



Grant Project Summary

Contract title: Middle Minnesota River, Redwood & Brown Counties, Diagnostic Project

Organization (Grantee): REDWOOD-COTTONWOOD RIVERS CONTROL AREA (RCRCA)

Contract start date: MARCH 24, 2009 Project end date: JUNE 30, 2011 Report submittal date: 08-01-2011

Grantee contact name: DOUG GOODRICH Title: EXECUTIVE DIRECTOR

Address: 1241 E Bridge Street, Suite B

City: Redwood Falls State: MN Zip: 56283

Phone number: (507) 637-2142 X4 Fax: (507) 637-2134 E-mail: Douglas.goodrich@racgroup.net

Basin (Red, Minnesota, St. Croix, etc.): Minnesota River Basin County: Redwood and Brown

Project type (check one):

- [X] Clean Water Partnership (CWP) Diagnostic
[C] CWP Implementation
[C] Total Maximum Daily Load (TMDL) Development
[C] 319 Implementation
[C] 319 Demonstration, Education, Research
[C] TMDL Implementation

Grant Funding

Final grant amount: \$190,666.69 Final total project costs: \$381,334.63

Matching funds: Final cash: N/A Final in-kind: \$190,667.94 Final Loan: \$0.00

Contract number: B26025 MPCA project manager: Mark Hanson

Executive Summary of Project (300 words or less)

This summary will help us prepare the Watershed Achievements Report to the Environmental Protection Agency. (Include any specific project history, purpose, and timeline.)

The Minnesota River currently does not meet federal water quality standards and is a major source of pollution to the Mississippi River, Lake Pepin, and ultimately, the Gulf of Mexico where hypoxia of coastal waters continues to be an issue. The first order streams in this project area need to be protected and enhanced to ensure their water quality standards are aiding in TMDL goals and accomplishments in the Minnesota basin. The overriding goal of the state of Minnesota is to restore the Minnesota River to a resource that is fishable and swimmable. Recommendations for reduction in the Minnesota River watershed, based on modeling scenarios put forth in the preparation of the Minnesota River Turbidity TMDL, are for fifty percent turbidity (mostly sediment) and phosphorus. The "Middle Minnesota River, Redwood & Brown Counties, Diagnostic Project" contract was a total award of \$200,000.00. This contract was awarded to the Redwood-Cottonwood Rivers Control Area (RCRCA) Joint Powers Organization under MN Statute: 471.59 as "Project Sponsor" to complete a Diagnostic study on six small first order tributaries of the Minnesota River between the mouth of the Redwood River and the Cottonwood River in Redwood and Brown counties. This area has been included by designation as a part of the Middle MN River Basin but for the most part been overlooked by major watershed initiatives. The Brown-Nicollet-Cottonwood Board had contributed to work in the area recently by providing low interest loans for the area for non-compliant SSTS systems and has been meeting with some landowners to implement continuous CRP buffers along ditches and tributaries. This project expanded those efforts in conjunction

with establishing six long term monitoring sites enabling the project to develop an implementation plan that prioritized each of the watersheds for best management practice implementation geared to maintain or improve water quality and keep these first order streams off of the 303d list. In the event the data does support listing the watersheds, the data will be readily available to be used for the development of a TMDL if it is warranted. Currently none of the streams are listed individually. Data provided with this Phase I project will help support future watershed management decision making. Proper management of these reaches to reduce sedimentation and loss of nutrients will provide economic benefits to both the watershed and to downstream areas. The cost of not managing land use practices within the watershed will continue to rise as well as the cost to maintain productivity for generations to come.

Goals (Include three primary goals for this contract.)

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|-----------------|-------|--|
| 1st | Goal: | Determine sources of pollutants contributing to water quality reductions and whether the six streams in the study area fall under a restoration or protection criteria through the completion of a thorough diagnostic study. |
| 2nd | Goal: | Identify BMP solutions to facilitate any load/concentration reductions that may be needed within the framework of an implementation plan |
| 3 rd | Goal: | Educate the public about the project area to showcase recreational and water quality opportunities as well as underscore potential issues and impairments as well as ways to remedy problems in a way that involves the public in the process. |

Results that count (Include the results from your established goals.)

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|-----------------|---------|---|
| 1st | Result: | Sampling data and stream load information was gathered to determine pollutant loading and to what degree each stream meets or exceeds ecoregional goals and state set standards. A draft diagnostic study has been produced outlining the extent of pollution of each individual reach as well as a comprehensive look at potential point and non-point pollutant sources. |
| 2nd | Result: | Major common pollutants among the six minor streams were found to be elevated nitrate levels and <i>E. coli</i> bacteria values. Incentives to establish wetland acres and stream bank buffers and cost share for stream bank stabilization were implemented as part of the study. 47+ acres of grassed buffers and wetlands and 550 ft. of high erosion streambanks were protected using BMPs as part of this grant. |
| 3 rd | Result: | Meetings were held for public information with much discussion and explanation of the Diagnostic Study process and the responsibilities of the agencies involved as well as a variety of potential pollutant factors in the study area. |

Picture (Attach at least one picture, do not imbed into this document.)

Description/location:

wabasha.jpg: This picture shows a section Wabasha Creek in Redwood County near Franklin.

Acronyms (Name all project acronyms and their meanings.)

RCRCA – Redwood Cottonwood Rivers Control Area
SWCD – Soil and Water Conservation District
MPCA – Minnesota Pollution Control Agency
CWA – Clean Water Act
TMDL – Total Maximum Daily Load
FSA – Farm Service Agency
NRCS – Natural Resources Conservation Service
BMP – Best Management Practice
BWSR – Board of Water and Soil Resources
STORET – STORage and RETrieval (Database System for Environmental Data)
CWP – Clean Water Partnership
MnDNR (DNR) – Minnesota Department of Natural Resources
MES – Minnesota Extension Service
SW-ROC – Southwest Research and Outreach Center
(US)EPA – United States Environmental Protection Agency
WLA – Waste Load Allocation
LA – Load Allocation
MOS – Margin of Safety
RC – Reserve Capacity
QAPP – Quality Assurance Project Plan
RRTAC – Redwood River Technical Advisory Committee
CFU – Coliforming Units

Partnerships (Name all partners and indicate relationship to project)

Redwood-Cottonwood Rivers Control Area (RCRCA)

Responsibilities include: overall work plan administration and fiscal management, supervision of project staff and coordination /completion of all individual work plan phases and steps. Staff that will be assisting with this work plan include: The Executive Director, a Watershed Technician, an Engineering Technician, and an Administrative Officer

Soil and Water Conservation Districts (SWCDs)

Responsibilities include: Clean Water Project Technical Advisory Team Participation

Counties (Brown and Redwood)

Responsibilities include: Clean Water Project Technical Advisory Team Participation and sampling efforts.

Minnesota Department of Natural Resources (DNR)

Responsibilities include: Clean Water Project Technical Advisory Team Participation and field measurements

Brown-Nicollet-Cottonwood Water Quality Board (BNC)

Responsibilities include: Clean Water Project Technical Advisory Team Participation and field measurements

Lower Sioux Indian Community

Responsibilities include: Clean Water Project Technical Advisory Team Participation and field measurements

I. General Report Information			
1.	Project Title:	Redwood and Brown County Middle Minnesota First Order Streams Phase I Diagnostic Study	
2.	Project Sponsor:	Redwood-Cottonwood Rivers Control Area (RCRCA)	
3.	Project Representative:	Doug Goodrich, Director	
4.	Email Address:	douglas.goodrich@racgroup.net	
5.	Loan Sponsor (if applicable):		
6.	Contract Number:	B26025	Loan Number: N/A
7.	MPCA Project Manager:	Mark Hanson	
8.	Contract Start Date:	March 24, 2009	Contract End Date: June 30, 2011
9.	Best Management Practice (BMP) Name (Refer to BMP List):		
10.	319/Clean Water Partnership (CWP) only - Nonpoint Source (NPS) Category (Refer to NPS Definition of Categories):		
		Primary	Secondary
	Category	1000 (Agriculture)	1100 (Non-Irrigated Crop Production)
			Others
			7100, 7800 (Channelization, Tile Drainage)
11.	319/CWP only - NPS Functional Category (Refer to NPS Definition of Categories):		
		Primary	Secondary
	Category	Watershed Assessment/Diag.	TMDL Assessments
			Others
12.	Waterbody type (refer to NPS Waterbody Type):		Rivers and Streams
13.	Hydrologic unit code (12 digits):	07020007-(0201-0203, 0401, 0404, 0406, 0407)	Latitude-longitude: 44o25'26" - 94o51'07"
14.	319/ CWP only: Type of pollutant(s) addressed (refer to NPS Pollutants):		Diagnostic Study (Turbidity/Bacteria/Nut.)
15.	Ecoregion (refer to NPS Ecoregion):	4700 (Western Corn Belt Plains)	
16.	Basin name (check all that apply): Middle Minnesota River Basin		
	<input type="checkbox"/> Lake Superior <input type="checkbox"/> Lower Mississippi/Cedar <input type="checkbox"/> Upper Mississippi <input checked="" type="checkbox"/> Minnesota <input type="checkbox"/> Rainy <input type="checkbox"/> Red River <input type="checkbox"/> Des Moines <input type="checkbox"/> Missouri <input type="checkbox"/> St. Croix		

II. Project Description

1. Project Description Summary (taken from work plan summary) – Include at least two paragraphs that briefly summarize the project scope, the processes and the events that occurred **before** this reporting period.
- The Minnesota River currently does not meet federal water quality standards and is a major source of pollution to the Mississippi River, Lake Pepin, and ultimately, the Gulf of Mexico where hypoxia of coastal waters continues to be an issue. The first order streams in this project area need to be protected and enhanced to ensure their water quality standards are aiding in TMDL goals and accomplishments in the Minnesota basin. The overriding goal of the state of Minnesota is to restore the Minnesota River to a resource that is fishable and swimmable. Recommendations for reduction in the Minnesota River watershed, based on modeling scenarios put forth in the preparation of the Minnesota River Turbidity TMDL, are for fifty percent turbidity (mostly sediment) and phosphorus.**
- The project area lies between two major watershed confluences, the Redwood and Cottonwood Rivers. This area has been included by designation as a part of the Middle MN River Basin but for the most part been overlooked by major watershed initiatives. The Brown-Nicollet-Cottonwood Board has contributed to work in the area recently by providing low interest loans for the area for non-compliant SSTS systems and has been meeting with some landowners**

to implement continuous CRP buffers along ditches and tributaries. This project will expand those efforts in conjunction with establishing six long term monitoring sites that will enable the project to develop an implementation plan that will prioritize each of the watersheds and implement best management practices geared to maintain or improve water quality and keep these first order streams off of the 303d list. In the event the data does support listing the watersheds the implementation plan will be constructed according to current TMDL implementation plan guidance and the data will be readily available to be used for the development of a TMDL if it is warranted. Currently none of the streams are listed individually. Data provided with a successful Phase I will help support future watershed management decision making. Proper management of these reaches to reduce sedimentation and loss of nutrients will provide economic benefits to both the watershed and to downstream areas. The cost of not managing land use practices within the watershed will continue to rise as well as the cost to maintain productivity for generations to come.

2. Specific Project Goals – Include numeric, quantifiable goals for environmental improvement, the number of Best Management Practices to be installed, **pollutant reductions** as well as programmatic and social goals.

A. Overall Resource Goals

The purpose of this resource investigation phase of this project is to document factors that may be affecting the six streams of the study to determine if reductions are indeed needed on these watercourses to preserve or meet water quality goals. Ultimately an implementation plan would be set into motion to outline activities needed in priority areas of these watersheds to help reach not only the water quality levels needed for the individual reaches to meet their goals but also the overall objectives of the Minnesota River on the whole.

B. Water Quality Characterization Goals

- Determine whether the six streams in the study area fall under a restoration or protection criteria through the completion of a thorough diagnostic study.
- Identify pathways of pollutant delivery.
- Identify sources of pollutants contributing to water quality reductions.
- Define sediment/nutrient loads and concentrations in the six tributaries of the study.
- Identify BMP solutions to facilitate any load/concentration reductions that may be needed within the framework of an implementation plan.
- Develop and implement public awareness from farm and non-farm prospective.

C. Preliminary Quantitative Goals

Preliminary quantitative goals are a little harder to ascertain at this stage in the project. There aren't many assessment instances available for these six streams so general ecoregional guidelines are to be used. Specific numerical goals will be set during the preparation of the final plan and implementation in the future but it is likely that quantitative goals will be to conform to the standards for 2B streams in Minnesota as outlined in Minn. R. ch. 7050. One specific goal is to provide conditions so that the dissolved oxygen is maintained above 7.0 mg/L to foster a naturally reproducing trout population in the portion of Spring Creek which is a designated trout stream.

D. Information and Education Goals for Citizens in the Project Area

- Stronger stewardship attitudes in these small watersheds.
- Stronger awareness of how water and the land (uses) are connected.
- Awareness of recreational opportunities.
- Dissemination of water testing results in a manner that is readily understandable to stakeholders.
- Keeping interested parties abreast of the activities commencing in the project area.
- Support and direction for concerned citizens on water quality issues in the area.
- Determine the attitudes of stakeholders toward protection of these streams.

Project Activities:

Work Plan Development

- investigate and write preliminary work plan
- prepare and adopt final work plan

Water Quality Monitoring and Data Analysis

- sampling and field readings
- rating curve development
- laboratory analysis
- data interpretation
- loading estimates
- final report

Watershed Prioritization and Implementation Plan Development

- stream bank surveys
- GIS
- modeling (FLUX, LDC, SWAT)
- selection of priority areas
- BMP analysis
- final plan

Information and Awareness Efforts

	brochures newsletters public meetings Administration reporting project coordination/facilitation
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3.	Methods to achieve goals: Measures for Success: <ul style="list-style-type: none"> • Determine whether the six streams in the study area fall under a restoration or protection criteria through the completion of a thorough diagnostic study. • Identify pathways of pollutant delivery. • Identify sources of pollutants contributing to water quality reductions. • Define sediment/nutrient loads and concentrations in the six tributaries of the study. • Identify BMP solutions to facilitate any load/concentration reductions that may be needed within the framework of an implementation plan. • Develop and implement public awareness from farm and non-farm prospective.
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C.	Final Report Information
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	SECTION I - Work Plan Review
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	<p>Please list and give a brief report on each activity/task identified in your work plan (Attachment A of the 319 Grant Agreement, contract, or work order) or most recently approved work plan amendment. For each task, briefly summarize the activities completed and describe any problems, delays, or difficulties that have occurred in completing the project work. Explain how problems were resolved or list any activities that were not completed:</p> <p>I. Work Plan/Monitoring Plan Development This portion of the work plan served to fund the initial work plan development, monitoring plans, and watershed report framework. Drafts of proposed work plans were shared with project technical members and ultimately crafted into the final project work plan.</p> <p>II. Water Quality Monitoring and Data Analysis This portion of the contract supported the increased amount of sampling and staff time for a diagnostic study's sampling efforts. The object was to get an updated assessment of the pollutants in the impaired water reaches within the project area, Minnesota River 1st order streams of Brown and Redwood county. In order for the initial assessment six primary monitoring sites were established in the project area which were sampled for water quality by RCRCA and measured for flow ratings by the MnDNR. Sites were to be sampled 25 times a year from April to October for turbidity, TSS, TSVS, TP, OP, NO2_NO3, TKN, and NH3. Also, <i>E. coli</i> samples will be taken at a rate of five/month over two years between April and October at each of the six sites in the project area. The procedures in which these samples were taken conform to methods provided in the Middle Minnesota Project Phase I QAPP, procedures in which RCRCA is well acquainted. <i>This portion of the grant was reduced in spending from the original work plan as the awarded contract was two years and the application had been set for a three year project. Also, 2009 was a very dry year which made sampling during the late summer fruitless as many of the streams dried down and others were nearly stagnant. On the flipside, 2010 was a year of flooding and proved to provide many storm event samples. The final report was in draft at the time of this report.</i></p> <p>III. Watershed Prioritization and Implementation Plan Development In the course of creating a diagnostic study, one must first amass a set data inventorying the physical features of the watershed to facilitate the selection of priority management areas in the study. This section of the work plan facilitated RCRCA, working with county officials, to establish priority management areas within the study area using existing county water plans. The management areas were to be selected on the basis of sample results, modeling, and land use assessment results. The Best Management Practices to be utilized for each priority management were to be determined during this phase of the project. Spatial relationships were analyzed using ArcMap and ArcGIS techniques. Most layers used for this analysis including surface hydrology, land use, nonpoint pollution source potential, soils, feedlots, and field gradients were readily available. <i>Some of the data needed to calculate pollutant load values wasn't completed until late in the process, so some of the anticipated figures were not completed at the time of this report. Also, some of the field assessments were delayed for better stream conditions, which never materialized, so this portion will be done in the late summer/fall of 2011. Sections of the final diagnostic report need to be fleshed out yet, and some of the modeling runs need to be finalized before being included in the report. The implementation plan is nearly complete, only needing a few numbers to be plugged in. Drafts of these reports are included in the materials on the disc of this final report.</i></p> <p>IV. Outreach This program element was to focus on informing the public and media about the diagnostic study being performed in the project area. Through this information, citizens were to gain an awareness of water quality issues in the watersheds and develop a sense of knowledge and usefulness of the project's outcome. Methods used were to be</p>
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a series of newsletters, brochures, meetings, web based media, and feature stories and start the framework for any implementation to follow. The technical meeting portion of this objective never materialized in lieu of a more one-on-one/office-to-office approach. In doing this, none of the funds set aside were expended. Public notifications were accomplished as part of other activities, press releases, and other avenues of public notification. Two public meetings were tried with very little interest (2 people, and one was the director's wife). The result was not for lack of trying, the events were advertized in four local papers and on local radio stations. We also held a meeting in the evening hoping to catch people who may have been working during the day. It was curious to RCRCA that more people didn't attend. *No outreach funds were expended in this grant. Efforts were either covered by association with local funds during the course of the grant or the organization's general budget for efforts accomplished after June 30th, 2011.*

V. Grant Administration and Facilitation

Project administration included all duties associated with reporting requirements, fiscal management, communications, and overall coordination and facilitation of the project.

VI. Implementation Efforts

Major common pollutants among the six minor streams were found to be elevated nitrate levels and *E. coli* bacteria values. *The work plan was changed late in the timeline to include the implementation of BMPs using funds that were unable to be utilized due to circumstances of the project and the shortened timeline.* Incentives to establish wetland acres and stream bank buffers as well as cost share for stream bank stabilization was implemented as part of the study. 47+ acres of grassed buffers and wetlands and 550 ft. of high erosion streambanks were protected using BMPs as part of this grant.

SECTION II - Grant Results

For TMDL Development Projects describe the work products of the contract, such as a written TMDL or technical report, data files, maps, and any other attachments that were produced by the project.

1. Products:

As described in the original work plan, this contract requires the formulation of a draft version of a diagnostic report/implementation plan. As part of the development of this report, many spreadsheets, tables, and maps were created. The appendices of this Report show some examples of these products. Sampling done in the project area was reported for inclusion into EPA's STORET data system.

Some findings. The streams of the study area exceed the *E. coli* bacteria standards because of tests that exceed the acute standard in the late summer. Also, the streams would be considered impaired for turbidity, but only just. Just over 10% of samples in most cases exceeded the 25 NTU mark on these streams. DO levels generally stayed above 7 mg/L with the exception of extremely low flows in the hottest part of summer in 2009. The biggest problems in the systems appear to be the excess nitrates at all flows, bacteria at flows following prolonged dry periods or immediately following storm flows, and sediment and turbidity at high flows after storm conditions.

2. Public outreach and education:

Educational events including one on one contacts, public meetings, and annual meetings in December served to attempt to make people aware of our efforts in the project area and the Diagnostic Report as well as updating people on the progress of the project. One on one contact with technicians and multiple agency members were held to discuss the findings and issues of the TMDL report. The general public turnout was much poorer than expected. Concerns directly related to the explanations presented in RCRCA's presentations were easily explained and usually understood easily by those who queried. Many handouts were prepared which consisted of portions of the draft report for review and advisory activities.

3. Long-term results:

The very nature of this contract is to inventory, calculate, and document the degree of environmental problems in the watershed and to quantify reductions needed to bring the impaired reaches to a level of compliance with state standards and regional goals. This is the study that provides information in which future actions and implementation plans can draw from to solve problems. The implementation plan portion of this contract will serve to make recommendations of land-use changes to reach goals set in the Diagnostic Report. Alliances and cooperation with many groups have been in place as a result of projects and efforts in the past. There is no reason to believe this will change anytime soon. RCRCA has a long standing place in southwestern Minnesota in the realm of environmental diagnostics and implementation. Groups and government agencies in the two watersheds served by RCRCA have been complimentary to the group and vice-versa. This Report provides a better understanding of which areas in these watersheds have a greater need for mitigation of turbidity, fecal/*E. coli* bacteria sources, and nutrients in order to ensure that implementation efforts in the watershed are doing the most to work toward overall compliance. Activities beyond the scope of this contract will most likely occur in the form of implementation type projects as prescribed in the Implementation Plan.

4. Have all monitoring stations been established in STORET? Yes No

5. Is the data being routinely submitted for storage into STORET? Yes No Last submittal date: 12/31/10

6.	Is the data being annually entered into E-Link? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date last entered:	06-30-11
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SECTION III - Final Expenditures

CWP, 319, and TMDL - Complete the table below:

Total Grant Amount:	\$200,000.00
Total Match Amount (if applicable)	\$200,000.00
Total Project Amount:	\$400,000.00
Cumulative Grant Expenditures through this period:	\$190,666.69
Cumulative Match Expenditures through this period:	\$190,667.94
Total Cumulative Expenditures through this period:	\$381,334.63
Date form completed: 8-01-2011	
Please submit to:	Your project manager: MARK HANSON

PROJECT TITLE: Middle Minnesota River, Redwood & Brown Counties, Diagnostic Project; Contract Agreement #B26025
BUDGET/EXPENDITURES AS OF June 30, 2011

Objectives	unit cost	unit	Quantity Exp/budget	Cash Budgeted	Match In-kind Budgeted	Total Budgeted	Cumulative Cash Expended	Cumulative Match In-kind Expended	Cumulative Total Expended	Cash Budget Balance	Match In-kind Budget Balance	Total Budget Balance
Objective 1): Work Plan/Monitoring Plan Development						\$0.00			\$0.00	\$0.00	\$0.00	\$0.00
Task A- Investigate and Write Preliminary Plans; Prepare and Adopt Final Plans	\$27.00	200 hours	\$5,400.00	\$5,400.00		\$5,400.00	\$5,234.34		\$5,234.34	\$165.66	\$0.00	\$165.66
Total Element 1			\$5,400.00	\$5,400.00	\$0.00	\$5,400.00	\$5,234.34	\$0.00	\$5,234.34	\$165.66	\$0.00	\$165.66
Objective 2): Water Quality Monitoring and Data Analysis - Sampling and Field Monitoring, Rating Curve Development, Data Interpretation, and Loading Estimates for Incorporation of Final Report Components						\$0.00			\$0.00	\$0.00	\$0.00	\$0.00
Task A- Watershed Tech. - Annually Re-establish Sites and Collect Water Quality Samples; Perform Analysis Needed to Complete Diagnostic Report	\$23.00	550 hrs	\$12,650.00	\$12,650.00		\$12,650.00	\$12,650.00		\$12,650.00	\$0.00	\$0.00	\$0.00
Task B- Water Monitoring Analysis			\$25,199.00	\$25,199.00		\$25,199.00	\$25,145.70		\$25,145.70	\$53.30	\$0.00	\$53.30
e. coli	\$11.60	180							\$0.00	\$0.00	\$0.00	\$0.00
tss	\$8.80	242							\$0.00	\$0.00	\$0.00	\$0.00
tsvs	\$14.40	242							\$0.00	\$0.00	\$0.00	\$0.00
turbidity	\$8.80	242							\$0.00	\$0.00	\$0.00	\$0.00
total phosphorus	\$11.60	242							\$0.00	\$0.00	\$0.00	\$0.00
ortho-phosphorus	\$11.60	242							\$0.00	\$0.00	\$0.00	\$0.00
tkn	\$16.00	242							\$0.00	\$0.00	\$0.00	\$0.00
ammonia	\$14.40	242							\$0.00	\$0.00	\$0.00	\$0.00
nitrate-nitrite as n	\$9.90	242							\$0.00	\$0.00	\$0.00	\$0.00
Brown-Nicollet Cottonwood SWAG Analysis in the Project Area	\$3,000.00	2 sites			\$6,000.00	\$6,000.00		\$7,427.28	\$7,427.28	\$0.00	-\$1,427.28	-\$1,427.28
MnDNR - Site Flow Measurement	\$7,000.00	4 sites/2 yr			\$28,000.00	\$28,000.00		\$28,000.00	\$28,000.00	\$0.00	\$0.00	\$0.00
Task C- Misc. Monitoring Supplies/Equipment, Vehicle Expenses	\$2,600.00	Per year (2.25)	\$2,350.00	\$2,350.00	\$3,500.00	\$5,850.00	\$2,068.45	\$3,500.00	\$5,568.45	\$281.55	\$0.00	\$281.55
Total Element 2			\$40,199.00	\$40,199.00	\$37,500.00	\$77,699.00	\$39,864.15	\$38,927.28	\$78,791.43	\$334.85	-\$1,427.28	-\$1,092.43
Objective 3): Watershed Prioritization and Implementation Plan Development - Surveying, Compiling GIS/Survey/WQ Data, Modeling, Technical Advisory Meetings, and BMP Analysis for the Implementation Prioritization of the Project Area; Implementation Plan Development						\$0.00			\$0.00	\$0.00	\$0.00	\$0.00
Executive Director	\$27.00	714 hours	\$19,278.00	\$19,278.00		\$19,278.00	\$19,101.81		\$19,101.81	\$176.19	\$0.00	\$176.19
Watershed Tech.	\$23.00	550 hours	\$12,650.00	\$12,650.00		\$12,650.00	\$12,592.28		\$12,592.28	\$57.72	\$0.00	\$57.72
Watershed Engineer	\$30.00	116 hours	\$3,480.00	\$3,480.00		\$3,480.00	\$3,337.28		\$3,337.28	\$142.72	\$0.00	\$142.72
County SWCD's	\$34.50	322			\$11,109.00	\$11,109.00		\$6,903.50	\$6,903.50	\$0.00	\$4,205.50	\$4,205.50
MNDNR	\$40.00	350			\$14,000.00	\$14,000.00		\$14,598.09	\$14,598.09	\$0.00	-\$598.09	-\$598.09
Total Element 3			\$35,408.00	\$35,408.00	\$25,109.00	\$60,517.00	\$35,031.37	\$21,501.59	\$56,532.96	\$376.63	\$3,607.41	\$3,984.04
Objective 4): Outreach, Information, and Awareness Efforts - Providing Material for Support, Newsletters, Media, and Public Informational Meetings						\$0.00			\$0.00	\$0.00	\$0.00	\$0.00
Task A- Water Quality Tech. Asst.	\$25.00	180.8 hrs	\$4,520.00	\$4,520.00		\$4,520.00			\$0.00	\$4,520.00	\$0.00	\$4,520.00
Total Element 4			\$4,520.00	\$4,520.00	\$0.00	\$4,520.00	\$0.00	\$0.00	\$0.00	\$4,520.00	\$0.00	\$4,520.00
Objective 5): Grant Administration and Facilitation						\$0.00			\$0.00	\$0.00	\$0.00	\$0.00
JPO Appropriations					\$80,000.00	\$80,000.00		\$68,978.07	\$68,978.07	\$0.00	\$11,021.93	\$11,021.93
Executive Director	\$27.00	300 hrs	\$8,100.00	\$8,100.00		\$8,100.00	\$4,230.00	\$3,870.00	\$8,100.00	\$3,870.00	-\$3,870.00	\$0.00
Support Staff	\$21.00	900 hrs	\$18,900.00	\$18,900.00		\$18,900.00	\$18,662.49		\$18,662.49	\$237.51	\$0.00	\$237.51
Office Supplies	\$800.00	Per year (2.25)	\$1,800.00	\$1,800.00		\$1,800.00	\$1,800.00		\$1,800.00	\$0.00	\$0.00	\$0.00
Misc. Services/expenses	\$3,600.00	Per year (2.25)	\$8,100.00	\$8,100.00		\$8,100.00	\$8,271.34		\$8,271.34	-\$171.34	\$0.00	-\$171.34
Total Element 5			\$36,900.00	\$36,900.00	\$80,000.00	\$116,900.00	\$32,963.83	\$72,848.07	\$105,811.90	\$3,936.17	\$7,151.93	\$11,088.10
Objective 6): Implementation Efforts						\$0.00			\$0.00	\$0.00	\$0.00	\$0.00
Task A- Implementation incentives and cost-share for sediment reduction			\$77,573.00	\$77,573.00		\$77,573.00	\$77,573.00		\$77,573.00	\$0.00	\$0.00	\$0.00
Landowner Match/Program Match					\$57,391.00	\$57,391.00		\$57,391.00	\$57,391.00	\$0.00	\$0.00	\$0.00
Total Element 6			\$77,573.00	\$77,573.00	\$57,391.00	\$134,964.00	\$77,573.00	\$57,391.00	\$134,964.00	\$0.00	\$0.00	\$0.00
ITEMIZED PROGRAM ELEMENT BUDGET												
Total Element 1			\$5,400.00	\$5,400.00	\$0.00	\$5,400.00	\$5,234.34	\$0.00	\$5,234.34	\$165.66	\$0.00	\$165.66
Total Element 2			\$40,199.00	\$40,199.00	\$37,500.00	\$77,699.00	\$39,864.15	\$38,927.28	\$78,791.43	\$334.85	-\$1,427.28	-\$1,092.43
Total Element 3			\$35,408.00	\$35,408.00	\$25,109.00	\$60,517.00	\$35,031.37	\$21,501.59	\$56,532.96	\$376.63	\$3,607.41	\$3,984.04
Total Element 4			\$4,520.00	\$4,520.00	\$0.00	\$4,520.00	\$0.00	\$0.00	\$0.00	\$4,520.00	\$0.00	\$4,520.00
Total Element 5			\$36,900.00	\$36,900.00	\$80,000.00	\$116,900.00	\$32,963.83	\$72,848.07	\$105,811.90	\$3,936.17	\$7,151.93	\$11,088.10
Total Element 6			\$77,573.00	\$77,573.00	\$57,391.00	\$134,964.00	\$77,573.00	\$57,391.00	\$134,964.00	\$0.00	\$0.00	\$0.00
Project Grand Total			\$200,000.00	\$200,000.00	\$200,000.00	\$400,000.00	\$190,666.69	\$190,667.94	\$381,334.63	\$9,333.31	\$9,332.06	\$18,665.37

MIDDLE MINNESOTA DIAGNOSTIC PROJECT IN-KIND TRACKER

Organization	Date(s)	Activity	Services/ Materials	Time (hr)	Rate/hr	Miles	Rate/mi.	Value
Redwood SWCD	7/2/09 - 7/24/09	Review the work plan draft and QAPP for the project		1.5	\$ 30.00			\$ 45.00
Lower Soix Env.	7/2/09 - 7/24/09	Review the work plan draft and QAPP for the project		2	\$ 23.00			\$ 46.00
BNC	4/1/09 - 10/31/09	BNC - Sampling activities - SWAG - 2 sites, 15 times	\$ 1,248.00	15	\$ 29.00	465	\$ 0.55	\$ 1,938.75
Brown County	4/1/09 - 10/31/09	Brown County - SWAG Program - 1 site, 20 times	\$ 1,118.34	10	\$ 24.00	665	\$ 0.55	\$ 1,724.09
BNC/Brown County	5/1/10 - 6/30/10	Brown County/BNC Site Visits	\$ 1,882.22					\$ 1,882.22
Brown County	7/1/10 - 10/31/10	Brown County - SWAG Program - 1 site, 20 times	\$ 1,882.22					\$ 1,882.22
DNR Fisheries	4/1/09 - 11/16/10	DNR Fisheries Activities, water temp, fish surveys, reports etc.		395	\$ 32.67	2160	\$ 0.78	\$ 14,598.09
DNR Waters	4/1/09 - 11/16/10	DNR Stream Measurements 4 sites over 2 years						\$ 28,000.00
Redwood SWCD	4/1/09 - 12/31/10	Ditch and Stream Inventory/Creation of Database - Judy		16	\$ 28.00			\$ 448.00
Redwood SWCD	4/1/09 - 12/31/10	Ditch and Stream Inventory/Creation of Database - Marilyn		8	\$ 40.00			\$ 320.00
Redwood SWCD	Feb. 2010	Public Input/Compilation of Discriptive Data within the study area		4	\$ 40.00			\$ 160.00
Redwood SWCD	Mar. 2010	Wetland inventory in the Study Area		22	\$ 28.00	63	0.5	\$ 647.50
Redwood SWCD	Summer 2010	Wetland inventory in the Study Area		42	\$ 28.00			\$ 1,176.00
Redwood SWCD	Spring 2010	Ravine Inventory in Study Area - Judy		32	\$ 28.00			\$ 896.00
Redwood SWCD	Spring 2010	Ravine Inventory in Study Area - Marilyn		32	\$ 40.00			\$ 1,280.00
Redwood SWCD	Summer 2010	Water Management Plan Work		4	\$ 40.00			\$ 160.00
Redwood SWCD	April, Oct. 2010	Public Education/Watershed Quality	\$ 1,725.00					\$ 1,725.00

Tracked BMP Projects for B26025 Middle Minnesota Diagnostic Study

GRANT: B26025 "MM_Diag"

Grant to Expire 6-30-11

SPOKEN FOR/NOT SPENT: \$ -

Grant Value \$77,573.00

SPENT: \$ 77,580.00

LEFT TO SPEND: \$ (7.00)

county	grant_id	cont_num	coop_l_name	coop_f_name	city	state	zip	t_r_s	ws_id	cost_share	final_pay	final_pay_date	bmp	seed_acre	bmp_length
Redwood	B26025	MMCWP-01-01	Mathiowetz	David	Morgan	MN	56266	T111 R34 S03	28095	\$ 13,680.00	\$13,680.00	6/20/2011	393	11.4	
Redwood	B26025	MMCWP-02-01	Spangler	James	Morgan	MN	56266	T111 R34 S10	28095	\$ 7,200.00	\$ 7,200.00	6/20/2011	393	6	
Redwood	B26025	MMCWP-03-01	Sherman Township		Morgan	MN	56266	T112 R34 S22	28103	\$ 14,250.00	\$14,250.00	6/29/2011	580		400
Redwood	B26025	MMCWP-04-01	Kettner	Roger	Morton	MN	56270	T112 R34 S22	28103	\$ 5,250.00	\$ 5,250.00	6/29/2011	580		150
Redwood	B26025	MMCWP-05-01	Lewis Farms LLP		Marshall	MN	56258	T112 R35 S29	28099	\$ 5,040.00	\$ 5,040.00	6/29/2011	393	3.15	
Redwood	B26025	MMCWP-06-01	Hanna	Robert	Morton	MN	56270	T112 R34 S18	28102	\$ 15,600.00	\$15,600.00	6/20/2011	393	13	
Redwood	B26025	MMCWP-07-01	Hanna	Robert	Morton	MN	56270	T112 R35 S13	28102	\$ 4,560.00	\$ 4,560.00	6/20/2011	393	3.8	
Redwood	B26025	MMCWP-08-01	Hanna	Robert and Scott	Morton	MN	56270	T112 R35 S13	28102	\$ 2,880.00	\$ 2,880.00	6/20/2011	393	2.4	
Redwood	B26025	MMCWP-09-01	Hanna	Robert and Scott	Morton	MN	56270	T112 R35 S13	28102	\$ 9,120.00	\$ 9,120.00	6/20/2011	393	7.6	

Appendices

Appendix A. Sampling Results

Appendix B. Examples of Maps Created for the Middle Minnesota River, Redwood & Brown Counties, Diagnostic Project

Appendix C. Examples of Figures Created for the Middle Minnesota River, Redwood & Brown Counties, Diagnostic Project

Appendix D. Examples of Meeting Materials

Sampling and Field Data for the Middle Minnesota Project

Field Data - Measurements taken on-site, 2009

MMCC1 - Middle Minnesota Watershed - Crow Creek at Noble Ave. -

Storet Code - S005-628

Flow Type	Date	Flow	Time	Temp ©	DO	pH	TT1
Base Flow	4/9/2009		7:45	3.5	13.45	8.42	60+
Base Flow	4/21/2009		7:50	3.7	14.75	8.4	60+
Base Flow	4/29/2009		9:30	8.8	11.92	8.23	60+
Base Flow	5/1/2009		10:05	9.5	15.17	8.46	60+
Base Flow	5/12/2009		9:50	11.7	14.88	8.54	60+
Base Flow	5/26/2009		8:10	15.3	6.97	8.21	60+
Base Flow	6/2/2009		8:25	15.9	6.40	8.26	60+
Storm Flow	6/8/2009		8:25	10.9	9.42	8.51	13.6
Storm Flow	6/11/2009		9:05	12.0	10.52	8.79	60
Base Flow	6/19/2009		7:45	17.6	7.8	8.74	60+
Base Flow	6/26/2009		8:15	18.8	7.53	8.15	60+
Base Flow	7/10/2009		8:15	19.9	6.34	8.17	60+
Base Flow	7/21/2009		8:05	18.3	5.98	8.17	60+
Base Flow	8/8/2009		9:15	19.2	3.72	7.97	57.2
Base Flow	8/21/2009		8:10	16.7	3.74	8.18	54.4
Base Flow	9/3/2009		8:10	15.0	3.41	8.13	60+
Base Flow	9/24/2009		8:20	15.8	3.09	7.94	60+
Storm Flow	10/2/2009		8:05	11.9	6.48	8.09	31.9
Storm Flow	10/3/2009		10:05	10.4	4.76	8.16	60+
Storm Flow	10/8/2009		9:35	9.2	4.77	8.36	60+
Storm Flow	10/13/2009		8:25	3.5	5.52	8.58	60+

CHEMICAL DATA - Analytes tested for in a lab, 2009 - MVTL, New Ulm

MMCC1 - Middle Minnesota Watershed - Crow Creek at Noble Ave. -

STORET CODE - S005-628

FLOW TYPE	SAMP TYPE	DATE	TIME	LAB SAMPLE ID #	TSS MG/L	TSVS MG/L	TKN MG/L	N-NO2+NO3 MG/L	P-PO4 MG/L	TP MG/L	E.COLI /100mL	TURBIDITY NTU	Ammonia Mg/L
Base Flow	Grab	4/9/2009	7:45	09-A12881	2*	2*	0.7	12.8	0.105	0.097		5	< 0.16
Base Flow	Grab	4/21/2009	7:50	09-A15276	<2	<2	1.3	12.8	0.023	0.018	37.4*	3	<0.16
Base Flow	Grab	4/29/2009	9:30	09-A17042							90.6		
Base Flow	Grab	5/1/2009	10:05	09-A17727	3*	3*	1.3	12.5	0.025	0.025	36.4	3*	<0.16
Base Flow	Grab	5/12/2009	9:50	09-A19645	<2	<2	2.4	13.3	0.019	0.023	155.3	1.5	<0.16
Base Flow	Grab	5/26/2009	8:10	09-A22097							290.9*		
Base Flow	Grab	6/2/2009	8:25	09-A23462	4	<2	2.1	6.72	0.046*	0.058	410.6*	2.1	<0.16
Storm Flow	Grab	6/8/2009	8:25	09-A24380	111	16	1.9	12.4	0.139	0.242^	> 2419.6*	63	<0.16
Storm Flow	Grab	6/11/2009	9:05	09-A25413	7	<2	2.5	15.8	0.092	0.065		6.4	<0.16
Base Flow	Grab	6/19/2009	7:45	09-A26927	9	<2	2.6	13.4	0.097	0.077	285.1*	3.3	<0.16
Base Flow	Grab	6/26/2009	8:15	09-A28219	6	2	1.3	11.0	0.126	0.102		4.1	<0.16
Base Flow	Grab	7/10/2009	8:15	09-A30653	7	6	1.0	3.51	0.17	0.152	770.1*	4.6	<0.16
Base Flow	Grab	7/21/2009	8:05	09-A32493	8	7	2.0	1.7	0.134	0.162	613.1*	7.9	<0.16
Base Flow	Grab	8/8/2009	9:15	09-A36171	10	5	1.0	0.64		0.268^			<0.16
Base Flow	Grab	8/21/2009	8:10	09-A39349	9	3	0.7	0.84	0.384^	0.360^	980.4*	9.5	<0.16
Base Flow	Grab	9/3/2009	8:10	09-A41333	9	4	0.7	0.25	0.143	0.144	1413.6*	8.8	<0.16
Base Flow	Grab	9/24/2009	8:20	09-A44696	<2	<2	0.6	<0.2	0.139	0.188	547.5	7.2	<0.16
Storm Flow	Grab	10/2/2009	8:05	09-A46095	22	3	0.3	0.81		0.191			<0.16
Storm Flow	Grab	10/3/2009	10:05	09-A46180	5	<2	0.3	1.10		0.244^			<0.16
Storm Flow	Grab	10/8/2009	9:35	09-A47262	4	<2	0.7	8.6	0.15	0.178		4.9	<0.16
Storm Flow	Grab	10/13/2009	8:25	09-A47999	6	3	1.3	10.5	0.097	0.113		4.1	<0.16

* = Holding Time Exceeded

^ = sample diluted due to result above calibration or linear range

Field Data - Measurements taken on-site, 2009

MMWC - Middle Minnesota Watershed - Wabasha Creek at Co. Hwy 11 in MN River
Valley -

Storet Code - S005-627

Flow Type	Date	Flow	Time	Temp ©	DO	pH	TT1
Flood Flow	4/9/2009		8:30	4.9	10.84	8.13	27.8
Base Flow	4/21/2009		8:30	5.4	11.47	8.35	60+
Base Flow	4/29/2009		10:10	10	11.22	8.41	60+
Base Flow	5/1/2009		11:00	12.3	13.59	8.56	47.0
Base Flow	5/12/2009		10:40	13.4	13.43	8.82	60+
Base Flow	5/26/2009		9:30	16.7	8.27	8.52	60+
Base Flow	6/2/2009		10:00	16.8	9.21	8.64	60+
Storm Flow	6/8/2009		9:15	11.9	9.73	8.86	60+
Storm Flow	6/11/2009		9:50	14.9	9.95	9.11	60
Base Flow	6/19/2009		8:20	20.8	7.76	9.10	60+
Base Flow	6/26/2009		9:00	22.1	7.98	8.39	60+
Base Flow	7/10/2009		9:10	20.7	8.14	8.37	60+
Base Flow	7/21/2009		8:55	19.7	8.31	8.34	60+
Base Flow	8/8/2009		8:45	20.2	4.43	8.32	60
Base Flow	8/21/2009		8:50	16.8	3.91	8.43	60+
Base Flow	9/3/2009		9:05	16.0	3.54	8.32	60+
Base Flow	9/24/2009		9:10	16.7	3.27	8.25	50.0
Storm Flow	10/2/2009		8:45	11.6	4.16	8.34	60+
Storm Flow	10/3/2009		10:40	10.5	4.52	8.36	60+
Storm Flow	10/8/2009		10:15	9.2	4.90	8.52	45.0
Storm Flow	10/13/2009		8:55	2.8	5.47	8.68	60+

CHEMICAL DATA - Analytes tested for in a lab, 2009 - MVTL, New Ulm

MMWC - Middle Minnesota Watershed - Wabasha Creek at Co. Hwy 11 in MN River Valley -

STORET CODE - S005-627

FLOW TYPE	SAMP TYPE	DATE	TIME	LAB SAMPLE ID #	TSS MG/L	TSVS MG/L	TKN MG/L	N-NO2+NO3 MG/L	P-PO4 MG/L	TP MG/L	E.COLI /100mL	TURBIDITY NTU	Ammonia Mg/L
Base Flow	Grab	4/9/2009	8:30	09-A12882	10*	8*	1.1	2.70	0.214	0.262^		32	< 0.16
Base Flow	Grab	4/21/2009	8:30	09-A15277	3	3	1	7.47	0.022	0.038	290.9*	5	< 0.16
Base Flow	Grab	4/29/2009	10:10	09-A17043							517.2		
Base Flow	Grab	5/1/2009	11:00	09-A17728	13*	8*	2.5	7.26	0.143	0.266^	218.7	6*	<0.16
Base Flow	Grab	5/12/2009	10:40	09-A19646	5	<2	2.4	9.41	0.020	0.043	148.3	2.8	<0.16
Base Flow	Grab	5/26/2009	9:30	09-A22098							2419.6*		
Base Flow	Grab	6/2/2009	10:00	09-A23463	3	2	0.9	1.25	0.173^	0.182	770.1	1.8	<0.16
Storm Flow	Grab	6/8/2009	9:15	09-A24381	12	6	0.7	1.52	0.204^	0.227^	> 2419.6*	7.7	<0.16
Storm Flow	Grab	6/11/2009	9:50	09-A25414	14	2	2.2	15.50	0.162	0.143		6.1	<0.16
Base Flow	Grab	6/19/2009	8:20	09-A26928	11	5	2.4	9.25	0.357^	0.439^	1733	5.1	<0.16
Base Flow	Grab	6/26/2009	9:00	09-A28220	5	<2	1.2	5.07	0.200^	0.210^		3	<0.16
Base Flow	Grab	7/10/2009	9:10	09-A30654	3	<2	0.6	0.60	0.232^	0.220^	285.1*	2	<0.16
Base Flow	Grab	7/21/2009	8:55	09-A32494	<2	<2	1	<0.2	0.162	0.166	344.8*	3.3	<0.16
Base Flow	Grab	8/8/2009	8:45	09-A36170	4	2	0.4	<0.2		0.169			<0.16
Base Flow	Grab	8/21/2009	8:50	09-A39350	6	3	0.6	<0.2	0.234^	0.241^	1414	3.6	<0.16
Base Flow	Grab	9/3/2009	9:05	09-A41334	6	2	0.7	<0.2	0.119	0.117	524.7*	4.2	<0.16
Base Flow	Grab	9/24/2009	9:10	09-A44697	<2	<2	<0.2	<0.2	0.102	0.136	517.2	9.1	<0.16
Storm Flow	Grab	10/2/2009	8:45	09-A46096	5	<2	<0.2	0.31		0.247^			<0.16
Storm Flow	Grab	10/3/2009	10:40	09-A46181	6	4	0.7	2.51		0.427^			<0.16
Storm Flow	Grab	10/8/2009	10:15	09-A47263	12	4	1.4	8.30	0.507^	0.662^		14	<0.16
Storm Flow	Grab	10/13/2009	8:55	09-A48000	3	<2	1.9	10.40	0.123	0.145		1.8	<0.16

* = Holding Time Exceeded

^ = sample diluted due to result above calibration or linear range

Field Data - Measurements taken on-site, 2009

MMNE - Middle Minnesota Watershed - North Eden Creek at Co. Hwy 10 in MN River
Valley -

Storet Code - S005-626

Flow Type	Date	Flow	Time	Temp ©	DO	pH	TT1
Base Flow	4/9/2009		8:50	3.2	15.66	8.52	60+
Base Flow	4/21/2009		9:00	5.5	14.80	8.44	60+
Base Flow	4/29/2009		10:30	9.5	13.74	8.40	60+
Base Flow	5/1/2009		11:25	13.2	14.03	8.67	60+
Base Flow	5/12/2009		11:10	13.5	11.75	8.83	60+
Base Flow	5/26/2009		9:50	15.4	9.46	8.58	60+
Base Flow	6/2/2009		10:30	15.0	9.76	8.72	60+
Storm Flow	6/8/2009		9:45	11.4	10.61	8.90	60+
Storm Flow	6/11/2009		10:20	14.9	9.95	9.17	60+
Base Flow	6/19/2009		8:55	19.2	8.80	9.19	60+
Base Flow	6/26/2009		9:30	20.0	8.88	8.43	60+
Base Flow	7/10/2009		9:35	20.0	8.49	8.36	60+
Base Flow	7/21/2009		9:25	17.1	9.15	8.30	60+
Base Flow	8/8/2009		8:25	18.8	4.57	8.33	60+
Base Flow	8/21/2009		9:15	15.3	4.02	8.40	60+
Base Flow	9/3/2009		9:35	13.9	3.93	8.31	60+
Base Flow	9/24/2009		9:35	15.9	3.89	8.28	60+
Storm Flow	10/2/2009		9:05	11.2	4.46	8.37	60+
Storm Flow	10/3/2009		11:00	10.3	4.48	8.47	60+
Storm Flow	10/8/2009		10:40	9.2	5.25	8.58	60+
Storm Flow	10/13/2009		9:25	2.8	5.46	8.67	60+

CHEMICAL DATA - Analytes tested for in a lab, 2009 - MVTL, New Ulm

MMNE - Middle Minnesota Watershed - North Eden Creek at Co. Hwy 10 in MN River Valley -

STORET CODE - S005-626

FLOW TYPE	SAMP TYPE	DATE	TIME	LAB SAMPLE ID #	TSS MG/L	TSVS MG/L	TKN MG/L	N-NO2+NO3 MG/L	P-PO4 MG/L	TP MG/L	E.COLI /100mL	TURBIDITY NTU	Ammonia Mg/L
Base Flow	Grab	4/9/2009	8:50	09-A12883	<2*	<2*	1.3	9.16	0.087	0.081		7	< 0.16
Base Flow	Grab	4/21/2009	9:00	09-A15278	<2	<2	1	6.24	0.015	0.016	14.8*	5	< 0.16
Base Flow	Grab	4/29/2009	10:00	09-A17044							6.3		
Base Flow	Grab	5/1/2009	11:25	09-A17729	5*	2*	1.5	6.39	0.015	0.022	4.1	3^	<0.16
Base Flow	Grab	5/12/2009	11:10	09-A19647	5	2	2.6	12.20	0.011	0.017	44.3	2.5	<0.16
Base Flow	Grab	5/26/2009	9:50	09-A22099							122.3		
Base Flow	Grab	6/2/2009	10:30	09-A23464	4	2	1.2	2.84	0.063	0.054	81.6	1.4	<0.16
Storm Flow	Grab	6/8/2009	9:45	09-A24382	24	5	1.3	5.25	0.086	0.096	2419.6	24	<0.16
Storm Flow	Grab	6/11/2009	10:20	09-A25415	8	<2	2.2	16.20	0.088	0.068		2.6	<0.16
Base Flow	Grab	6/19/2009	8:55	09-A26929	5	3	2.1	12.10	0.096	0.073	410.6	1.5	<0.16
Base Flow	Grab	6/26/2009	9:30	09-A28221	4	<2	1.2	6.94	0.106	0.082		2.6	<0.16
Base Flow	Grab	7/10/2009	9:35	09-A30655	3	2	0.7	0.61	0.092	0.065	165.8*	1.2	<0.16
Base Flow	Grab	7/21/2009	9:25	09-A32496	<2	<2	0.6	0.26	0.050	0.034	151.5*	1.6	<0.16
Base Flow	Grab	8/8/2009	8:25	09-A36169	<2	<2	0.3	0.29		0.039			<0.16
Base Flow	Grab	8/21/2009	9:15	09-A39351	4	<2	<0.2	0.25	0.070	0.039	517.2	1.3	<0.16
Base Flow	Grab	9/3/2009	9:35	09-A41335	<2	<2	0.4	0.22	0.066	0.031	2419.6	1.0	<0.16
Base Flow	Grab	9/24/2009	9:35	09-A44698	12	<2	<0.2	<0.2	0.025	0.038	222.4	1.3	<0.16
Storm Flow	Grab	10/2/2009	9:05	09-A46097	<2	<2	<0.2	<0.2		0.072			<0.16
Storm Flow	Grab	10/3/2009	11:00	09-A46182	<2	<2	0.3	<0.2		0.082			<0.16
Storm Flow	Grab	10/8/2009	10:40	09-A47264	2	<2	1.1	16.40	0.242^	0.290^		3.5	<0.16
Storm Flow	Grab	10/13/2009	9:25	09-A48001	<2	<2	1.3	14.60	0.082	0.096		1	<0.16

* = Holding Time Exceeded

^ = sample diluted due to result above calibration or linear range

Field Data - Measurements taken on-site, 2009

MMSC - Middle Minnesota Watershed - Spring Creek @ Co. Hwy 10 in MN River Valley

Storet Code - S005-625

Flow Type	Date	Flow	Time	Temp ©	DO	pH	TT1
Base Flow	4/9/2009		9:30	4.5	15.45	8.53	60+
Base Flow	4/21/2009		9:30	6.6	15.96	8.49	60+
Base Flow	4/29/2009		11:30	10.1	14.72	8.50	60+
Base Flow	5/1/2009		11:50	13.7	17.52	8.64	60+
Base Flow	5/12/2009		11:45	13.9	11.83	8.73	60+
Base Flow	5/27/2009		14:00	15.1	11.75	9.06	60+
Base Flow	6/2/2009		11:00	16.8	11.49	8.95	60+
Storm Flow	6/8/2009		10:05	11.4	10.61	8.95	31.4
Storm Flow	6/11/2009		10:50	15.1	10.15	9.15	60
Base Flow	6/19/2009		9:25	19.3	9.18	9.18	60+
Base Flow	6/26/2009		10:00	21.1	9.31	8.43	60+
Base Flow	7/10/2009		10:00	20.3	9.39	8.40	60+
	7/21/2009		9:45	18.6	9.61	8.41	60+
Base Flow	8/8/2009		8:05	18.2	4.65	8.38	60+
	8/21/2009		9:40	16.0	4.16	8.47	60+
Base Flow	9/3/2009		10:00	14.9	4.01	8.43	60+
Base Flow	9/24/2009		10:00	15.9	4.14	8.40	60+
Storm Flow	10/2/2009		9:30	11.9	4.39	8.42	18.2
Storm Flow	10/3/2009		11:25	10.8	4.42	8.56	60+
Storm Flow	10/8/2009		11:05	10.3	5.15	8.57	47.6
Storm Flow	10/13/2009		9:45	4.1	5.29	8.74	60+

CHEMICAL DATA - Analytes tested for in a lab, 2009 - MVTL, New Ulm

MMSC - Middle Minnesota Watershed - Spring Creek @ Co. Hwy 10 in MN River Valley

STORET CODE - S005-625

FLOW TYPE	SAMP TYPE	DATE	TIME	LAB SAMPLE ID #	TSS MG/L	TSVS MG/L	TKN MG/L	N-NO2+NO3 MG/L	P-PO4 MG/L	TP MG/L	E.COLI /100mL	TURBIDITY NTU	Ammonia Mg/L
Base Flow	Grab	4/9/2009	9:30	09-A12884	<2*	<2*	1.3	6.89	0.046*	0.054		7	< 0.16
Base Flow	Grab	4/21/2009	9:30	09-A15279	2	2	1.3	4.45	0.019	0.018	7.5*	9	< 0.16
Base Flow	Grab	4/29/2009	11:30	09-A17045							4.1		
Base Flow	Grab	5/1/2009	11:50	09-A17730	6	<2	1.5	5.03	0.012	0.025	4.1	2^	<0.16
Base Flow	Grab	5/12/2009	11:45	09-A19648	<2	<2	2.9	9.53	0.019	0.022	73.8	3.8	<0.16
Base Flow	Grab	5/27/2009	14:00	09-A22492							90.6		
Base Flow	Grab	6/2/2009	11:00	09-A23465	4	3	0.9	2.06	0.068	0.059	81.3	1	<0.16
Storm Flow	Grab	6/8/2009	10:05	09-A24383	39	11	1.2	3.95	0.125	0.15	> 2419.6	29	<0.16
Storm Flow	Grab	6/11/2009	10:50	09-A25416	27	5	1.6	14.7	0.108	0.096		12	<0.16
Base Flow	Grab	6/19/2009	9:25	09-A26930	9	<2	1.8	7.78	0.085	0.074	613.1	5.6	<0.16
Base Flow	Grab	6/26/2009	10:00	09-A28222	4	<2	1.0	5.38	0.096	0.07		2.4	<0.16
Base Flow	Grab	7/10/2009	10:00	09-A30656	<2	<2	0.7	1.49	0.072	0.044	146.7*	0.9	<0.16
	Grab	7/21/2009	9:45	09-A32497	<2	<2	0.7	1.53	0.04	0.024	191.8*	2.1	<0.16
Base Flow	Grab	8/8/2009	8:05	09-A36168	<2	<2	0.4	0.99		0.031			<0.16
	Grab	8/21/2009	9:40	09-A39352	<2	<2	0.6	2.49	0.056	0.028	1789	0.9	<0.16
Base Flow	Grab	9/3/2009	10:00	09-A41336	<2	<2	0.4	1.03	0.048	0.024	210.5	0.7	<0.16
Base Flow	Grab	9/24/2009	10:00	09-A44699	<2	<2	<0.2	1.03	0.015	0.028	307.6	1.2	<0.16
Storm Flow	Grab	10/2/2009	9:30	09-A46098	37	7	1.6	9.66		0.374^			<0.16
Storm Flow	Grab	10/3/2009	11:25	09-A46183	6	4	1.4	8.03		0.184			<0.16
Storm Flow	Grab	10/8/2009	11:05	09-A47279	16	3	1.4	12	0.152	0.198		22	<0.16
Storm Flow	Grab	10/13/2009	9:45	09-A48002	6	3	0.7	12.3	0.09	0.106		3.2	<0.16

* = Holding Time Exceeded

^ = sample diluted due to result above calibration or linear range

Field Data - Measurements taken on-site, 2009

County Ditch 13 - Middle Minnesota Watershed - @ Co Hwy 10 -

Storet Code - S005-623

Flow Type	Date	Flow	Time	Temp ©	DO	pH	TT1
Base Flow	4/21/2009		10:00	5.7	16.71	8.55	60+
Base Flow	4/29/2009		11:50	9	13.03	8.39	60+
Base Flow	5/1/2009		12:15	12.2	15.34	8.58	60+
Base Flow	5/12/2009		12:05	12.4	12.33	8.53	60+
Base Flow	5/27/2009		14:30	13.2	8.92	8.58	60+
Base Flow	6/2/2009		11:25	16.2	7.43	8.49	60+
Storm Flow	6/8/2009		10:35	10.6	9.65	8.91	53.8
Storm Flow	6/11/2009		11:15	14.1	9.89	8.88	60+
Base Flow	6/19/2009		9:50	18.1	8.01	8.78	60+
Base Flow	6/26/2009		10:25	19.3	7.49	8.16	60+
Base Flow	7/10/2009		10:30	20.3	6.89	8.21	60+
Base Flow	7/21/2009		10:10	18	6.94	8.26	60+
Base Flow	8/8/2009		7:45	18.6	4.19	8.27	60+
Base Flow	8/21/2009		10:00	16.3	3.8	8.28	60+
Base Flow	9/3/2009		10:20	14.5	3.83	8.39	60+
Zero Flow	9/24/2009						
Storm Flow	10/2/2009		9:45	12.3	3.84	7.88	26.0
Storm Flow	10/3/2009		11:40	11.5	4.11	7.98	57.6
Storm Flow	10/8/2009		11:25	11.1	5.43	7.98	42.3
Storm Flow	10/13/2009		10:05	6.6	5.41	8.34	60+

CHEMICAL DATA - Analytes tested for in a lab, 2009 - MVTL, New Ulm

County Ditch 13 - Middle Minnesota Watershed - @ Co Hwy 10 -

STORET CODE - S005-623

FLOW TYPE	SAMP TYPE	DATE	TIME	LAB SAMPLE ID #	TSS MG/L	TSVS MG/L	TKN MG/L	N-NO2+NO3 MG/L	P-PO4 MG/L	TP MG/L	E.COLI /100mL	TURBIDITY NTU	Ammonia Mg/L
Base Flow	Grab	4/21/2009	10:00	09-A15280	< 2	< 2	1.1	5.94	0.026	0.039	613.1*	6	< 0.16
Base Flow	Grab	4/29/2009	11:50	09-A17046							1119.9		
Base Flow	Grab	5/1/2009	12:15	09-A17731	4	<2	1.3	6.61	0.023	0.037	98.8	5^	<0.16
Base Flow	Grab	5/12/2009	12:05	09-A19649	2	<2	2.3	8.48	0.026	0.041	261.3	1.2	<0.16
Base Flow	Grab	5/27/2009	14:30	09-A22494							387.3		
Base Flow	Grab	6/2/2009	11:25	09-A23466	4	3	1.8	3.53	0.131^	0.141	235.9	1.2	<0.16
Storm Flow	Grab	6/8/2009	10:35	09-A24384	30	6	0.7	11.1	0.148	0.141	1046.2	15	<0.16
Storm Flow	Grab	6/11/2009	11:15	09-A25417	4	2	1.5	12.6	0.076	0.055		2	<0.16
Base Flow	Grab	6/19/2009	9:50	09-A26931	<2	<2	2.1	7.18	0.099	0.083	> 2419.6	1.2	<0.16
Base Flow	Grab	6/26/2009	10:25	09-A28223	4	<2	1.6	5.00	0.249^	0.234^		2.2	<0.16
Base Flow	Grab	7/10/2009	10:30	09-A30657	<2	<2	1.3	2.79	0.351^	0.334^	980.4*	2.1	<0.16
Base Flow	Grab	7/21/2009	10:10	09-A32498	3	2	1.2	2.00	0.374^	0.335^	1413.6*	3.8	<0.16
Base Flow	Grab	8/8/2009	7:45	09-A36167	7	<2	1.5	0.73		0.743^			<0.16
Base Flow	Grab	8/21/2009	10:00	09-A39353	4	3	0.9	0.51	0.805^	0.829^	387.3	2.7	<0.16
Base Flow	Grab	9/3/2009	10:20	09-A41337	2	2	1.0	0.58	0.853^	0.790^	104.6	3.0	<0.16
Zero Flow		9/24/2009											
Storm Flow	Grab	10/2/2009	9:45	09-A46099	27	11	3.0	12.9		0.720^			0.29
Storm Flow	Grab	10/3/2009	11:40	09-A46184	12	5	1.7	10.5		0.297^			<0.16
Storm Flow	Grab	10/8/2009	11:25	09-A47280	10	3	1.6	12.6	0.179	0.227^		31	<0.16
Storm Flow	Grab	10/13/2009	10:05	09-A48003	5	2	1.1	16	0.136	0.146		2.2	<0.16

* = Holding Time Exceeded

^ = sample diluted due to result above calibration or linear range

Field Data - Measurements taken on-site, 2009

County Ditch 10 - Middle Minnesota Watershed - @ Co. Hwy 29 -

Storet Code - S005-624

Flow Type	Date	Flow	Time	Temp ©	DO	pH	TT1
Base Flow	4/9/2009		10:00	4.1	16.41	8.49	60+
Base Flow	4/21/2009		10:20	6.5	16.47	8.61	60+
Base Flow	4/29/2009		12:10	9.2	14.68	8.62	60+
Base Flow	5/1/2009		12:35	13.6	18.49	8.9	60+
Base Flow	5/12/2009		12:25	11.8	15.66	8.84	60+
Base Flow	5/27/2009		14:45	13.8	11.07	8.81	60+
Base Flow	6/2/2009		11:45	16.2	10.40	8.87	60+
Storm Flow	6/8/2009		11:00	11.2	10.76		60+
Storm Flow	6/11/2009		11:35	13.7	10.63	9.05	60+
Base Flow	6/19/2009		10:10	16.7	9.34	8.96	60+
Base Flow	6/26/2009		10:45	20.0	8.01	8.27	60+
Base Flow	7/10/2009		11:00	20.6	7.72	8.31	60+
Zero Flow	7/21/2009		10:30				
Zero Flow	8/8/2009		7:40				
Base Flow	8/21/2009		10:20	16.3	4.11	8.45	60+
Zero Flow	9/3/2009		10:30				
Zero Flow	9/24/2009						
Storm Flow	10/2/2009		10:10	11.3	4.22	8.14	13.0
Storm Flow	10/3/2009		12:05	10.9	4.33	8.32	60+
Storm Flow	10/8/2009		11:50	11.1	5.28	8.36	60+
Storm Flow	10/13/2009		10:30	5.9	5.11	8.56	60+

CHEMICAL DATA - Analytes tested for in a lab, 2009 - MVTL, New Ulm

County Ditch 10 - Middle Minnesota Watershed - @ Co. Hwy 29 -

STORET CODE - S005-624

FLOW TYPE	SAMP TYPE	DATE	TIME	LAB SAMPLE ID #	TSS MG/L	TSVS MG/L	TKN MG/L	N-NO2+NO3 MG/L	P-PO4 MG/L	TP MG/L	E.COLI /100mL	TURBIDITY NTU	Ammonia Mg/L
Base Flow	Grab	4/9/2009	10:00	09-A12885	<2*	<2*	1.3	11.3	0.110*	0.112		3	< 0.16
Base Flow	Grab	4/21/2009	10:20	09-A15281	<2	<2	1	11.8	0.045	0.054	14.8	8	< 0.16
Base Flow	Grab	4/29/2009	12:10	09-A17047							66.3		
Base Flow	Grab	5/1/2009	12:35	09-A17732	7	3	1	11.9	0.033	0.049	143.9	2^	<0.16
Base Flow	Grab	5/12/2009	12:25	09-A19650	3	3	3.2	13.4	0.038	0.056	166.4	2.2	<0.16
Base Flow	Grab	5/27/2009	14:45	09-A22495							547.5		
Base Flow	Grab	6/2/2009	11:45	09-A23467	4	3	1.5	11.9	0.129^	0.134	124.6	2	<0.16
Storm Flow	Grab	6/8/2009	11:00	09-A24385	12	3	1.4	13.7	0.175	0.176	488.4	8.3	<0.16
Storm Flow	Grab	6/11/2009	11:35	09-A25418	9	2	1.5	16.6	0.118	0.094		2.8	<0.16
Base Flow	Grab	6/19/2009	10:10	09-A26932	2	<2	1.6	14.7	0.139^	0.118	290.9	1.7	<0.16
Base Flow	Grab	6/26/2009	10:45	09-A28224	5	<2	1.6	13.2	0.207^	0.196^		4.2	<0.16
Base Flow	Grab	7/10/2009	11:00	09-A30658	6	3	1.9	9.9	0.255^	0.230^	770.1*	4.3	<0.16
Base Flow	Grab	8/21/2009	10:20	09-A39354	3	3	1.2	3.14	0.193^	0.208^	3609	3.6	<0.16
Storm Flow	Grab	10/2/2009	10:10	09-A46100	38	7	1.9	7.7		0.681^			<0.16
Storm Flow	Grab	10/3/2009	12:05	09-A46185	8	3	1.3	11.0		0.465^			<0.16
Storm Flow	Grab	10/8/2009	11:50	09-A47281	<2	<2	1	16.1	0.17	0.209^		8.2	<0.16
Storm Flow	Grab	10/13/2009	10:30	09-A48004	4	2	1.4	17.9	0.124	0.14		2.5	<0.16

* = Holding Time Exceeded

^ = sample diluted due to result above calibration or linear range

Field Data - Measurements taken on-site, 2010

MMCC1 - Middle Minnesota Watershed - Crow Creek at Noble Ave. -

Storet Code - S005-628

Flow Type	Date	Flow	Time	Temp ©	DO	pH	TT1
snowmelt	3/16/2010		18:50	1.4	13.41	7.87	14.1
snowmelt	3/17/2010		10:30	1.0	12.41	7.97	15.6
snowmelt	3/25/2010		11:50	4.4	11.12	8.17	28.0
Base Flow	4/13/2010		11:30	10.2	13.37	8.31	60+
Base Flow	4/27/2010		9:20	8.3	10.65	8.30	60+
Base Flow	5/5/2010		9:15	8.4	10.88	8.36	60+
Base Flow	5/19/2010		9:20	9.8	10.69	8.23	60+
Base Flow	6/2/2010		9:30	13.7	9.21	8.26	60+
Storm Flow	6/11/2010		10:10	E9	E4	7.72	5.4
Storm Flow	6/11/2010		15:55				9.1
Storm Flow	6/14/2010		10:45	13.4?	E5	7.85	52.6
Storm Flow	6/18/2010		9:55	E9	E4	8.04	60+
Storm Flow	6/28/2010		18:45	E9	E4	7.76	19.2
Storm Flow	6/29/2010		10:30	16.3	7.76	7.13	22.0
Base Flow	7/8/2010		8:55	15.9?	E5	8.16	60+
Base Flow	7/14/2010		10:35				60+
Base Flow	7/30/2010		9:40	E9	E4	8.19	60+
Base Flow	8/5/2010		9:40	E9	E4	8.20	60+
Base Flow	8/17/2010		9:20	E9	E4	8.22	60+
Base Flow	8/24/2010		9:30				49.7
Base Flow	8/31/2010		11:25				58.8
Base Flow	9/2/2010		11:10	18.7	7.42	7.92	22.5
Base Flow	9/7/2010		12:45				60+
Storm Flow	9/16/2010		9:35	14.4	8.18	7.97	13.6
Storm Flow	9/23/2010		11:25	16.2	7.19	7.78	6.1
Storm Flow	9/23/2010		17:40	17.5	6.93		6.2
Storm Flow	9/24/2010		7:40	14.7	7.10	7.68	6.5

CHEMICAL DATA - Analytes tested for in a lab, 2010 - MVTL, New Ulm

MMCC1 - Middle Minnesota Watershed - Crow Creek at Noble Ave. -

STORET CODE - S005-628

FLOW TYPE	SAMP TYPE	DATE	TIME	LAB SAMPLE ID #	TSS MG/L	TSVS MG/L	TKN MG/L	N-NO2+NO3 MG/L	P-PO4 MG/L	TP MG/L	E.COLI /100mL	TURBIDITY NTU	Ammonia Mg/L
Snowmelt	Grab	3/16/2010	18:50	10-A9361	140	16	3.4	6.71	0.594^	0.904		55	
Snowmelt	Grab	3/17/2010	10:30	10-A9350	96	14	3.3	6.61	0.567^	0.894		47	0.51
Snowmelt	Grab	3/25/2010	11:50	10-A10956	26	5	2.4	10.5	0.701	0.749		21	0.37
Base Flow	Grab	4/13/2010	11:30	10-A14096	4	<2	1.1	13.8	0.008	0.024	28.1*	1.9	<0.16
Base Flow	Grab	4/19/2010	13:05	10-A15375							17.3		
Base Flow	Grab	4/27/2010	9:20	10-A17077	5	2	<0.2	13.6	<0.005	0.025	93.3*	1.0	<0.16
Base Flow	Grab	5/5/2010	9:15	10-A18853	<2	<2	0.7	13.7	<0.005	0.022	209.8*	1.4	<0.16
Base Flow	Grab	5/19/2010	9:20	10-A21901	8	<2	0.7	16.8	0.006	0.030	201.4	3.3	<0.16
Base Flow	Grab	6/2/2010	9:30	10-A24391	<2	<2	0.5	14.8	0.010	0.030	156.5*	2.0	<0.16
Storm Flow	Grab	6/11/2010	10:10	10-A26166	173	28	2.7	10.3	0.180	0.442^	>2419.6	140	<0.16
Storm Flow	Grab	6/11/2010	15:55	10-A26382	98	14	2.0	15.9	0.214*	0.356^		77*	<0.16
Storm Flow	Grab	6/14/2010	10:45	10-A26386	15	2	1.1	16.8	0.162	0.199^		11	<0.16
Storm Flow	Grab	6/18/2010	9:55	10-A27837	11	<2	2.7	17.8	0.097	0.130		7.9	<0.16
Storm Flow	Grab	6/28/2010	18:45	10-A29770	22	<2	1.4	11.8	0.195^	0.302^		37	<0.16
Storm Flow	Grab	6/29/2010	10:30	10-A29683	20	20	1.5	13.5	0.18	0.234^		21	<0.16
Base Flow	Grab	7/8/2010	8:55	10-A31709	11	<2	1.3	15.4	0.066	0.096	770.1*	5.5	<0.16
Base Flow	Grab	7/14/2010	10:35	10-A32948							866.4*		
Base Flow	Grab	7/30/2010	9:40	10-A36592	9	4	1.1	10.3	0.088	0.115	547.5	2.7	<0.16
Base Flow	Grab	8/5/2010	9:40	10-A38036	5	2	0.7	7.43	0.071	0.109	186.0*	3.3	<0.16
Base Flow	Grab	8/17/2010	9:20	10-A40207	2	<2	0.7	3.58	0.143	0.171	613.1*	4.8	<0.16
Base Flow	Grab	8/24/2010	9:30	10-A41360							2419.6*		
Base Flow	Grab	8/31/2010	11:25	10-A42640							> 2419.6*		
Base Flow	Grab	9/2/2010	11:10	10-A43299	27	8	1.0	1.11	0.139	0.196	2419.6*	36	<0.16
Base Flow	Grab	9/7/2010	12:45	10-A43678							920.8		
Storm Flow	Grab	9/16/2010	9:35	10-A45911	48	10	1.2	7.23	0.184	0.261	>2419.6*	55	<0.16
Storm Flow	Grab	9/23/2010	11:25	10-A47288	236	36	2.6	8.57	0.205^	0.464		140	<0.16
Storm Flow	Grab	9/23/2010	17:40	10-A47429	204	32	2.2	5.95	0.204^	0.465		140	<0.16
Storm Flow	Grab	9/24/2010	7:40	10-A47424	95	15	2.1	6.34	0.238^	0.442		130	<0.16

* = Holding Time Exceeded

^ = sample diluted due to result above calibration or linear range

Field Data - Measurements taken on-site, 2010

MMWC - Middle Minnesota Watershed - Wabasha Creek at Co. Hwy 11 in MN River Valley

Storet Code - S005-627

Flow Type	Date	Flow	Time	Temp ©	DO	pH	TT1
snowmelt	3/16/2010		18:20	1.1	13.92	8.04	10.2
snowmelt	3/17/2010		11:10	0.6	12.42	8.11	11.2
MN R Affected	4/13/2010		12:15	12.4	12.63	8.78	41.8
MN R Affected	4/27/2010		9:55	9.6	9.65	8.35	60+
Base Flow	5/5/2010		10:00	10.0	9.49	8.39	60+
Base Flow	5/19/2010		10:05	12.9	9.09	8.31	52.7
Base Flow	6/2/2010		10:10	16.1	8.81	8.37	60+
Storm Flow	6/11/2010		10:50	E9	E4	8.18	3.9
Storm Flow	6/11/2010		15:30				8.3
Storm Flow	6/14/2010		11:25	14.0	9.32	8.27	28.7
Storm Flow	6/18/2010		10:30	17	E4	8.36	43.1
Storm Flow	6/28/2010		18:20	E9	E4	8.10	14.6
Storm Flow	6/29/2010		11:45	19.9	6.95	7.52	17.0
Base Flow	7/8/2010		9:30	18.6	7.34	8.35	46.0
Base Flow	7/14/2010		10:00				60+
Base Flow	7/30/2010		10:10	E9	E4	8.38	60+
Base Flow	8/5/2010		10:15	E9	E4	8.35	60+
Base Flow	8/17/2010		10:05	E9	E4	8.35	60+
Base Flow	8/24/2010		10:05				60+
Base Flow	8/31/2010		10:40				60+
Base Flow	9/2/2010		12:00	18.9	8.13	8.29	13.8
Base Flow	9/7/2010		13:25				60+
Storm Flow	9/16/2010		10:20	14.4	9.31	8.43	16.1
Storm Flow	9/23/2010		10:35	16.2	8.32	8.10	3.1
Storm Flow	9/23/2010		17:15				2.3
Storm Flow	9/24/2010		8:25	15.2	9.19	7.99	4.4

CHEMICAL DATA - Analytes tested for in a lab, 2010 - MVTL, New Ulm

MMWC - Middle Minnesota Watershed - Wabasha Creek at Co. Hwy 11 in MN River Valley -

STORET CODE - S005-627

FLOW TYPE	SAMP TYPE	DATE	TIME	LAB SAMPLE ID #	TSS MG/L	TSVS MG/L	TKN MG/L	N-NO2+NO3 MG/L	P-PO4 MG/L	TP MG/L	E.COLI /100mL	TURBIDITY NTU	Ammonia Mg/L
Snowmelt	Grab	3/16/2010	18:20	10-A9360	126	14	2.6	5.03	0.500^	0.763		74	
Snowmelt	Grab	3/17/2010	11:10	10-A9351	73	10	2.7	4.85	0.510^	0.732		57	0.23
MN River Affect	Grab	4/13/2010	12:15	10-A14097	13	8	1.6	1.83	<0.005	0.105	1.0*	5.9	<0.16
MN River Affect	Grab	4/19/2010	13:35	10-A15376							17.3		
MN River Affect	Grab	4/27/2010	9:55	10-A17078	7	3	0.4	12.80	0.009	0.042	81.3*	2.1	<0.16
Base Flow	Grab	5/5/2010	10:00	10-A18854	6	<2	0.8	13.20	0.009	0.041	95.9*	3.8	<0.16
Base Flow	Grab	5/19/2010	10:05	10-A21902	23	3	0.8	17.40	0.073	0.141	137.6*	10	<0.16
Base Flow	Grab	6/2/2010	10:10	10-A24392	<2	<2	0.8	14.70	0.025	0.052	172.5*	5	<0.16
Storm Flow	Grab	6/11/2010	10:50	10-A26167	378	56	3.7	10.60	0.168	0.658^	>2419.6	220	<0.16
Storm Flow	Grab	6/11/2010	15:30	10-A26383	205	25	2.9	18.50	0.221*	0.490^		100*	<0.16
Storm Flow	Grab	6/14/2010	11:25	10-A26387	40	5	1.3	18.90	0.123	0.192^		23	<0.16
Storm Flow	Grab	6/18/2010	10:30	10-A27838	23	4	3.0	18.90	0.091	0.156		12	<0.16
Storm Flow	Grab	6/28/2010	18:20	10-A29769	77	15	1.8	9.83	0.217^	0.353^		48	<0.16
Storm Flow	Grab	6/29/2010	11:45	10-A29684	42	11	1.7	9.68	0.205^	0.293^		25	<0.16
Base Flow	Grab	7/8/2010	9:30	10-A31710	28	4	1.4	14.10	0.098	0.166	613.1*	11	<0.16
Base Flow	Grab	7/14/2010	10:00	10-A32947							579.4*		
Base Flow	Grab	7/30/2010	10:10	10-A36593	16	5	1.1	9.59	0.138	0.198	770.1	4.2	<0.16
Base Flow	Grab	8/5/2010	10:15	10-A38037	11	2	1.4	5.72	0.118	0.188	579.4*	5.1	<0.16
Base Flow	Grab	8/17/2010	10:05	10-A40208	5	5	1.4	5.99	0.134	0.174	275.5*	2.8	<0.16
Base Flow	Grab	8/24/2010	10:05	10-A41361							920.8*		
Base Flow	Grab	8/31/2010	10:40	10-A42641							>2419.6*		
Base Flow	Grab	9/2/2010	12:00	10-A43300	89	17	1.4	2.63	0.319	0.424^	>2419.6*	62	<0.16
Base Flow	Grab	9/7/2010	13:25	10-A43679							2419.6		
Storm Flow	Grab	9/16/2010	10:20	10-A45912	108	22	2.1	11.3	0.207^	0.388^	>2419.6*	56	<0.16
Storm Flow	Grab	9/23/2010	10:35	10-A47289	663	97	4.9	8.17	0.347^	1.10		320	<0.16
Storm Flow	Grab	9/23/2010	17:15	10-A47430	1040	117	4.8	5.24	0.259^	1.31		460	<0.16
Storm Flow	Grab	9/24/2010	8:25	10-A47425	388	52	2.8	4.53	0.296^	0.742		230	<0.16

* = Holding Time Exceeded

^ = sample diluted due to result above calibration or linear range

Field Data - Measurements taken on-site, 2010

MMNE - Middle Minnesota Watershed - North Eden Creek at Co. Hwy 10 in MN River
Valley -

Storet Code - S005-626

Flow Type	Date	Flow	Time	Temp ©	DO	pH	TT1
snowmelt	3/16/2010		17:55	1.0		8.11	5.4
snowmelt	3/17/2010		11:40	0.9	14.34	8.13	7.9
snowmelt	3/19/2010		12:20	3.5	13.28	8.28	9.4
base flow	4/13/2010		12:45	12.5	11.23	8.60	60+
base flow	4/27/2010		10:30	9.6	11.17	8.46	60+
base flow	5/5/2010		10:30	9.9	10.72	8.48	60+
base flow	5/19/2010		10:30	11.8	10.22	8.41	60+
base flow	6/2/2010		10:40	15.1	E5	8.46	60+
Storm Flow	6/11/2010		11:10	E9	E4	8.35	52.1
Storm Flow	6/11/2010		15:05				58.2
Storm Flow	6/14/2010		11:55	13.4	9.99	8.38	51.0
Storm Flow	6/18/2010		10:50	E9	E4	8.44	60+
Storm Flow	6/28/2010		17:40	E9	E4	8.20	11.0
Storm Flow	6/29/2010		12:15	17.3	9.18	7.74	16.0
base flow	7/8/2010		9:55	E9	E4	8.42	60+
base flow	7/14/2010		9:40				60+
base flow	7/30/2010		10:40	E9	E4	8.39	60+
base flow	8/5/2010		10:40	E9	E4	8.33	60+
base flow	8/17/2010		14:55	E9	E4	8.36	60+
base flow	8/24/2010		10:25				60+
base flow	8/31/2010		10:15				60+
base flow	9/2/2010		12:30	17.9	8.95	8.35	60
base flow	9/7/2010		13:45				60+
Storm Flow	9/16/2010		10:50	13.4	9.86	8.44	60+
Storm Flow	9/23/2010		10:05	15.7	9.19	8.25	2.7
Storm Flow	9/23/2010		17:00				2.1
Storm Flow	9/24/2010		8:50	15.3	9.60	8.12	4.9

CHEMICAL DATA - Analytes tested for in a lab, 2010 - MVTL, New Ulm

MMNE - Middle Minnesota Watershed - North Eden Creek at Co. Hwy 10 in MN River Valley -

STORET CODE - S005-626

FLOW TYPE	SAMP TYPE	DATE	TIME	LAB SAMPLE ID #	TSS MG/L	TSVS MG/L	TKN MG/L	N-NO2+NO3 MG/L	P-PO4 MG/L	TP MG/L	E.COLI /100mL	TURBIDITY NTU	Ammonia Mg/L
Snowmelt	Grab	3/16/2010	17:55	10-A9359	488	40	3.0	6.32	0.420^	0.808		180	
Snowmelt	Grab	3/17/2010	11:40	10-A9352	285	22	2.4	6.88	0.475^	0.824		100	<0.16
Snowmelt	Grab	3/19/2010	12:20	10-A10027	221	19	2.7	8.22	0.616^	0.801		96	<0.16
Base Flow	Grab	4/13/2010	12:45	10-A14098	17	15	1.4	15.70	0.006	0.020	5.2*	2	<0.16
Base Flow	Grab	4/19/2010	13:50	10-A15377							12.1		
Base Flow	Grab	4/27/2010	10:30	10-A17079	3	2	<0.2	17.10	<0.005	0.018	18.7*	1.3	<0.16
Base Flow	Grab	5/5/2010	10:30	10-A18855	<2	<2	0.5	17.10	<0.005	0.019	42.6*	2.1	<0.16
Base Flow	Grab	5/19/2010	10:30	10-A21903	9	<2	0.5	20.00	0.013	0.029	83.6*	3.8	<0.16
Base Flow	Grab	6/2/2010	10:40	10-A24393	<2	<2	0.7	17.10	0.020	0.041	115.3*	2.1	<0.16
Storm Flow	Grab	6/11/2010	11:10	10-A26168	10	4	1.5	13.90	0.058	0.109	1732.9	8.6	<0.16
Storm Flow	Grab	6/11/2010	15:05	10-A26384	23	<2	0.9	14.10	0.073*	0.129		12*	<0.16
Storm Flow	Grab	6/14/2010	11:55	10-A26388	19	2	<0.2	19.20	0.084	0.125		10	<0.16
Storm Flow	Grab	6/18/2010	10:50	10-A27839	11	<2	2.7	19.5^	0.061	0.096		5.1	<0.16
Storm Flow	Grab	6/28/2010	17:40	10-A29768	86	13	2.0	14.30	0.221^	0.356^		64	<0.16
Storm Flow	Grab	6/29/2010	12:15	10-A29685	54	10	1.7	15.40	0.182	0.283^		41	<0.16
Base Flow	Grab	7/8/2010	9:55	10-A31711	9	<2	1.2	16.90	0.103	0.122	>2419.6*	3.4	<0.16
Base Flow	Grab	7/14/2010	9:40	10-A32946							1986.3*		
Base Flow	Grab	7/30/2010	10:40	10-A36594	6	4	1.2	13.00	0.076	0.110	488.4	1.9	<0.16
Base Flow	Grab	8/5/2010	10:40	10-A38038	2	<2	1.0	7.99	0.026	0.058	1203.3*	1.4	<0.16
Base Flow	Grab	8/17/2010	14:55	10-A40209	<2	<2	0.5	4.43	0.074	0.108	151.5	0.8	<0.16
Base Flow	Grab	8/24/2010	10:25	10-A41362							547.5*		
Base Flow	Grab	8/31/2010	10:15	10-A42642							816.4*		
Base Flow	Grab	9/2/2010	12:30	10-A43301	8	3	0.7	0.65	0.072	0.119	980.4*	8.3	<0.16
Base Flow	Grab	9/7/2010	13:45	10-A43680							261.3		
Storm Flow	Grab	9/16/2010	10:50	10-A45913	5	3	0.5	4.46	0.061	0.087	1046.2*	3.3	<0.16
Storm Flow	Grab	9/23/2010	10:05	10-A47290	1150	137	4.6	10.5	0.185	1.15		410	<0.16
Storm Flow	Grab	9/23/2010	17:00	10-A47431	987	100	3.7	7.21	0.232^	1.02		430	<0.16
Storm Flow	Grab	9/24/2010	8:50	10-A47426	268	36	2.3	6.04	0.390^	0.689		200	<0.16

* = Holding Time Exceeded

^ = sample diluted due to result above calibration or linear range

Field Data - Measurements taken on-site, 2010

MMSC - Middle Minnesota Watershed - Spring Creek @ Co. Hwy 10 in MN River Valley

Storet Code - S005-625

Flow Type	Date	Flow	Time	Temp ©	DO	pH	TT1
Snowmelt	3/16/2010		17:30	1.4	15.56	8.03	6.4
Snowmelt	3/17/2010		12:00	1.3	14.11	8.08	7.4
Snowmelt	3/19/2010		12:50	0.7	13.96	8.22	5.1
Base Flow	4/13/2010		13:10	12.9	12.72	8.47	60+
Base Flow	4/27/2010		11:00	10.7	12.31	8.38	60+
Base Flow	5/5/2010		11:00	10.7	10.39	8.39	60+
Base Flow	5/19/2010		11:00	13.8	9.45	8.28	60
Base Flow	6/2/2010		11:10	16.2?	10.43?	8.33	60+
Storm Flow	6/11/2010		11:45	17.1	8.88?	8.31	35.5
Storm Flow	6/11/2010		14:45				52.4
Storm Flow	6/14/2010		12:30	E9	E4	8.32	37.3
Storm Flow	6/18/2010		11:20	18.2	E4	8.32	50.6
Storm Flow	6/28/2010		17:15	E9	E4	8.11	9.5
Storm Flow	6/29/2010		13:45	19.7	8.7	7.73	14
Base Flow	7/8/2010		10:20	E9	E4	8.32	60
Base Flow	7/14/2010		15:35				60+
Base Flow	7/30/2010		11:00	E9	E4	8.40	60+
Base Flow	8/5/2010		11:00	E9	E4	8.28	60+
Base Flow	8/17/2010		15:20			8.34	60+
Base Flow	8/24/2010		10:45				60+
Base Flow	8/31/2010		9:55				60+
Base Flow	9/2/2010		12:55	18.2	9.03	8.38	32.7
Base Flow	9/7/2010		14:00				60+
Storm Flow	9/16/2010		11:15	13.6	9.76	8.47	60+
Storm Flow	9/23/2010		9:30	16.0	8.59	8.19	3.3
Storm Flow	9/23/2010		16:35	17.3	8.21		2.8
Storm Flow	9/24/2010		9:20	15.6	9.09	8.00	4.3

CHEMICAL DATA - Analytes tested for in a lab, 2010 - MVTL, New Ulm

MMSC - Middle Minnesota Watershed - Spring Creek @ Co. Hwy 10 in MN River Valley

STORET CODE - S005-625

FLOW TYPE	SAMP TYPE	DATE	TIME	LAB SAMPLE ID #	TSS MG/L	TSVS MG/L	TKN MG/L	N-NO2+NO3 MG/L	P-PO4 MG/L	TP MG/L	E.COLI /100mL	TURBIDITY NTU	Ammonia Mg/L
Snowmelt	Grab	3/16/2010	17:30	10-A9358	371	32	3.6	6.43	0.438^	0.871		160	
Snowmelt	Grab	3/17/2010	12:00	10-A9353	377	29	3.6	6.52	0.489^	0.917		130	0.51
Snowmelt	Grab	3/19/2010	12:50	10-A10028	600	39	3.4	6.48	0.678^	1.14		200	0.23
Base Flow	Grab	4/13/2010	13:10	10-A14099	25	16	1.3	13.1	<0.005	0.027	21.6*	2.7	<0.16
Base Flow	Grab	4/19/2010	14:05	10-A15378							16.0		
Base Flow	Grab	4/27/2010	11:00	10-A17080	5	2	1.2	13.1	<0.005	0.020	24.6*	1.4	<0.16
Base Flow	Grab	5/5/2010	11:00	10-A18856	<2	<2	1.1	13.5	0.006	0.022	41.0*	2.0	<0.16
Base Flow	Grab	5/19/2010	11:00	10-A21904	18	<2	0.5	16.8	0.015	0.045	159.7*	6.8	<0.16
Base Flow	Grab	6/2/2010	11:10	10-A24394	<2	<2	0.5	11.9	0.009	0.030	201.4*	1.8	<0.16
Storm Flow	Grab	6/11/2010	11:45	10-A26169	30	6	1.7	8.14	0.047	0.114	1413.6	19	<0.16
Storm Flow	Grab	6/11/2010	14:45	10-A26385	24	<2	1.3	10.2	0.059*	0.112		15*	<0.16
Storm Flow	Grab	6/14/2010	12:30	10-A26393	51	5	0.7	15.9	0.084	0.152		19	<0.16
Storm Flow	Grab	6/18/2010	11:20	10-A27840	28	3	2.7	16.5	0.051	0.102		12	<0.16
Storm Flow	Grab	6/28/2010	17:15	10-A29767	140	18	2.0	14.4	0.204^	0.351^		73	<0.16
Storm Flow	Grab	6/29/2010	13:45	10-A29686	94	13	1.7	15.5	0.177	0.274^		37	<0.16
Base Flow	Grab	7/8/2010	10:20	10-A31712	18	<2	1.0	11.4	0.073	0.117	579.4*	8.4	<0.16
Base Flow	Grab	7/14/2010	15:35	10-A32949							410.6		
Base Flow	Grab	7/30/2010	11:00	10-A36595	8	2	1.1	8.08	0.122	0.191	648.8	3.8	<0.16
Base Flow	Grab	8/5/2010	11:00	10-A38039	3	<2	1.4	3.63	0.023	0.049	133.4*	2.3	<0.16
Base Flow	Grab	8/17/2010	15:20	10-A40210	3	<2	0.7	1.86	0.040	0.079	56.3	0.9	<0.16
Base Flow	Grab	8/24/2010	10:45	10-A41363							866.4*		
Base Flow	Grab	8/31/2010	9:55	10-A42643							1553.1*		
Base Flow	Grab	9/2/2010	12:55	10-A43302	24	6	0.8	1.92	0.100	0.140	1986.3*	21	<0.16
Base Flow	Grab	9/7/2010	14:00	10-A43681							387.3		
Storm Flow	Grab	9/16/2010	11:15	10-A45914	3	2	0.4	2.93	0.054	0.089	2419.6*	3.8	<0.16
Storm Flow	Grab	9/23/2010	9:30	10-A47291	880	113	6.0	6.65	0.230^	1.05		340	<0.16
Storm Flow	Grab	9/23/2010	16:35	10-A47432	1110	132	4.3	6.74	0.256^	1.11		400	<0.16
Storm Flow	Grab	9/24/2010	9:20	10-A47427	550	58	2.9	5.66	0.279^	0.784		250	<0.16

* = Holding Time Exceeded

Field Data - Measurements taken on-site, 2010

County Ditch 13 - Middle Minnesota Watershed - @ Co Hwy 10 -

Storet Code - S005-623

Flow Type	Date	Flow	Time	Temp ©	DO	pH	TT1
Snowmelt	3/16/2010		17:15	0.6	13.83	7.89	6.6
Snowmelt	3/17/2010		12:15	0.8	12.73	7.98	11.2
Base Flow	4/13/2010		13:35	12.1	14.23	8.46	60+
Base Flow	4/27/2010		11:20	10.1	11.42	8.21	60+
Base Flow	5/5/2010		11:30	9.0	10.77	8.30	60+
Base Flow	5/19/2010		11:20	12.8	10.21	8.11	60+
Base Flow	6/2/2010		11:40	E9	N/A	8.14	60+
Storm Flow	6/11/2010		12:10	E9	E5	8.00	60
Base Flow	7/8/2010		10:40	E9	E5	8.06	60+
Base Flow	7/14/2010		15:50	N/A	N/A	N/A	60+
Base Flow	7/30/2010		11:20	E9	E5	8.17	60+
Base Flow	8/5/2010		11:15	E9	E5	8.19	60+
Base Flow	8/17/2010		15:35	E9	E5	8.24	60+
Base Flow	8/24/2010		11:00				60+
Base Flow	8/31/2010		9:45				53.0
Base Flow	9/2/2010		13:20	17.8	8.29	8.13	58.2
Base Flow	9/7/2010		14:15				60+
Storm Flow	9/16/2010		11:35	14.2	8.85	8.29	60+
Storm Flow	9/23/2010		16:20				

CHEMICAL DATA - Analytes tested for in a lab, 2010 - MVTL, New Ulm

County Ditch 13 - Middle Minnesota Watershed - @ Co Hwy 10 -

STORET CODE - S005-623

FLOW TYPE	SAMP TYPE	DATE	TIME	LAB SAMPLE ID #	TSS MG/L	TSVS MG/L	TKN MG/L	N-NO2+NO3 MG/L	P-PO4 MG/L	TP MG/L	E.COLI /100mL	TURBIDITY NTU	Ammonia Mg/L
Snowmelt	Grab	3/16/2010	17:15	10-A9357	286	34	3.9	6.31	0.381^	0.948		110	
Snowmelt	Grab	3/17/2010	12:15	10-A9354	98	12	2.7	6.08	0.382^	0.867		48	0.65
Base Flow	Grab	4/13/2010	13:35	10-A14100	22	16	1.6	15.8	0.007	0.034	248.9*	3	<0.16
Base Flow	Grab	4/19/2010	14:20	10-A15379							290.9		
Base Flow	Grab	4/27/2010	11:20	10-A17081	<2	<2	0.9	15.0	0.006	0.027	1413.6	2.1	<0.16
Base Flow	Grab	5/5/2010	11:30	10-A18857	<2	<2	0.7	14.8	0.009	0.035	2419.6*	1.2	<0.16
Base Flow	Grab	5/19/2010	11:20	10-A21905	5	<2	1.4	18.1	0.009	0.031	648.8*	2.4	<0.16
Base Flow	Grab	6/2/2010	11:40	10-A24395	<2	<2	1.1	13.5	0.013	0.040	122.3*	2.5	<0.16
Storm Flow	Grab	6/11/2010	12:10	10-A26170	16	<2	1.7	13.6	0.054	0.113	1119.9	7.6	<0.16
Base Flow	Grab	7/8/2010	10:40	10-A31713	6	<2	1.4	14.4	0.078	0.129	410.6	2.1	<0.16
Base Flow	Grab	7/14/2010	15:50	10-A32950							344.8		
Base Flow	Grab	7/30/2010	11:20	10-A36596	6	2	1.4	5.48	0.136	0.207	387.3	2.3	<0.16
Base Flow	Grab	8/5/2010	11:15	10-A38040	2	<2	1.1	2.75	0.160	0.223	218.7*	2.1	<0.16
Base Flow	Grab	8/17/2010	15:35	10-A40211	6	2	0.7	1.23	0.228^	0.249	240	6	<0.16
Base Flow	Grab	8/24/2010	11:00	10-A41364							1046.2*		
Base Flow	Grab	8/31/2010	9:45	10-A42644							1553.1*		
Base Flow	Grab	9/2/2010	13:20	10-A43303	10	5	1.1	7.08	0.355	0.390	2419.6	9.2	<0.16
Base Flow	Grab	9/7/2010	14:15	10-A43682							148.3		
Storm Flow	Grab	9/16/2010	11:35	10-A45915	3	3	0.8	7.29	0.170	0.185	648.8*	1.5	<0.16
Storm Flow	Grab	9/23/2010	16:20	10-A47434							>2419.6*		

* = Holding Time Exceeded

^ = sample diluted due to result above calibration or linear range

Field Data - Measurements taken on-site, 2010

County Ditch 10 - Middle Minnesota Watershed - @ Co. Hwy 29 -

Storet Code - S005-624

Flow Type	Date	Flow	Time	Temp ©	DO	pH	TT1
Snowmelt	3/16/2010		16:50	1.3	14.16	7.97	13.4
Snowmelt	3/17/2010		12:50	1.6	12.79	7.92	17.8
Base Flow	4/13/2010		13:55	11.0	12.92	8.48	60+
Base Flow	4/27/2010		11:40	10.6	11.01	8.42	60+
Base Flow	5/5/2010		11:45	9.9	9.26	8.28	60+
Base Flow	5/19/2010		11:40	11.8	9.41	8.14	60+
Base Flow	6/2/2010		11:55	E9	N/A	8.24	60+
Storm Flow	6/11/2010		12:30	E9	E4	7.99	38.1
Base Flow	7/8/2010		10:55	E9	E4	8.14	60+
Base Flow	7/14/2010		16:00	N/A	N/A		60+
Base Flow	7/30/2010		11:35	E9	E4	8.30	60+
Base Flow	8/5/2010		11:35	E9	E4	8.31	60+
Base Flow	8/17/2010		15:55			8.32	60+
Base Flow	8/24/2010		11:15				60+
Base Flow	8/31/2010		9:30				57.1
Base Flow	9/2/2010		13:45	17.2	8.67	8.15	9.3
Base Flow	9/7/2010		14:25				60+
Storm Flow	9/16/2010		11:55	13.5	9.04	8.32	25.2
Storm Flow	9/23/2010		16:10				
Storm Flow	9/24/2010		9:45				7.3

CHEMICAL DATA - Analytes tested for in a lab, 2010 - MVTL, New Ulm

County Ditch 10 - Middle Minnesota Watershed - @ Co. Hwy 29 -

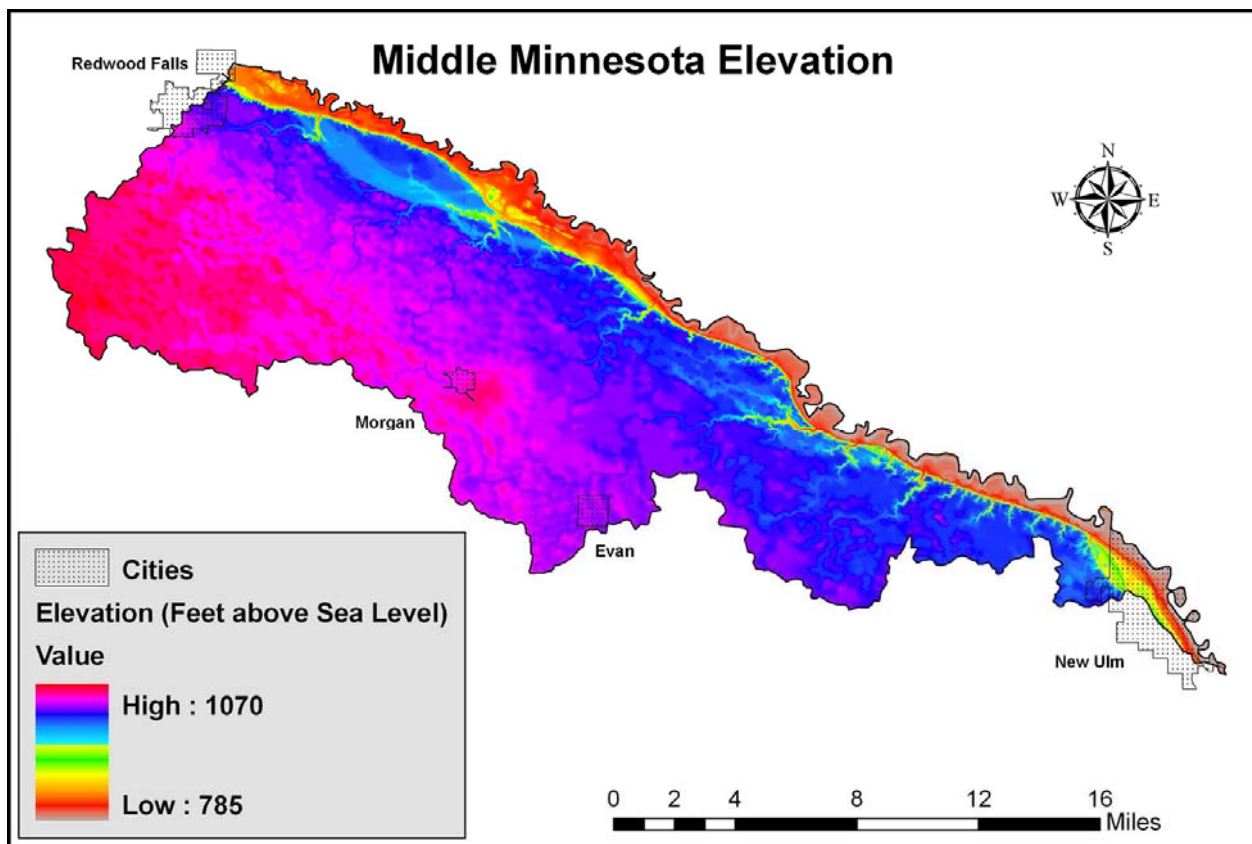
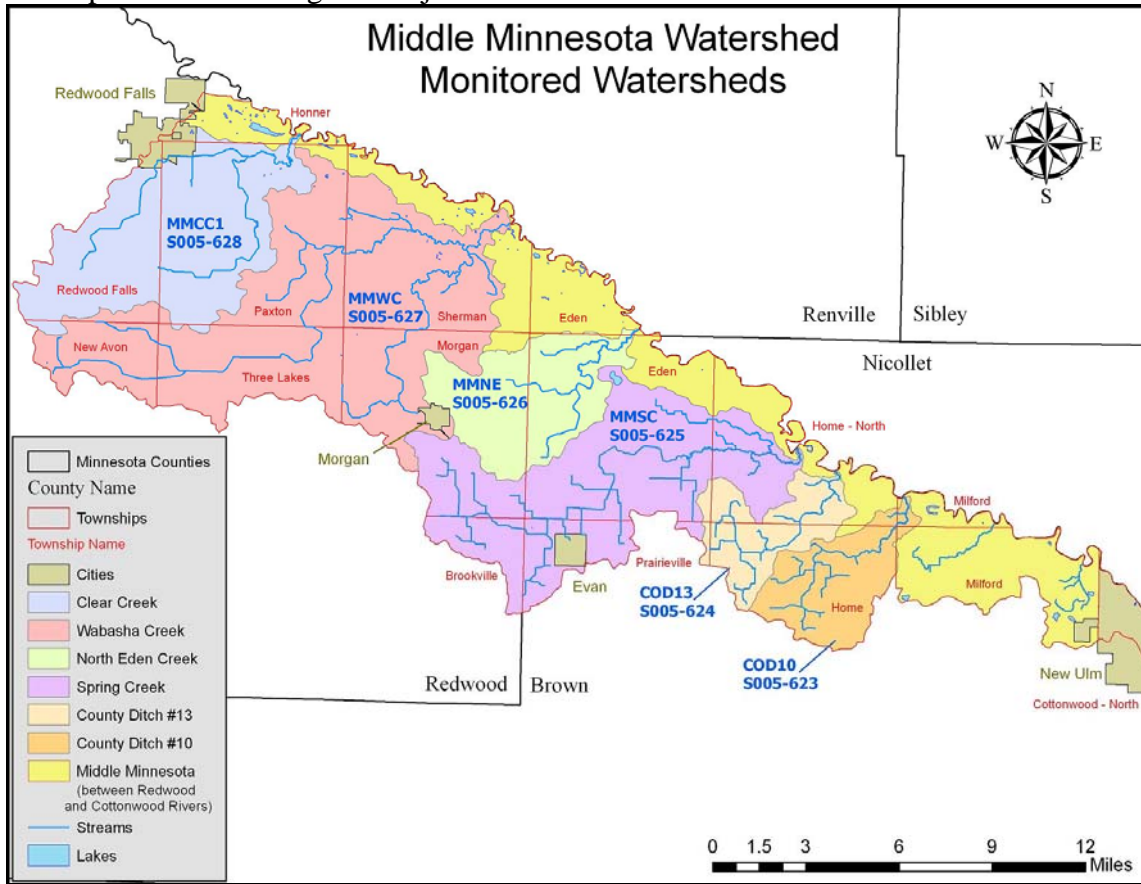
STORET CODE - S005-624

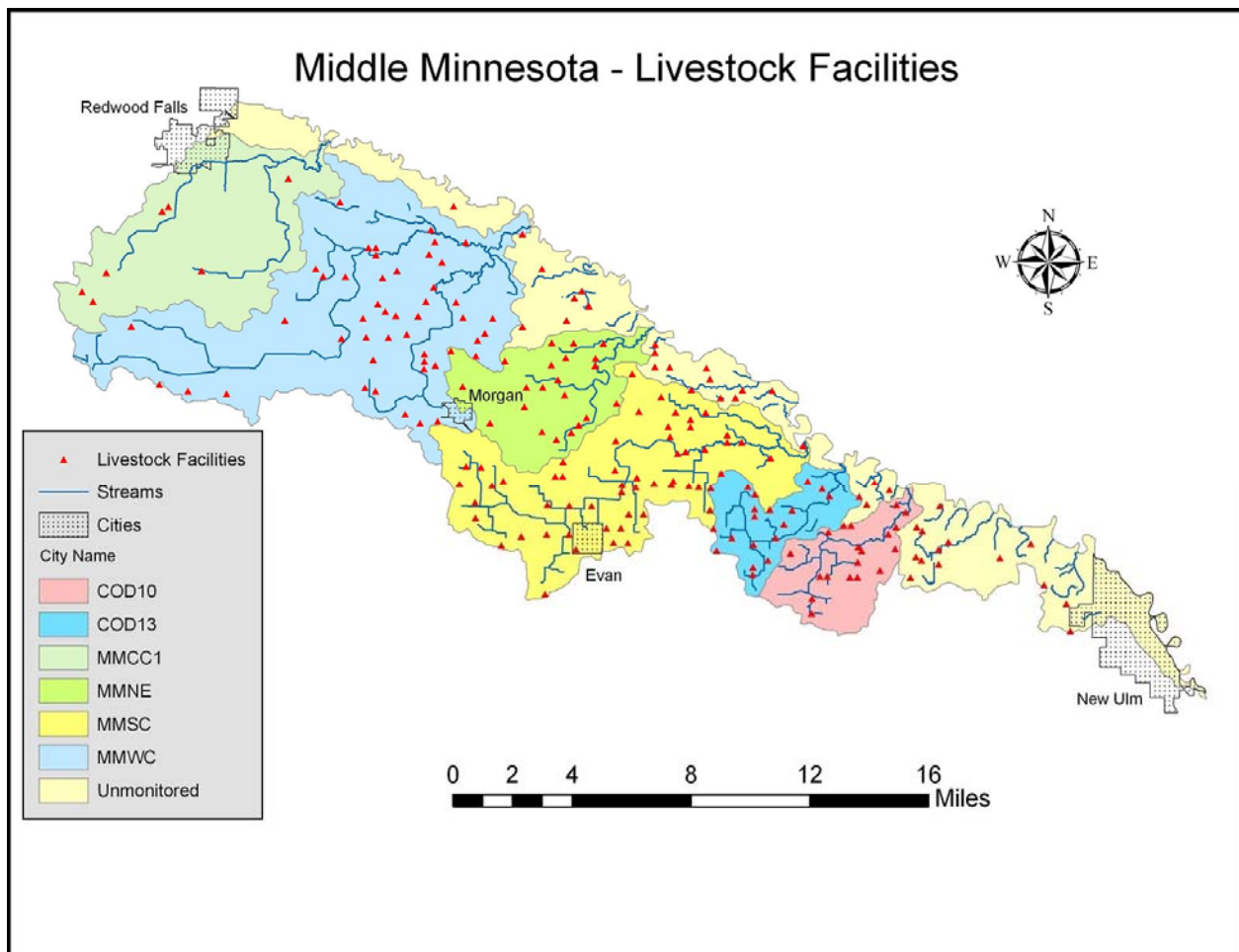
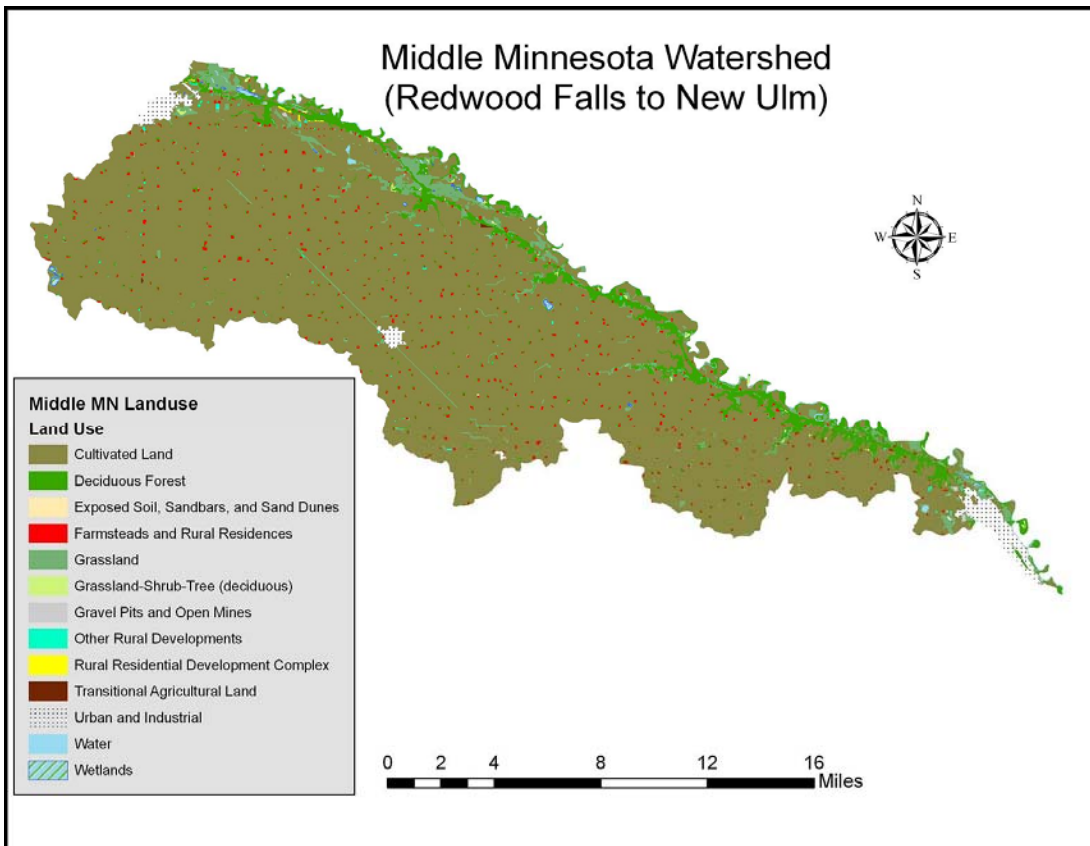
FLOW TYPE	SAMP TYPE	DATE	TIME	LAB SAMPLE ID #	TSS MG/L	TSVS MG/L	TKN MG/L	N-NO2+NO3 MG/L	P-PO4 MG/L	TP MG/L	E.COLI /100mL	TURBIDITY NTU	Ammonia Mg/L
Snowmelt	Grab	3/16/2010	16:50	10-A9356	182	17	2.7	7.32	0.509^	0.854		57	
Snowmelt	Grab	3/17/2010	12:50	10-A9355	99	13	2.9	8.36	0.518^	0.778		41	0.23
Base Flow	Grab	4/13/2010	13:55	10-A14101	12	12	1.3	19.7	0.036	0.054	20.1*	1.1	<0.16
Base Flow	Grab	4/19/2010	14:30	10-A15380							13.4		
Base Flow	Grab	4/27/2010	11:40	10-A17082	3	2	0.9	19.3	0.037	0.058	34.5	2.3	<0.16
Base Flow	Grab	5/5/2010	11:45	10-A18864	2	<2	0.9	19.8	0.042	0.075	160.7	1.6	<0.16
Base Flow	Grab	5/19/2010	11:40	10-A21906	6	2	1.1	21.9^	0.044	0.064	79.4*	3.2	<0.16
Base Flow	Grab	6/2/2010	11:55	10-A24396	<2	<2	0.7	18.1	0.046	0.066	1732.9	1.2	<0.16
Storm Flow	Grab	6/11/2010	12:30	10-A26171	46	11	1.8	20.7^	0.110	0.202^	1299.7	18	<0.16
Base Flow	Grab	7/8/2010	10:55	10-A31714	11	<2	1.0	17.7^	0.100	0.133	461.1	4.6	<0.16
Base Flow	Grab	7/14/2010	16:00	10-A32951							218.7		
Base Flow	Grab	7/30/2010	11:35	10-A36597	7	3	1.1	12.2	0.117	0.173	435.2	4.4	<0.16
Base Flow	Grab	8/5/2010	11:35	10-A38041	2	<2	1.4	13.9	0.130	0.216	920.8*	2.4	<0.16
Base Flow	Grab	8/17/2010	15:55	10-A40212	2	<2	0.8	17.7	0.145	0.170	290.9	2.5	<0.16
Base Flow	Grab	8/24/2010	11:15	10-A41365							2419.6*		
Base Flow	Grab	8/31/2010	9:30	10-A42645							1413.1*		
Base Flow	Grab	9/2/2010	13:45	10-A43304	61	13	1.6	14	0.760	0.873^	> 2419.6	76	<0.16
Base Flow	Grab	9/7/2010	14:25	10-A43683							71.7		
Storm Flow	Grab	9/16/2010	11:55	10-A45916	15	7	2.1	19.0^	0.383^	0.551^	>2419.6*	25	<0.16
Storm Flow	Grab	9/23/2010	16:10	10-A47433							>2419.6*		
Storm Flow	Grab	9/24/2010	9:45	10-A47428							>2419.6*		

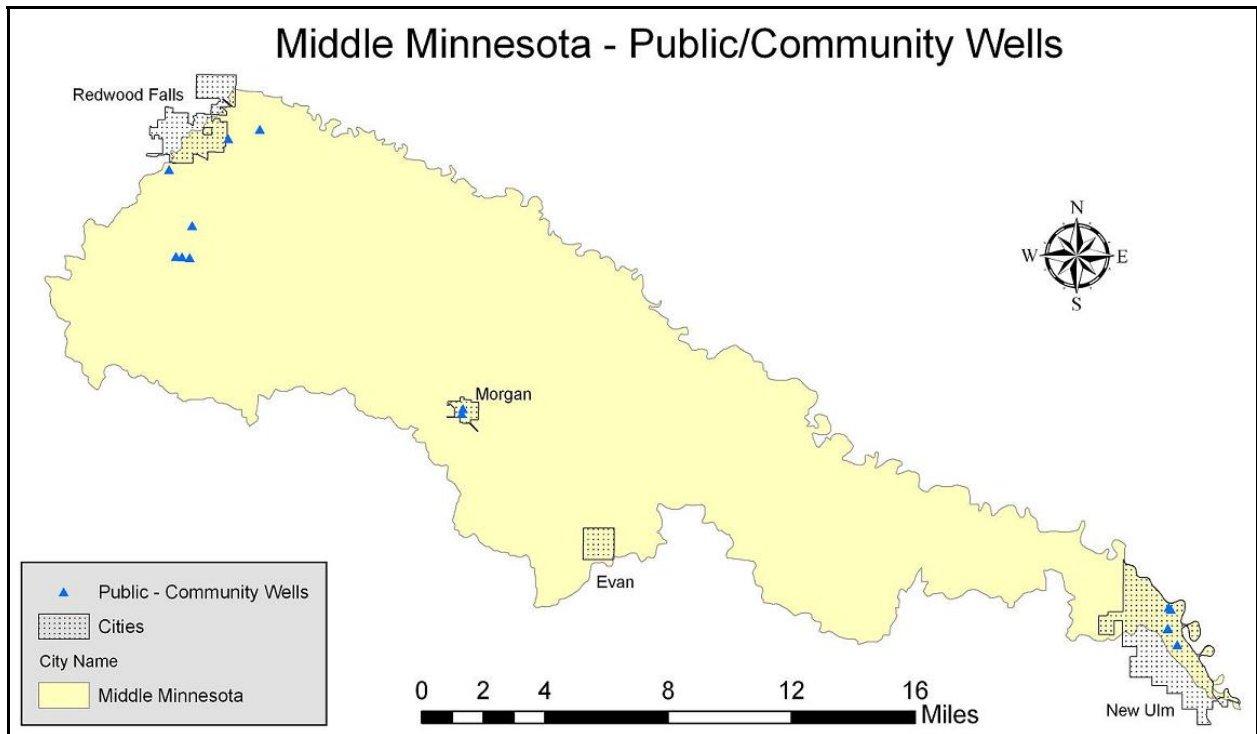
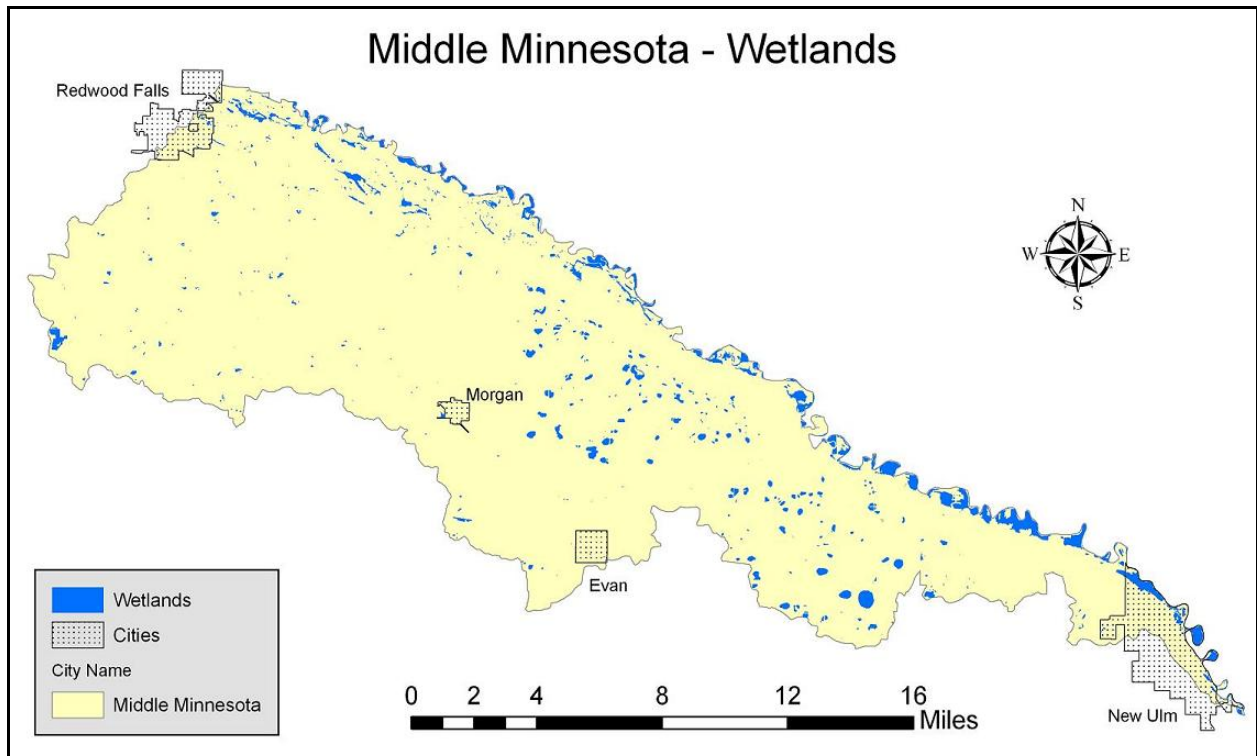
* = Holding Time Exceeded

^ = sample diluted due to result above calibration or linear range

Examples of Maps Created During the Project

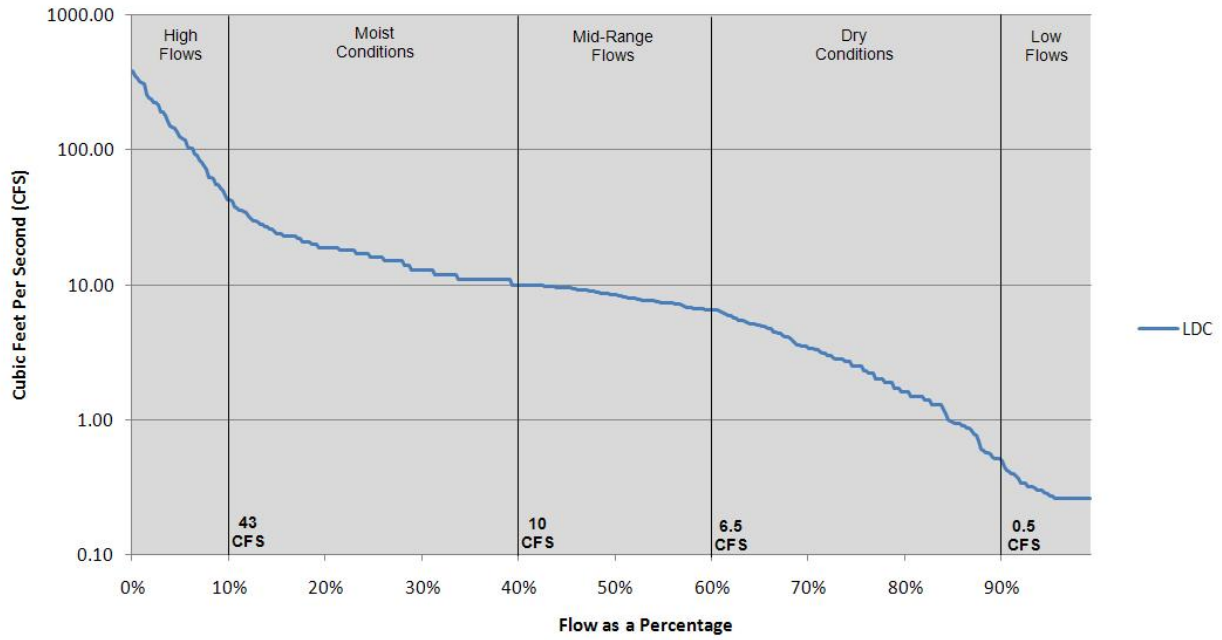




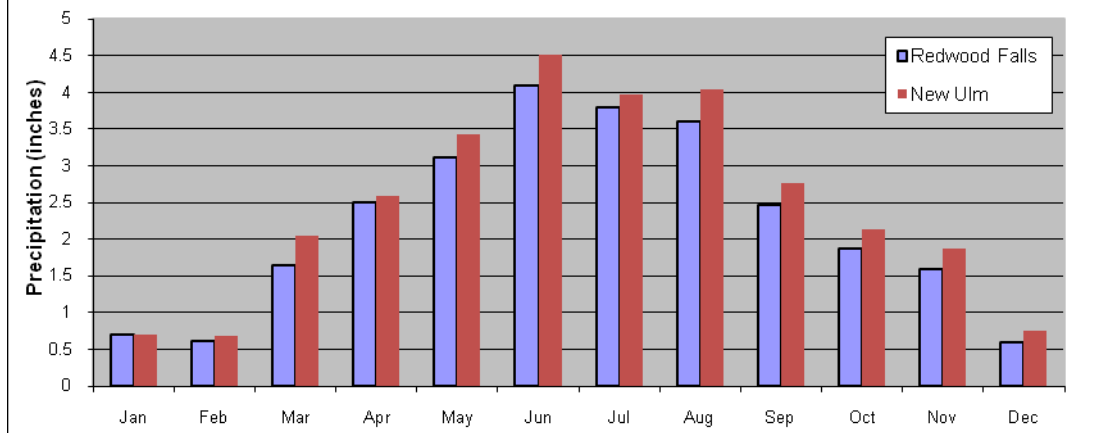


Examples of Figures Created During the Project

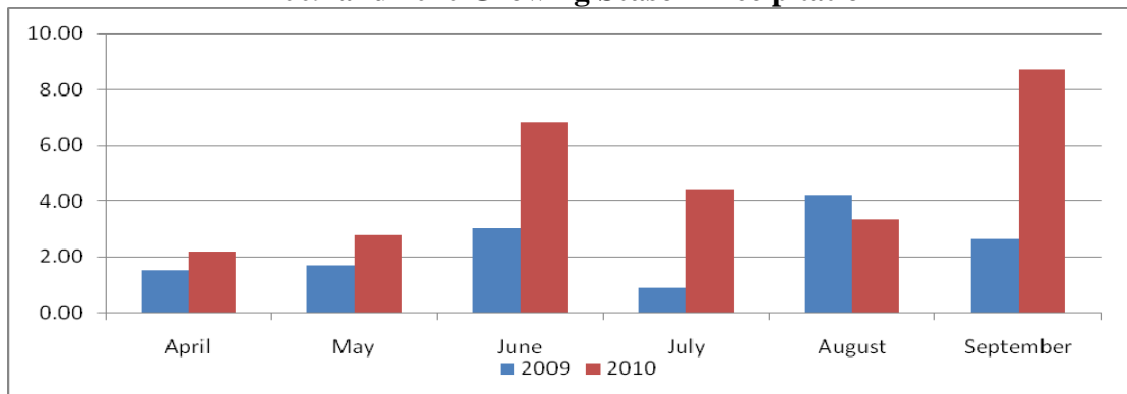
Flow Duration Curve - Crow Creek (MMCC1)



Average Monthly Rainfall (1971-2000 data)



2009 and 2010 Growing Season Precipitation



Municipal, Stormwater, and Wastewater Discharge Permits

Permit #	Name	City	Receiving Waters	Flow (mgd)	Type
MN0066460	Evan WWTP	Evan	Spring Creek	0.0128	Domestic
MN0061433	Lower Sioux WWSL	Redwood Falls	Wabasha Creek	0.144	Domestic
MN0020443	Morgan WWTP	Morgan	CD 109 - Wabasha Creek	0.359	Domestic
MN0069680;					
MNG490208	Acme-Ochs Brick; Munsel Mine	Franklin	Minnesota River		Industrial
MNG255006	Firmenich Inc.	New Ulm	Minnesota River	1.0	Industrial
MN0062154;	Frohrip Kaolin Mine -Northern		Trib to Minnesota		
MNR0534L3	Con-Agg Pipe Outfall 010	Franklin	River	1.1	Industrial
MN0059331;M	Redwood Falls Stockpile Runoff -	Redwood			
NR0534L4	Northern Con Agg	Falls	Tiger Lake	0.36	Industrial

Major Lakes/Wetlands

Location	Name	Acres	Shoreland Class	Ecological Class	Management Class	Protection Type
Brown	Somson	20.15	Not in Shoreland Program	-	-	Protected Water
Brown	Lone Tree	58.7	Natural Environment	BLH	RWK	Protected Water
Brown	Horseshoe	25.49	Not in Shoreland Program	-	-	Protected Wetland
Brown	Unnamed	20.06	Not in Shoreland Program	-	-	Protected Wetland
Brown	Unnamed	14.48	Not in Shoreland Program	-	-	Protected Wetland
Redwood	Sulpher	6.98	Not in Shoreland Program	-	-	-
Redwood	Tiger	98.55	Natural Environment	BLH	RWK	Protected Water

Wetland Acreage

WATERSHED	ACRES of WATERSHED	ACRES of WETLANDS	% of WETLAND ACRES in SUBSHEDS
CROW CREEK	23,390.25	127.61	0.55%
WABASHA CREEK	44,484.09	637.54	1.43%
NORTH EDEN CREEK	12,718.94	279.90	2.20%
SPRING CREEK	28,759.52	592.31	2.06%
County Ditch 13 (cod13)	7,256.99	264.75	3.65%
County Ditch 10 (cod10)	8,514.11	441.28	5.18%
MINNESOTA RIVER ADJACENT DRAWS	34,811.63	3,683.65	10.58%
Total	159,935.53	6,027.04	3.77%

Appendix C

Land Use

Watershed		C	DF / G / GST	F / RR / OR	Exp / GP	Wet / W	UI / T / O	Total Acres
Crow Creek (mmcc1)	Acres	21,314.85	883.05	431.98	3.19	10.18	747.01	23,390.25
	Percent	91.13%	3.78%	1.85%	0.01%	0.04%	3.19%	100.00%
Wabasha Creek (mmwc)	Acres	40,992.35	2,448.08	661.51	15.13	143.60	223.42	44,484.09
	Percent	92.15%	5.50%	1.49%	0.03%	0.32%	0.50%	100.00%
North Eden Creek (mmne)	Acres	11,823.10	598.96	198.46	0.00	0.00	98.41	12,718.93
	Percent	92.96%	4.71%	1.56%	0.00%	0.00%	0.77%	100.00%
Spring Creek (mmsc)	Acres	26,785.63	1,415.92	470.54	0.17	46.88	40.40	28,759.52
	Percent	93.14%	4.92%	1.64%	0.00%	0.16%	0.14%	100.00%
County Ditch 13 (cod13)	Acres	6,569.25	531.48	149.79	0.00	6.47	0.00	7,256.99
	Percent	90.52%	7.32%	2.06%	0.00%	0.09%	0.00%	100.00%
County Ditch 10 (cod10)	Acres	7,761.55	628.23	124.26	0.08	0.00	0.00	8,514.12
	Percent	91.16%	7.38%	1.46%	0.00%	0.00%	0.00%	100.00%
Total Monitored	Acres	115,246.73	6,505.72	2,036.53	18.58	207.13	1,109.23	125,123.92
	Percent	92.11%	5.20%	1.63%	0.01%	0.17%	0.89%	100.00%
All Middle MN (Redwood to New Ulm)	Acres	135,419.59	17,790.38	2,617.05	133.19	1,141.60	2,833.74	159,935.55
	Percent	84.67%	11.12%	1.64%	0.08%	0.71%	1.77%	100.00%

Key

C = Cultivated Land

DF, G, GST = Deciduous Forest / Grassland / Grassland-shrub-tree

F, RR, OR = Farmsteads and Rural Residences / Rural Residential Development / Other Rural Dev

Exp, GP = Exposed Soil; Sandbars and Sand Dunes / Gravel Pits and Open Mines

Wet, W = Wetlands / Water

UI, T, O = Urban and Industrial / Transitional Agricultural Land / Other

Subwatershed Area by County

WATERSHED	ACRES of WATERSHED	ACRES of the PROJECT WATERS WITHIN BROWN COUNTY	ACRES of the PROJECT WATERS WITHIN REDWOOD COUNTY	% of WATERSHED in BROWN COUNTY	% of COUNTY AREA	% of WATERSHED in REDWOOD COUNTY	% of COUNTY AREA
CROW CREEK	23,390.25	-	23,390.25	0.00%	0.00%	100.00%	4.11%
WABASHA CREEK	44,484.09	-	44,484.09	0.00%	0.00%	100.00%	7.82%
NORTH EDEN CREEK	12,718.94	6,360.21	6,358.73	50.01%	1.61%	49.99%	1.12%
SPRING CREEK	28,759.52	21,312.78	7,446.74	74.11%	5.39%	25.89%	1.31%
BROWN CD #13	7,256.99	7,256.99	-	100.00%	1.83%	0.00%	0.00%
JOHN's CREEK (CD10)	8,514.11	8,514.11	-	100.00%	2.15%	0.00%	0.00%
MINNESOTA RIVER ADJACENT DRAWS	34,811.63	25,876.03	8,935.60	74.33%	6.54%	25.67%	1.57%
Total	159,935.53	69,320.12	90,615.41		17.52%		15.92%

Study Findings Compared to Ecoregion Values (75th percentile)

STATION	TSS	TP	N-NO2+ NO3	N-NH3	<i>E. Coli</i>
CROW CREEK East of Redwood Falls (MMCC)	<	close <	>	<	>
WABASHA CREEK near Franklin (MMWC)	close >	close <	>	<	>
NORTH EDEN CREEK near Franklin (MMNE)	close >	<	>	<	<
SPRING CREEK north of Sleepy Eye (MMSC)	close >	<	>	<	<
BROWN CD #13 (COD13)	well <	<	>	<	close <
JOHN's CREEK (COD10)	well <	<	well >	<	>

NEWS RELEASE
For Immediate Release 7-13-11

Please Contact: Shawn Wohnoutka
Redwood-Cottonwood Rivers Control Area
507/637-2142 ext. 4

Diagnostic Study – Presentation/Q&A
Middle Minnesota Watershed (Between Redwood Falls and New Ulm)

The area covered is the Middle Minnesota Watershed between Redwood Falls and New Ulm (Redwood and Brown counties).

Streams covered under this study include; Crow Creek, Wabasha Creek, North Eden Creek, Spring Creek, Brown County Ditch 10 and Brown County Ditch 13.

Anyone who resides in the area of study is welcome to attend a short presentation with a Question and Answer session to follow.

The presentation will take place at the Morgan City Library at 4:15 pm on Thursday July 21, 2011.

The purpose of this study is to assess and inventory the water quality and land characteristics in the covered area.

ORGANIZATION

Redwood-Cottonwood Rivers Control Area (RCRCA), formed in 1983 as a local, non-regulatory joint powers organization, works to enhance and protect the Redwood and Cottonwood Rivers. Located in Redwood Falls, the organization has member counties in and Soil and Water Conservation Districts in Brown, Cottonwood, Lincoln, Lyon, Murray, Pipestone, Redwood and Yellow Medicine. If you have questions, please call 507-637-2142 ext. 4.