

December 10, 1993

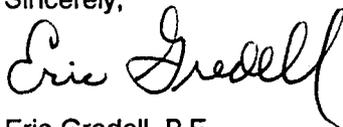
Commanding Officer
SOUTHNAVFACENGCOM
Chris Bartku; Code 1862
P.O. Box 190010
North Charleston, SC 29419-9010

Re: Naval Industrial Reserve Ordnance Plant
Fridley, Minnesota
Contract No. N62472-90-C-1024
RMT Project No. 2826.01

Dear Chris:

Enclosed, for your use, are two copies of the final notes from Technical Review Committee meeting #19 held at the Naval Industrial Reserve Ordnance Plant on November 18, 1993. Other copies of these notes have been distributed according to the attached Distribution List.

Sincerely,



Eric Gredell, P.E.
Project Manager

jld

Enclosures



RMT, Inc. — MADISON, WI
744 HEARTLAND TRAIL = 53717-1934
P.O. Box 8923 = 53708-8923
608/831-4444 = 608/831-3334 FAX

**DISTRIBUTION LIST
MEETING NOTES
TRC MEETING #19**

Number of Copies

City of Fridley Department of Public Works Fridley Municipal Center Attn: Mark Winson 6431 University Avenue, N.E Fridley, MN 55432	1
Kerry Morrow NAVSEA Technical Representative Naval Industrial Reserve Ordnance Plant 5001 East River Road Minneapolis, MN 55421-1406	1
Naval Sea Systems Command Attn: Steven Hoffman CSEA 654-C Washington, DC 20362-5101	1
Minnesota Pollution Control Agency Site Response Section Ground Water and Solid Waste Division Attn: David Douglas 520 Lafayette Road St. Paul, MN 55155	1
U.S. Environmental Protection Agency Region V Remedial & Enforcement Response Branch OH/MN Section, Unit 1 (HSRM-6J) Attn: Tom Bloom 77 W. Jackson Blvd. Chicago, IL 60604-3590	1
FMC Corporation Attn: Doug Hildre 4800 East River Road Minneapolis, MN 55421	1
Metropolitan Waste Control Commission Attn: Leo H. Hermes, P.E./Michael Flaherty Mears Park Centre 230 East 5th Street St. Paul, MN 55101	1

**DISTRIBUTION LIST
MEETING NOTES
TRC MEETING #19**

Environmental Services 1
Anoka County Courthouse
Attn: Robert Hutchison, Director
325 East Main Street
Anoka, MN 55303

Minnesota Department of Natural Resources 1
Attn: Mr. Evan Drivas
500 Lafayette Road
St. Paul, MN 55115

Minneapolis Water Works 1
Attn: Mr. Adam Kramer
4300 Marshall Street NE
Minneapolis, MN 55421

Defense Plant Representative Office 1
FMC-Minneapolis
Attn: Commander Mike Stephenson
4800 East River Road
Minneapolis, MN 55421-5094

FMC Corporation 1
Attn: Richard Police
4800 East River Road
Minneapolis, MN 55421

B&V Waste Science & Technology Corp. 1
Attn: Margaret Casserly
101 North Wacker Drive, Suite 1100
Chicago, IL 60606

Commanding Officer 2
SOUTHNAVFACENGCOM
Chris Bartku; Code 1862
P.O. Box 190010
North Charleston, SC 29419-9010

Commanding Officer 1
Ken Barnes; Code 09E3
EFA Midwest; NAVFACENGCOM
Building 1A
Naval Training Center
Great Lakes, IL 60088-5797

**Minutes of Meeting
Technical Review Committee Meeting #19
November 18, 1993**

**Naval Industrial Reserve Ordnance Plant
Fridley, Minnesota**

Technical Review Committee (TRC) meeting #19 was held at the Naval Industrial Reserve Ordnance Plant (NIROP) in Fridley, Minnesota, on November 18, 1993. A copy of the agenda distributed at the meeting and an attendance list are attached.

A. Introductions

1. Jeff Allison opened the meeting on behalf of the Navy.
2. Pat Mosites is the new Resident Officer In Charge of Construction (ROICC) for the Naval Facilities Engineering Command (NAVFACENGCOM) stationed at the NIROP. His responsibilities include oversight of major civil-works construction projects.

B. Actions Since Last TRC Meeting

1. Linda Hicken reported that the draft-final soils Remedial Investigation (RI) Report was submitted to the agencies on September 24, 1993. A few comments on the document have been received from both agencies, and RMT is in the process of addressing them. The MPCA gave the report conditional approval as part of their comment letter. However, the USEPA would still like to see the final responses prior to issuing their approval of the report. Linda said that the responses would be in written form corresponding to each comment, with replacement pages as appropriate. These would be sent to all parties who received the draft-final report.

Tom Bloom said that according to the Federal Facility Agreement (FFA), the draft Alternatives Report is to be submitted to the agencies within 90 days after the final RI Report is issued. The draft Feasibility Study (FS) Report is due 90 days after the Alternatives Report is approved by the USEPA and MPCA. He said that the USEPA would like to discuss the applicable or relevant and appropriate requirements (ARARs) for soil with the Navy and RMT prior to their receipt of the draft Alternatives Report.
2. As requested, the USEPA and MPCA provided information (34 pages) to the Navy describing the organizational structure and names of key staff at both agencies. TRC members interested in receiving a copy of this information should contact Chris Bartku at 803-743-0611.
3. Chris Bartku said the Navy is making progress toward simplifying their procedures for issuing payments to the Metropolitan Waste Control Commission (MWCC) for sewer use bills. A new procedure will be implemented whereby bills will go directly from the MWCC to FMC Corp. at the NIROP. FMC will then manage the bill payment process for the Navy, including issuing payments directly to the MWCC from FMC. This new procedure is still pending; however, the Navy expects to begin using the procedure in the near future.

To facilitate communications regarding sewer use billing and payment, it was agreed that Michael Flaherty will be the primary point-of-contact for the MWCC, and Kerry Morrow will be the primary point-of-contact for the Navy. Chris Bartku said that the Navy acknowledges the bills received to date from the MWCC. He said that the delays in payment are due to procedural difficulties within the Navy, and are not due to a dispute with the validity or accuracy of the bills. He said the Navy intends to make payment for the bills received to date.

Michael Flaherty said that the new sewer use rate is \$0.40 per 1,000 gallons discharged.

4. Chris Bartku will send the laboratory results from monitoring of the air emissions from the interim groundwater pretreatment system to the USEPA and MPCA. This data was recently obtained by the Navy from the USACE.
5. Chris Bartku said that all planned modifications to the groundwater extraction system (GWES) and interim groundwater pretreatment system have been completed. These modifications included installation of pressure regulating valves on each groundwater extraction line in the Control House, a new water distribution inlet nozzle inside the air stripping column, water level indicators for each extraction well, revisions to the groundwater flow meter system, and other electrical items. He said that the equipment warranties for the groundwater extraction and pretreatment systems are still in effect.
6. Tom Bloom asked about status of the Operation and Maintenance (O&M) Plan. Eric Gredell said that RMT received and reviewed written comments from the USEPA on the O&M Plan issued by RMT in July 1993. This O&M Plan was prepared under RMT's contract with the USACE; all work under this contract has been completed. Therefore, preparation of responses to the USEPA's comments and any further revisions to the O&M Plan would have to be done under consulting arrangements managed by the Navy.

Tom Bloom said it is necessary to revise the O&M Plan to address the USEPA comments before the USEPA can issue written approval of the final plan. RMT will review the USEPA comments and provide a summary of the items needed to revise the O&M Plan to the Navy.

7. Tim Ruda presented a figure summarizing cumulative extracted groundwater flow volume for 1993 (copy attached). He said that modifications to the flow meter system made in September 1993 resolved the problems that have existed with the flow meters since the GWES started up in September 1992. Due to these problems, the accuracy of the flow rate and volume records for the first year of system operation is uncertain. The flow readings and records are now expected to be more consistent over time. The current combined flow rate from the 4 extraction wells is 312 gpm. The current flow from well AT-1A is approximately 40 gpm.

FMC is now managing operation and maintenance of the extraction and pretreatment systems. They are currently preparing a schedule for pulling the extraction well pumps for maintenance. At the FMC site to the south of the NIROP, the extraction wells have required routine maintenance service approximately 3 times per year. FMC uses a rule-of-thumb that extraction well maintenance is required when the pumping rate drops to 70% of the clean-well condition.

A large amount of scale and iron-bacteria deposits have built up in the piping from well AT-2; the pipe is constricted to about 75% of its original flow area. Iron fouling has also occurred in the air stripping column packing. An attempt was made to clean the packing in the column using an acid solution; this was ineffective. FMC has decided to remove the existing packing from the column and clean the packing in the NIROP plant. A second batch of packing will be purchased and loaded into the column when the current fouled packing is removed for cleaning. Both batches of packing will then be used on a rotating basis when subsequent cleaning is needed. FMC is also evaluating the feasibility of using a new chemical product that includes sulfamic acid as another type of cleaning solution that may be effective for cleaning the packing inside the column. The acid and water solution would be recirculated through the packing to loosen and remove scale and other deposits. FMC is also evaluating methods for disposal of the used cleaning solution and solids.

The activated carbon canister has been replaced 3 times since startup (February, June, and September 1993). The air exhaust from the canister is sampled and analyzed once per month according to the MPCA permit requirements. Air samples are also taken and spot-checked as the carbon is believed to be approaching saturation. No breakthrough of VOCs has been detected to date from air sample screening tests or laboratory analyses by FMC.

C. Actions for Next Quarter

1. Chris Bartku said that the contract for upgrading the GWES will be issued by the Navy to RMT within 3 weeks. Funds for this work have been allocated by the Navy. Chris will send a draft revised schedule for this work to Tom Bloom. The Navy's intention is to expedite the GWES upgrade tasks to attempt to meet the construction schedule for the upgrade that was previously provided to the USEPA and MPCA.
2. Chris Bartku said the Annual Report that is due in January 1994 will be prepared by RMT, under the contract for upgrading the GWES.
3. It was noted that the discharge limits for treated groundwater to be discharged to the river that will be included in the NPDES permit will be needed as soon as design of the longer-term groundwater treatment facility (GWTF) begins in 1994. These limits will be key design criteria for the GWTF. David Douglas said that he will work with Carolyn Volker of the MPCA's water program staff in setting the priorities for processing the NIROP NPDES permit. To support this task, he requested information from the Navy regarding the schedule for beginning design of the GWTF, and the earliest date that the NPDES discharge limits will be needed. He said that the NPDES limits for VOCs may not be the same as the target cleanup levels for groundwater specified in the Record of Decision (ROD), i.e., federal drinking water standard Maximum Contaminant Levels. John Betcher said that the public comment period for the proposed NPDES permit must be completed before the final discharge limits will be set.
4. Chris Bartku said that design of the GWTF will remain on hold until the plan for upgrading the GWES has been developed and approved. Factors such as the number of new extraction wells required, the projected groundwater flow rate, and the estimated groundwater quality may significantly affect design of the GWTF. To avoid the time and effort involved in multiple modifications to RMT's contract for design of

the GWTF, the Navy prefers to continue the design hold until the key design parameters are resolved. Eric Gredell said that sufficient information should be available to begin design for upgrading the GWES after the upgrading plan has been developed using the existing groundwater flow model, and the plan has been approved.

5. It was mentioned that pending decisions regarding use of treated groundwater in lieu of or in addition to discharge of the water to the river, as specified in the ROD, will affect design of the GWES and the GWTF. David Douglas said that the MPCA is willing to assist the Navy and the City of Fridley in resolving this matter. He said that any agreement between the Navy and the city regarding use of treated water from the groundwater restoration efforts at the NIROP as a source of drinking water for the city would not involve the MPCA as a signatory to the agreement.

Tom Bloom said that treated groundwater from the NIROP would not be a good reliable source of drinking water for the city, because the duration of groundwater extraction, changes in groundwater flow rates over time, and other factors pertinent to use of the groundwater are uncertain.

Chris Bartku said that the Navy's position, as presented previously in TRC meetings and in correspondence, is that the Navy will treat the groundwater to remove only the contaminants that are attributable to past Navy activities at the NIROP, and as specified in the ROD for groundwater. Tom Bloom said that groundwater is a natural resource that "does not belong to the Navy," and should be made available for use by the city if requested.

The situation at the Twin Cities Army Ammunition Plant (TCAAP) was discussed again, in comparison to the situation at the NIROP. Scott Erickson said that at the TCAAP, the U.S. Army is required to treat contaminated groundwater to non-detect levels for TCE. The water receives chlorination before it is pumped into the City of New Brighton's water distribution system; this treatment is done under a cost-sharing agreement between the city and the Army. The Navy representatives pointed out again that the situation at the NIROP is very different from the TCAAP; the NIROP has not caused contamination of Fridley's existing groundwater supply.

It was mentioned that the chemical characteristics of extracted groundwater from the NIROP remediation are expected to be different from the characteristics of groundwater that would typically be pumped from a bedrock formation for use as a municipal water supply. These differences may require treatment processes, equipment sizes, etc., that may be different for the NIROP groundwater than the treatment processes required to treat groundwater extracted from a bedrock aquifer. Scott Erickson said that Fridley has wells that pump from the bedrock and unconsolidated deposit aquifers.

6. It was agreed that there are several technical, administrative, and cost issues that relate to the feasibility of using treated groundwater at the NIROP as a supplemental supply of drinking water for the City of Fridley.

After further discussion, it was agreed that Scott Erickson will prepare a list of questions and criteria of a technical nature that the city believes must be resolved, related to obtaining groundwater from the NIROP remediation for use as a drinking water supply for the city. David Douglas said that the MPCA is willing to assist the city

in identifying these items, or the city could consider hiring a consultant to provide this assistance. Tom Bloom suggested that the city review the records from the study done in the early 1980's by the Ranney Company regarding the feasibility of installing a system of water supply wells located near the north end of the Minneapolis Water Treatment Plant. The city will send the list of questions and data needs to the Navy. The Navy will then provide a written response. After evaluating the Navy's response, the city representatives will determine whether they are still interested in pursuing a request to receive groundwater from the NIROP remediation. If the city is still interested, the Navy will hold discussions with the city to determine whether a meeting should be scheduled to discuss the matter. Scott Erickson said that he would function as the primary point-of-contact for the city for these discussions and for directing correspondence.

7. Tim Ruda said that some piping and equipment has been installed inside the plant to use a portion of the untreated groundwater as non-contact cooling water for large air compressor equipment. However, all connections of the new cooling water piping to the groundwater piping in the plant are currently removed. There are currently no defined plans for using groundwater as cooling water in the plant. A rough estimate of the total groundwater flow expected from an upgraded GWES is 650 to 700 gpm. A maximum of about 25% of this total flow is expected to be needed for possible future cooling water use.

FMC currently records monitoring data related to the groundwater extraction and pretreatment systems. However, they do not currently make evaluations of effectiveness or performance of the remediation efforts, such as tracking the cumulative mass of TCE removed in the extracted groundwater. It has not been determined who will be responsible for tracking and evaluating this data.

8. Chris Bartku said that the Annual Report for the groundwater extraction and pretreatment system is due in January 1994. This report will be prepared by RMT under their pending contract with the Navy for upgrading the GWES. A separate contract with RMT is being prepared for the soil FS. The GWTF design will be done by RMT under an existing contract.

D. RCRA Status

FMC representatives who are familiar with the status of RCRA activities at the NIROP were not present at the meeting. Therefore, a status update was not presented. It was reported that the soil vapor extraction system installed in the area of former Hazardous Waste Storage Area 'C' has not started up; however, the cause of the startup delay was not reported.

E. Community Relations

The only topics discussed related to community relations were the public comment period for the NPDES permit, and the issue of using NIROP groundwater as a potable water supply for Fridley (see Section C of these notes).

F. General Topics

1. Jeff Allison said that a Government Accounting Office (GAO) audit of the NIROP is underway, including costs for environmental work. The audit will consider upcoming remediation work and will also review past work completed under the USACE's direction. He said that the primary objective of the GAO audit is to answer the questions 1) how many dollars have been spent at the NIROP for environmental restoration ?, and 2) how much cleanup has been accomplished ? He said that additional effort is needed to track data to provide answers to these questions.
2. Two acronyms used include:

DSMOA: The Department of Defense/State Memorandum of Agreement signed for the Installation Restoration Program (IRP) activities at the NIROP Fridley.

ARMAS: The Army Remedial Management System.
3. Chris Bartku said that another engineer will be assigned at his office to assist with work on the NIROP projects, effective November 29, 1993.
4. Chris Bartku said that he will consider providing information to the TRC at the next meeting regarding the total costs incurred by the Navy to date for work under the IRP at the NIROP, including the amounts charged by the USEPA and MPCA for oversight activities.
5. Tom Bloom asked about status of the soil remediation activities by Burlington Northern Railroad (BNR) on their property adjacent to the northeast NIROP property. David Douglas said that that MPCA had intended to send a letter to the BNR requesting information on the activities. However, he did not know the status of this letter or other activities related to the BNR work.
6. The next TRC meeting was scheduled for **Thursday, February 24, 1993, at 10:00 a.m.** in the Defense Plant Representative Office (DPRO) at the NIROP Fridley.

NIROP, FRIDLEY MN TRC MEETING #19
NOVEMBER 18, 1993

AGENDA

1. INTRODUCTION

2. ACTIONS SINCE LAST TRC MEETING

NAVY/RMT

- * SOILS OU FINAL REPORT DISTRIBUTED, COMMENTS INCORPORATED, & FORMAL RESPONSES MADE
- * SOILS FS WORKPLAN CONTRACTING UNDERWAY
- * GWES UPGRADE CONTRACT MODIFICATION READY TO NEGOTIATE; TO BE AWARDED WITHIN NEXT 3 WEEKS
- * PAYMENT TO METROPOLITAN WASTE CONTROL COMMISSION (SANITARY) CURRENTLY BEING SIMPLIFIED
- * RESPONSE TO SENATOR DURENBERGER

ACOE/MK/EH RENNER

- * FIRST SIX MONTH AIR STRIPPER MONITORING RESULTS SENT TO NAVY
- * GWES REPAIRS/UPGRADES COMPLETE

FMC

- * GWES O&MN RUNNING SMOOTHLY
- * CARBON UNIT SWITCHED OUT FOR 3RD TIME
- * 2ND PERIOD/QRTLY AIR STRIPPER RESULTS DISTRIBUTED

3. ACTIONS SCHEDULED FOR NEXT QUARTER

NAVY/RMT

- * AWARD SOILS FS
- * IDENTIFY GWES UPGRADE RQMTS
- * BEGIN FINAL PLANT DESIGN
- * YEARLY REPORT

MPCA/EPA REGION V

- * ISSUE NPDES PERMIT?

4. OTHER ISSUES/COMMENTS

- * FMC UPDATE

5. NEXT TRC MEETING



Minnesota Pollution Control Agency

September 17, 1993

The Honorable Rod Grams
United States Representative
1713 Longworth House Office Building
Washington, D.C. 20515

RE: Naval Industrial Reserve Ordnance Plant/Use of Treated Water

Dear Congressman Grams:

Thank you for offering the Minnesota Pollution Control Agency (MPCA) the opportunity to assist you in responding to a letter to you from the city of Fridley (Fridley) dated August 19, 1993, concerning the use of treated water from the Naval Industrial Reserve Ordnance Plant (NIROP) in Fridley.

The MPCA supports the general concept of using treated water from Superfund sites for drinking water purposes as opposed merely to discharging it into surface waters; however, there are some issues regarding the reuse of treated water from the NIROP ground water cleanup that need to be addressed. It should also be noted that based on information to date, the U.S. Navy (Navy) does not appear to be a source of contamination of Fridley's drinking water and the MPCA cannot require the Navy to provide drinking water to Fridley. Whereas, at the Twin Cities Army Ammunition Plant Site, the U.S. Army did contaminate New Brighton's drinking water and was required to provide a potable water supply to New Brighton.

The MPCA's primary concern with this site is that the Navy continues to investigate and clean up the soil and ground water. The MPCA staff is also concerned about the possible reuse of remediated ground water. The Navy did conduct a water reuse study approximately two years ago that concluded that there were no large scale industrial users in the area for the treated water and that Fridley's demands for treatment and distribution of the water were unreasonable. In addition, it is not possible at this time to determine exactly how long it will take to clean up the ground water or how reliable the ground water pump out system will be for a source of drinking water. Soil cleanup will likely accelerate the ground water cleanup by removing a contaminant pathway to ground water. Therefore, there is some question as to the reliability of the treated ground water for a long-term water supply. It is possible for the ground water treatment system to be in operation for less than ten years and to have variable flow rates.

TDD (for persons who are hearing and speech impaired only) call (612) 297-5353.

Printed on recycled paper containing at least 10% fibers from paper recycled by consumers.
520 Lafayette Rd.; St. Paul, MN 55155-4194; (612) 296-6300; Regional Offices: Duluth • Brainerd • Detroit Lakes • Marshall • Rochester

The Honorable Rod Grams

Page 2

September 17, 1993

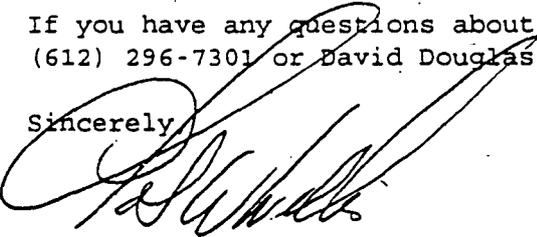
In order to use the treated water as a water supply for Fridley, the Navy and Fridley would have to enter into a formal written agreement on the treatment distribution and use of the water. As noted on page 5 (Item 5) of the enclosed meeting notes from the Technical Review Committee meeting of April 29, 1993, officials of Fridley, the Navy, and the MPCA staff discussed this matter at this meeting. As noted in the notes, the Navy has raised some liability concerns regarding the concept of reusing the water for drinking water for the residents of Fridley. Although the MPCA encourages the reuse of ground water from site remediation, these issues would have to be worked out in negotiations between Fridley and the Navy.

In addition, the parties could agree to share the costs of constructing, operating, and maintaining any water supply system. The MPCA requires that the Navy must return the contaminated ground water to an uncontaminated condition. Any additional requirements that Fridley desires for water treatment would have to be negotiated with the Navy as well as the costs for additional treatment.

In short, the MPCA agrees with the concept of municipal water reuse at Superfund sites, but cannot require it at NIROP. In order for this to occur, agreements would need to be reached on many issues between Fridley and the Navy. The MPCA staff will offer to facilitate a meeting between Fridley and Navy officials to revisit and discuss the many issues regarding the feasibility of the Navy providing Fridley with potable water.

If you have any questions about this letter please contact me at (612) 296-7301 or David Douglas of my staff at (612) 296-7818.

Sincerely,



Charles W. Williams
Commissioner

CWW:ch

Enclosure

cc: Christopher Bartku, U.S. Navy
Tom Bloom, U.S. Environmental Protection Agency



DEPARTMENT OF THE NAVY

NAVAL FACILITIES ENGINEERING COMMAND

200 STOVALL STREET

ALEXANDRIA, VA 22332-2300

September 24, 1993

The Honorable Dave Durenberger
United States Senator
Washington, DC 20510-2301

Dear Senator Durenberger:

The Chief of Legislative Affairs has referred to us your letter of August 27, 1993, on behalf of your constituent, William J. Nee, Mayor of the City of Fridley, Minnesota. The Navy is treating contaminated ground water under the Naval Industrial Reserve Ordnance Plant (NIROP), Fridley, Minnesota. As discussed in Mayor Nee's letter, the City of Fridley is interested in using the treated water if it is treated so that no pollution is detectable. Their concern is depletion of the Mt. Simon and Jordan aquifers.

The Navy has installed wells in the unconsolidated aquifer beneath NIROP to capture the ground water plume containing volatile organic compounds, including trichloroethylene. The unconsolidated aquifer is separated from the underlying Prairie du Chien/Jordan aquifer by a layer of St. Peter sandstone which restricts the flow of ground water between the two aquifers. To the best of our knowledge, the Navy has not depleted or contaminated the aquifer used by the City of Fridley as the source of their potable water.

The Navy plans to conduct tests on the ground water being pumped from the unconsolidated aquifer to establish design parameters for a full scale treatment system. The pumped ground water is discharged to the City of Fridley's sanitary sewer system. In the future, the Navy plans to treat the water and discharge it through a National Pollutant Discharge Elimination System permitted outfall to the Mississippi River.

Treatment of the ground water by the Navy will be limited to removing volatile organic compounds. Sampling results have detected ground water concentrations of trichloroethylene from less than 0.005 milligrams per liter (mg/l) to 37.0 mg/l. The Navy plans to treat the ground water to a target trichloroethylene concentration of 0.005 mg/l.

The contaminated ground water which the Navy has treated may require further treatment by the City of Fridley before it is suitable for potable uses. If the City is interested in using the non-potable treated water, the Navy is available to discuss

the matter. The person to contact is Mr. Christopher R. Bartku, at Southern Division, Naval Facilities Command, in Charleston, South Carolina, at (803) 743-0611.

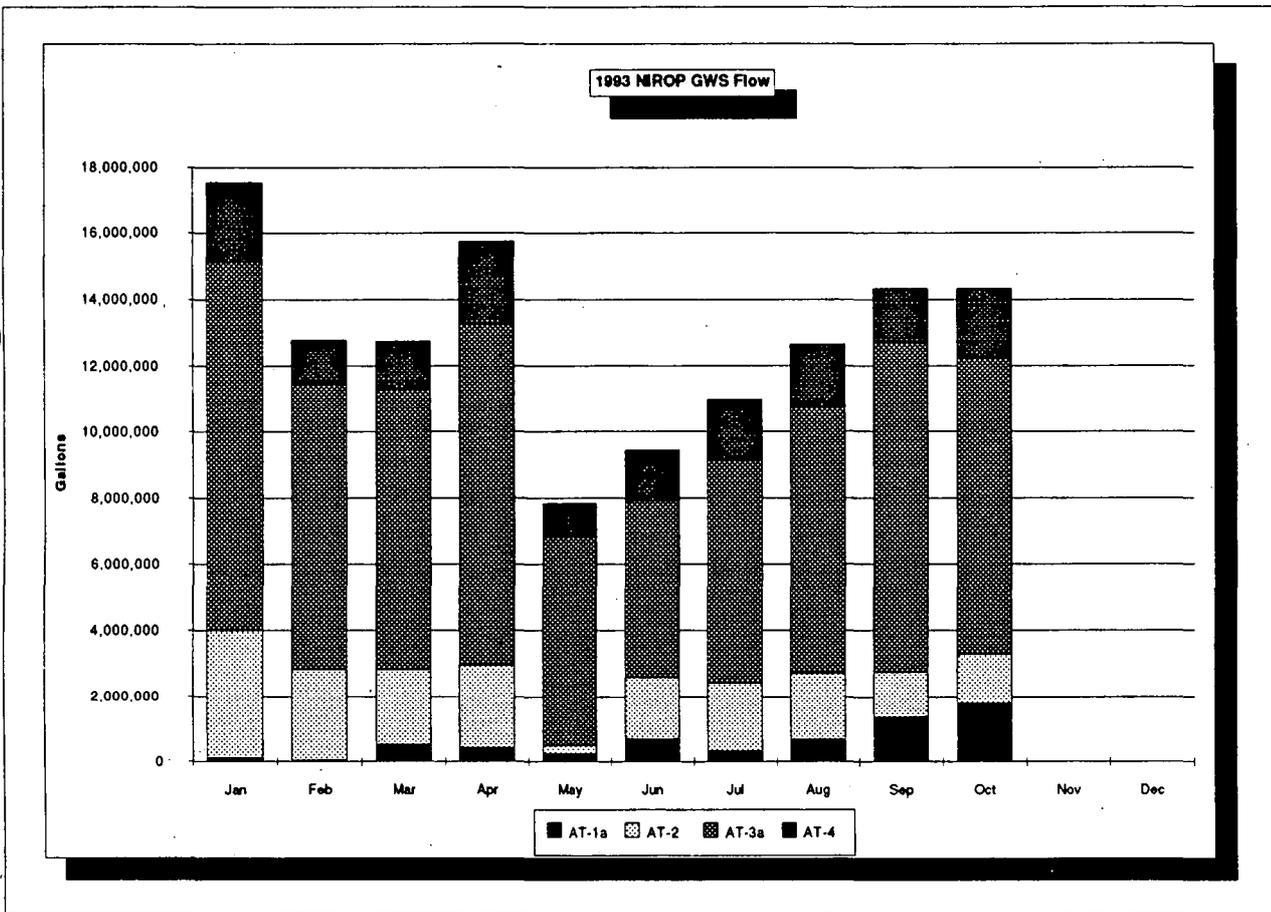
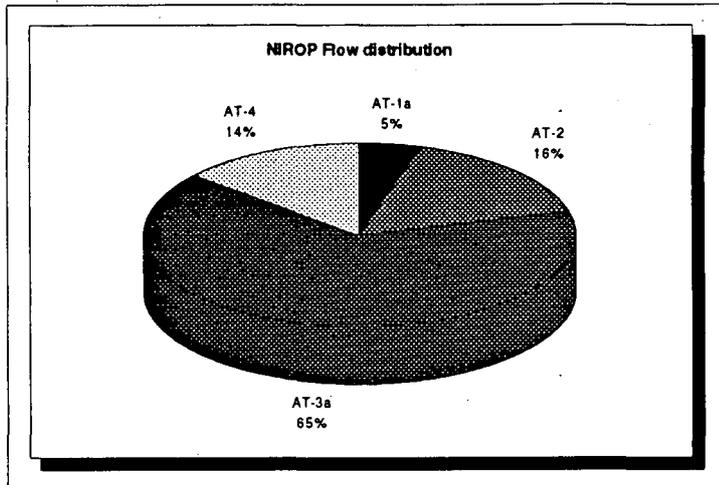
We trust this information will assist you in responding to your constituent.

Sincerely,

A. D. AYARS, JR.
Commander, CEC, U. S. Navy
Executive Assistant to the
Commander

Blind Copy to:
OLA (3U035414)
CNO (N453)
NIROP FRIDLEY
SOUTHNAVFACENGCOM (182)

1993	AT-1a	AT-2	AT-3a	AT-4	Total
Jan	107,700	3,903,400	11,108,500	2,421,900	17,541,500
Feb	23,200	2,820,000	8,597,300	1,346,200	12,786,700
Mar	495,900	2,351,600	8,433,700	1,468,300	12,749,500
Apr	400,400	2,563,300	10,310,000	2,462,100	15,735,800
May	218,900	266,000	6,391,640	976,400	7,852,940
Jun	682,600	1,921,900	5,321,910	1,524,800	9,451,210
Jul	304,400	2,138,500	6,695,600	1,862,200	11,000,700
Aug	656,700	2,074,400	7,988,400	1,942,000	12,661,500
Sep	1,367,000	1,399,900	9,964,400	1,602,600	14,333,900
Oct	1,821,800	1,472,200	8,921,500	2,115,600	14,331,100
Nov					
Dec					
Total	6,078,600	20,911,200	83,732,950	17,722,100	128,444,850



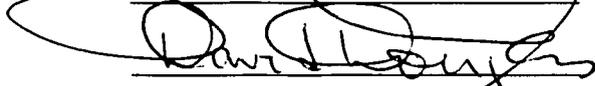
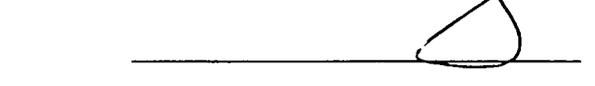
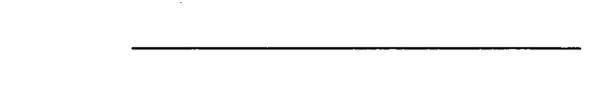
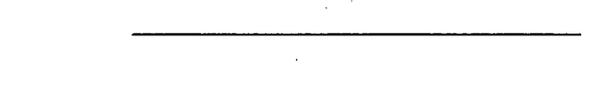
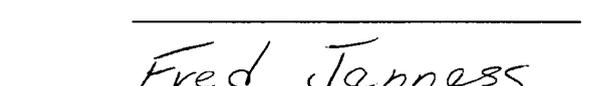
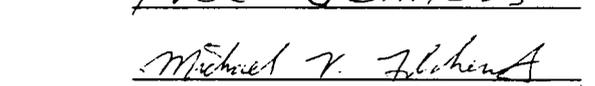
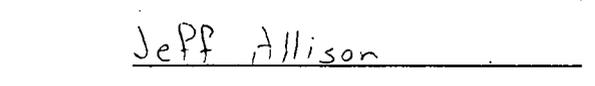
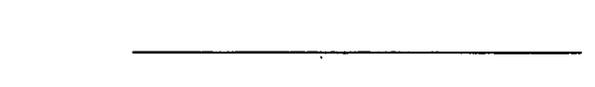
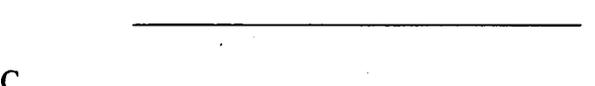
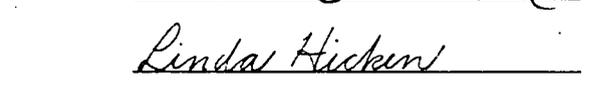
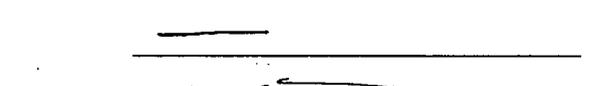
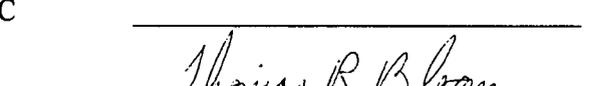
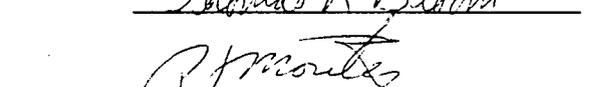
Future O & M Activities

- Cleaning of Underground Pipe for Well AT2
- ** Evaluation of service interval for Pump Systems
- *** Replacement of Scrubber Packing

**TECHNICAL REVIEW COMMITTEE (TRC) MEETING #19
 NOVEMBER 18, 1993
 NIROP FRIDLEY, MINNESOTA**

LIST OF ATTENDEES

<u>NAME</u>	<u>ORGANIZATION</u>	
Margaret Casserly	Black and Veatch	<i>M. Casserly</i>
Scott Erickson	City of Fridley	<i>[Signature]</i>
Sam Bass	COE	
Janet Ehresmann	COE	
Mark Koenig	COE	
Eugene Liu	COE	
Robert Hutchinson	County of Anoka	
Evan Drivas	DNR	
John Dresch	DPRO FMC Minneapolis	
Major Gartin	DPRO FMC Minneapolis	
CDR Stephenson	DPRO FMC Minneapolis	<i>[Signature]</i>
Keith Lura	DPRO FMC Minneapolis	<i>[Signature]</i>
Sue Oetterer	DPRO FMC Minneapolis	<i>Sue Oetterer</i>
Ken Barnes	EPA Midwest EMW NAVFAC	<i>Kenneth J. Barnes</i>
Doug Hildre	FMC/ASD	
Tim Ruda	FMC/ASD	<i>Timothy R. Ruda</i>
Darlene Weber	FMC/ASD	
Larry Cole	Minneapolis Water Works	<i>Larry Cole</i>
Paul Koski	Minneapolis Water Works	
Adam Kramer	Minneapolis Water Works	

<u>NAME</u>	<u>ORGANIZATION</u>	
John Betcher	MPCA	
Dave Douglas	MPCA	
Dawn Duncanson	MPCA	
Gary Eddy	MPCA	
Mark Ferrey	MPCA	
Steve Giddings	MPCA	
Fred Jenness	MPCA	
Michael Flaherty	MWCC	
Jeff Allison	NAVSEA	
Richard Hanson	NAVSEA	
Steve Hoffman	NAVSEA	
Kerry Morrow	NAVSEA	
James Shafer	NORTHDIVNAVFAC	
Eric Gredell	RMT, Inc.	
Linda Hicken	RMT, Inc.	
Tom Koch	RMT, Inc.	
Chris Bartku	SOUTHDIVNAVFAC	
David Criswell	SOUTHDIVNAVFAC	
Thomas Bloom	USEPA	
PAT MOSITES	NAVFAC REP	