



TETRA TECH NUS, INC.

661 Andersen Drive • Pittsburgh, PA 15220
Tel 412.921.7090 • Fax 412.921.4040 • www.tetrattech.com

PITT-12-4-011

December 3, 2004

Project Number 0990

Commander, Southern Division
Naval Facilities Engineering Command
ATTN: Dan Owens, Code ES32
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order 0330

Subject: Naval Industrial Ordnance Plant, Fridley, Minnesota
Restoration Advisory Board Meeting

Dear Dan:

Per your instruction, we are providing copies of the October 7, 2004 RAB meeting minutes to the RAB.

The next NIROP RAB meeting has been tentatively scheduled for May 5, 2005, 8:30 a.m., at Fridley City Hall. Formal notification and an agenda will be provided before the meeting.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark Sladic', is written over the typed name.

Mark Sladic, P.E.
Task Order Manager

MS/kf

Enclosures



TETRA TECH NUS, INC.

Mr. Dan Owens
NAVFAC EFD SOUTH
December 3, 2004 - Page 2

c: John Haukaas, City of Fridley, Dept. of Public Works
Mark Goodman, Naval Sea Systems Command
Paul Walz, Bay West
David Douglas, MPCA
Tom Smith, USEPA - Region V
Doug Hildre, United Defense LP
Michael Flaherty, Metropolitan Council Environmental Services
Robert Hutchinson, Environmental Services, Anoka County Courthouse
Adam Kramer, Minneapolis Water Works
Larry Cole, Minneapolis Water Works
LTC Joel Zejdlik, Defense Contract Management Office - Minneapolis
Laura Schmidt, RAB Member
Richard Harris, RAB Member
Craig S. Gordon, RAB Member
Bob Boesell, RAB Member
John Flora, RAB Member
Venky Venkatesh, CH2MHill
Laura, Pugh, Tech Law

**Minutes of Meeting
Restoration Advisory Board Meeting #25
October 7, 2004**

**Naval Reserve Ordnance Plant
Fridley, Minnesota**

Restoration Advisory Board (RAB) meeting #25 was held at the Riedel Farm House in Anoka County Riverfront Regional Park, Fridley, Minnesota, on Thursday, October 7, 2004, at 8:30 AM. A copy of the attendance sheet is attached (Attachment 1). A copy of the meeting agenda is also attached (Attachment 2). Each of the attendees' affiliation is identified on the attendance sheet.

1. Introduction

Dan Owens and Mr. Richard Harris opened the meeting at 8:30 AM.

There was no old business to address.

2. Actions Since Last Meeting

Operable Unit (OU) 1 - Groundwater: Paul Walz, with BayWest, provided an Operation and Maintenance summary for the GWTF. See Attachment 3.

Paul identified the April 04 PLC circuit board replacement as responsible for the low on-stream factor during that period. Currently, due to weakening performance, well AT-7 is scheduled to be redeveloped. Paul also said that he is still researching the issue but believes that the pumps in wells AT-5A and AT-5B are the originals and their weakening performance may be attributable to old age. Although losing capacity, they are not yet down to the 60% of design capacity action level.

John Betcher asked what could be leading to the reduction in pumping. Paul suggested that the acid cleaning could be affecting the impellers, or maybe the cleaning is incomplete. Paul said the Teflon coating of the impellers has worked well.

Paul also noted that the polymer dose should be increased and paperwork to support the change has been provided to MDH.

Anoka County Park Remediation Pilot Test (vegetable oil). Venky Venkatesh, a Navy contractor with CH2MHILL, updated the status of the Pilot Test Study.

Venky said that the draft report was distributed and regulatory comments were provided. Parsons and Navy provided responses to those comments. The primary comments were typically about continuing the monitoring or adding additional wells, since there is a possibility that the groundwater flow might be more southerly than originally anticipated.

Currently, Parsons is proposing at least two additional sampling rounds. This is anticipated to start sometime before Thanksgiving, with the follow up round to be six months after.

Venky said that a permit will need to be requested to install additional wells.

Mr. Richard Harris said that at his recent RAB workshop in Utah, it was apparent that there are not many fans of pump and treat. Most people there did view vegetable oil favorably. Mr. Harris asked if that aside, is vegetable oil working here. Venky said the oil

is working, but not as fast as hoped. The contamination dropped from six thousand parts per billion to one thousand parts per billion or less. However, the original starting point was expected to be about twenty thousand parts per billion based on historical analyses.

Mr. Harris asked if the long-term plan was to install vegetable oil on the plant side if it works. Dan Owens said the Navy would do a cost-benefit evaluation. Mr. Harris asked if any of this progress or plan was a problem for EPA or MPCA. EPA and MPCA said no. Dave Douglas said the pump and treat won't be turned off until something better is identified.

Mr. Harris asked if daughter products are being produced and if they are breaking down. Venky said they are being produced and are being broken down.

Operable Unit (OU) 3 – Soils Under the Plant: Mark Sladic, a navy contractor with TtNUS, said that the Land Use Controls Remedial Design to support the Record of Decision (ROD) addressing both OU2 and OU3 had been completed. A handout was provided (see Attachment 4) of the signed ROD pages with a summary of the land use control objectives.

Mark said that in addition, the CERCLA Five Year Review had been completed to evaluate the protectiveness of the pump and treat remedy. The document concluded that the remedy remains protective. A handout was provided (see Attachment 5).

Also, Navy has agreed to put in several additional monitoring wells in the median strip on East River Road, pending the permission of Anoka County. Anoka County is currently reviewing the proposed locations, following which, a formal license agreement will be provided by Anoka County. The new wells will provide additional information about how groundwater flows are impacted by the pumping system.

Sale of the Property Dan Owens said that the NIROP had been sold to UDLP. This was one reason why the RAB was meeting across the road.

Mr. Richard Harris asked if any Navy presence would remain at NIROP. Dan said that while Navy retains the environmental responsibility, there would be no day-to-day presence. For the foreseeable future, Baywest would continue to operate the pump and treat system for the Navy, although longer term it is possible that UDLP may assume operation pending a larger settlement of all environmental issues between Navy and UDLP.

4. Other Issues/Comments

- a. The team is currently working on these other activities:
 - Next phase of vegetable oil workplan/testing
 - Collecting data for the 2004 groundwater annual monitoring report.
- b. The next meeting date has tentatively been set for May 5, 2005 at 8:30 AM. The Navy anticipates pursuing the Fridley's generous offer to allow the meeting to be held at the Fridley City Hall. RAB members, and others on the mailing list, will be notified well in advance and provided with a meeting agenda.
- c. The meeting was adjourned.

ATTACHMENT 1:
ATTENDANCE SHEET

Please Print

NAME	Representing	Telephone
Paul Rice	ICFLD	207-646-6135
MARIL SLADIC	TERRA-TECH	412 921 8216
Dan Owens	US Navy	893 820-7331
Dennis Douglas	MPCA	651-296-7818
Leura Pugh	Techlaw	763-208-2828
Thomas L. Smith	U.S. EPA	312 886-6540
John Betch	MPCA	612-724-6211
VENKY VENKATESH	CH2MHILL	216-623-0402
Richard Harris	CO-CHAIR	763-571-4097
Laura Schmidt	Anoka County	763-422-7253
Jon LAUKAAS	Fridley	763 572 3550
Paul Walz	Bay West	(651) 291-3491
Tim Ruda	UDLP	763 572-6906

ATTACHMENT 2:
MEETING AGENDA

**NAVAL INDUSTRIAL RESERVE ORDNANCE PLANT FRIDLEY
RESTORATION ADVISORY BOARD MEETING #25**

THURSDAY OCTOBER 7, 2004 8:30 AM

AGENDA

1. **Introductions/Welcome**

2. **Actions Since Last Meeting**

NAVY

a.

Operable Unit #1 – Groundwater

- **Status of Groundwater Treatment Facility Maintenance and Operation – Megan Kari/Paul Walz; BayWest**
- **Update of Vegetable Oil Pilot Test Results, Path Forward, and Schedule – Venky Venkatesh; CH2MHILL**
- **New wells installation; Mark Sladic; TtNUS**
- **CERCLA Five-Year Review complete; Mark Sladic; TtNUS**

b.

Operable Unit #3 – Soils Under the NIROP Plant

- **Record of Decision (ROD) and Land Use Control Remedial Design (LUC RD) complete - Mark Sladic; TtNUS**

3. **Property Sold to UDLP – NAVSEA/Navy**

4. **Other Issues/Comments**

a. **Future Meeting Dates**

PLEASE NOTE THE RAB AGENDA IS SUBJECT TO CHANGE.

ATTACHMENT 3:

OU1 GWTF PRESENTATION

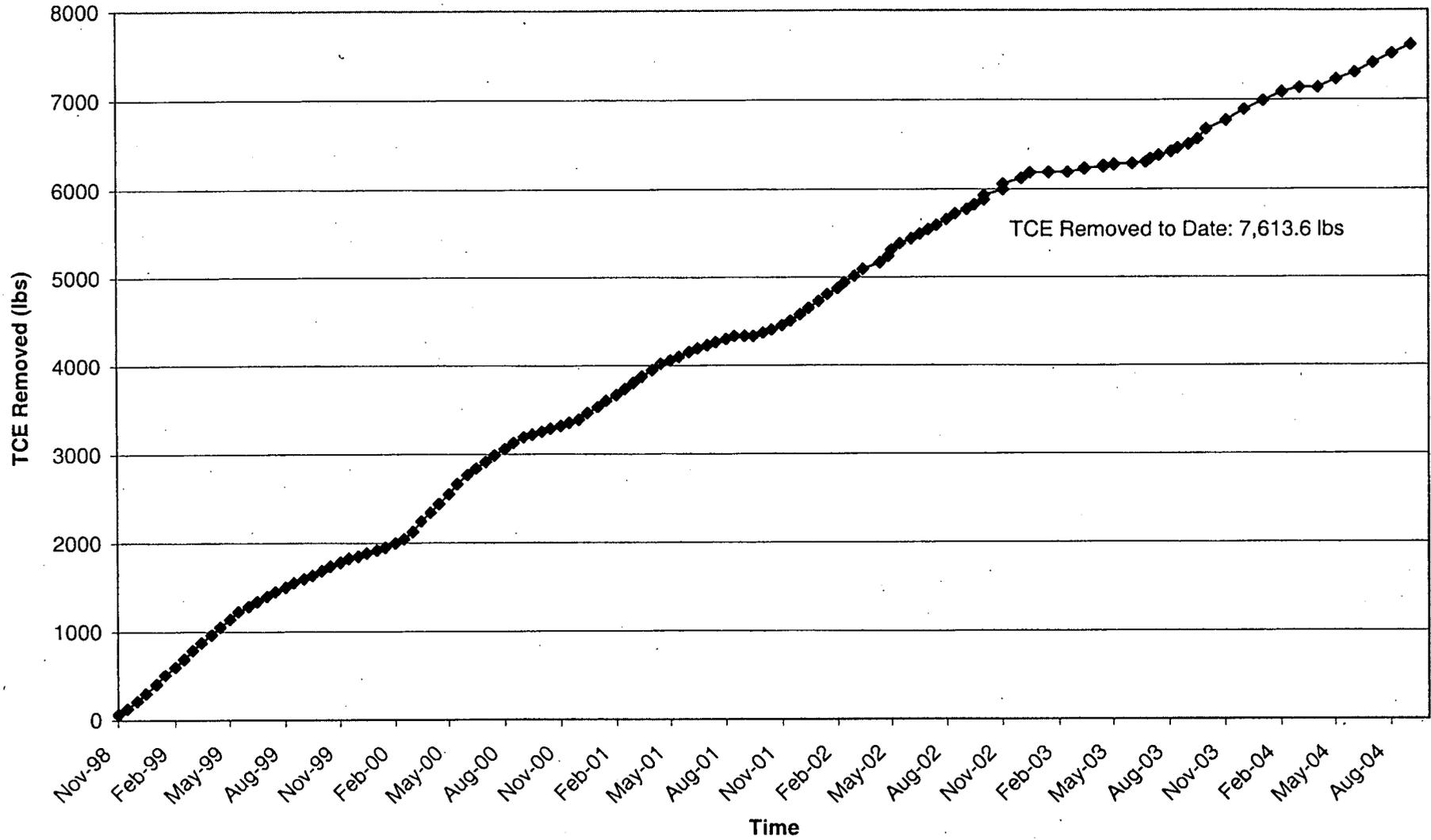
**NIROP Ground Water Treatment Facility
Fridley, MN
TCE Concentrations ($\mu\text{g/L}$)**

TCE Influent Concentrations	
12/1/01	620
3/15/02	610
6/15/02	560
9/16/02	610
12/16/02	600
3/26/03	220
6/24/03	390
9/17/03	510
12/3/03	470
3/2/04	460
6/3/04	460
9/10/04	420

TCE Removed (pounds)	
Jan-03	5.2
Feb-03	0
Mar-03	45.6
Apr-03	15.0
May-03	13.6
Jun-03	27.3
Jul-03	73.3
Aug-03	83.0
Sep-03	101.2
Oct-03	107.6
Nov-03	97.0
Dec-03	121.1
Jan-04	99.4
Feb-04	92.8
Mar-04	49.4
Apr-04	0.2
May-04	92.1
Jun-04	80.2
Jul-04	104.7
Aug-04	106.2
Sep-04	98.9

Discharge Concentration (Outfall) TCE Discharge limit = 5 $\mu\text{g/L}$	
January 2003	No Sample
February 2003	No Sample
3/26/03	<1.0
4/7/03	<1.0
4/28/03	<1.0
5/1/03	<1.0
6/24/03	<1.0
7/1/03	<1.0
7/15/03	<1.0
8/4/03	<1.0
8/15/03	1.1
9/2/03	17
9/17/03	<1.0
10/1/03	<1.0
11/1/03	<1.0
12/1/03	<1.0
1/1/04	<1.0
2/1/04	<1.0
3/2/04	<1.0
6/3/04	<1.0
7/9/04	<1.0
8/6/04	<1.0
9/10/04	<1.0

TCE Removed



**NIROP Ground Water Treatment Facility
Fridley, MN
Extraction Well Pumping Volumes**

Extraction Wells - Water Volumes (kgal)							
	AT-3A	AT-5A	AT-5B	AT-7	AT-8	AT-9	AT-10
Jan-03	436	157	232	0	0	223	0
Feb-03	0	0	0	0	0	0	0
Mar-03	3243	2489	1752	478	402	2728	100
Apr-03	4933	3749	2498	1247	624	2112	100
May-03	3216	2415	1602	797	402	25	0
Jun-03	3155	2399	1582	791	27	2361	440
Jul-03	6363	5032	3186	1593	498	4997	960
Aug-03	6808	5199	3710	1855	927	5978	1160
Sep-03	7967	5976	3983	847	996	6794	1250
Oct-03	7183	5577	3716	1857	930	6129	1310
Nov-03	7673	5755	3629	1918	959	5904	550
Dec-03	8066	6431	3588	2142	953	6431	1400
Jan-04	7653	6186	3489	2077	0	5317	1310
Feb-04	6993	5620	3220	922	0	4721	1172
Mar-04	3587	2794	1574	533	228	2329	695
Apr-04	0	0	0	0	0	0	0
May-04	6823	4333	3134	1897	914	5480	336
Jun-04	5891	4234	2935	1293	839	4789	0
Jul-04	7857	6409	3739	1273	845	6032	1235
Aug-04	8066	6052	3515	1799	636	5226	2477
Sep-04	7925	6138	3495	1565	731	5992	2502

NOTES:

AT-8 and AT-9 flow reduced in December 2003; AT-8 faulted out on January 20, 2004; by February, AT-7 decreased flow again

Redeveloped extraction wells AT-5A, AT-3A, AT-8, AT-9 and cleaned AT-7 pump from March 9-18, 2004

AT-7 faulted out June 28, 2004; had been gradually reducing flow since June 23

July 1, 2004: Renner tested AT-7; operating properly, but purged lines with compressed air (Determined flowmeter was cause of low readings)

July 9, 2004: AT-9 reduced flow to approximately 125 gpm

August 6, 2004: AT-8 reduced flow to 10 gpm; purged lines with compressed air and began pumping at 13 gpm; AT-7 cascading down well screen; throttled flow down to 44 gpm

August 25, 2004: AT-8 would not restart after being shutdown from T-101 recirculation line repair

September 9, 2004: Renner manually operated AT-8 and using flow control valve, surged the lines; then purged lines with compressed air; now pumping at 14 gpm

Extraction Wells - Flow Rates (gpm)							
	AT-3A	AT-5A	AT-5B	AT-7	AT-8	AT-9	AT-10
<i>IDEAL</i>	180	168	88	50	15	150	20
3/20/2004	185.8	145.1	80.5	51.9	18	130.3	33
10/5/2004	189.8	147	83.8	38.9	14	131.3	32

Site Activities/Issues
Ground Water Treatment Facility

January-February, 2004	Extraction wells AT-8 and AT-9 reduced flow; on January 20, 2004, AT-8 faulted out; by February, AT-7 decreased flow again
January 28-30, 2004	System shutdown due to air blower piping loosening due to extremely cold air; Bay West installed screws between fittings to keep pieces together and system operational
February 18, 2004	CH2M hill representative on-Site to install updated PLC programs with 'watchdog' feature between both PLCs and also timers on low air flow alarms
March 9-18, 2004	Redeveloped extraction wells AT-5A, AT-3A, AT-8, AT-9 and cleaned AT-7 pump; extended AT-10 drop pipe All Wells increased flow except AT-5B and AT-10
March 25, 2004	System shutdown; PLC in Building 52/53 requires replacement; communication failure
March 31, 2004	Completed acid cleaning on each air stripper
April 14, 2004	Received approval for contract modification for new PLC in Building 52/53; will order and install as soon as possible
April 22, 2004	PFC Equipment installed P-301A after teflon coating pump components; removed P-301B for same procedure
April 28, 2004	Rockwell Automation installed new PLC in Bldg 52/53 and also surge suppressors on communications cable; Recommended an additional set of surge suppressors for remote input/output communications cable Bay West ordered additional set of surge suppressors
April 28, 2004	ASU-201 and ASU-202 would not drain properly; float balls inside ASU sump detached from flapper valves
May 3, 2004	Replaced flapper valve assemblies in ASU-201 and ASU-202
May 13, 2004	Jasper Engineering installed new transducers on ASU-204 flowmeter; recommended new transducers for ASU-203
May 26, 2004	PFC Equipment installed P-301B after teflon coating pump components
May 26, 2004	Sent AT-10 flowmeter to manufacturer for servicing; display no longer operating properly
June 3, 2004	Rockwell Automation installed two additional surge suppressors on input/output communications cable
June 7, 2004	Polymer pump no longer transmitting operating signal to PLC
June 8, 2004	ASU-204 flowmeter display no longer operating properly; Jasper Engineering sent flowmeter to manufacturer
June 16, 2004	Welded leaking seam on recirculation line for T-101
June 16, 2004	Observed flapper valve assembly in ASU-203 not operating properly
June 28, 2004	AT-7 faulted out; had been gradually reducing flow since June 23
June 29-30, 2004	Replaced flapper valve assemblies in ASU-203 and ASU-204

Site Activity Issues
Ground Water Treatment Facility

July 1, 2004 Renner tested AT-7; operating properly, but purged lines with compressed air
Determined flowmeter was cause of low readings

July 9, 2004 AT-9 reduced flow to approximately 125 gpm

July 9, 2004 Observed small hole on bottom of ASU-203 sump; patch welded it closed

July 14, 2004 Received AT-10 flowmeter from manufacturer; they had replaced its power supply
Reinstalled flowmeter; operating properly

July 14, 2004 Tech Sales Representative cleaned and re-secured AT-7 flowmeter transducers; now operating properly
Also looked at effluent flowmeter, which had been operating intermittently; suspect scaling in pipe was causing
poor signal between transducers

July 16, 2004 Jasper Engineering re-installed the ASU-204 flowmeter after manufacturer replaced power supply
Also, Jasper installed new transducers for ASU-203

July 30, 2004 Observed leaking seam on recirculation line for T-101; will try welding again

August 6, 2004 AT-8 reduced flow to 10 gpm; purged lines with compressed air and began pumping at 13 gpm
AT-7 cascading down well screen; throttled flow down to 44 gpm

August 25, 2004 Patch welded leaking seam on recirculation line for T-101, but pipe was too thin and was not repairable

August 25, 2004 AT-8 would not restart after being shutdown from T-101 recirculation line repair

September 1, 2004 Inspected and cleaned inside of effluent pipe per Tech Sales recommendations for effluent flowmeter
Working with Tech Sales to find solution to effluent flowmeter dysfunction

September 9, 2004 Renner manually operated AT-8 and using flow control valve, surged the lines; then purged lines with
compressed air; now pumping at 14 gpm

September 14, 2004 Determined polymer pump required replacement in order to communicate with PLC; Navy determined
replacement is not necessary since pump is operating fine

NIROP FRIDLEY
Ground Water Treatment Facility (GWTF)

Month	OPERATIONS (hrs)			WATER DISCHARGED (thousands of gallons)					WATER TREATED (thousands of gallons)	
	Available	Operating	On-stream factor	to Storm	to Sanitary	Untreated to Sanitary	Total to Sanitary	% Storm	Monthly	Cumulative
Nov-98	480	480	100.0%	0	17,524	0	17,524	0%	17,524	17,524
Dec-98	718	628	87.5%	16,078	7,087	0	7,087	69%	23,165	40,689
Jan-99	744	743	99.9%	25,571	0	0	0	100%	25,571	66,260
Feb-99	672	672	100.0%	23,938	0	0	0	100%	23,938	90,198
Mar-99	744	744	100.0%	27,394	0	0	0	100%	27,394	117,592
Apr-99	720	720	100.0%	25,254	0	0	0	100%	25,254	142,846
May-99	744	744	100.0%	23,291	0	0	0	100%	23,291	166,137
Jun-99	720	713	99.0%	25,823	0	0	0	100%	25,823	191,960
Jul-99	744	744	100.0%	22,266	0	0	0	100%	22,266	214,226
Aug-99	684	684	100.0%	21,634	0	0	0	100%	21,634	235,860
Sep-99	720	720	100.0%	18,205	0	0	0	100%	18,205	254,065
Oct-99	744	744	100.0%	23,029	0	0	0	100%	23,029	277,094
Nov-99	720	720	100.0%	22,783	0	0	0	100%	22,783	299,877
Dec-99	535	535	100.0%	12,818	0	0	0	100%	12,818	312,695
Jan-00	356	356	100.0%	10,400	0	0	0	100%	10,400	323,095
Feb-00	695	694	99.9%	16,944	0	0	0	100%	16,944	340,039
Mar-00	744	744	99.9%	27,131	0	0	0	100%	27,131	367,170
Apr-00	720	720	100.0%	25,899	0	0	0	100%	25,899	393,069
May-00	744	744	100.0%	27,458	0	0	0	100%	27,458	420,527
Jun-00	719	719	100.0%	25,136	0	0	0	100%	25,136	445,663
Jul-00	744	744	100.0%	25,637	0	0	0	100%	25,637	471,300
Aug-00	744	744	100.0%	24,341	0	0	0	100%	24,341	495,641
Sep-00	655.5	655.5	100.0%	22,559	0	0	0	100%	22,559	518,200
Oct-00	744	744	100.0%	25,955	0	0	0	100%	25,955	544,155
Nov-00	720	718	99.7%	25,759	0	0	0	100%	25,759	569,914
Dec-00	744	744	99.9%	27,404	0	0	0	100%	27,404	597,318
Jan-01	744	744	100.0%	24,666	0	0	0	100%	24,666	621,984
Feb-01	672	671	99.9%	23,956	0	0	0	100%	23,956	645,940
Mar-01	744	737	99.1%	24,694	0	0	0	100%	24,694	670,634
Apr-01	720	720	99.9%	24,964	0	0	0	100%	24,964	695,598
May-01	604.25	602.25	99.7%	13,656	0	0	0	100%	13,656	709,254
Jun-01	710	708	99.8%	20,000	0	0	0	100%	20,000	729,254
Jul-01	730	730	100.0%	18,077	0	0	0	100%	18,077	747,331
Aug-01	491	491	100.0%	17,921	0	0	0	100%	17,921	765,252
Sep-01	0	0	100.0%	0	0	0	0	100%	0	765,252
Oct-01	736	473	64.2%	21,376	0	0	0	100%	21,376	786,628
Nov-01	720	720	100.0%	30,205	0	0	0	100%	30,205	816,833
Dec-01	744	744	100.0%	28,114	0	0	0	100%	28,114	844,947
Jan-02	742	737	99.3%	30,483	0	0	0	100%	30,483	875,430
Feb-02	672	672	100.0%	25,538	0	0	0	100%	25,538	900,968
Mar-02	744	744	100.0%	29,957	0	0	0	100%	29,957	930,925
Apr-02	744	744	100.0%	28,569	0	0	0	100%	28,569	959,494
May-02	744	741	99.6%	28,656	0	0	0	100%	28,656	988,150
Jun-02	720	720	100.0%	22,131	0	0	0	100%	22,131	1,010,281
Jul-02	744	744	100.0%	21,367	0	0	0	100%	21,367	1,031,648
Aug-02	744	744	100.0%	28,328	0	0	0	100%	28,328	1,059,976
Sep-02	630.25	630.25	100.0%	20,861	0	0	0	100%	20,861	1,080,837
Oct-02	744	744	100.0%	21,417	0	0	0	100%	21,417	1,102,254
Nov-02	720	720	100.0%	25,003	0	0	0	100%	25,003	1,127,257
Dec-02	744	742	99.7%	25,327	0	0	0	100%	25,327	1,152,584
Jan-03	744	55	7.4%	1,048	0	0	0	100%	1,048	1,153,632
Feb-03	672	0	0.0%	0	0	0	0	100%	0	1,153,632
Mar-03	744	309	41.5%	13,387	0	0	0	100%	13,387	1,167,019
Apr-03	527	426	80.8%	16,584	0	0	0	100%	16,584	1,183,603
May-03	744	298.5	40.1%	7,448	0	0	0	100%	7,448	1,191,051
Jun-03	720	253	35.1%	10,775	0	0	0	100%	10,775	1,201,826
Jul-03	734	576.25	78.5%	22,629	0	0	0	100%	22,629	1,224,455
Aug-03	732.5	639.8	87.3%	25,591	46	0	46	99.8%	25,637	1,250,092
Sep-03	720	719	99.9%	23,028	4,532	0	4,532	84%	27,560	1,277,652
Oct-03	681.7	648.5	95.1%	25,389	0	0	0	100%	25,389	1,303,041
Nov-03	720	694	96.4%	22,882	0	0	0	100%	22,882	1,325,923
Dec-03	743	740.5	99.7%	31,010	0	0	0	100%	31,010	1,356,933
Jan-04	744	727	97.7%	25,456	0	0	0	100%	25,456	1,382,389
Feb-04	689.7	689.7	100.0%	23,771	0	0	0	100%	23,771	1,406,160
Mar-04	506.5	353.5	69.8%	12,928	0	0	0	100%	12,928	1,419,088
Apr-04	720.0	2.0	0.3%	60	0	0	0	100%	60	1,419,148
May-04	744.0	635.0	85.3%	24,104	0	0	0	100%	24,104	1,443,252
Jun-04	613.5	613.5	100.0%	20,988	0	0	0	100%	20,988	1,464,240
Jul-04	735.5	732.8	99.6%	27,390	0	0	0	100%	27,390	1,491,630
Aug-04	741.0	741.0	100.0%	27,771	0	0	0	100%	27,771	1,519,401
Sep-04	718.0	717.0	99.9%	28,348	0	0	0	100%	28,348	1,547,749

Note: Available hours are 24 hours per day, less scheduled down time and power outages.

ATTACHMENT 4:

**OU2 AND OU3 ROD DECLARATION AND
SIGNATURE PAGES**

1.0 DECLARATION

1.1 SITE NAME AND LOCATION

This Record of Decision (ROD) addresses Operable Unit 2 (OU2) and Operable Unit 3 (OU3) at the Naval Industrial Reserve Ordnance Plant Fridley, in Fridley Minnesota. Operable Unit 2 represents land outside the footprint of the main NIROP manufacturing building, but within the legal boundaries of the facility from the ground surface down to groundwater elevations. Operable Unit 3 represents land underneath the main NIROP building and soil at elevations below the groundwater elevation (saturation zone) either under or outside the building, within the legal boundaries of the facility.

See Figure 1-1 for the site location and Figure 1-2 for property boundaries and Operable Unit boundaries. See Figure 1-3 for former industrial process areas, and Figure 1-4 for a site plan map.

The National Superfund Database (CERCLIS) identification number for this facility is MN317002291400. The Administrative Record is at the St. Paul offices of the MPCA.

1.2 STATEMENT OF BASIS AND PURPOSE

This decision document presents the Selected Remedy for OU2 and OU3 at NIROP Fridley, in Fridley Minnesota, which was chosen in accordance with CERCLA, as amended by SARA, and to the extent practicable, the National Contingency Plan (NCP). This decision is based on the Administrative Record file for this site. The Selected Remedy for Operable Units 2 and 3 was also chosen in accordance with the requirements of the Minnesota Environmental Response and Liability Act, Minnesota Statutes Sections 115B.01 – 24 (MERLA).

The Minnesota Pollution Control Agency (MPCA) concurs with the Selected Remedy.

1.3 ASSESSMENT OF SITE

The response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

1.4 DESCRIPTION OF SELECTED REMEDY

The Selected Remedy to address soil contamination in OU2 and OU3 at the NIROP is Land Use Controls (LUCs), Alternative 2, which are composed of Engineering Controls (EC) and Institutional Controls (IC). The Selected Remedy is recommended over No Action because it provides for overall protection of human health, long term effectiveness and compliance with ARARs for both OU2 and OU3. As explained further in Section 2.2, several remedial actions involving the cleanup of surface and subsurface source areas have already been implemented at OU2. No remedial actions to address the source of subsurface contamination at OU3 have previously been implemented.

The LUC Performance Objectives for Alternative 2 are:

- To restrict the use of the Property to industrial or restricted commercial use, until and unless EPA and MPCA determine that concentrations of hazardous substances in the soils have been reduced to levels that allow for a less restrictive use.
- To prohibit the disturbance of soils deeper than 3 feet below ground surface in those Designated Restricted Areas shown in Figure 2-5 or the removal of any soils excavated in those Areas from the facility without the prior written approval of the U.S. EPA and MPCA.
- To prohibit the disturbance of soils beneath the Designated Restricted Area known as the concrete pit foundations where metal-finishing operations previously occurred at the former Plating Shop within the Main Manufacturing Building without the prior written approval of the US EPA and MPCA.
- To ensure that the concrete pit floor (approximately 8 to 12 feet below grade floor) where metal finishing operations previously occurred at the former Plating Shop within the Main Manufacturing Building is not removed without the prior written approval of U.S.EPA and MPCA. That floor will serve as an Engineering Control.

The Property will be restricted to only industrial or restricted commercial uses. Industrial property uses generally include, but are not limited to, the following types of uses: public utility services, rail and freight services, raw storage facilities, refined material storage facilities, and manufacturing facilities engaged in the mechanical or chemical transformation of materials or substances into new products.

Restricted commercial use is defined as use where access or occupancy by non-employees is less frequent or is restricted, including a wide variety of uses, ranging from non public access and both

outdoor and indoor activities (e.g., large scale warehouse operations), to limited public access and indoor office worker activities (e.g., bank, dentist office). In general, restricted commercial property use excludes uses such as day-care centers, churches, social centers, hospitals, elder care facilities, and nursing homes.

1.5 STATUTORY DETERMINATIONS

The Selected Remedy is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial action (unless justified by a waiver), is cost effective, and utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable.

The Selected Remedy for OU2 and OU3 does not satisfy the statutory preference for treatment as a principal element of the remedy for the following reasons:

- Significant excavation and removal activities have already occurred, resulting in the removal of source waste and contaminated soils.
- Facility-wide risk assessment indicated that surface soils, where human exposure would be most likely to occur in the future, do not exceed EPA and MPCA target risk levels.
- Future land use is expected to remain industrial. For this land use, EPA and MPCA target risk levels were only slightly exceeded in subsurface soils.

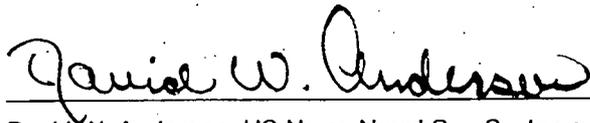
Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

1.6 ROD DATA CERTIFICATION CHECKLIST

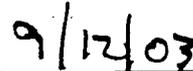
The following information is included in the Decision Summary section of this Record of Decision. Additional information can be found in the Administrative Record file for this site.

- Chemicals of concern and their respective concentrations.
- Baseline risk represented by the chemicals of concern.
- Cleanup levels established for chemicals of concern and the basis for these levels.
- How source materials constituting principal threats are addressed.
- Current and reasonably anticipated future land use assumptions used in the baseline risk assessment and ROD.
- Potential land use that will be available at the site as a result of the Selected Remedy.
- Estimated Capital, annual operation and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected.
- Key factors that lead to selecting the remedy.

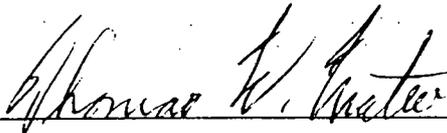
1.7 AUTHORIZING SIGNATURE AND SUPPORT AGENCY ACCEPTANCE OF REMEDY



David W. Anderson, US Navy, Naval Sea Systems Command



Date



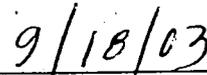
For William E. Muno, US EPA, Region V



Date



Sheryl Corrigan, Minnesota Pollution Control Agency



Date

ATTACHMENT 5:

**CERCLA FIVE YEAR REVIEW PROTECTIVENESS
STATEMENT**

9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Extraction of Contaminated Groundwater: The pump and treat system must remain in operation, as key groundwater contaminant concentrations continue to exceed Federal MCLs.

Vegetable Oil Pilot Study: The Navy will continue the Vegetable Oil Pilot Study in Anoka Park. Upon successful completion of the study, use of that technology may be expanded. The Navy, EPA, and MPCA are in agreement on the DQOs that must be satisfied to consider a successful completion to the study. In order to confirm favorable treatment trends, the Navy has already extended the study schedule. At this time, the final round of groundwater sampling for the study is scheduled for August. Several months after the sampling, the Navy will provide EPA and MPCA with a summary report with recommendations. Following the completion of the study, the Navy may recommend extending the treatment zone, or may propose that an alternative technology be considered for testing, or some other option.

USGS Groundwater Capture Evaluation: The Navy is providing EPA and MPCA with a highly-technical groundwater capture evaluation prepared by USGS. Preliminary conclusions from the capture analysis include consensus that the evaluation did not warrant additional pumping at this time; that the annual monitoring performed at the site would be reviewed on a yearly basis and that trends in downgradient contaminant levels would be used as another evaluation tool to monitor the effectiveness of capture (as decided in the DQO process). In addition, field tests should proceed to resolve which aquifer zones several monitoring wells should be assigned to. The Navy agreed to install a nest of monitoring wells, including a shallow and intermediate well, downgradient of AT-3A to serve as "sentinel" wells to monitor the downgradient impact of AT-3A. The Navy will also continue to provide a capture evaluation discussion in each year's AMR, ultimately incorporating the USGS work as appropriate.

The Navy will continue the following activities:

- Operation, routine maintenance, and repair of the OU 1 remedy to meet ROD objectives.
- Operation of and monitoring the performance of the OU 1 remedy according to the NPDES permit requirements to determine if surface water quality standards required in the plant discharge have been met.

- Calculation and reporting of site emission rates of airborne treatment system COCs to ensure that the AERs are not being exceeded.
- Sampling and reporting data from surface water compliance wells and comparison of the results to determine whether or not surface water TBCs for the Mississippi River are met prior to plume discharge to the river.
- Monitor hydraulic heads, ground water chemistry, chemical trends, and pumping rates according to reporting requirements of the annual monitoring reports.

If the Vegetable Oil Injection Pilot Study is not successful, the Navy will then reevaluate the adequacy of the pilot study and/or evaluate alternate remedies.

10.0 PROTECTIVENESS STATEMENT

Overall the remedial action for Operable Unit 1 continues to be protective of human health and the environment by preventing further migration of contaminated water off the NIROP facility and continuing to restore ground water quality in the unconsolidated aquifer at the site. Contaminated ground water remains downgradient of the NIROP facility in Anoka County Park and it is not naturally dissipating as envisioned in the ROD. As discussed in Section 9.0, a Vegetable Oil Pilot Study is currently underway to determine whether or not a full-scale vegetable oil injection remedy can be implemented to enhance the remedy regarding the contaminated ground water in the park.

The ROD for OU2 and OU3, specifying Land Use Controls, was signed in September, 2003. The evaluation of protectiveness of the OU2 and OU3 remedy will be included in the next five year review.