

# FRIDLEY NAVAL INDUSTRIAL RESERVE ORDNANCE PLANT

## FRIDLEY, MINNESOTA



**Engineering Field Division/Activity:** SOUTH DIV  
**Major Claimant:** COMNAVSEASYS COM  
**Size:** 83 Acres  
**Funding to Date:** \$19,236,000  
**Estimated Funding to Complete:** \$30,637,000

**Base Mission:** Government-Owned Contractor-Operated (GOCO) facility that designs and manufactures advanced weapons systems  
**Contaminants:** POLs, volatile organic compounds

<b>Number of Sites:</b>	<b>Relative Risk Ranking of Sites:</b>		
<b>CERCLA:</b>	5	<b>High:</b>	3
<b>RCRA Corrective Action:</b>	0	<b>Medium:</b>	0
<b>RCRA UST:</b>	0	<b>Low:</b>	0
<b>Total Sites:</b>	5	<b>Not Evaluated:</b>	0
		<b>Not Required:</b>	2



**Sites Response Complete: 2**

### EXECUTIVE SUMMARY

The Fridley Naval Industrial Reserve Ordnance Plant (NIROP) covers 83 acres in an industrial, commercial and residential area in Fridley, Anoka County, Minnesota. The Mississippi River is one-quarter mile to the west. The northern portion of Fridley NIROP is a Government-Owned/ Contractor Operated (GOCO) facility. The operator is a private company, the United Defense LP. The remainder of the facility, a 50 acre site bordering on the south, is independently owned by United Defense. The Fridley NIROP plant has produced advanced weapons systems since it was constructed in 1940. Typical industrial operations contributed to the contaminated soil and groundwater at the facility. Site types at the installation include: waste disposal trenches, old sanitary sewer lines, a foundry core butt disposal area and the plant-wide groundwater drainage system. Primary wastes and contaminants associated with these site types include petroleum products, solvents, plating sludge, construction debris, foundry sands and solvents, including acetone, organic solvents, dichloroethylene (DCE), trichloroethylene (TCE), methylene chloride, and heavy metal wastes. Current operations include pollution prevention technologies to prevent further contamination. The driving factor for placing Fridley NIROP on the National Priorities List (NPL) was TCE contamination of the plant-wide groundwater drainage system. A Federal Facility Agreement (FFA) between the Department of the Navy, EPA and the State of Minnesota was signed on 23 March 1991.

Since the soils occurring at the NIROP are highly permeable practically all the precipitation which falls on the ground surface either soaks into the ground or evaporates. Underlying the soils, the potable water in aquifers is susceptible to contamination. There are four aquifers which lie under the NIROP facility. Although there is a small potential for migration of surface water off the facility, there is a concern about the public park adjacent to the property. The major concern for contamination migration from the NIROP facility is in the groundwater. The plant-wide groundwater drainage system migrates into the aquifers, which discharge into the Mississippi River, which supplies the potable water for Minneapolis. The

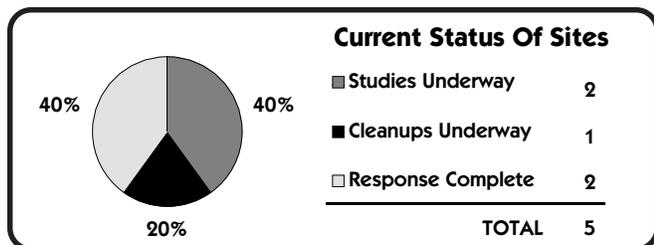
water supply intake for Minneapolis is located approximately one mile downstream from NIROP Fridley. There is no potential threat to the ecosystems or endangered species in the area.

The Technical Review Committee (TRC) was converted to a Restoration Advisory Board (RAB) in April 1995. The original Community Relations Plan (CRP), finalized in 1991, is currently being updated and expected to be completed in FY97. In FY95, the Administrative Record was compiled and an Information Repository was established at the NIROP plant office.

An Initial Assessment Study (IAS), equivalent to Preliminary Assessment (PA), was completed for four sites (Sites 1-4) in FY83. Groundwater investigations conducted between FY83 and FY88, identified trichloroethylene (TCE) contamination in the groundwater. The fifth and final site at Fridley, established with a Remedial Investigation and Feasibility Study (RI/FS) in FY91, is Site 5, the plant-wide groundwater.

The five sites have been divided into three Operable Units (OUs). OU 1, consists of Site 5, covers plant-wide groundwater. OU 2, made up of Sites 1, 2 and 4, covers all source areas outside the plant buildings. OU 3, which consists of Site 3, is the source areas beneath the factory building. Sites 1 and 2 are currently RC.

Currently, the overriding site of interest at Fridley NIROP is Site 5 (Plant Wide Groundwater). This site is not a single point site, but the groundwater drainage system for the entire installation. The interest in this site comes from the fact that the discharge from this site enters the Mississippi River 5,000 feet upstream of Minneapolis' drinking water plant. The contamination plume discovered on this site has been contained. Initial containment was from a pump-and-treat system. A Record of Decision (ROD) was signed in September 1990 for a selected RA which will provide hydraulic containment and recovery of all future migration of contaminated groundwater. The ROD for Site 5 is to be implemented in two phases. Phase one is in place, groundwater is being discharged into the public water treatment plant. Phase two will be the installation of an on-site groundwater treatment system which will allow the treated groundwater to be safely discharged directly into the Mississippi River. A National Pollutant Discharge Elimination System (NPDES) permit for the groundwater treatment plant was issued in January 1996. RI/FS activities are complete for the groundwater OU. The RD was completed in FY96. RA will be complete in FY97 and Long Term Operations (LTO) will begin.



## FRIDLEY NIROP RELEVANT ISSUES

### ENVIRONMENTAL RISK



**HYDROGEOLOGY** - The NIROP is located one-quarter mile east of the Mississippi River on a broad, flat out wash terrace. The installation occupies 82.61 acres, most of which are covered with buildings or pavement. The soils occurring at the installation consist of unconsolidated deposits of highly permeable, stratified sand and gravel sands, conducive to the downward migration of contaminants. Practically all the precipitation which falls on the ground surface either soaks into the ground or evaporates. There is essentially no runoff due to flat topography and highly permeable soils. Precipitation flows to the water table quickly then through the upper aquifer into the Mississippi River. Underlying these sands, the potable water in aquifers is susceptible to contamination. There are four aquifers which lie under the NIROP facility. Two of these are confined aquifers and neither is used as a water supply for the area. The other two, the Prairie du Chien/Jordan aquifer and the Quaternary aquifer, are of concern. The Quaternary is more shallow and more easily contaminated and is seldom used as a source of water supply. The deeper aquifer supplies the city of Fridley's well but is only used as a summer demand well.



**NATURAL RESOURCES** - Although there is a small potential for migration of surface water off the facility, where there is a public park adjacent to the property, between the plant and the river, the major concern for contamination migration from the NIROP facility is in the groundwater. The plant-wide drainage system enters the groundwater aquifers and discharge into the Mississippi River, which supplies the potable water for Minneapolis. The water supply intake for Minneapolis is located approximately one mile downstream from NIROP Fridley. There is no potential threat to ecosystems or endangered species in the area.



**RISK** - A Baseline Human Health Risk Assessment (HHRA), based on EPA guidance, was performed for OU 2 (Sites 1, 2 and 4) in September 1993. The HHRA found the human health risk was within the permissible range for current land usage. The land would not be appropriate for future residential use. An HHRA for Site 3 is planned for FY97.

The Navy completed a Relative Risk Ranking for the installation in FY95. All three of the active Fridley sites received a "high" risk ranking. The two sites which are concerned with the base-wide soils (Sites 3 and 4) received a high risk for soil. The majority of the land at the Fridley area is covered by buildings. Site 4 is a disposal trench in the area between factory buildings, where drums and hazardous wastes have been buried. The other soil site (Site 3) is the area beneath the factory building, where cleaning solvents, metal and oils are suspected. The fifth site (Site 5) covers all the groundwater on the Navy property. The reason for the high groundwater ranking is a contaminated plume reaching from the property line to the Mississippi River, near the intake of the potable water for the city of Minneapolis.

The Agency for Toxic Substance and Disease Register (ATSDR) conducted a public health assessment and released its health consultation findings in May 1995. The findings are that the release of treated groundwater (after construction of the water treatment plant) is expected to have no impact on human health.

### REGULATORY ISSUES



**NATIONAL PRIORITIES LIST** - Based on an HRS score of 30.83, the installation was proposed for the National Priorities List (NPL) in July 1989 and listed in November 1989. The driving factor for placing Fridley NIROP on the NPL was TCE contamination of the plant-wide groundwater drainage system which emptied into the Mississippi River upstream from Minneapolis' drinking water plant. The contamination plume has since been contained. Initial containment was through a pump-and-treat system, but the groundwater from Fridley is no longer being pre-treated, it is now discharged directly into a publicly owned sewage plant. As a long term solution, a water treatment plant will be constructed and the water will then be safe to discharge directly into the river.



**LEGAL AGREEMENTS** - A Federal Facility Agreement (FFA) between the Department of the Navy, EPA, and the State of Minnesota was signed on 23 March 1991. A Site Management Plan (SMP) is now under development. The FFA will not need to be re-negotiated once the SMP is complete and in use.



**PARTNERING** - The Navy personnel, Federal and State regulators maintain open communications through twice monthly scheduled conference calls. The EPA, the MPCA, and the Navy have recently started partnering.

### COMMUNITY INVOLVEMENT



**RESTORATION ADVISORY BOARD** - The Technical Review Committee (TRC) was converted to a Restoration Advisory Board (RAB) in April 1995. The members of the RAB include EPA Region V; Southern Division, Naval Facilities Engineering Command; Minnesota Pollution Control Agency; City of Fridley; United Defense, MWCC; NIROP Fridley, and community members. There has been very little community interest or involvement. A City of Fridley director was appointed the community co-chair of the RAB. The RAB meetings are held quarterly at the NIROP Fridley plant. There is a local government charter in place. To date, the RAB meeting agendas have consisted of introducing the team members and presenting them with Installation Restoration (IR) training so that they will soon be able to review work plans.



**COMMUNITY RELATIONS PLAN** - The original Community Relations Plan (CRP), finalized in 1991, is currently being updated and will be completed in FY97.



**INFORMATION REPOSITORY** - In FY95, the Administrative Record was compiled and an Information Repository established at the NIROP plant office to make the IR documents available for public viewing.

## FRIDLEY NIROP HISTORICAL PROGRESS

### FY83

**Sites 1-4** - An Initial Assessment Study (IAS), equivalent to Preliminary Assessment (PA), was completed for four CERCLA sites.

**Site 1** - Two Interim Remedial Actions (IRAs) were begun in FY83 and completed in FY84. One was for the removal of drums, the other for the removal of contaminated soils.

### FY86

**Sites 1, 2 and 4** - A Remedial Investigation/Feasibility Study (RI/FS) began.

### FY88

**Site 5** - RI/FS activities for groundwater cleanup were started.

### FY90

**Sites 1, 2 and 5** - An IRA, for a groundwater extraction and treatment system began operation. The treatment system will operate until FY99. (The system covers all groundwater as part of OU1 and is placed under Site 5)

**Site 5** - A Record of Decision (ROD) was signed in September 1990 for a selected Remedial Action (RA) which will provide hydraulic containment and recovery of all future migration of contaminated groundwater.

### FY91

**Site 2** - Two IRAs started and were completed in FY92. One was for the removal of drums, the other for the removal of contaminated soils.

### FY92

**Sites 1, 2 and 4** - Remedial Investigation (RI) activities for plant-wide soil contamination were initiated. Two IRAs begun in FY91 were completed.

### FY93

**Sites 1, 2 and 4** - RI activities for soil contamination were complete and plant-wide FS activities for soils were started.

**Site 5** - In order to minimize the risk to human health and the environment, a pump-and-treat system was installed to confine migration of the contaminated plume (Site 5) and all groundwater at NIROP Fridley. Currently, the effluent is discharged into the public sewer system. It was installed as part of an IRA in FY90 and will run through FY97, or until the new permanent groundwater treatment plant is operational, which will discharge the effluent into the Mississippi River.

### FY94

**Sites 1, 2 and 4** - Completed FS activities for soils.

### FY95

The Administrative Record was compiled and an Information Repository established.

RAB was established.

**Sites 1, 2, 4 and 5** - A Baseline for Risk Assessment for Human Health was performed.

**Site 1 and 2** - RI/FS was completed. Sites are now RC.

**Site 5** - Remedial Design (RD) for the plant-based water treatment plant was begun.

## PROGRESS DURING FISCAL YEAR 1996

### FY96

A NPDES permit to discharge remediated water was obtained. The EPA, MPCA and Navy have started formal partnering. Started seismic imaging to better define the confining layer and understand the hydrogeological conditions at this complex.

CRP was being updated. The completion date slipped to FY97, while

issues concerning the NPDES permit and beginning formal partnering were decided.

**Site 3** - Submitted RI draft plan. RI/FS continues.

**Site 4** - RI/FS was completed. An IRA for drum removals was begun.

**Site 5** - Completed the RD.

## PLANS FOR FISCAL YEARS 1997 AND 1998

### FY97

**Site 3** - An HHRA will be accomplished in FY97.

Updated CRP will be completed.

**Site 3** - RI/FS field work will begin.

**Site 4** - IRA for drum removal will be complete.

**Site 5** - RI/FS will be complete. The RA will be complete, which is to

design and construct permanent treatment plant for water discharge into the Mississippi River. Begin LTO FY98.

**Site 5** - LTO continues.

**Site 3** - RI/FS continues.

## PROGRESS AND PLANS

CERCLA	FY95 and before	FY96	FY97	FY98	FY99	FY00	FY01	FY02 and After
PA / SI	4							
RI / FS	2	1	1		1			
RD		1			1		1	
RAC			1				1	1
RAO								2
IRA	2(4)		1(1)		1(1)			
RC	2							3
<b>Cumulative % RC</b>	40%	40%	40%	40%	40%	40%	40%	100%

# ST. PAUL NAVAL INDUSTRIAL RESERVE ORDNANCE PLANT

## ST. PAUL, MINNESOTA



**Engineering Field Division/Activity:** SOUTHDIV  
**Major Claimant:** COMNAVSEASYSKOM  
**Size:** 15 Acres  
**Funding to Date:** \$50,000  
**Estimated Funding to Complete:** \$0

**Base Mission:** Provides computer combat systems testing and support

**Contaminants:** Volatile organic compounds

<b>Number of Sites:</b>		<b>Relative Risk Ranking of Sites:</b>			
CERCLA:	2	High:	0	Not Evaluated:	0
RCRA Corrective Action:	0	Medium:	0	Not Required:	2
RCRA UST:	0	Low:	0		
Total Sites:	2				

**Sites Response Complete: 2**

### PROGRESS AND PLANS

CERCLA	FY95 and before	FY96	FY97	FY98	FY99	FY00	FY01	FY02 and After
PA / SI	2							
RI / FS								
RD								
RAC								
RAO								
IRA								
RC	2							
<b>Cumulative % RC</b>	100%	100%	100%	100%	100%	100%	100%	100%