metal and PCB contaminated soil will be excavated after the solvents have been removed from site soils and groundwater.

Site 2 – Recharge Basin Area

Recharge basins naturally filter surface water back into the groundwater. Storm water and non contact cooling water from the Plant No. 3 area were discharged to the recharge basins at Site 2. Sludge drying beds were located adjacent to the recharge basins. The sludge drying beds have not been active since the 1970s and were reportedly removed. The recharge basins continue to be used for storm water management.

In the early 1990's, PCBs and low levels of solvents and metals were detected in the soils and groundwater at Site 2. As required by the ROD, the PCB contaminated soils were excavated in 1996. The solvents and metals were at a low enough level that remediation was not required. Groundwater flowing from this site is contained by the Northrop Grumman groundwater containment system.

Site 3 – Salvage Storage Area

Metal parts were stored at the salvage storage area prior to recycling. In the early 1990's, low levels of solvents and metals were detected in site soils and groundwater. As provided in the ROD, soils and groundwater at Site 3 do not require remediation. Groundwater flowing from this site is contained by the Northrop Grumman containment system.

AOCs 20-08 and 34-07 – Dry Wells

Dry wells, located in and around Plant No. 3, were investigated. Most of the dry wells were either found to be clean or the well contents were excavated to remove contamination. Currently, two dry wells remain contaminated and are being investigated to determine the extent of contamination.

AOC 22 – Former Underground Storage Tanks

Until the early 1980s, three underground storage tanks were located south of Plant No. 3. Soil testing conducted in the area found low to moderate levels of fuels in the soils. Testing results were not conclusive as to whether groundwater contamination or free product at the water table was present. This area is being investigated to determine the extent of contamination.

Regional Groundwater

Groundwater underneath NWIRP Bethpage starts at a depth of approximately 60 feet below ground surface and extends to a depth of approximately 500 feet. The predominant groundwater flow in the area is to the southeast toward the Atlantic Ocean. Solvents have been found in

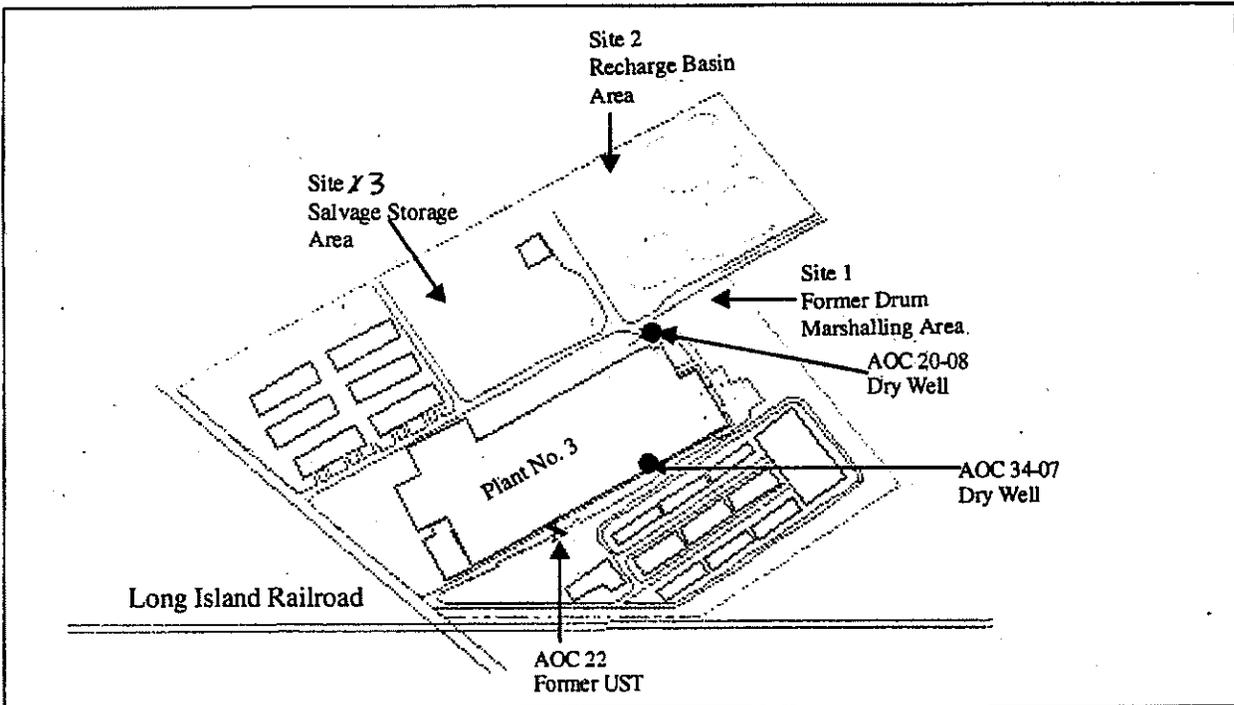
the on site and off site groundwater. Options for remediating this groundwater are currently being evaluated. In the interim, a groundwater containment system has been installed on Northrop Grumman property to control the migration of solvents in groundwater. To ensure protection of the local water supply, a system for filtering the solvents from the groundwater is in place at the affected extraction wells.

INFORMATION REPOSITORY

Documents related to the environmental activities being conducted under the IR Program are available in the Information Repository for NWIRP Bethpage. The Information Repository is available for public review at:

Bethpage Public Library
47 Powell Avenue
Bethpage, New York, 11714
(516) 931-3907

Hours of Operation:
M-F: 9:30 am to 9:00 pm
Sat: 9:30 am to 5:00 pm
Sun: 12 pm to 4 pm (Oct. – April only)



NWIRP Bethpage, Site Map

RESTORATION ADVISORY BOARD
Naval Weapons Industrial Reserve Plant
Bethpage, New York

FACT SHEET

INTRODUCTION

In 1975, The Department of Defense (DOD) took the first step to create a program to identify and clean up environmental problems at federal facilities. These problems were a result of past industrial processes and waste handling practices, which included on-site disposal of daily operational wastes such as chemicals, petroleum products, cleaning solvents, and degreasers. Although acceptable for many years, the old industrial processes and ways of handling wastes are now known to be potentially damaging to the environment.

DOD tasked the Armed Services with investigating sites where on-site disposal, spills, or storage of these materials may have occurred. This program became known as the DOD Installation Restoration (IR) Program. One policy of this program is to involve the local community throughout the IR process by: establishing communication channels with representatives of the community; making information available in a timely manner; providing opportunities for public comment on documents; and, most recently, establishing Restoration Advisory Boards (RABs).

WHAT IS A RAB?

A RAB is an advisory board designed to act as a focal point for the exchange of information between the U.S. Navy and the local community regarding environmental restoration activities. The RAB is intended to bring together community members who reflect the diverse interests within the community, enabling an early and continued "two-way" flow of information, concerns, values, and needs between the community and the decision-makers for the Navy's property. The RAB works in partnership with the decision-makers on cleanup issues and related matters.



RABs do not make decisions on environmental restoration activities, but provide information, suggestions, and community input to be used by the Navy in making decisions on actions and proposed actions involving releases or threatened releases. RABs do not replace community outreach and participation activities required by law, regulation or policy. All community relations requirements must still be met.

WHAT ARE THE RESPONSIBILITIES OF A RAB?

The responsibilities of a RAB are to:

- ★ Conduct regular meetings, open to the public, at convenient times and locations.
- ★ Keep meeting minutes and make them available to interested parties.
- ★ Develop and use a mailing list of names and addresses of interested parties who wish to receive information on the environmental program.
- ★ Provide a forum for individual members to provide input and make recommendations on environmental restoration issues to the Navy. RABs do not vote on issues or make recommendations as a body.
- ★ Establish a procedure for public participation and responding to questions and comments for the public at RAB meetings.

JOIN US!

RAB meetings are held regularly, and are always open to the public. For more information about the RAB, or to find out when the next meeting will be held, please write or call.



Mr. James Colter (Code 1821/JLC) at
Northern Division, NAVFAC
10 Industrial Highway, Mail Stop 82
Lester, PA 19113-2090
(610) 595-0567 extension 163

You may also review information about the environmental programs underway at the facility by visiting the public Information Repository. Documents at the Repository include technical work plans, reports, and a Community Relations Plan. All documents are available to be photocopied at a small expense for personal reference.

INFORMATION REPOSITORY

Bethpage Public Library
47 Powel Avenue
Bethpage, New York 11714
(516) 931-3907

Hours of Operation:
M-F: 9:30 a.m. - 9 p.m.
Sat: 9:30 a.m. - 5 p.m.
Sun: 12 p.m. - 4 p.m. (Oct. - April only)



INSTALLATION RESTORATION PROGRAM

FACT SHEET

NAVAL WEAPONS
INDUSTRIAL RESERVE PLANT

Bethpage, New York



July 1995

This fact sheet provides information about the cleanup of contaminated soils at the NWIRP Bethpage. The Navy is already in the remedial design stage with soil cleanup anticipated to start this fall and be completed within one year. This fact sheet summarizes these actions, as well as provides an update of other environmental activities at the site.

BACKGROUND

NWIRP Bethpage is a Government-Owned and Contractor Operated (GOCO) facility which is situated on 108 acres in Nassau County in the Hamlet of Bethpage, Town of Oyster Bay, Long Island, New York. The Navy's land is bounded on the east by a residential neighborhood and on the remaining sides by Northrup Grumman Corporation (the operator of the facility).

NWIRP Bethpage was established in 1943 with the primary mission of assembling military aircraft. These activities involve the use of a number of industrial chemicals, many of which included heavy metals and solvents. Environmental restoration efforts at the NWIRP Bethpage site are coordinated by the New York State Department of Environmental Conservation (NYSDEC) with input from the county and state Department of Health and the United States Environmental Protection Agency.

INSTALLATION RESTORATION (IR) PROGRAM SUMMARY

The IR Program consists of four distinct stages: Preliminary Assessment, Site Inspection, Remedial Investigation/ Feasibility Study, and the

Remedial Design/ Remedial Action. The Preliminary Assessment (known as the Initial Assessment Study at the time) was completed in the 1986. To expedite the IR Program, the Site Investigation was not conducted. The Remedial Investigation/ Feasibility Study was initiated in 1991 and completed in March 1994.

Because of concurrent activities being conducted at the adjacent Grumman Facility and the Hooker/RUCO Superfund Site and the complex interaction between the groundwater from the three sites and the need for further study of the groundwater, the remediation of the groundwater was split from the soil to allow the soil cleanup (an ongoing source of groundwater contamination) to proceed. The status of the soil and groundwater activities are discussed below.

PUBLIC MEETING

In November 1994, a public meeting was held to solicit comments on the joint Navy - NYSDEC proposed plan for addressing soil contamination. The proposed plan called for:

- Excavation of soils contaminated with PCBs at a concentration greater than 10 mg/kg, followed by off site treatment and/or land filling;
- Excavation of soils which can be classifiable as a hazardous waste because of arsenic, followed by off site treatment and disposal;
- In place stripping of solvents from soils using vapor extraction, and injection of air into the

most contaminated groundwater underlying these soils (air sparging);

- An interim remedial action of wellhead treatment at Bethpage Water Districts Plant #5; and
- Permeable cover and deed restrictions in areas of residual metal and organic contamination.

Many valuable comments were received during the public meeting and the public comment period following the meeting. Detailed responses to these comments were prepared and will be provided in the responsiveness summary of the Record of Decision for the soils.

OFFSITE SOIL SAMPLING

During the public meeting, it was announced that the Navy would conduct soil sampling in the residential neighborhood adjacent to the Navy's property to determine if contaminants found in the site soils have migrated to this area. This sampling was conducted in November 1994 and analytical results became available in early 1995. Based on these results, there is no evidence that soil contamination from the Navy property has affected the residential neighborhood.

SOIL REMEDIATION

The cleanup of contaminated soils at the NWIRP Bethpage is ongoing. The Remedial Design for the arsenic- and PCB-contaminated soils is complete. Remedial Action, consisting of excavation and off site treatment and/or disposal of these soils is expected to be completed this fall. At this time, the final areas and depths for excavation are being determined through chemical testing and treatment/disposal firms are being selected.

Remedial Design of the air sparging and vapor extraction of solvent-contaminated soils is proceeding. In support of the Remedial Design, a pilot-scale test is planned to start this summer and be completed this fall. The Remedial Design

would then be completed in early 1996. The full scale Remedial Action for these soils is expected to start in mid-1996 and be completed within two years of operation.

The final action under the soil cleanup would be Deed Restrictions and the permeable cover, which would be implemented after the soil remediation is completed.

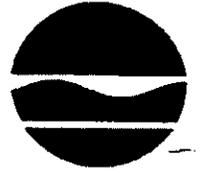
STATUS OF GROUNDWATER ACTIVITIES

The groundwater investigation and remediation is proceeding, with the Navy and Grumman having completed their investigations. Investigation is continuing at the Hooker/RUCO Superfund site to determine the potential for groundwater contamination extending to the south and west of the three sites.



DEPARTMENT OF THE NAVY
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop #82
Leister, Pennsylvania 19113-2090

NEW YORK STATE
Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-7010



Langdon Marsh
Commissioner

OCTOBER 1994

INTRODUCTION

This fact sheet provides information about the Navy Installation Restoration (IR) Program. The purpose of the IR Program is to identify and clean up contamination resulting from past activities at Navy installations. The progress and proposed remedial actions for onsite soils at the Naval Weapons Industrial Reserve Plant (NWIRP) are summarized below. Additional detail on the proposed remedy for onsite soils is presented in the Proposed Remedial Action Plan (PRAP), which can be found in the information repository at the Bethpage Public Library. Remediation of contaminated groundwater associated with the NWIRP will be addressed in a future fact sheet and PRAP.

BACKGROUND

NWIRP Bethpage is a Government-Owned and Contractor-Operated (GOCO) facility, which is situated on 108 acres in Nassau County in the Hamlet of Bethpage, Town of Oyster Bay, Long Island, New York. The Navy's land is bounded on the east by a residential neighborhood and on the remaining sides by Northrop Grumman Corporation (the operator of the facility).

NWIRP Bethpage was established in 1943 with the primary mission of assembling military aircraft. These activities involve the use of a number of industrial chemicals, most of which included heavy metals and solvents. Environmental restoration efforts at both Northrop Grumman and NWIRP Bethpage sites are coordinated by the New York State Department of Environmental Conservation (NYSDEC), with input from the county and state Department of Health and the United States Environmental Protection Agency.

IR PROGRAM SUMMARY

The IR Program consists of four distinct stages: Preliminary Assessment, Site Inspection,

Remedial Investigation/Feasibility Study, and Remedial Design/Remedial Action. These stages are implemented sequentially with each stage determining whether the subsequent stage is necessary.

An Initial Assessment Study (IAS) was conducted at the NWIRP Bethpage in June 1986, as part of the Preliminary Assessment (PA) phase of the IR Program. The purpose of the IAS was to identify and assess sites posing a potential threat to human health or the environment because of past operations. Three areas of concern were evaluated with respect to chemical characteristics, migration pathways, and pollutant receptors. The PA concluded that while none of the three sites posed an immediate threat to human health or the environment, further investigation was warranted. To expedite the Navy's IR Program, the Site Investigation (SI) was not conducted, and the Navy proceeded directly to the Remedial Investigation/Feasibility Study (RI/FS) phase.

The RI was initiated in June 1991 and completed in October 1993. The RI was a two phase effort which identified the nature and extent of soil and groundwater contamination at the facility. The results of the RI are available in the information repository at the Bethpage Public Library and have been summarized in previous fact sheets. The Feasibility Study, which was completed in March 1994, identified options for addressing both soil and groundwater contamination.

To accelerate cleanup of the site, the Navy and NYSDEC divided the site into two parts called "Operable Units". The cleanup of onsite soils is being addressed as Operable Unit 01, which is the subject of the November 15, 1994 public meeting. Remediation of contaminated groundwater at the Northrop Grumman, Navy, and Hooker/RUCO sites will be addressed as Operable Unit 02. A proposed plan for Operable Unit 02 is expected to be issued in the Fall of 1995.

FEASIBILITY STUDY (FS)

The FS was conducted to develop and evaluate the effectiveness, implementability, and costs required to contain and/or treat soil and groundwater contamination at the site. At this time, only soil alternatives are being discussed in this fact sheet; groundwater alternatives will be considered as a future action under Operable Unit 02.

The FS developed a variety of soils alternatives. The alternatives ranged in protectiveness from no action to removal, offsite treatment, and/or disposal of all contaminated soils. Ten different alternatives were developed in the FS. The no action alternative was evaluated but was not considered to be protective of human health and the environment and would not comply with environmental regulations. Of the nine remaining alternatives, six of the alternatives were considered to be protective of human health and the environment, comply with environmental regulations, and be reasonably economical to implement. The last three alternatives evaluated were not considered to be cost effective.

The alternatives developed in the FS considered the pathway for exposure and potential exposure under both the present industrial-use of the site and a potential future residential-use of the site. At this point in time, the Navy has determined that the site will remain as an industrial area. Therefore, only the alternatives developed in the FS that consider the industrial-use scenario will be considered. In the future, if residential use of the site is considered, then the implemented remedy may have to be re-evaluated for continued protectiveness.

The alternatives developed in the FS address these risks through capping (covering); excavation of PCB-contaminated soils; offsite incineration or offsite landfilling of the excavated soils in accordance with environmental regulations; excavation of metal-contaminated soils and offsite treatment/landfilling of these soils; and in-place vapor extraction of solvent-contaminated soils in combination with air sparging to treat the shallow onsite groundwater. Vapor extraction/air sparging uses air to remove contaminants from soils and groundwater in place. In the soils, the solvents evaporate into the air stream. The air is then

collected and treated. For additional details on the findings of the FS, a copy is available in the information repository at the Bethpage Public Library.

SELECTION PROCESS FOR THE PREFERRED ALTERNATIVE

The Navy and NYSDEC have proposed a preferred remedial alternative for onsite soil contamination (Operable Unit 01). Public input for the preferred remedial alternative is being requested at this time during the public comment period. The Navy and NYSDEC will select a final cleanup alternative after careful consideration of these comments. The Navy will then proceed to the Remedial Design/Remedial Action for these soils.

The selection of the preferred alternative is based on nine criteria. Two of the criteria are considered threshold criteria. A selected remedy must meet these criteria. The two threshold criteria are overall protection of human health and the environment and compliance with environmental regulations.

Five of the criteria; short-term effectiveness, long-term effectiveness and permanence, reduction of toxicity, mobility, or volume, implementability, and cost are considered balancing criteria. Relative strengths and weaknesses of alternatives are compared to each other based on these criteria.

The last two criteria; state acceptance and community acceptance are modifying criteria. These criteria are used to potentially modify a preferred alternative during the development process and during the public comment period.

SUMMARY OF THE PREFERRED ALTERNATIVE

The preferred alternative for the cleanup of the soils at the NWIRP Bethpage is based on FS alternative S6, and includes the following actions.

1. Excavation of PCB-contaminated soils, and off site landfilling or incineration of these soils in accordance with environmental regulations.

2. Excavation of metal-contaminated soils (identified as hazardous wastes), treatment of these soils in accordance with environmental regulations, and offsite landfilling.
3. In-place vapor extraction of solvent-contaminated soils and air sparging of associated shallow contaminated groundwater.
4. Install a soil and/or gravel cover in places of residual contamination. In addition, place deed restrictions on the site and implement a long-term monitoring and cover maintenance program.
5. Protect the public water supply under the guidance of the Bethpage Water District.

OPPORTUNITIES FOR PUBLIC INVOLVEMENT

This fact sheet has been prepared to notify and solicit public comment on the preferred alternative for the onsite soils. The issuance of the proposed plan starts the public comment period for the preferred alternative. A public meeting will be held during the public comment period to solicit verbal and written comments on the proposed plan. In addition to the public meeting, the public may submit written comments on the proposed plan during the public comment period.

The official public comment period for the proposed plan is November 1, 1994 to December 16, 1994. Written comments can be submitted to the address below. A public meeting is tentatively scheduled to be held at the Bethpage High School at 7:30 pm on November 15, 1994. You are invited to attend this meeting to express your concerns and comments on the preferred alternative. In the event that the public meeting is postponed, you will be notified.

Written comments must be sent to:

Mr. Jim Colter, Navy (Code 1821)
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop 82
Lester, PA 19113-2090
Phone: (610) 595-0567, ext 163

For additional information you may contact Mr. Colter at the address above, or:

Mr. John D. Barnes, P.E.,
Project Manager
NYSDEC
50 Wolf Road, Room 222
Albany, NY 12233-7010
Phone: (518) 457-3395, (800) 342-9296

Mr. Joshua Epstein, PhD
Citizen Participation Specialist
NYSDEC - Region 1 Office
Building 40 - SUNY
Stony Brook, NY 11790
Phone: (516) 444-0249

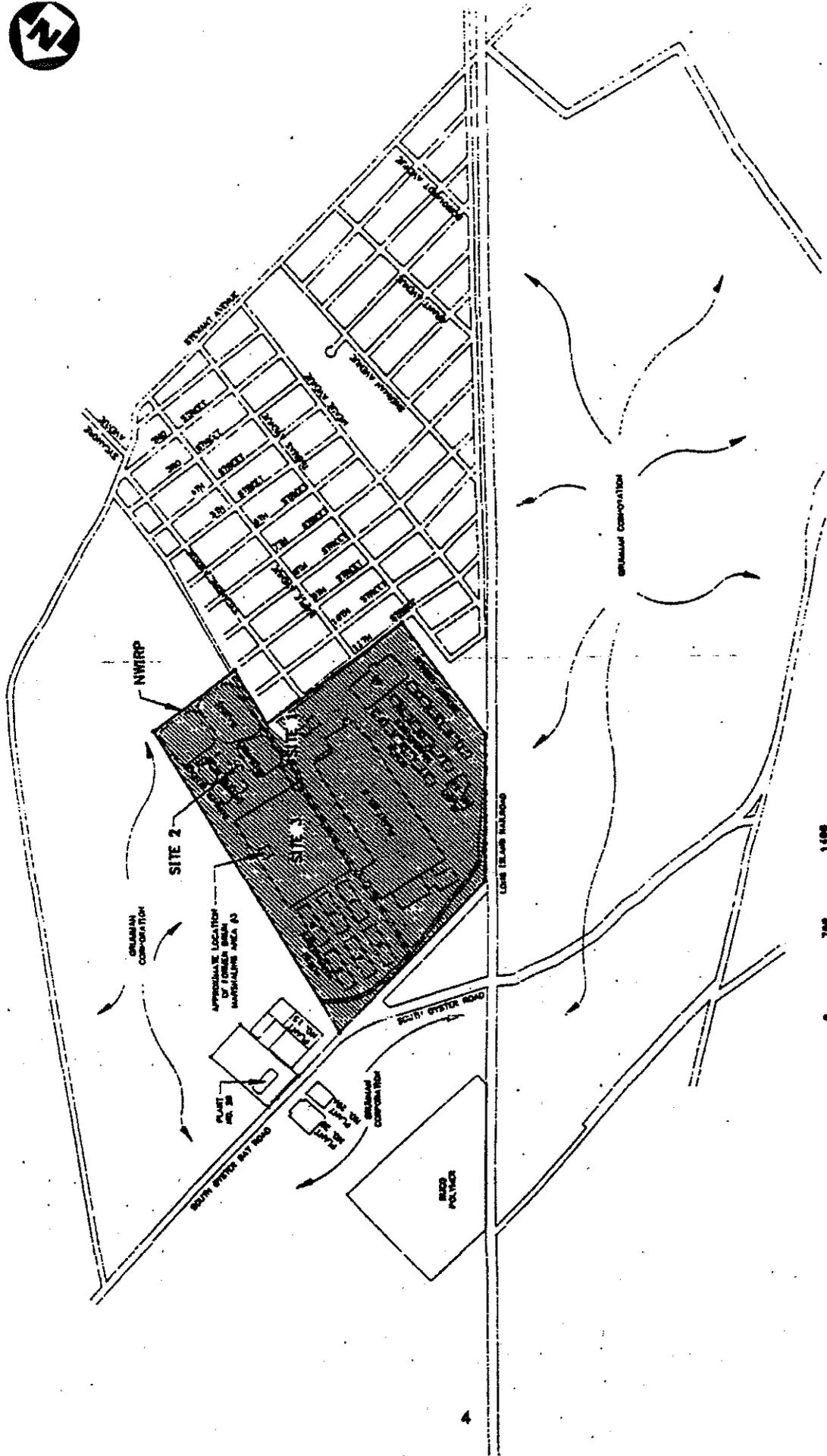
For health related concerns, contact:

Mr. Timothy Vickerson
New York State Department of Health
2 University Place
Albany, NY 12203
Phone: (518) 458-6305

Ms. Nina Knapp
Health Liaison Program - HYSDOH
2 University Place
Albany, NY 12203
Phone: (800) 458-1158, ext. 402

All documents generated from the investigation are located in the information repository, located at the Bethpage Public Library, 47 Powel Avenue. Hours of operation are:

Monday-Friday	9:30am - 9:00pm
Saturday	9:30am - 5:00pm
Sunday	Closed



SITE LAYOUT MAP
PHASE 2 - REMEDIAL INVESTIGATION/FEASIBILITY STUDY
NWRP, BETHPAGE, NEW YORK

FIGURE 2



FACT SHEET

NAVAL WEAPONS
INDUSTRIAL RESERVE PLANT
Bethpage, New York



SEPTEMBER 1993

INTRODUCTION

The Navy has recently completed its Phase 2 Remedial Investigation/Feasibility Study (RI/FS) field activities at the Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage. A Phase 1 RI was completed in May 1992. This Fact Sheet summarizes the RI (Phase 1 and 2) results and discusses the on-going remedial process.

PHASE 1 RI

The Phase 1 RI focused on groundwater and soils located at the NWIRP Bethpage. The results of the Phase 1 RI indicated that the groundwater at the NWIRP Bethpage is contaminated with solvents and to a lesser extent metals. The primary contaminant (solvent) found was trichloroethylene (TCE), which was used as an industrial degreaser. In addition, the soils were found to be contaminated with metals, polychlorinated biphenyls (PCBs), and solvents. The detailed results from the Phase 1 RI are available at the Bethpage Public Library Information Repository.

PHASE 2 RI

The overall objective of the Phase 2 RI was to further characterize the nature and extent of environmental contamination and associated risks to human health and the environment at and near the NWIRP Bethpage. The data collected during the Phase 2 RI, in conjunction with the Phase 1 results, will be used to develop and evaluate potential cleanup options in the Feasibility Study (FS). The Phase 2 activities focused on supplemental sampling and analysis for PCBs in soils at the NWIRP Bethpage and volatile organics in groundwater at and near NWIRP

Bethpage. Field investigations included the following activities: surface/subsurface soil sampling and analysis, groundwater sampling and analysis, soil-gas measurements, and the installation of temporary and permanent monitoring wells.

RESULTS

The soil testing program indicated low-level PCB contamination at selected areas on the Navy's property. The majority of the contaminated surface soils contained PCBs at acceptable levels; however, one location on the Navy property exceeded applicable Federal criteria for acceptable PCB concentrations. This location was covered with soil as an interim action to prevent exposure to on-site workers. Note, this location does not pose a threat to local residents. The effected soil at this location will be excavated and treated off site.

During Phase 2, permanent monitoring wells were installed offsite. These wells were sampled to determine if the chemicals found in the on-site groundwater had moved off of the Navy's property. The results showed that contamination has migrated east and south towards the Long Island Railroad and Grumman property. It should be noted that the levels of groundwater contamination found outside the Navy's property were much less than the levels measured on the Navy's property, but did exceed New York State Drinking Water Standards in some locations. As an example, the chemical 1,1,1, trichloroethane (TCA), also used as an industrial degreaser, was found at a maximum concentration of 16 parts per billion (ppb) in one of the off-site wells. The New York State standard is 5 ppb. By comparison, the levels of this same chemical found in groundwater beneath NWIRP Bethpage were about 10,000 ppb.

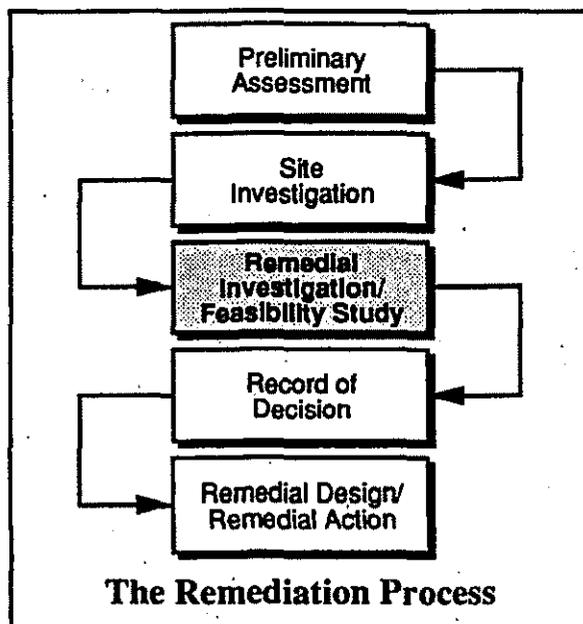
As stated in the previous Navy Fact Sheet, there are instances where drinking water standards have been exceeded in groundwater outside of the Navy's property. However, persons in the vicinity of the Navy and Grumman facility are not at any increased risk from groundwater contamination since an exposure pathway does not exist. Households in the vicinity of the Navy and Grumman

facility do not use private, individual wells to obtain drinking water. These residents receive their drinking water from the Bethpage Water District, a municipal source that is tested on a regular basis. Residents can be assured that if the municipal water that is tested and found to exceed drinking water standards, the affected well would be shut down.

During the Phase 2 RI, a soil-gas survey was conducted in areas of the Navy's facility to identify additional sources of groundwater contamination for cleanup. This survey revealed an additional source of contamination at NWIRP Bethpage underneath one of the manufacturing plants.

GROUNDWATER COMPUTER MODELING

Groundwater flow patterns beneath the NWIRP Bethpage and adjacent areas are very complex due to the influence of numerous subsurface conditions including nearby pumping and recharge.



As part of the Phase 2 RI, a computer model of the local groundwater regime was generated to assist in the identification of potential source areas (an area which contributes to groundwater/soil contamination), to determine the impact of the known source areas, and to project the potential impact of the site-generated contamination on off-site receivers. During the FS, the computer modeling

will also be used to design a groundwater extraction system and to evaluate the effectiveness of remedial alternatives.

NEXT STEP IN THE PROCESS

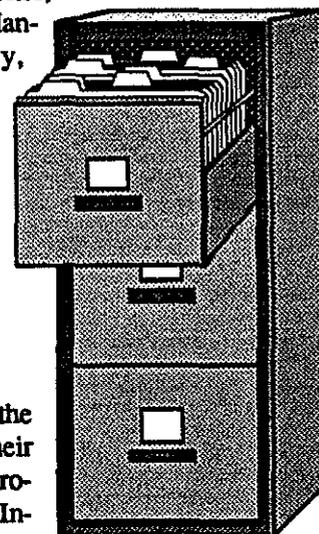
The Navy has finished their investigations in the Remedial Investigation/Feasibility Study (RI/FS) phase of the remediation process. The RI report will be finalized in the fall of 1993. Currently, the FS is being developed to evaluate alternatives for the most effective cleanup method of the soil and groundwater contamination. The FS is also scheduled for completion in the fall of 1993. Based on the FS, a remediation strategy will be selected and the Remedial Design/Remedial Action will be initiated.

COMMUNITY RELATIONS ACTIVITIES

The Community will have an opportunity to become involved in the remedial process at the completion of the FS. At this time, the Navy will sponsor a public meeting to announce the RI/FS results and to provide the public with an opportunity to comment on the reports, including the potential cleanup methods. The public meeting is scheduled for early 1994.

Until then, if you would like to discuss the program in further detail, or want to be placed on the mailing list, please write or call Jim Colter, Navy Remedial Project Manager, or Jack Dunleavy, Technical Manager at:

Naval Facilities
Engineering Command
10 Industrial Highway
Mail Stop 82
Lester, PA 19113-2090
(215) 595-0567
ext. 163/152



The Navy strives to keep the public informed about their activities under the IR Program. For Bethpage, an Information Repository has been established at the Bethpage Public Library (Information Desk), 47 Powell Avenue, Bethpage, New York, 11714. All reports generated to date are available for your information.

FACT SHEET

NAVAL WEAPONS
INDUSTRIAL RESERVE PLANT
Bethpage, New York



FEBRUARY 1993

Introduction

The Navy has begun their off-site monitoring well program in the residential neighborhood adjacent to the Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage. This area is known by residents as the "numbered streets". The first phase of the off-site activities, the installation and testing of temporary groundwater monitoring wells, has been completed. This Fact Sheet summarizes the temporary monitoring well results and discusses the on-going remedial process.

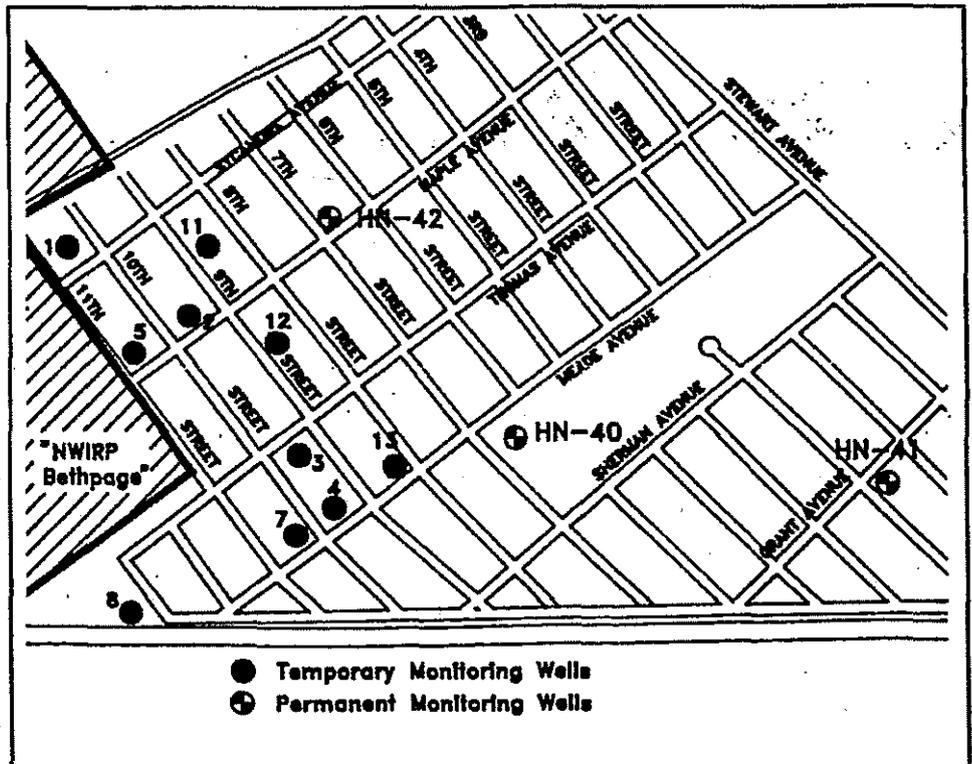
The installation of permanent monitoring wells is currently in progress. A total of three well locations have been selected based on the findings to date. Each well location will consist of one shallow depth well (60-feet) and one intermediate depth well (approximately 100 to 150 feet), totalling six permanent monitoring wells. These wells will be used to collect groundwater samples over the long-term and will be used to identify any increases in the level of contaminants. The temporary and permanent well locations are shown in the map (below).

RESULTS

The results of the temporary monitoring well program indicate that the primary groundwater contaminant

SAMPLING ACTIVITIES

Eleven off-site temporary monitoring wells were installed in the numbered streets area in late December, 1992. These wells were used to collect groundwater samples. Analysis of the groundwater samples provided data that has been used to describe the quality of the groundwater and the migration of a particular contaminant. The temporary monitoring wells consisted of shallow wells that sampled groundwater at an approximately 60-foot depth. These wells were then removed after obtaining groundwater samples.



Well Locations

found was Trichloroethylene (TCE). TCE was used as an industrial degreaser at NWIRP Bethpage. Groundwater in three of the temporary wells had TCE levels that exceeded USEPA and New York State Safe Drinking Water Standards of 5 parts per billion (ppb). Wells 5, 7, and 11 had concentrations of 22, 7, and 6 ppb, respectively. TCE concentrations from wells on the NWIRP Bethpage site are on the order of one thousand times higher than off-site levels. The detailed results from the temporary monitoring well program are available at the Bethpage Library information repository. A copy of these results is also available by contacting the Navy representative listed below.

Although contamination was found to be above safe drinking levels in three of the eleven temporary wells, Bethpage residents do not use local individual wells as a source of drinking water. Residents obtain their water from the Bethpage Water District, a municipal source that is tested on a routine basis. Based on the depth to the groundwater (60 feet) and the fact that the groundwater is not used by Bethpage residents, it is unlikely that residents are being exposed to these chemicals. The Navy will continue the groundwater sampling program over the next two months. As always, the Navy's primary concern is the protection of the health and welfare of its employees, neighbors, and the environment.

NEXT STEP IN THE PROCESS

The Navy is continuing their investigations in the Remedial Investigation/Feasibility Study (RI/FS) phase of the remediation process (shown at right). The RI, scheduled for completion in the summer of 1993, involves the collection and analysis of detailed technical data to characterize the nature and extent of the contamination. The FS is being developed concurrently with the RI to evaluate alternatives for the most effective remedy of the soil and groundwater contamination. Based

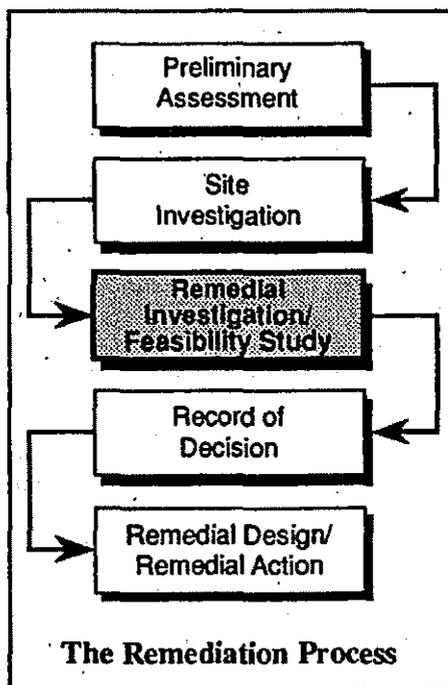
on the FS, a cleanup remedy will be selected and the Remedial Design/Remedial Action will be initiated.

COMMUNITY RELATIONS ACTIVITIES

In January 1993, the Navy conducted a door-to-door notification of upcoming drilling activities (installation of permanent monitoring wells). The homes that were directly adjacent to the drilling locations were contacted.

Since the drilling equipment is very large and may obstruct traffic for a short while, the Navy has informed the Bethpage School District of the off-site drilling activities. The School District has agreed to temporarily relocate the school bus stops (one block) to ensure the safety of the school children. The school district will inform parents of the new locations.

The next opportunity for public involvement in the remedial process is at the completion of the draft RI/FS (scheduled for Fall 1993). At this time, the Navy will sponsor a public meeting to announce the RI/FS results and to provide the public with an opportunity to comment on the reports, including the potential cleanup methods.



If you would like to discuss the program in further detail, or want to be placed on the mailing list, please write or call Jim Colter, Navy Remedial Project Manager, or Jack Dunleavy, Technical Manager at:

Naval Facilities
Engineering Command
10 Industrial Highway,
Mail Stop 82
Lester, PA 19113-2090
(215) 595-0567

All documents generated to date are available for public review in the information repository, located at the Bethpage Public Library, Information Desk, 47 Powell Avenue.

FACT SHEET

NAVAL WEAPONS
INDUSTRIAL RESERVE PLANT
Bethpage, New York



NOVEMBER 1992

The Navy will hold an informal neighborhood workshop to discuss off-site drilling activities in your residential area.

Location: Bethpage High School
Cherry Avenue

Room: Theater

Date: November 18, 1992

Time: 6:30 pm - 8:00 pm

This fact sheet provides information about the NWIRP Bethpage off-site monitoring well program. The monitoring well program is being conducted under the Remedial Investigation (RI) phase of the Navy's Installation Restoration (IR) Program.

Below are the answers to some of the most frequently asked questions about monitoring wells. The informal meeting will give you an opportunity to ask additional questions about upcoming drill activities planned in your neighborhood.

Q What is the purpose of monitoring wells?

Monitoring wells are used to collect groundwater samples. Analysis of the groundwater provides data that can be used to describe the quality of the groundwater and/or the migration of a particular contaminant.

Q How many monitoring wells will be installed?

The Navy will install approximately 13 temporary and 6 permanent monitoring wells.

Q What are the locations of these wells?

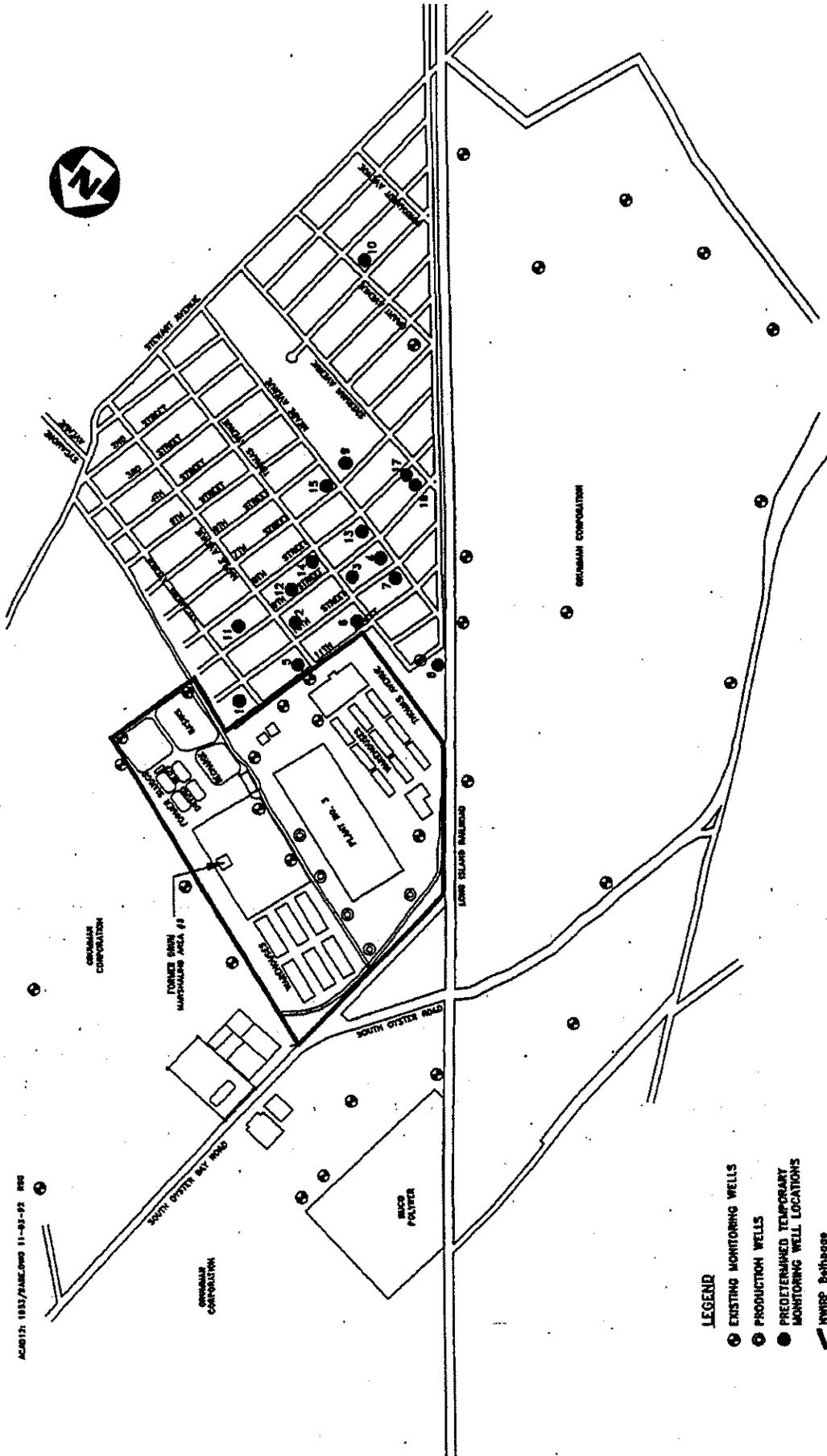
The monitoring wells will be installed off-site the NWIRP Bethpage property in the bordering residential neighborhood which is located to the east and south of Site 1, the Former Drum Marshaling Area. Currently planned locations for the temporary wells are shown on the attached map. The exact location of permanent wells will be based on the results of the temporary monitoring well sampling. Monitoring wells will not be located on residential property, but will instead be located on highway right-of-ways.

Q When will the drilling start and how long will the off-site drilling activities continue?

The off-site monitoring well program consists of two phases: first, the installation of temporary monitoring wells and second, the installation of permanent monitoring wells. Seventeen off-site locations have been tentatively identified by the Navy, but only approximately 13 wells will be installed. Installation of the temporary monitoring wells will last for approximately two weeks, November 30 through December 11. Drilling activities will be limited to Monday through Friday and will last approximately 3 to 6 hours per location. Installation of the permanent monitoring wells is a more extensive and time-consuming procedure. Installation of the permanent wells is tentatively scheduled to begin in late December/early January and will continue for 6 to 8 weeks. No drill activities are planned between December 24, 1992 to January 3, 1993.

Q How deep will these monitoring wells be?

The temporary monitoring wells will consist of shallow wells that sample groundwater at an approximately 60-foot depth. The permanent monitoring wells will consist of both shallow depth (60-foot deep) and intermediate depth wells (approximately 100 to 150 feet deep).



ADJ012: 1032/HAZCAND 11-02-92 RW

- LEGEND**
- EXISTING MONITORING WELLS
 - PRODUCTION WELLS
 - PREDETERMINED TEMPORARY MONITORING WELL LOCATIONS
 - NWISB Bethpage



POTENTIAL LOCATIONS OF ADDITIONAL TEMPORARY AND PERMANENT MONITORING WELLS
PHASE 2 - REMEDIAL INVESTIGATION FEASIBILITY STUDY
NWISB, BETHPAGE, NEW YORK

FACT SHEET

NAVAL WEAPONS
INDUSTRIAL RESERVE PLANT
Bethpage, New York



OCTOBER 1992

Introduction

This fact sheet provides information about the Navy Installation Restoration (IR) Program. The purpose of the IR Program is to identify and clean up past hazardous waste sites at Navy installations. The progress made at Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage is summarized below.

ABOUT NWIRP BETHPAGE

NWIRP Bethpage is a Government-Owned and Contractor Operated (GOCO) facility, which is situated on 108 acres in Nassau County in the Hamlet of Bethpage, Town of Oyster Bay, Long Island, New York. The NWIRP Bethpage is surrounded on three sides by the Grumman Corporation (also the NWIRP operator) and on the fourth side by a residential neighborhood.

NWIRP Bethpage was established in 1943 with the primary mission of assembling military aircraft. These activities involve the use of a number of industrial chemicals and materials including heavy metals and volatile organic compounds (trichloroethene, trichloroethane, and perchloroethylene) used to clean industrial equipment. Environmental restoration efforts at both the Grumman and NWIRP Bethpage sites are coordinated by the New York State Department of Environmental Conservation (NYSDEC).

IR PROGRAM SUMMARY

The IR Program consists of four distinct phases: Preliminary Assessment, Site Inspection, Remedial

Investigation/Feasibility Study, and Remedial Design/Remedial Action. These phases are implemented sequentially with each phase determining whether the subsequent phase is necessary.

As part of the Preliminary Assessment (PA) phase of the IR Program, an Initial Assessment Study (IAS) was conducted at NWIRP Bethpage in June 1986 to identify and assess sites posing a potential threat to human health or the environment due to past hazardous materials operations. The three sites of concern were evaluated with respect to chemical characteristics, migration pathways, and pollutant receptors. The PA concluded that, while none of the three sites at NWIRP Bethpage posed an immediate threat to human health or the environment, further investigation was warranted. To expedite the environmental restoration of NWIRP Bethpage, the Site Investigation (SI) was not conducted. Rather, the Navy proceeded directly to the Remediation Investigation/Feasibility Study (RI/FS) phase.

SITE DESCRIPTION

Based on information from historical records, aerial photographs, field inspections, and interviews with employees, a total of three sites of concern were identified at NWIRP Bethpage. The three sites of concern are described and shown below.

Site 1 – Former Drum Marshaling Area

Starting in 1969, hazardous waste management practice for Grumman included staging drummed waste at NWIRP Bethpage. Stored material included solvents, cadmium, and cyanide. All drums have been taken off NWIRP Bethpage by a private contractor.

Site 2 – Recharge Basins

Recharge basins naturally filter surface water back into the groundwater. Prior to 1984, rinse waters

containing chemicals were discharged to the recharge basins. Chemicals or compounds of concern at this site include aluminum, neutralized acids, and chromium. Sampling performed by the Nassau County Department of Health detected levels of chromium in excess of allowable limits. Currently, the Industrial Wastewater Treatment Plant collects and treats all contact water.

Site 3 – Salvage Storage Area

From the early 1950's through 1969, fixtures, tools, and metallic waste were stored at the salvage storage area prior to recycling. Chemicals or compounds of concern at this site include solvents, cutting oils, aluminum, and titanium.

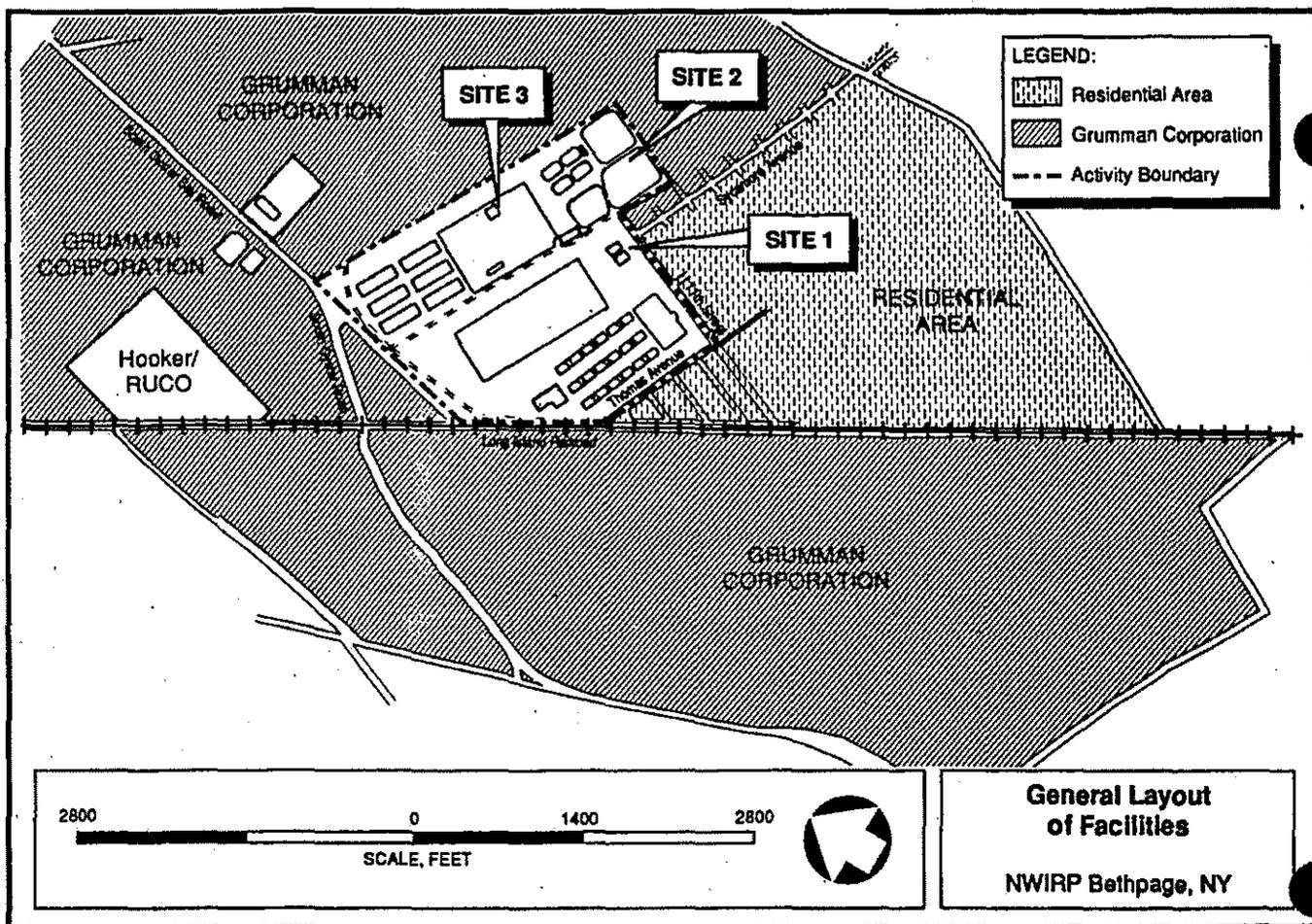
RECENT INVESTIGATIONS

The Phase I RI investigations which examined the nature and extent of soil and groundwater contamina-

tion, was completed in May 1992. The Phase I RI field investigations included the following activities: soil-gas measurements, installation of temporary and permanent monitoring wells, soil/sediment sampling and analysis, groundwater/surface water sampling and analysis, and water-level measurements. The Phase I RI results indicate that there are low levels of Volatile Organic Compounds (VOCs), Polychlorinated Biphenyl (PCBs), and heavy metal in the soils. Groundwater testing results indicate that the primary groundwater contaminants are VOCs. In particular, Site 1 - Former Drum Marshaling Area, is a likely source of on-site and near-site groundwater contamination.

CURRENT/FUTURE ACTIVITIES

Currently, the Navy is continuing investigations in the RI/FS phase of the IR Program. The Phase II RI will further investigate soil and groundwater contami-



nation on- and off-site. The sampling will be initiated in late November/early December. Also, the FS will be conducted at this time and will evaluate alternatives for the most effective remediation of NWIRP Bethpage. The Record of Decision (ROD) will be developed following the completion of the RI/FS report. The ROD explains which cleanup alternative was chosen for the remediation of NWIRP Bethpage. The ROD is based on public comments and information and technical analyses developed during the RI/FS. Based on the FS, a cleanup remedy will be selected and the Remedial Design/Remedial Action (RD/RA) phase will be initiated. The RD/RA phase will design, construct, and implement the chosen cleanup alternative.

As always, the Navy's primary concern is the protection of the health and welfare of its employees, neighbors, and the environment. Information will be available so that the public can stay informed of the IR Program and can take an active role in the Navy's efforts to safeguard the environment.

TECHNICAL REVIEW COMMITTEE

Northern Division, Naval Facilities Engineering Command, located in Philadelphia PA, is tasked with the management and administration of the current IR Program studies at NWIRP Bethpage. In accordance with the requirements of the Superfund Amendments and Reauthorization Act (SARA) of 1986, Northern Division has established a Technical Review Committee (TRC). This committee actively participates in the development of work scopes for investigations, and provides technical review and comment during the execution of the studies and the selection of remedial technologies based on data gathered by the Navy's consultants. The overall objective of the TRC is to keep all interested parties informed and involved in the Navy's IR Program. TRC members for the IR Program at NWIRP Bethpage include representatives from the Bethpage Water District, Nassau County Health Department, New York State Department of Environmental Conservation (NYSDEC), the State Department of Health, Grumman Corporation, the Defense Logistic Agency, and the Navy.

OPPORTUNITIES FOR PUBLIC INVOLVEMENT

In an effort to inform residents of the Phase II RI fieldwork activities, the Navy will sponsor a neighborhood meeting and mail a mini-Fact Sheet in mid-November. These two activities will be geared toward residents who live immediately adjacent to the Navy's off-site sampling locations. The Navy will issue two additional Fact Sheets that will provide citizens with a status update on future Phase II RI field activities as they occur. These future Fact Sheets will be mailed to the entire mailing list. Once the draft RI/FS is completed, a formal public meeting will be held in Fall 1993 to announce the RI/FS results and to provide the public with an opportunity to comment on this information, including potential cleanup methods.

A Community Relations Plan (CRP) for the NWIRP Bethpage has been developed. The goal of the CRP is to develop an understanding of the community's perspective of the site and to present various methods of keeping the community involved and informed of the progress of the RI/FS.

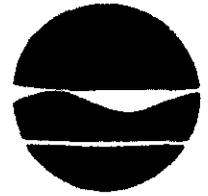
For further information, or to be placed on the mailing list, please write or call: Frank Klanchar, Navy Remedial Project Manager, or Jack Dunleavy, Technical Manager.

Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop 82
Lester, PA 19113-2090
(215)595-0567

All documents generated from the investigations are located in the information repository, located at the Bethpage Public Library, 47 Powell Avenue.

Hours of operation are:

Monday-Friday	9:30am - 9:00pm
Saturday	9:30am - 5:00pm
Sunday	Closed



Thomas C. Jorling
Commissioner

FACT SHEET

Remedial Investigation/Feasibility Studies
Grumman Aerospace Corporation (Registry Number 1-30-003A)
Naval Weapons Industrial Reserve Plant (Registry Number 1-30-003B)

June 1992

Site Background and History

The Grumman site consists of approximately 500 acres in the Village of Bethpage located in the Town of Oyster Bay, Nassau County. This site is bounded on three sides by roadways: Stewart Avenue to the north; Central Avenue to the south; and Broadway Hicksville-Massapequa Road to the southwest. The 108 acre Naval Weapons Industrial Reserve Plant (NWIRP) site is located in the north-central portion of the Grumman site adjacent to 13th Avenue. The Occidental Chemical/RUCO Polymer Corporation Federal Superfund site is located adjacent to the western boundary of the Grumman site.

Since 1937, Grumman has performed a number of activities at the site including the research, development, and the manufacture of aircraft for the U.S. Navy and Air Force, as well as the production of satellite equipment and various other spacecraft, including the Lunar Modular Module for the National Aeronautics and Space Administration (NASA). The NWIRP facility was established in 1943 with the primary mission of manufacturing military aircraft.

The aforementioned facilities used a number of industrial chemicals and materials including heavy metals (such as chromium) and volatile organic compounds (such as trichloroethylene, trichloroethane, and perchloroethylene) for various manufacturing purposes.

In 1983, both the Grumman and NWIRP sites were listed in the New York State Department of Environmental Conservation's (NYSDEC's) Registry of Inactive hazardous Waste Sites as a single, Class 2a site. A Class 2a designation was a temporary designation which was assigned to sites that had inadequate or insufficient data for proper classification. In 1988, this classification was upgraded to Class 2, a designation assigned to sites that present a significant threat to the public

health or the environment, and for which action is required. In 1992, NYSDEC split the Grumman site into two sites -- Grumman and NWIRP and has assigned the registry numbers shown in the heading of this fact sheet to these sites.

On October 25, 1990, Grumman entered into a legally enforceable agreement (consent order) with the NYSDEC in which it agreed to conduct an on-site and off-site Remedial Investigation/Feasibility Study (RI/FS) for the 500 acres it owned. An RI/FS investigates the nature and extent of any hazardous waste contamination that is associated with a site, assesses the clean-up alternatives and recommends one of the alternatives for implementation. In early 1990, a Work Plan detailing the elements of a phased RI/FS and the procedures to be used was prepared. This Work Plan was approved by the NYSDEC on November 6, 1990. A public meeting was held on December 4, 1990 to present this Work Plan and to obtain input from the public. A Data Report in which the data collected during the first phase of the RI is presented, was submitted to the NYSDEC in January 1992. A Phase II RI Work Plan was submitted to the NYSDEC in April 1992.

In July 1991, the U.S. Navy began an on-site RI/FS on the 108 acre parcel they own in Bethpage. A draft RI/FS Work Plan was submitted to the NYSDEC for comment and a final RI/FS Work Plan was prepared in August 1991. A draft Remedial Investigation (RI) Report was issued in March 1992, and a final RI Report was submitted in May 1992.

Environmental Concerns

The primary environmental concern is a plume of contaminated groundwater which exists within the study area. To date, three sources have been identified: the Grumman, NWIRP, and Occidental Chemical sites. The primary contaminants are volatile organic compounds (VOCs), however heavy metals such as chromium have also been detected in portions of this plume.

Additional concerns center around on-site locations with soil contamination which includes both VOCs and heavy metals.

Status of the Grumman RI/FS

The field work for the first phase of the Grumman RI was conducted between February 1991 and January 1992. The focus of this phase was an investigation designed to determine the on-site extent of contamination attributable to Grumman. This field work consisted of soil, soil-gas, surface water/sediment, and groundwater sampling on and off site. The results are presented in the January 1992 Data Report.

The primary focus of the second phase of the RI is to install outpost wells upgradient of potential off-site receptors, specifically, the supply wells owned by the Bethpage Water District. This will serve two purposes; act as a warning system for

the supply wells and help define the limits of the contaminated groundwater plume. Additional on-site work will also be conducted to further study potential on-site source areas identified in the first phase of the RI.

A feasibility study will be conducted during which various remedial alternatives will be evaluated.

Status of the NWIRP RI/FS

The field work for the first phase of the NWIRP RI/FS was conducted between August 1991 and February 1992. The focus of this investigation was to study three potential source areas identified during previous studies at the facility. This field work consisted of the same elements as in the Grumman RI/FS, and the results are summarized in the Navy's May 1992 RI Report.

The primary focus of the second phase RI at the NWIRP facility is to further define the contamination source areas which are present on-site, and to determine if there are any off-site (east of the site) impacts resulting from activities at the NWIRP site.

The NWIRP Feasibility Study will be conducted concurrent to the second phase of the RI.

Citizen Participation

Site specific public information programs, have been developed for both the Grumman and NWIRP sites. The Grumman Citizen Participation Plan (CPP) is included in Appendix J of the March 1990 Work Plan. The NWIRP Community Relations Plan (CRP) will be finalized in July 1992. The purpose of these plans is to keep the community up to date on the findings and status of the projects and to provide an avenue for the public to contribute information including comments on the RI/FS process. Utilization of the public contact list through mass mailings, notification through the press, fact sheets, public meetings, responsiveness summaries, etc. are all activities that are included in these plans. In addition, information repositories have been established where copies of project related documents are available for public review. The locations are:

NYSDEC
Div. of Hazardous Waste Rem.
Building 40 - SUNY
Stony Brook, NY 11790
Hours: 8:30 - 4:45 M - F

Bethpage Public Library
Reference Section
47 Powell Avenue
Bethpage, NY 11714
Hours: 9:30 - 9:00 M - F; 9:30 - 5:00 Sat.

In addition, the Navy has established a Technical Review Committee (TRC) consisting of the Bethpage Water District, Nassau County Health Department, NYSDEC, New York State Department of Health, Grumman Aerospace, the Navy and Defense Logistics Agency. This committee actively participates in the

development of work scopes for investigations, and provides technical review and comment during the execution of the studies and the selection of remedial technologies based on the data collected. The overall objective of the TRC is to keep all interested parties informed and involved in the Navy's Installation Restoration Program.

If, at any time, you have questions or comments regarding these projects, please feel free to contact the individuals listed below.

NYSDEC

Joshua Epstein
NYSDEC Citizen Participation Specialist
NYSDEC
Building 40 - SUNY
Stony Brook, NY 11790
(516) 751-4078

John Barnes
Project Manager
NYSDEC
50 Wolf Road, Room 222
Albany, NY 12233
(518) 457-3395

Grumman

John J. Carroll
Vice President - Community Affairs
Grumman Corporation
1111 Stewart Avenue
Bethpage, NY 11714
(516) 575-3376

FOR ADJOINING AREA SEE MAP 10



FOR ADJOINING AREA SEE MAP 17

Section 5: CERCLA Remedial Action Process Summary

CERCLA REMEDIAL ACTION PROCESS: A QUICK SUMMARY

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) was passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). The act created a special tax that goes into a trust fund, commonly known as Superfund, to investigate and clean up abandoned or uncontrolled hazardous waste sites. Under the program, cleanup actions are taken to deal with a release or threatened release of hazardous substances that could affect public health and/or the environment. The term "cleanup" is sometimes used interchangeably with the terms remediation, remedial action, removal action, response action, or corrective action. The cleanup process includes the following steps, as appropriate to the site:

PRELIMINARY ASSESSMENT (PA): During the first step of the remedial process, a PA is performed. This study includes collecting and reviewing available information about a known or suspected hazardous waste site or release. A PA report is prepared which describes the information collected and reports the determination of whether or not the site requires further study. If further study is needed, a site inspection is undertaken.

SITE INSPECTION (SI): An SI is the technical phase that follows a PA and is designed to collect more extensive information on a hazardous waste site. As part of the SI, water, soil, and sediment samples may be collected to help determine whether or not a release has occurred. The information is used to score the site with the Hazardous Ranking System to determine whether response action is needed.

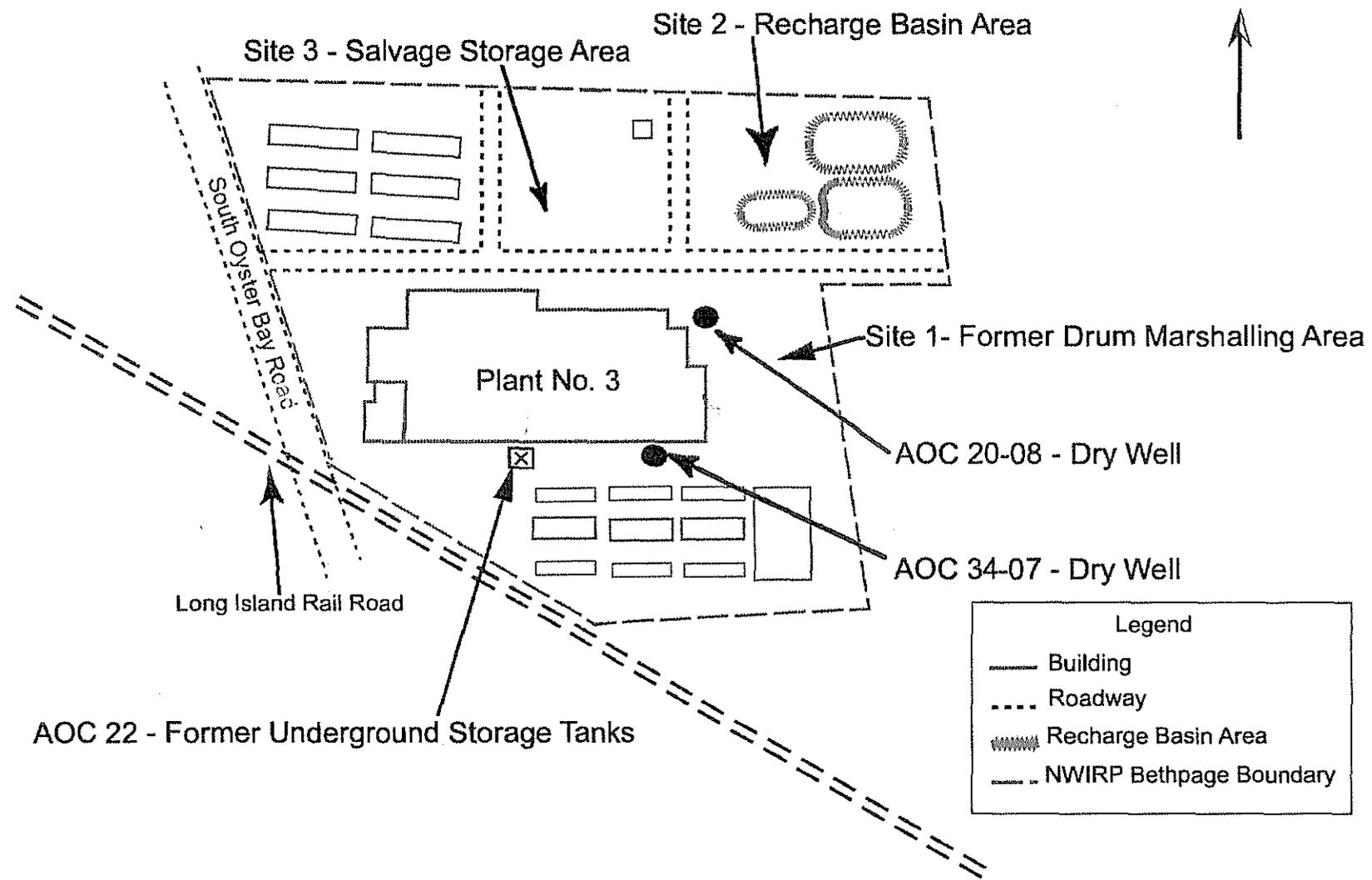
REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS): If the SI determines that response action is necessary, generally an RI/FS is conducted to (1) gather the data necessary to determine the type and extent of contamination at a site; (2) establish criteria for cleaning up the site; (3) identify and screen cleanup alternatives for remedial action; and (4) analyze in detail the technology and costs of the alternatives. Investigation and analytical studies conducted as part of the RI/FS are usually performed at the same time in an interactive process.

RECORD OF DECISION (ROD): Based on the RI/FS, a proposed remedial action plan (PRAP) is prepared, which describes the proposed cleanup alternative. The PRAP is made available for public comment. Once comments are received on the PRAP, a ROD is prepared which documents the selected cleanup alternative for the site and establishes enforceable performance standards for the cleanup.

REMEDIAL DESIGN (RD)/REMEDIAL ACTION (RA): Technical drawings and specifications for the selected cleanup alternative (as documented by the ROD) are developed as part of the RD. RA is the actual construction or implementation phase that follows the remedial design and the selected cleanup at a site.

Section 6: Installation Restoration Program (IRP) Site Information
- Site Map
- Site Descriptions

NWIRP BETHPAGE SITE MAP



NWRIP BETHPAGE - SITE DESCRIPTIONS

Site 1 - Former Drum Marshalling Area

The Site 1 - Former Drum Marshalling Area is located in the eastern portion of the facility. Until 1982, Site 1 was used as a marshalling area for drummed waste at NWRIP Bethpage prior to off-site disposal. A sanitary leach field was present underneath the drum marshalling pads and a sludge drying bed was present northeast of the pads.

In the early 1990's, solvents, metals, and PCBs were detected in soils and metals and solvents were detected in groundwater at Site 1. In 1995, a ROD was signed that identified remedial actions for Sites 1, 2, and 3. The ROD identified excavation and off-site disposal of metal and PCB contaminated soils and in situ treatment of solvents in soils and shallow groundwater at Site 1. Deeper and down gradient groundwater contamination from the site is being addressed by a groundwater containment system on the Northrop Grumman property. As required by the ROD, an air sparging and soil vapor extraction system to remove solvents from Site 1 soils and groundwater has been running since 1997. The metal and PCB contaminated soil will be excavated after the solvents have been removed from site soils and groundwater.

Site 2 - Recharge Basin Area

Site 2 - Recharge Basin Area is located in the northeastern portion of the facility. Recharge basins naturally filter surface water back into the groundwater. Storm water and non contact cooling water from the Plant No. 3 area were discharged to the recharge basins at Site 2. Sludge drying beds were located adjacent to the recharge basins. The sludge drying beds have not been active since the 1970s and were reportedly removed. The recharge basins continue to be used for storm water management.

In the early 1990's, PCBs and low levels of solvents and metals were detected in the soils and groundwater at Site 2. As required by the ROD, the PCB contaminated soils were excavated in 1996. The solvents and metals were at a low enough level that remediation was not required. Groundwater flowing from this site is contained by the Northrop Grumman groundwater containment system.

Site 3 - Salvage Storage Area

Site 3 - Salvage Storage Area is located in the northern portion of the facility. Metal parts were stored at the salvage storage area prior to recycling. In the early 1990's, low levels of solvents and metals were detected in site soils and groundwater. As provided in the ROD, soils and groundwater at Site 3 do not require remediation. Groundwater flowing from this site is contained by the Northrop Grumman containment system.

AOCs 20-08 and 34-07 - Dry Wells

Dry wells, located in and around Plant No. 3, were investigated. Most of the dry wells were either found to be clean or the well contents were excavated to remove contamination. Currently, two dry wells remain contaminated and are being investigated to determine the extent of contamination. AOC 20-08 is located outside Plant No. 3 near the east corner of the building. AOC 34-07 is located in Plant No. 3, on the southern side of the building.

AOC 22 - Former Underground Storage Tanks

Until the early 1980's, three underground storage tanks (USTs) were located south of Plant No. 3. Soil testing conducted in the area found low to moderate levels of fuels in the soils. Testing results were not conclusive as to whether groundwater contamination or free product at the water table was present. This area is being investigated to determine the extent of contamination.

Regional Groundwater

Groundwater underneath NWIRP Bethpage starts at a depth of approximately 60 feet below ground surface and extends to a depth of approximately 500 feet. The predominant groundwater flow in the area is to the southeast toward the Atlantic Ocean. Solvents have been found in the on-site and off-site groundwater. Options for remediating this groundwater are currently being evaluated. In the interim, a groundwater containment system has been installed on Northrop Grumman property to control the migration of solvents in groundwater. To ensure protection of the local water supply, a system for filtering the solvents from the groundwater is in place at the affected extraction wells.

Section 7: Acronyms and Glossary

List of Acronyms and Abbreviations

AOC	Area of Concern
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act (1980)
CRP	Community Relations Plan
DOD	Department of Defense
EPA	Environmental Protection Agency
FS	Feasibility Study
GOCO	Government-Owned and Contractor Operated
HRS	Hazardous Ranking System
IAS	Initial Assessment Study
IM	Interim Measures
IRP	Installation Restoration Program
NAVAIR	Naval Air Systems Command (Arlington, VA)
NORTHDIV	Northern Division, Naval Facilities Engineering Command (Philadelphia, PA)
NPL	National Priorities List
NWIRP	Naval Weapons Industrial Reserve Plant
NYSDEC	New York State Department of Environmental Conservation
PA	Preliminary Assessment
PCB	Polychlorinated Biphenyl
PRAP	Proposed Remedial Action Plan
RA	Remedial Action
RAB	Restoration Advisory Board
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SI	Site Investigation
TCA	1,1,1-trichloroethane
TCE	Trichloroethylene
TRC	Technical Review Committee
UST	Underground Storage Tank
VOC	Volatile Organic Compound

GLOSSARY

This glossary defines terms used by Navy representatives, the New York State Department of Environmental Conservation, and the U.S. Environmental Protection Agency when describing activities at the Naval Weapons Industrial Reserve Plant, Bethpage, New York. The definitions apply specifically to the Navy's environmental program and may have other meanings when used in different circumstances.

AQUIFER: An underground formation of materials such as sand, soil, or gravel that can store and supply groundwater to wells and springs. Most aquifers used in the United States are within a thousand feet of the earth's surface

CLEANUP: Actions taken to deal with a release or threatened release of hazardous substances that could affect public health and/or the environment. The term "cleanup" is sometimes used interchangeably with the terms remediation, remedial action, removal action, response action, or corrective action.

COMMENT PERIOD: A time during which the public can review and comment on various documents and actions taken, either by the Department of Defense installation or the EPA.

COMMUNITY RELATIONS: NWIRP Bethpage's program to inform, and involve the public in the environmental cleanup process and respond to community concerns.

COMMUNITY RELATIONS PLAN (CRP): A formal plan for implementing community relations activities relating to the environmental cleanup activities at NWIRP Bethpage. The CRP outlines activities that will be conducted to provide opportunities for the community to learn about its environmental programs and provide input throughout the IRP.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA): A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). The act created a special tax that goes into a trust fund, commonly known as Superfund, to investigate and clean up abandoned or uncontrolled hazardous waste sites. Under the program, the EPA can either pay for site cleanup when parties responsible for the contamination cannot be located or are unwilling or unable to perform the work, or take legal action to force parties responsible for site contamination to clean up the site or pay back the federal government for the cost of the cleanup.

CONSTITUENT: A byproduct of a hazardous material.

DECISION-MAKING BODY: The group of individuals, representing regulatory and proprietary agencies, that determines the environmental investigation and cleanup steps taken at each site under the IRP. At NWIRP Bethpage, that group is comprised of representatives from the Navy and the New York State Department of Environmental Conservation.

FEASIBILITY STUDY: See Remedial Investigation/Feasibility Study/.

GROUNDWATER: Water beneath the earth's surface that fills pores between materials such as sand, soil or gravel. In aquifers, groundwater occurs in sufficient quantities that it can be used for drinking water, irrigation, and other purposes.

HAZARDOUS SUBSTANCE/HAZARDOUS MATERIAL: Any material that poses a threat to public health and/or the environment. Typical hazardous substances are materials that are toxic, corrosive, ignitable, explosive, or chemically reactive (petroleum products, industrial cleaners and solvents, pesticides, and other chemicals).

INFORMATION REPOSITORY: A collection of documents containing information, technical reports, and reference documents regarding environmental cleanup activities at NWIRP Bethpage. The information repository for NWIRP Bethpage is located at the Bethpage Public Library. All information is public and may be photocopied for personal reference.

INSTALLATION RESTORATION PROGRAM (IRP): The Department of Defense program equivalent to EPA's environmental legislation in CERCLA. It was established in 1980 and was implemented because CERCLA did not pertain to federal facilities until amended in 1986 by SARA.

INTERIM MEASURES: These are actions taken to stabilize, control, or limit further releases. They can be implemented at any time.

NATIONAL PRIORITIES LIST (NPL): The EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial response using money from the trust fund. The list is based primarily on the score a site receives on the Hazardous Ranking System. EPA is required to update the NPL at least once a year. NWIRP Bethpage is not on the NPL.

PRELIMINARY ASSESSMENT (PA): The CERCLA process of collecting and reviewing available information about a known or suspected hazardous waste site or release. EPA or states use this information to determine if the site requires further study. If further study is needed, a site inspection is undertaken.

PROPOSED REMEDIAL ACTION PLAN (PRAP): A plan for site cleanup that is made available for public comment and describes the proposed cleanup alternative.

RECORD OF DECISION (ROD): A public document that explains which cleanup alternative was selected for a CERCLA site and establishes enforceable performance standards for the cleanup.

REMEDIAL ACTION (RA): The actual construction or implementation phase that follows the remedial design and the selected cleanup at a site.

REMEDIAL DESIGN (RD): An engineering phase that follows the Record of Decision when technical drawings and specifications are developed for the subsequent remedial action at a site.

REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS): Investigation and analytical studies usually performed at the same time in an interactive process, and together referred to as the RI/FS. They are intended to: (1) gather the data necessary to determine the type and extent of contamination at a site; (2) establish criteria for cleaning up the site; (3) identify and screen cleanup alternatives for remedial action; and (4) analyze in detail the technology and costs of the alternatives.

REMOVAL ACTION: An action performed quickly to address a release or threatened release of hazardous substances.

RESTORATION ADVISORY BOARD (RAB): A group of citizens, representatives from the State of New York, and Navy personnel who meet regularly to discuss the environmental investigations and cleanup alternatives for the Navy's property in Bethpage. This group acts as the focal point for distribution of information to and from the community about the Installation Restoration Program. All RAB meetings are open to the public.

SITE INVESTIGATION (SI): A technical phase that follows a preliminary assessment designed to collect more extensive information on a hazardous waste site. The information is used to score the site with the Hazardous Ranking System to determine whether response action is needed.

SUPERFUND: The trust fund established by CERCLA which can be drawn upon to plan and conduct cleanups of past hazardous waste disposal sites, and current releases or threats of releases of non-petroleum products. Superfund is often divided into removal, remedial, and enforcement components.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA): The public law enacted on October 17, 1986, to reauthorize the funding provisions, and to amend the authorities and requirements of CERCLA and associated laws. Section 120 of SARA requires that all federal facilities "be subject to and comply with, this act in the same manner and to the same extent as any non-government entity."

TECHNICAL REVIEW COMMITTEE (TRC): A committee of representatives of the Navy, EPA, NYSDEC, and the local community, formed to review recommendations for and monitor progress of the NWIRP Bethpage cleanup effort. In May 1999, the TRC was expanded into a Restoration Advisory Board.

VOLATILE ORGANIC COMPOUND: An organic (carbon-containing) compound that evaporates (volatilizes) readily at room temperature. VOCs are commonly found in solvents, paint thinners, and industrial cleaners. Household items containing VOCs include nail polish remover, varnish, and oven cleaners.