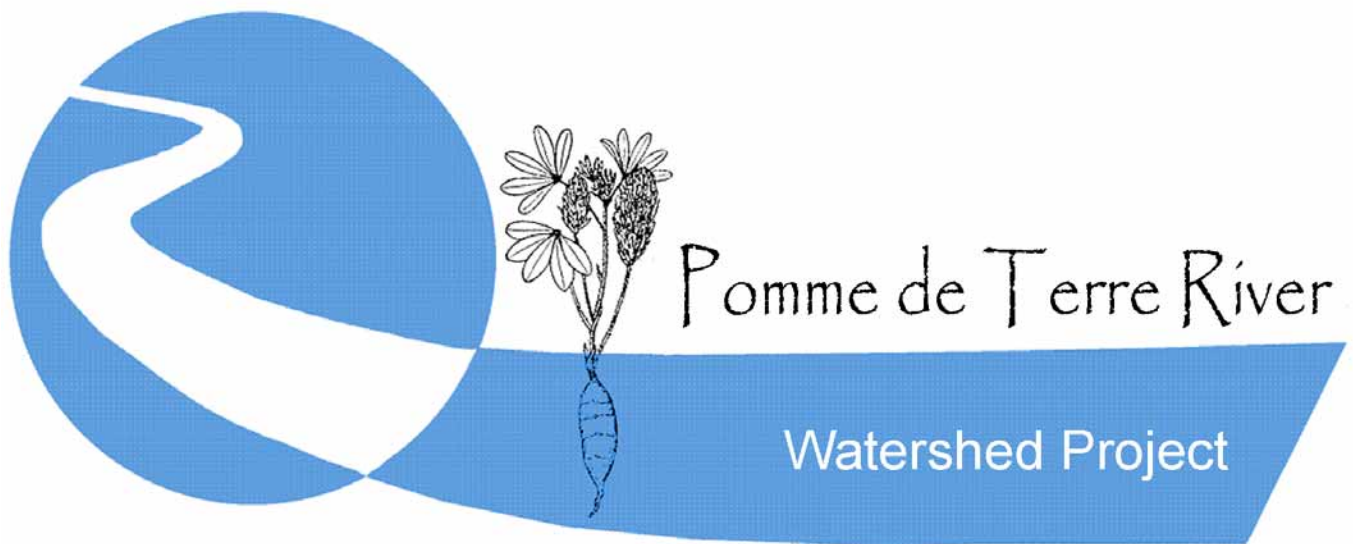


Pomme de Terre River

Fecal Coliform Total Maximum Daily Load Implementation Plan



Submitted by

Stevens County Soil and Water Conservation District

Prepared by:

Pomme de Terre Stakeholders,
Pomme de Terre River Association Joint Powers Board,
County Commissioners, Planning and Zoning offices,
Soil and Water Conservation Districts of Otter Tail, Douglas,
Grant, Stevens, Swift and Big Stone counties and

Bayerl Water Resources

September 2008

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I. Implementation Plan Executive Summary

This TMDL implementation plan is the result of input from local stakeholders, the Pomme de Terre (PdT) River Association Joint Powers Board, and a Technical Advisory Committee (TAC) consisting of local Soil and Water Conservation Districts (SWCD), Local Water Managers, Local Planning and Zoning, Department of Natural Resources, Minnesota Pollution Control Agency, Board of Water and Soil Resources, United States Fish and Wildlife Services, and Prairie Country and WesMin Resource Conservation and Development.

The fecal coliform bacteria impaired reach of the Pomme de Terre River is the last reach of the river before it enters the Minnesota River at Marsh Lake. Since it is the mouth of the river, the entire watershed contributes to its impairment and therefore a watershed wide approach will be utilized.

The supporting TMDL data shows a strong positive correlation between precipitation and fecal coliform bacteria concentrations. According to the TMDL, exceedance of 200 cfu per 100 ml occurred primarily during rain events which points to the weather-driven sources. With this information in mind, stakeholder meetings were held in February, March and April. A facilitated visioning session was held to determine priority issues and desired outcomes from these issues. Information from these meetings, as outlined in **Appendix A**, was presented to the TAC in May for local/agency input. Priority management measures were determined, in order of stakeholder preference:

- 1. Riparian Buffers*
- 2. Sub-surface Sewage Treatment Systems (SSTS)*
- 3. Manure Management*
- 4. Pasture Management*
- 5. Urban Stormwater Management*

From these priority management measures, the following Best Management Practices (BMPs) in no particular order that have been selected:

- 1. Waste Storage Facilities*
- 2. Clean Water Diversion*
- 3. Vegetated Buffer Strips*
- 4. Livestock Exclusion*
- 5. Rotational Grazing*
- 6. Nutrient Management Planning*
- 7. SSTS Inspections, Upgrades and Education*
- 8. Pet Waste Disposal Program*

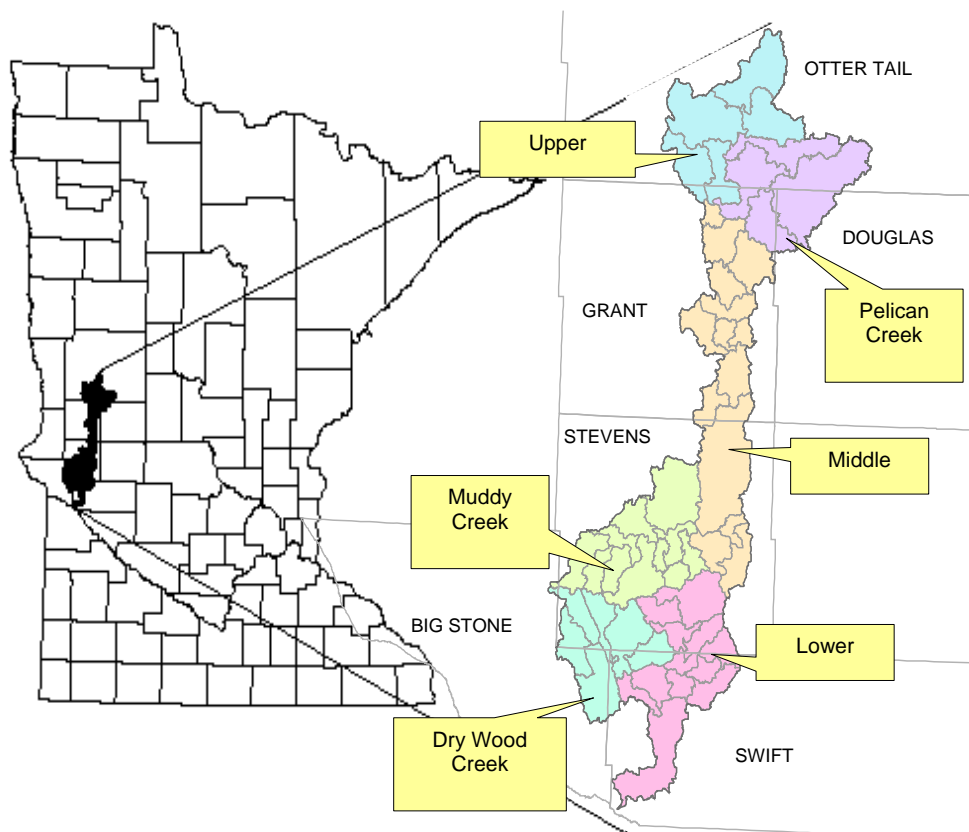
Since SSTS open pipes to tiling systems and to overland flow are difficult to find without landowner input, it was stressed by the stakeholders and TAC members alike that there is a need for full funding to bring these systems into compliance. To effectively implement the above management practices over the next ten years, there is a need for \$5,603,401.40 in grant funding, \$10,072,000.00 in loans, \$1,007,750.00 in existing programs through the Natural Resources Conservation Service and / or the SWCD and \$1,647,241.65 in matching / in-kind services.

A monitoring component will be included, with effectiveness of BMPs and monitoring evaluated every five years. Changes will be made in the plan based on the data obtained.

II. TMDL Report Summary

- **Project History:** The Pomme de Terre River Watershed has been studied since May 1964 when it was included in the West Central Minnesota Resource Conservation and Development Area (currently WesMin RC & D) plan. In 1981 the Pomme de Terre River (PdT) Association was organized and a Joint Powers Board (JPB) was created by the six counties and Soil and Water Conservation Districts (SWCDs) in the watershed. The Minnesota Pollution Control Agency (MPCA) gave funding of \$50,000 to the PdT Watershed Project at the end of June 2000, to compile all of the data in the Pomme de Terre (PdT) River Watershed. The PdT River Association was awarded another grant in 2002 by the MPCA to investigate the water quality in the watershed and develop a fecal coliform TMDL report with the MPCA. The Fecal Coliform TMDL Assessment was approved by the EPA on December 7, 2007. The full report can be obtained on the MPCA website at: <http://www.pca.state.mn.us/water/tmdl/project-pomedeterre.html>.
- **Watershed Characteristics:** The Pomme de Terre River watershed is located in the upper Minnesota River Basin. It comprises nearly 559,966 acres or about 875 square miles. The majority of the watershed is in the Northern Glaciated Plains ecoregion, with the northern tip in the North Central Hardwood Forest ecoregion. The counties and sub-watersheds are shown in Figure 2.1.

Figure 2.1: Pomme de Terre River Counties and Sub-watersheds



The total human population in the watershed is estimated to be about 18,400 (2002 Census, and 2006 League of Minnesota Cities). Of this, nearly 9,700 are urban and 8,700 are rural, 53 percent and 47 percent respectively.

There are about 104 Department of Natural Resources (DNR) protected lakes and 8 protected water wetlands located in the watershed, 77 of the protected lakes and 6 of the protected wetlands are located in Otter Tail and Grant Counties. These lakes and wetlands act as buffers to the nutrient, sediment and bacterial load to the PdT River. Lakes, by virtue of their depth and volume, can slow the flow of a river, allow sediment to precipitate and dilute pollutants – sending cleaner water back to the river system.

The Pomme de Terre River Watershed is largely rural. Cropland makes up about 76 percent of the watershed, and urban land makes up nearly 2 percent. Corn and soybeans make up about 50 percent of the crops grown in the Watershed. The other 50 percent is made up mostly by smaller grains such as hay, and grasslands enrolled in conservation programs. Table 2.1 shows the land use in the watershed.

Table 2.1: Land Use in the Pomme de Terre River Watershed

LAND USE	NUMBER OF ACRES	PERCENT OF WATERSHED
Cultivated	386,362	69.0
Grassland	47,694	8.5
Forest	38,031	6.8
Water and Wetland	63,580	11.3
Urban/Residential	9,013	1.6
Other	15,448	2.8
TOTAL	560,128	100

1999 Land Use Inventory, Land Management Information Center

- **Description of Impairment(s):** The reach of the Pomme de Terre River, HUC 07020002-501, from Muddy Creek to Marsh Lake was listed in 1994 for failure to meet the aquatic recreation designated beneficial use due to excessive fecal coliform bacteria concentrations.
- **Description of Source Assessment:** The data shows a strong positive correlation between precipitation and fecal coliform bacteria concentrations. When rain events occur, weather-driven sources, e.g. feedlot runoff, overgrazed pasture runoff, manure on fields and urban stormwater overshadow continuous sources. In drought or low-flow conditions, continuous sources such as cattle in streams and failing sub-surface sewage treatment systems are the dominant source. According to the TMDL, exceedance of the water quality standard occurred primarily during rain events which points to the weather-driven sources. The following sources were considered in the assessment:
Wastewater Treatment Facilities (WWTF): There are eight municipal WWTF in the watershed, six of which discharge to surface water. Based on 2000 – 2006 MPCA Discharge Monitoring Reports, the combined mean fecal coliform load of 1.50E+10 organisms per day is well below the standard load of 2.46E+10 organisms per day.
Unsewered Communities: There are no unsewered communities in the Pomme de Terre River (PdT) watershed.

Sub-surface Sewage Treatment Systems (SSTS): Based on a survey done in the Hawk Creek watershed in 1999 as part of a Clean Water Partnership study (Gillingham, 2003) and the 2000 Census data for the PdT Watershed, it has been determined that of the approximately 3,480 rural households, approximately 435 discharge directly to the surface or a tile.

Urban and Rural Stormwater: Stormwater permits and rules are based on population size. The City of Morris is designated for permit coverage because their population exceeds 5,000 and they are within a half mile of an impaired water body. Through their permit, the City of Morris is required to develop a set of BMPs addressing fecal coliform. There are seven other communities that, due to population size, are not required to complete a stormwater plan. Underwood and Appleton lie only partially within the PdT Watershed. Alberta, Ashby, Barrett, Chokio and Dalton are small communities that could potentially drain into the PdT River. Since these communities all have permitted WWTFs, any fecal coliform contribution would come from urban animals and pets.

Livestock facilities with NPDES Permits: According to the 2003 MPCA Feedlot database, fourteen Confined Animal Feeding Operations (CAFO) s exist within the watershed with a total number of 21,424 Animal Units (AU). These CAFOs operate under a NPDES permit, however the management of manure produced within these CAFOs is a possible source of bacteria.

Non-CAFO Livestock Facilities and Manure: Runoff from livestock feedlots, pastures and land application areas has the potential to be a significant source of fecal coliform bacteria and other pollutants. The 2003 MPCA registered feedlot data base lists 42,466 Non-NPDES Animal Units (AU) in the watershed mainly representing dairy, beef, swine and turkey.

Natural Background Fecal Coliform Pollutant Loads: Natural background loads for fecal coliform bacteria can be attributed to wildlife, primarily deer and geese. According to the "Pomme de Terre River, Muddy Creek to Marsh Lake, TMDL Report" approved by the EPA in December of 2007, deer populations, estimated by modeling, range from 2.6 to 9.4 deer per square mile in the spring 2001 with an average density of 5.1 deer per square mile, for a total of nearly 4,500 deer in the watershed. The goose population, determined from the 1996-2000 DNR Goose Management Blocks, ranged from 3.78 to 6.74 geese per square mile in the lower watershed, and 9.97 to 10.90 geese per square mile in the upper watershed. The average goose population in the entire watershed is 7.8 geese per square mile, or approximately 7,000 geese.

The DNR population indices for pheasants, Hungarian partridge, cottontails and jackrabbits are 100 mile averages and are too crude to use in determining their background contribution, as are the DNR skunk, raccoon, coyote, and red fox scent station surveys. Other wildlife, and rural cats and dogs in the watershed can be roughly accounted for by doubling the deer population to 9,000 animals.

- **Measurable Water Quality Goals:** The TMDL was linked to observed water quality conditions by using the monitoring data to represent current water quality conditions. The water quality standard of 200 colony forming units per 100 ml (cfu/100ml) was

exceeded only during June and July. The summer fecal coliform mean was 329 cfu/100ml. The overall load reduction required to meet the standard is:

$$[(329 - 200) / 329] \times 100 = 39 \text{ percent}$$

This reduction percentage is only intended as a rough approximation, as it does not account for flow. It serves to provide a starting point based on available water quality data for assessing the magnitude of the effort needed in the watershed to achieve the standard.

The Pomme de Terre River Fecal Coliform Bacteria TMDL Assessment used the water quality standard of 200 cfu/100 ml for fecal coliform bacteria. The fecal coliform water quality standard was replaced in May 2008 to *E. coli*, a type of fecal coliform bacteria. This implementation plan will follow the TMDL in using fecal coliform; however, future monitoring efforts will test for *E. coli* and use a conversion factor of 0.63 to convert back to fecal coliform.

Table 2.2 describes the average daily fecal coliform bacteria loading capacities for this reach to achieve water quality standards, as well as the component wasteload allocations, load allocations, and margins of safety. The loading capacities for five flow zones were developed using flow data from the USGS flow gage site on the PdT River at Appleton.

Table 2.2: Daily Fecal Coliform Loading Capacities and Allocations – Pomme de Terre River, Muddy Creek to Minnesota River (AUID: 07020002-501)

Drainage area for listed reach (mi ²):	905.0					
Flow gage used:	Pomme de Terre River at Appleton, Minnesota					
Land Area MS4 Urban (percent):	0.79	Flow Zone				
Total WWTF Flow (MGD):	11.33	High	Moist	Mid	Dry	Low
		<i>Billion organisms per day</i>				
TOTAL DAILY LOADING CAPACITY		2985	886	401	166	21
Wasteload Allocation						
Permitted Wastewater Treatment Facilities		86	86	86	*	*
Communities Subject to MS4 NPDES Requirements		18	5	0	*	*
Livestock Facilities Requiring NPDES Permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		1770	457	191	*	*
Margin of Safety		1111	338	122	NA	NA
		<i>Percent of total daily loading capacity</i>				
TOTAL DAILY LOADING CAPACITY		100%	100%	100%	100%	100%
Wasteload Allocation						
Permitted Wastewater Treatment Facilities		3%	10%	21%	*	*
Communities Subject to MS4 NPDES Requirements		1%	1%	1%	*	*
Livestock Facilities Requiring NPDES Permits		0%	0%	0%	0%	0%
"Straight Pipe" Septic Systems		0%	0%	0%	0%	0%
Load Allocation		60%	52%	48%	*	*
Margin of Safety		37%	38%	30%	NA	NA
Note - Allocation for all "" = (flow contribution from source) x (200 orgs./100 ml); see Sect 5.1 of TMDL document						

III. Identification of Priority Management Areas

The impaired reach of the Pomme de Terre River is the last reach of the river before it enters the Minnesota River at Marsh Lake. Since it is the mouth of the river, the entire watershed contributes to its impairment and therefore a watershed wide approach will be utilized. Although a watershed wide approach will be taken, higher priority will be placed on the Muddy Creek Sub basin, Lower Sub basin and Drywood Creek Sub basin due to higher fecal coliform levels from these basins. However, project partners will encourage Best Management Practices (BMPs) throughout the watershed.

IV. Nonpoint Source Management Measures Alternatives and Analysis

A. Evaluation of Management Measures

The following management measures have been documented to reduce fecal coliform bacteria loading to rivers and streams:

1. **Feedlot runoff controls** – These are evaluated by professional engineers through the Feedlot Evaluation Model referenced in Minn. Rules ch. 7020. These rules are implemented by the MPCA and by local staff of counties via a delegation agreement with the MPCA. Feedlots may be an important source of fecal coliform bacteria during wet weather periods. Throughout the watershed, 42,466 AU exist as non-CAFO and the permitted CAFO AUs total 21,434. These practices would be utilized by large animal operations and are expensive to complete.
2. **Manure Management** – Buffer strips, immediate incorporation of manure, and maintenance of surface residue have been demonstrated to reduce manure and pathogen runoff (EQB, 1999). The state feedlot rules (Minn. Rules part 7020) require manure application record-keeping, manure management planning and manure application pollution risk based on method, time and place of application. Using soil tests, crop input needs (University of Minnesota Extension recommendations), and manure analysis to determine proper manure application rates to all farm fields will decrease the amount of excessive manure applied to fields.
3. **Erosion Control and Sediment Reduction** – Conservation tillage and riparian buffer strips have been shown to be effective in reducing sediment delivery to streams. Since embedded sediment can serve as a substrate for fecal coliform bacteria survival, reduction of sediment sources is considered an effective measure for controlling fecal coliform bacteria in streams. Vegetated buffer strips can remove all runoff volume within the first 10 – 20 feet (Stai, 2007). This is an effective, relatively inexpensive solution.
4. **Pasture Management** – Planned rotational grazing, combined with livestock exclusion and vegetated buffers, has been demonstrated to be both economically viable and environmentally beneficial. It is a practice that keeps perennial vegetation on the land ensuring minimal impacts from upland uses on water quality. Sovell, et.al. 2000, demonstrated that rotational grazing, in contrast to conventional grazing, significantly reduces both sedimentation and fecal coliform concentrations in water downstream of study sites in southeastern Minnesota. Overgrazed pastures tend to attract geese – grazing which contribute to the fecal coliform bacteria load. Providing opportunities for pasture land to maintain cover will prevent the presence of geese from adding to

the fecal coliform bacteria load. Grazing management, in the form of exclusion fencing with alternative watering sources removes the fecal coliform source from the system. When combined with a vegetated buffer strip, the source of the fecal coliform bacteria is removed.

5. **Vegetated Buffers** - Vegetated buffers in between sources of fecal coliform bacteria and any surface water body will lessen the amount that reaches the water body. Different options are available, including buffers as part of water diversions, exclusion fencing, and manure management. Vegetated buffer strips are less costly than structural BMPs, and require less maintenance.
6. **Urban Stormwater Management** – Practices such as runoff detention, infiltration, and street sweeping have been shown to be effective in reducing urban runoff and associated pollutants.

B. *Selection of Management Measures*

This section contains descriptions of the non-point source management strategies and their estimated benefits. These strategies will be combined with existing programs to maximize the benefit to the property owner.

A stakeholder committee, a technical advisory committee and a joint powers board worked together to define management measures to address the fecal coliform impairment. A summary of the implementation process, meetings, and individuals involved can be found in Appendix A. The measures that were chosen:

1. *Feedlot Runoff Controls:*

- a. Waste storage facilities: Total confinement facilities present the least amount of risk for surface water contamination, since surface water runoff does not come into contact with the manure. Although one of the more effective practices for manure management, this is also more costly than other options, due to the need for structural facilities. According to NRCS *Conservation Practice Physical Effects Worksheet* on the NRCS website, storage provides flexibility in rate, timing, and location of waste application, reducing the potential for pathogen contamination. EPA guidelines *National Management Measures for the control of Nonpoint Pollution from Agriculture* states containment structures provide a 90 percent reduction in fecal bacteria load.

Load Reduction: 90 percent reduction.

- b. Clean water diversions: Surface water runoff that passes through the lot has the potential to pick up fecal coliform bacteria and transport it to the river. Berms that physically prevent cleaner surface water runoff from entering the lot and divert it around the lot will prevent this runoff water from picking up fecal coliform in the lot. Gutters and other roof drainage away from lots is another method of diverting clean runoff around the lot. A relatively effective way to reduce the amount of contact between runoff and manure, this method can be less expensive than waste storage facilities. While reduction estimates are not readily available, runoff will be limited to actual feedlot area and not include other water from the drainage area.

Load Reduction: We can expect reduction in the volume of contaminated runoff by up to 100 percent for sites with serious runoff problems.

2. *Pasture Management:*

- a. Livestock exclusion: Physically excluding (with fencing) the livestock from having access to streams or other water bodies is a relatively low-cost and effective means of reducing the delivery of fecal coliform. A combination of technical assistance, education and incentives can be used to reach this goal. According to the MPCA “Best Management Practices For Minnesota” manual, livestock exclusion can result in 50 – 90 percent reductions of suspended solids.

Load Reduction: 50 – 90 percent.

- b. Rotational grazing: Rotational grazing built to follow NRCS practices will help maintain ground cover on the pasture. Less time near the water body will reduce, but not eliminate, the amount of manure that is deposited into the water body. To achieve maximum benefit, this practice should be teamed with livestock exclusion and buffers along waterways. Grazing management can provide up to a 40 percent reduction in fecal coliform over unmanaged pasture, according to EPA publication (EPA-841-B-03-004).

Load Reduction: Up to a 40 percent reduction.

3. *Manure Management:*

- a. Nutrient Management Plans: Using soil tests, crop input needs (University of Minnesota Extension recommendations), and manure analysis to determine proper manure application rates to all farm fields will decrease the amount of excessive manure applied to fields. Manure application should follow the requirements set forth by the MPCA in “Land Application of Manure: Minimum State Requirements”, MPCA document #Wq-f8-11. This document specifies the setback requirements for land application of manure. According to USEPA document EPA 841-F-05-0040, nutrient management planning and implementation has resulted in a 63% reduction in Fecal Coliform bacteria in the Nooksack River in Washington.

Load Reduction: Up to 63% reduction in Fecal Coliform bacteria.

4. *Vegetated buffer strips:*

- a. Feedlot Runoff Controls: Vegetated buffers in between the lot and any surface water body will lessen the amount of fecal coliform that reaches the water body. Different options are available, including the following:

- Vegetated infiltration area (with a settling basin before the infiltration area)
- Controlled discharge vegetated treatment strip
- Vegetated buffer strip

Vegetated buffer strips are less costly than structural BMPs, and require less maintenance. According to a report produced by the University of Minnesota, Extension Services entitled *Best Management Practices for Pathogen Control in Manure Management Systems*, 75 to 91 percent of fecal coliform bacteria were removed when run through a grass filter strip 15 to 30 feet in length.

Load Reduction: 75 - 91 percent removal of runoff

- b. Pasture Management: Adding vegetated buffers to a pasture management plan ensures that most manure will be contained within the pasture area. Filter strips along waterways will remove 75 – 91 percent of the fecal coliform bacteria.

Load Reduction: 75 – 91 percent removal of runoff

- c. Manure Management: Buffers between fields and waterways have been shown to reduce the fecal coliform bacteria colonies that reach the stream. Priority should be placed upon retaining intact buffers that are expiring from their present incentive program, such as the Conservation Reserve Program.

Load Reduction: 75 – 91 percent removal of runoff

V. Point Source Management Measures Alternatives and Analysis

A. Evaluation of Management Measures

The following measures have been determined to be effective in removal of fecal coliform from point source pollutants:

1. **Individual Wastewater Management** – Sub-surface Sewage Treatment Systems, SSTS, with proper drain fields provide virtually complete treatment of fecal coliform bacteria. Minn. R. ch. 7080 provides instruction of acceptable design of these systems. It has been estimated that there are 1,740 failing SSTS within the Watershed, of this number an estimated 435 have direct straight pipe discharge – either over-ground or in a drain tile. Options for addressing these systems include ordinance changes, development of a systematic inspection plan, grants to assist in replacement of surfacing systems, and/or a low-interest loan program to assist in the replacement of failing SSTS.
2. **National Pollutant Discharge Elimination System** – The National Pollutant Discharge Elimination System, NPDES, permit program, authorized by section 402 of the Clean Water Act, covers discharges from industrial facilities, municipal stormwater conveyances, concentrated animal feeding operations, construction sites, Waste Water Treatment Facilities, combined sewer overflows, and sanitary sewer overflows. The discharges of this group are controlled by permit limits which are set at the fecal coliform standard and, while they may produce fecal coliform bacteria, they are within this standard. The City of Morris is in this category.
3. **Permitted Urban Stormwater Management** – The City of Morris is developing a stormwater management plan to comprehensively address stormwater runoff issues.

B. Selection of Management Measures

The stakeholder group prioritized Non-conforming SSTS as the number two priority in abatement of fecal coliform within the Watershed. They stated grants would need to be available for upgrade of systems due to the inability of landowners to afford fixing their systems.

1. Individual Wastewater Management

- a. Revise county ordinance: Adopt ordinance revisions in Otter Tail, Douglas, Grant, Stevens, Swift and Big Stone Counties to set up a prioritized method of inspection of SSTS to determine surface discharging systems within the PdT River drainage area.

Load Reduction: Ability to identify imminent health threats contributing fecal coliform to the surface or directly into waterways.

b. Develop SSTS inspection program: Apply for SSTS inspection program grant through Clean Water Legacy to inspect SSTS within the PdT River drainage area. The TMDL estimated that there are 1,740 failing systems, however, individual county estimates state that they will need to inspect 1,229 failing systems. According to the EPA, the reduction in fecal coliform bacteria is estimated at 99 percent reduction.

Load Reduction: 99 percent reduction

c. Abate surfacing SSTS: Upgrade surfacing systems through grant dollars by providing \$8,000 per system. The TMDL estimated that there are 435 surfacing systems; however, individual county estimates state that there are about 481 surfacing systems that will need to be upgraded.

Load Reduction: 99 percent reduction

d. Low interest loan program: Provide low-interest loan dollars to homeowners required to upgrade their ISTS.

Load Reduction: 99 percent reduction

e. Education: Develop homeowner seminars on care and maintenance of septic systems utilizing the University of Minnesota Extension for Septic System Owners Guide and seminar presentation.

Load Reduction: Long-term compliance and maintenance of SSTS

2. *Permitted Urban Stormwater Management*

a. Pet Waste collection program: A program consisting of locating pet waste bags and containers throughout the six-mile river corridor in the City of Morris will be implemented, amounting in a fecal coliform bacteria reduction from pet waste.

Load Reduction: Minimal reduction in fecal coliform levels – greater understanding of human/pet impacts to waterways.

VI. Implementation Objectives and Tasks

Objective 1: Non-point Source Pollutant Loading Reductions

Task A: Feedlot Runoff Controls

Waste Storage Facility: Work with willing feedlot owners to install 8 waste storage facilities. Utilize existing conservation programs to provide up to 75 percent cost-share.

Existing Programs: \$675,000.00 (\$168,750/facility x 8 facilities x 50% = \$675,000)

Cash: \$337,500.00 (\$168,750/facility x 8 facilities x 25% = \$337,500)

In-kind: \$337,500.00 (\$168,750/facility x 8 facilities x 25% = \$337,500)
- property owner

In-kind: \$391,685.00 (12,635 hrs x \$31/hr = \$391,685) – local staff

Timeframe: Year 1 - 10

Persons responsible: SWCDs, NRCS, PdT Project Coordinator, and landowners

Clean Water Diversion: Install 2 diversions. Utilize existing conservation programs to provide up to 75 percent cost-share. These diversions will utilize such practices as berms, gutters, and other roof drainage.

Existing Programs: \$6,500.00 (\$6,500/diversion x 2 diversions x 50% = \$6,500)

Cash: \$3,250.00 (\$6,500/diversion x 2 diversions x 25% = \$3,250)
In-kind: \$3,250.00 (\$6,500/diversion x 2 diversions x 25% = \$3,250)
- property owner
In-kind: \$3,782.00 (122 hrs x \$31/hr = \$3,782) - local staff

Timeframe: Year 1 - 10

Persons responsible: SWCDs, NRCS, PdT Project Coordinator, and landowners

Vegetated Buffer Strips: Provide a \$100 per acre per year incentive to enroll 32 acres of filter strips for feedlot runoff control for ten years. The vegetated buffer strips will be utilized for feedlot runoff control by including vegetated infiltration areas, controlled discharge vegetated treatment strips, and vegetated buffer strips.

Cash: \$32,000.00 (32 acres x \$100/acre x 10 years = \$32,000)
In-kind: \$ 9,300.00 (300 hrs x \$31/hour = \$9,300) – local staff

Timeframe: Year 1 - 10

Persons responsible: SWCDs, NRCS, PdT Project Coordinator, and landowners

Task B: Pasture Management

Livestock Exclusion: Install 360,000 feet of fence at 75% cost-share. The property owners will need to be educated about the effectiveness of this BMP and about the proper installation. To properly have this fencing installed, technical assistance will also be needed.

Existing Programs: \$108,000.00 (\$0.60/ft x 360,000 ft x 50% = \$108,000)
Cash: \$ 54,000.00 (\$0.60/ft x 360,000 ft x 25% = \$54,000)
In-kind: \$ 54,000.00 (\$0.60/ft x 360,000 ft x 25% = \$54,000)
– property owner
In-kind: \$ 62,682.00 (2,022 hrs x \$31/hour = \$62,682) – local staff

Timeframe: Year 1 - 10

Persons responsible: SWCDs, NRCS, PdT Project Coordinator, and landowners

Rotational Grazing: Enroll 4,850 acres into a rotational grazing program following USDA protocol at \$90 per acre.

Existing Programs: \$218,250.00 (\$90/acre x 4,850 acres x 50% = \$218,250)
Cash: \$109,125.00 (\$90/acre x 4,850 acres x 25% = \$109,125)
In-kind: \$109,125.00 (\$90/acre x 4,850 acres x 25% = \$109,125)
– property owner
In-kind: \$126,635.00 (4,085 hrs x \$31/hour = \$126,635) – local staff

Timeframe: Year 1 - 10

Persons responsible: SWCDs, NRCS, PdT Project Coordinator, and landowners

Vegetated Buffer Strips: Provide a \$100 per acre per year incentive to enroll 224 acres of filter strips for pasture management for ten years. This will include filter strips along waterways.

Cash: \$224,000.00 (224 acres x \$100/acre x 10 years = \$224,000)
In-kind: \$ 74,245.00 (2,395 hrs x \$31/hour = \$74,245) – local staff

Timeframe: Year 1 - 10

Persons responsible: SWCDs, NRCS, PdT Project Coordinator, and landowners

Task C: Manure Management

Nutrient Management Plans: Encourage feedlot owners with less than 300 animal units to develop a manure management plan by providing a cash incentive of \$4,500.00.

Cash: \$108,000.00 (24 plans x \$4,500/plan = \$108,000)

In-kind: \$ 22,072.00 (712 hrs x \$31/hour = \$22,072)

Timeframe: Year 1 - 10

Persons responsible: SWCDs, NRCS, University of MN Extension, crop consultants, PdT Project Coordinator, and landowners

Vegetated Buffer Strips: Provide a \$100 per acre per year incentive to enroll 64 acres of filter strips for manure management for ten years. This includes putting in buffers between fields and waterways.

Cash: \$64,000.00 (64 acres x \$100/acre x 10 years = \$64,000)

In-kind: \$18,600.00 (600 hrs x \$31/hour = \$18,600) – local staff

Timeframe: Year 1 - 10

Persons responsible: SWCDs, NRCS, PdT Project Coordinator, and landowners

Total for Objective 1:

Existing Programs: \$1,007,750.00

Cash: \$ 931,875.00

In-kind: \$1,212,876.00

Loan: \$ 0.00

Total: \$3,152,501.00

Objective 2: Point Source Pollutant Loading Reductions

Task A: Inspect SSTS

Revise county ordinances: Work with the six counties to revise the county SSTS ordinance to allow for certified inspections of all SSTS in the watershed.

Cash: \$ 0.00

In-kind: \$17,391.00 (561 hrs x \$31/hr = \$17,391)

Timeframe: Year 1 - 3

Persons responsible: Six county environmental offices, and PdT Project Coordinator

Certified inspections: Each county will be responsible for supervision of inspections.

Inspections will be completed by certified SSTS Inspectors to be hired at the discretion of the counties. The counties will receive \$200 per system that they inspect. This is to provide funds for staff time, mileage, and any materials that they may need such as handouts.

Cash: \$245,800.00 (Inspect 1,229 SSTS x \$200 per system = \$245,800)

In-kind: \$ 24,800.00 (800 hrs x \$31/hr = \$24,800) – local staff

Timeframe: Year 3-5

Persons responsible: Six county environmental offices, PdT Project Coordinator, and landowners

Task B: Upgrade non-complying SSTS

Upgrade Surfacing SSTS: Install 481 SSTS at up to \$8,000 per system to bring surfacing systems into compliance.

Cash: \$3,848,000.00 (Install 481 SSTS x \$8,000 = \$3,848,000)

In-kind: \$ 16,430.00 (530 hrs x \$31/hr = \$16,430) – local staff

Timeframe: Year 4 - 6

Persons responsible: Six county environmental offices, PdT Project Coordinator, and landowners

Develop low interest loan program: Provide a low interest loan program for those systems that need to be upgraded due to the system failing, but are not considered surfacing. Install up to 1259 (1740 minus 481) SSTS at up to \$8,000 per system.

Cash: \$ 0

In-kind: \$ 23,250 (750 hrs x \$31/hr = \$23,250) – local staff

Loan: \$10,072,000 (1,259 systems x \$8,000 = \$10,072,000)

Timeframe: Year 1 - 10

Persons responsible: Six county environmental offices, PdT Project Coordinator, and landowners

Task C: SSTS Education

Host workshops: Work with the University of Minnesota Extension Service to design and host six homeowner's workshops that will educate homeowners on SSTS operation and maintenance.

Cash: \$4,050.00 (6 workshops x \$675/workshop for materials...etc)
(estimated 200 attendees/workshop) = \$4050.00)

In-kind: \$ 620.00 (20 hrs x \$31/hr = \$620) – local staff

Timeframe: Years 1 and 6

Persons responsible: Six county environmental offices, PdT Project Coordinator, and landowners

Task D: Urban Stormwater Management

Pet Waste Collection Program: The City of Morris will establish 4 pet waste disposal stations that will provide pet waste bags and disposal containers. A total of 8 signs will also be installed to motivate pet owners to use these new stations. Maintenance of these stations will also be the responsibility of the City of Morris.

Cash: \$ 0.00

In-kind: \$ 1,800.00 (4 stations x \$450/station = \$1,800) – materials

In-kind: \$ 700.00 (8 signs x 87.50/sign = \$700) – materials

In-kind: \$33,775.00 (965 hrs x \$35/hr = \$33,775) – city staff

Timeframe: Years 1-10

Persons responsible: The City of Morris

Total for Objective 2:

Cash: \$ 4,097,850.00

In-kind: \$ 118,766.00

Loan: \$10,072,000.00

Total: \$14,288,616.00

Objective 3: Education and Outreach

Task A: Promote project through media

Newsletter: Develop an annual newsletter for watershed residents. There is an estimated 7,360 households in the PdT watershed. The newsletter will provide updates of the work that has been completed in the watershed as well as promoting new programs for residents to participate in.

Cash: \$15,526.40 (7,460 newsletters x \$ 1.58/newsletter – cost of printing = \$11,786.80)
(7,460 newsletters x \$0.26/newsletter - cost of mailing = \$1,939.60)
(Bulk mailing license = \$180/yr x 10 yrs = \$1,800)

In-Kind: \$ 0.00

Timeframe: Year 1 - 10

Persons responsible: PdT Project Coordinator

Advertising: Publish three advertisements in seven local newspapers annually. These advertisements may relate to meetings, watershed information or programs available.

Cash: \$17,010.00 (\$81 per ad x 3 ads x 7 local newspapers x 10 years = \$17,010)

In-kind: \$ 0.00

Timeframe: Year 1 - 10

Persons responsible: PdT Project Coordinator

Website: Continue to provide updated information to established website (www.pdtriver.org). Website hosting is contracted by an independent company. The website provides background information as well as updated information such as programs available and upcoming events.

Cash: \$2,800.00 (\$280.00 for hosting/year x 10 years = \$2,800)

In-kind: \$ 0.00

Timeframe: Year 1 - 10

Persons responsible: Stevens County SWCD, PdT Project Coordinator

Task B: Promote project through events

Joint Powers Board (JPB) meetings: Monthly meetings are held to provide project updates to the JPB. The meetings will also provide an opportunity for the board members to approve projects that request funding for BMPs.

Cash: \$ 600.00 (\$5.00 per meeting x avg. 12 meetings/yr x 10 yrs)

In-kind: \$113,318.40 (6,240 hrs x \$18.16/hr avg. = \$113,318.40) – JPB members

In-kind: \$ 59,691.00 (118,200 miles x \$0.505/mile = \$59,691) – mileage of JPB members

Timeframe: Year 1 - 10

Persons responsible: Joint Powers Board, Stevens County SWCD and PdT Project Coordinator

Technical Advisory Committee (TAC) meetings: Quarterly meetings are held to provide project updates. The TAC will also provide recommendations to the JPB Board about projects and provide any technical assistance to the JPB Board that is needed.

Cash: \$ 400.00 (\$10.00 per meeting x avg. 4 meetings/yr x 10 yrs)
In-kind: \$73,056.60 (2,490 hrs x \$29.34/hr avg. = \$73,056.60)
In-kind: \$25,542.90 (50,580 miles x \$0.505/mile = 25,542.90)

Timeframe: Year 1 - 10

Persons responsible: TAC, Stevens County SWCD and PdT Project Coordinator

Annual Stakeholder Meeting: An annual meeting will be held at a central location for watershed residents. The meeting will provide a way for stakeholders within the watershed to ask questions, learn about the project, learn of programs available, and to provide input. A speaker and meal will be provided.

Cash: \$ 17,500.00 (150 attendees x \$10.00/meal x 10 years = \$15,000)
(\$250.00/event for building rent x 10 years = \$2,500)
In-kind: \$ 7,800.00 (5 JPB members x \$73 avg./mtg. x 10 years = \$3,650)
(5 TAC members x \$83 avg./mtg. x 10 years = \$4,150)
In-kind: \$ 2,853.25 (5 JPB members x 56 avg. mi. x \$.505/mi. x 10 years
= \$1,414)
(5 TAC members x 57 avg. mi. x \$.505/mi. x 10
years = \$1,439.25)

Timeframe: Year 1 - 10

Persons responsible: PdT Watershed Project Coordinator, JPB, TAC

Public Events: Partner with other local government agencies to develop education tours, seminars, workshops and events to promote the project. These events will include, but not be limited to, bus tours of the watershed, fairs, horticulture night, home and garden shows, and BMP workshops.

Cash: \$10,500.00 (\$500/year for set up, speakers, rental items, etc x
10 years = \$5,000.00)
(\$500/year for promotional items x 10 years =
\$5,000.00)
(\$50 /year for display items x 10 years = \$500.00)

In-kind: \$ 0.00

Timeframe: Year 1 - 10

Persons responsible: PdT Watershed Project Coordinator

Total for Objective 3:

Cash: \$ 64,336.40
In-kind: \$282,262.15
Total: \$346,598.55

Objective 4: Research

Task A: *Determine bacteria contribution of geese*

Monitoring: Crystal Lake, a State Game Refuge popular to area Canada geese, flows into the Pomme de Terre River via Green River near Morris. Through a University of Minnesota graduate study program, Crystal Lake will be assessed for fecal coliform bacteria contributions to Green River and, ultimately, to the PdT River.

Cash: \$ 0.00

In-kind: \$1,500.00 (Graduate student expenses and lab fees)

Timeframe: Year 1-5

Persons responsible: PdT Watershed Project Coordinator, City of Morris, U of M Morris

Total for Objective 4:

Cash: \$ 0.00

In-kind: \$1,500.00

Total: \$1,500.00

Objective 5: Project Evaluation

Task A: *Monitor water quality*

Effectiveness Monitoring: *E. coli* water samples will be collected at three sites in Year 5 and 10 to determine project effectiveness. Samples will be collected five times per month from April to October.

There are monitoring efforts already in place that provide data on the condition of the Pomme de Terre River. The known monitoring programs include: the Intensive Watershed Study conducted by the MPCA, which will occur once every 10 years, the Load Study conducted by MPCA which is done on a yearly basis at the USGS flow gauge site in Appleton, and the USGS measures flows on the Pomme de Terre River in the City of Appleton on a continuous basis.

Cash: \$ 3,780.00 (\$13.00/sample x 3 sites x 7 months/year x 5 samples/month x 2 years = \$2,730)

(\$15.00/sampling occasion for shipping and ice x 35 sampling occasions x 2 years = \$1,050)

In-kind: \$12,900.00 (\$4,300/site for 3 flow gauging sites = \$12,900)

In-kind: \$18,937.50 (mileage @ \$.505/mi x 37,500 miles = \$18,937.50)

Timeframe: Years 5 and 10

Persons responsible: MPCA, PdT Watershed Project Coordinator

Total for Objective 5:

Cash: \$ 3,780.00

In-kind: \$31,837.50

Total: \$35,617.50

Objective 6: Administration

Task A: Project Coordination

Hire Project Coordinator: The coordinator will oversee all activities in the Pomme de Terre watershed as it relates to the Fecal Coliform TMDL Implementation Plan. Typical duties include but are not limited to: meeting with landowners, educating the public, developing educational programs, monitoring, applying for additional funds, meeting grant requirements and promoting the project. The coordinator will also oversee all BMP payments and any additional staff that may be hired. The coordinator will also be responsible for all required reporting to the necessary agencies. The coordinator will be hired through the Joint Powers Board and will be supervised by the Stevens County SWCD.

Cash: \$505,560.00 (\$41,102.88/yr averaged over 10 years x 10 years
= \$411,028.80)
(23 percent benefits averaged over 10 years
= \$9,453.12)

In-kind: \$ 0.00

Timeframe: Year 1 - 10

Persons responsible: JPB, Stevens County SWCD

Total for Objective 6:

Cash: \$505,560.00
In-kind: \$ 0.00
Total: \$505,560.00

VII. Roles and Responsibilities of Project Partners

The NRCS and SWCD departments in each of the six counties will provide staff and equipment to make contacts for BMP implementation, design and layout of BMPs, and assist with the information and education program. Technical assistance will come from the University of Minnesota, Morris and the University of Minnesota, Extension. The City of Morris has offered assistance in abatement of possible fecal coliform bacteria sources from within the city limits.

The county planning and zoning staff will facilitate the SSTS compliance inspection and upgrade process. Administration of any grant and/or loan dollars will be handled either by the SWCD or the county.

The Joint Powers Board, consisting of a county commissioner and SWCD board member from each of the six counties within the Pomme de Terre River Watershed has the decision making power and approves all projects and plans.

A Technical Advisory Committee (TAC) consisting of local Soil and Water Conservation Districts (SWCD), Local Water Managers, Local Planning and Zoning, Department of Natural Resources, Minnesota Pollution Control Agency, Board of Water and Soil Resources, United States Fish and Wildlife Services, and Prairie Country and WesMin Resource Conservation and Development. The TAC, along with a stakeholder group consisting of citizens

throughout the watershed, will be responsible to provide recommendations as requested to the JPB.

Stevens County SWCD board maintains fiscal responsibility for the JPB and their manager oversees the position of Coordinator for the Pomme de Terre River. It is anticipated this arrangement will continue indefinitely. The Minnesota Pollution Control Agency is the lead agency in the TMDL planning process.

VIII. Milestone Schedule by Objectives and Tasks

Appendix B

IX. Adaptive Management

Adaptive management occurs as the implementation of the plan occurs. Actions are implemented, followed by water quality monitoring. The monitoring is assessed to evaluate progress and management measures are changed, if necessary to provide maximum benefit in the reduction of the target TMDL, in this case fecal coliform bacteria.

The TMDL implementation will continue for the next 10 years as outlined in this plan. As projects and monitoring take place, information will become available to evaluate the success of the implementation activities. Progress will be evaluated every three to five years, depending on the amount of activity that is taking place. A change in actions will be determined based on the data that will be collected. In order for a change to occur, agreement needs to be reached between the stakeholders, Technical Advisory Committee, and Joint Powers Board.

X. Project Budget

Appendix C

XI. References

Minnesota Environmental Quality Board. 1999. Generic Environmental Impact Statement on Animal Agriculture. EQB, St. Paul, MN. 142p

Minnesota Pollution Control Agency. 2007. Pomme de Terre River, Muddy Creek to Marsh Lake, Fecal Coliform TMDL. <http://www.pca.state.mn.us/water/tmdl/project-pommedeterre.html>

Minnesota Pollution Control Agency. 2006. Land Application of Manure: Minimum State Requirements, MPCA document #Wq-f8-11. <http://www.pca.state.mn.us/publications/wq-f8-12.pdf>

Minnesota Pollution Control Agency. 1991. Agriculture and Water Quality: Best Management Practices for Minnesota. 64 pp.

Natural Resources Conservation Services. 2003. Conservation Practice Standard: Waste Storage Facility. Code 313. NRCS. 7pp. <ftp://ftp-fc.sc.egov.usda.gov/NHQ/practice-standards/standards/313.pdf>

Sovell, Laurie, *et al.* 2000. "Impacts of Rotational Grazing and Riparian Buffers on Physicochemical and Biological Characteristics of Southeastern Minnesota, USA, Streams" *Environmental Management*, 26(6) 629 – 641.

Stai, S.M. 2007. "Appendix A.6 – Assessing vegetated buffers using synthetic residential runoff". Gulliver, J.S. and J.L. Anderson, ed. 2007. *Assessment of Stormwater Best Management Practices*. St Paul, MN: University of Minnesota

University of Minnesota Extension. 2007. *Best Management Practices for Pathogen Control in Manure Management systems*.

<http://www.extension.umn.edu/distribution/livestocksystems/DI8544.html>

U.S. Environmental Protection Agency. 2003. *National Management Measures to Control Nonpoint Pollution from Agriculture*. EPA 841-B-03-004. Office of Water (4503T), United States Environmental Protection Agency, Washington, DC. 302 pp.

U.S. Environmental Protection Agency. 2002. *Onsite Wastewater Treatment Manual*. EPA 624-R-00-008. Office of Water. United States Environmental Protection Agency. <http://www.epa.gov/nrmrl/pubs/625r00008/html/625R00008.htm>

Appendix A – Stakeholder Input

1 – Stakeholder Group Members

2 – Technical Advisory Committee Members

3 – Stakeholder Meetings

3a – First Stakeholder Letter

3b – Stakeholder Postcards

3c – Stakeholder I Agenda and Attendance List – February 21, 2008

3ci - Visioning Session Template

3cii - Priority Issues From Session

3d – Stakeholder II Agenda and Attendance List – March 25, 2008

3e – Stakeholder III Agenda and Attendance List – April 8, 2008

4 – Technical Advisory Committee Meetings

4a – TAC I Agenda and Attendance List – March 3, 2008

4b – TAC II Agenda and Attendance List – May 9, 2008

5 – Joint Powers Board Approval

August 22, 2008 Attendance and Minutes

6 – Power Point Presentations

6a – Katherine Pekarek-Scott, MPCA Project Manager

6b – Chandra Carter, MPCA (Site assessments included in the presentation in Appendix 6b by Chandra Carter should be considered preliminary as stated in her presentation. The MPCA is currently re-evaluating the calibration of IBI scores for the whole state. Some assessments may change if they are close to the impairment threshold. New assessments should be ready for peer review and public comment in fall of 2009.

6c – Matt Drewitz, BWSR

6d – Joe Montonye, Grant County SWCD

6e – Bill Kleindl, Stevens County Environmental Services

6f – Jeff Hellermann, Stevens County NRCS

**Pomme de Terre River Association
Stakeholder Group
Fecal Coliform TMDL**

First	Last	Street	City	State	Zip	Phone	e-mail
Theresa	O'Halloran-	100 South Street	Morris	MN	56267	320-589-3385	tdohi@hotmail.com
Brad	Fehr	26339 470th Ave	Morris	MN	56267	320-392-5609	BradF@info-link.net
Gary	Fehr	26271 470th Ave	Morris	MN	56267	320-392-5128	
Berthold	Koosmann	1925 30th St. NW	Appleton	MN	56208	320-394-2276	
Jon	Moser	49489 290th St.	Morris	MN	56267	320-589-1187	
Doug	Nohl	47084 280th St.	Morris	MN	56267	320-392-5956	
Don	Reicosky	408 Birch Ave.	Morris	MN	56267	320-589-2009	reicosky@morris.ars.usda.gov
Muriel	Runholt	2597 190th Ave	Marshall	MN			
Bennett	Smith	53522 160th St.	Donnelly	MN	56235	320-246-342	smit3730@morris.umn.edu
Dennis	Wulf	45594 325th St.	Hancock	MN	56244	320-392-5890	
Douglas	Wulf	47444 210th St	Morris	MN	56267	320-589-0096	
Jim	Wulf	47694 320th St.	Morris	MN	56267	320-392-5966	twlawulf@yahoo.com
Troy	Goodnough	901 Park Ave	Morris	MN	56235	320-585-5237	crazymnfinn@yahoo.com
James	Moore	306 South St	Morris	MN	56267	320-589-4483	pearls@hometownolutions.net
J.L.	Meagher	RR2 Box 191	Elbow Lake	MN	56531		
Don	Dally	26907 Oak Pt Rd	Elbow Lake	MN	56531		
Betty	DeClercq	209 Lake St PO Box 103	Barrett	MN	56311		
Dave	Lonegan	14802 470th Ave	Donnelly	MN	56235		
Dwain	Schmidt	116 S Oregon Ave	Morris	MN	56267	320-589-0464	dwain.schmidt@dot.state.mn.us
Jim	Borgrud	12169 Pelican Hts Rd	Ashby	MN	56309	218-747-2658	

Appendix A
Item 1

May 24, 2007

POMME DE TERRE RIVER ADVISORY COMMITTEE

COUNTY / AGENCY	EMAIL ADDRESS	PHONE NUMBER
OTTERTAIL		
SWCD - BRAD MERGENS	BRAD.MERGENS@MN.NACDNET.NET	218-739-1308
LWMP – DARREN NEWVILLE	DARREN.NEWVILLE@MN.NACDNET.NET	218-346-4260
DOUGLAS		
SWCD – JEROME HAGGENMILLER	JEROME.HAGGENMILLER@MN.NACDNET.NET	320-763-3191
LWMP – EMILY SIIRA	EMILY.SIIRA@MN.NACDNET.NET	320-763-3191
GRANT		
SWCD/LWMP – JOE MONTONYE	JOE.MONTONYE@MN.NACDNET.NET	218-685-5395
P&Z – GREG LILLEMOM	GREG.LILLEMOM@CO.GRANT.MN.US	218-685-4967
STEVENS		
SWCD – MATT SOLEMSAAS	MATT.SOLEMSAAS@MN.NACDNET.NET	320-589-2266
LWMP – BILL KLEINDL	BILL.KLEINDL@CO.STEVENS.MN.US	320-589-7420
SWIFT		
SWCD – RICK GRONSETH	RICK.GRONSETH@MN.USDA.GOV	320-843-2458
LWMP – SCOTT COLLINS	SCOTT.COLLINS@CO.SWIFT.MN.US	320-843-2356
BIG STONE		
SWCD – GARY HOFFMAN	GARY.HOFFMAN@MN.NACDNET.NET	320-839-6149
LWMP – DARREN WILKE	DARREN.WILKE@CO.BIGSTONE.MN.US	320-839-2525
MPCA - MURIEL RUNHOLT	MURIEL.RUNHOLT@PCA.STATE.MN.US	507-537-7137
RC&D		
WESMIN – DEAN SCHMIDT	DEAN.SCHMIDT@MN.USDA.GOV	320-763-3191
PRAIRIE COUNTRY – RANDY NELSON	RANDY.NELSON@MN.USDA.GOV	320-231-0008
BWSR		
FERGUS FALLS – PETE WALLER	PETE.WALLER@BWSR.STATE.MN.US	218-736-5445
MARSHALL – DAVID SILL	DAVID.SILL@BWSR.STATE.MN.US	507-537-6374
DNR		
GLENWOOD - DEAN BECK	DEAN.BECK@DNR.STATE.MN.US	320-634-4573
ORTONVILLE - NORM HAUKOS	NORM.HAUKOS@DNR.STATE.MN.US	320-839-2656
ORTONVILLE – CHRIS DOMEIER	CHRIS.DOMEIER@DNR.STATE.MN.US	320-839-2656
FERGUS FALLS – JULIE AADLAND	JULIE.AADLAND@DNR.STATE.MN.US	218-739-7576
USFWS		
STEVE DELEHANTY	STEVE.DELEHANTY@FWS.GOV	320-589-1001
DR JAMES VAN ALSTINE	VANALSTIJ@WCEC.COM	320-589-6313
JPB CHAIR		
CLINTON SCHUERMAN		320-567-2102

UPDATED 5/10/2007



To: Pomme de Terre Fecal Coliform Stakeholder Group
From: Marilyn Bayerl for the Pomme de Terre River Association Joint Powers Board
Date: 1/15/2008
Re: Fecal Coliform TMDL Implementation Plan Development

Message:

The fecal coliform Total Maximum Daily Load on the Pomme de Terre River from Muddy Creek to Marsh Lake has been approved by the Environmental Protection Agency. A copy is enclosed for your information.

During the public presentation of this TMDL in May of 2007, you signed up to participate in the development of the practices that will drop the fecal levels in the River. I am proposing up to five meetings for two to three hours per meeting. These meetings will take place in Morris.

I would like to schedule these meetings at your convenience. Please fill out the enclosed stamped and addressed postcard and drop it in the mail. We will notify you what dates and times fit for the majority. Your input is critical to the success of this plan.

Please respond by January 31, 2008. If you have any questions or concerns, please feel free to contact me at 320-283-6127 or Matt Solemsaas at the Stevens County SWCD at 320-589-4886 ext. 112. Thank-you for your commitment. I will have a schedule to you and anticipate meeting early in February.

Marilyn Bayerl
Bayerl Water Resources
9083 State Hwy 114 SW
Alexandria, MN 56308
320-283-6127



STAKEHOLDER MEETING DATES:

Please circle all days/times that Will work for you:

I am most available on:

Monday Tuesday Wednesday Thursday Friday

It is most convenient for me to meet during the following time of day:

Mornings Afternoons Evenings

I am available during the following months:

February March April May June



To: Pomme de Terre Fecal Coliform Stakeholder Group
From: Marilyn Bayerl, Bayerl Water Resources and the
Pomme de Terre River Association Joint Powers Board
Date: February 9, 2008
Re: Fecal Coliform TMDL Implementation Plan Development

Message:

Based on the post cards returned, the first meeting of the Pomme de Terre Stakeholder group will be held on Thursday, February 21st from 7:00 to 9:00 PM at the ARS Soils Lab at 803 Iowa Avenue in Morris, MN.

If you have any questions or concerns, please feel free to contact me at 320-283-6127 or Kris Beuckens, Pomme de Terre River Watershed Project Coordinator at the Stevens County SWCD at 320-589-4886 ext. 109. Thank-you for your commitment.

Marilyn Bayerl
Bayerl Water Resources
9083 State Hwy 114 SW
Alexandria, MN 56308
320-283-6127

Stakeholder Meeting #1 - Feb. 21, 2008

DATE	NAME	ADDRESS	TIME IN	TIME OUT	PURPOSE	ARSHOST
2/21/08	Marilyn Bayerl	Alexandria	6:20		PDT Session	
"	Kris Beuckens	Holtman	6:20		"	
"	Bert Koosmann	Appleton	6:45		"	
"	Kelli Daberkow	Marshall	6:45		"	
"	Katherine Pkanek-Scott	"	"		"	
2/21	Brady Jensen - Livermore	Morris	6:45		"	
2/21	Marylene Clark	Morris	"		"	
3/21	Brod Mergend	Felton Falls	6:58		"	
3/21	Leah O'Brien	Danville	6:50		"	
	TEOY GOONOUGH	MORRIS	6:55		"	
	JAMES MOON	MORRIS	7:03		"	
	Jim Wolf	MORRIS				
	Pearis Wolf	Hancock				
	James Lutzman	Hoffman	7:05		"	
	Mgtt Sjensico	Morris	7:00			
	Paul Wagner	Eli	7:10		"	
	Paul Johnson	Mutumbo	7:15		PDT	Curved info-link
	Paul Johnson					

Outcomes

By 9:00 p.m., participants have:

- Reached a consensus of between 2 and 4 Focus Areas related to the Fecal Coliform TMDL Implementation;
- Developed initial strategies for each of the key Focus Areas;
- Had the opportunity to express interests in assisting in or working on one or more of the Focus areas.

Agenda

- 7:00 p.m. Welcome from Matt Solemsaas, Stevens County SWCD
What brings us here? Brief history of TMDL Process by Katherine Pakerek-Scott, MPCA
Review Outcomes (listed above) and Process
- 7:20 p.m. Introduction of Participants
Identifying Focus Areas
Individuals complete questionnaires – chose top 2 to 4 issues
- 7:40 p.m. Small Groups reach consensus on 2, 3 or 4 focus areas (8 – 10 minutes)
As a large group we identify top Focus Areas (10 – 12 minutes)
- 8:05 p.m. Choosing a Focus Area - regroup
Groups determine facilitator and recorder
- 8:20 p.m. Describe Outcomes and Indicators of Success
In work groups complete Desired Outcomes Worksheet (8 – 10 minutes)
Report to full group on Indicators of Success (10 – 12 minutes)
- 8:50 p.m. What will we do with this information? How is it useful?
Questions
- 9:00 p.m. Adjourn

Pomme de Terre River Fecal Coliform TMDL Implementation Plan

- 1) **Pasture Management:**

- 2) **Riparian Protection:**

- 3) **Open Lot Agreements:**

- 4) **Manure Management:**

- 5) **Individual Sewage Treatment Systems:**

- 6) **Wastewater Treatment Facility Discharges:**

- 7) **Urban Stormwater Management:**

- 8) **Long-term CSO Plans:**

- 9) **Other:**

Desired Outcomes

List direct action items that will improve this focus area – what do we need to do to address this problem?

- *
- *
- *
- *
- *
- *
- *
- *

We will know that our efforts to address this focus area are successful when they impact the Pomme de Terre River in the following ways:

- *
- *
- *

Please list the two most important (measurable) "indicators of success" if you implement a successful action or activity associated with this focus area:

- 1.
- 2.

Pomme de Terre Fecal Coliform Implementation Plan: Stakeholder Meeting: February 21st, 2008

Implementation Priorities determined by the group:

- 1. Riparian Buffers (10 – first choice, 4 – second choice):**
 - a. Proven to improve water quality
 - b. Good for wildlife and recreation
 - c. Efficient and cheap filter
 - d. Good for the wetlands
 - e. Manure management practice
 - f. Need to allow pasturing of buffers
- 2. ISTS (4 – first choice, 6 – second choice):**
 - a. Statewide effort
 - b. Open pipes should be taken care of
- 3. WWTF Discharge (3 – second choice):**
 - a. Already regulated
- 4. Manure Management (1 – first choice):**
 - a. Odor
 - b. Improve land incorporation
 - c. Storage
- 5. Pasture Management (1- second choice):**
 - a. Overgrazing
- 6. Urban Stormwater (1- second choice):**
 - a. Salt

BUFFERS:

1. Desired Outcomes:

- a. Rotational grazing pasture – new programs**
- b. Stream banks**
- c. Incentive payments**
- d. More cost-share**
- e. Identify acres of need**
- f. Public education**

2. Measurement Criteria:

- a. Continued monitoring over a period of time**

3. Measurable Indicators of Success:

- a. Acres of buffers**
- b. Changes in water clarity**

ISTS:

1. Desired Outcomes:

- a. Identify non-conforming systems throughout the watershed.**
- b. Advance public policy initiatives that allow for targeting of the identification efforts to most impaired sub-watersheds.**
- c. Raise sufficient funds to create financial incentives for landowners.**
- d. Raise public awareness about the need for conforming systems.**
- e. Identify lending institutions and/or agencies (county) that will agree to handle low interest loans necessary to finance new ISTS installations.**

2. Measurement Criteria:

- a. Continued monitoring over a period of time**

3. Measurable Indicators of Success:

- a. When the measurement taken at the bridge in Appleton and the mouth of Muddy Creek and Dry Wood Creek sub-watersheds indicate that it is safe to swim in the river.**
- b. When we have no known non-conforming ISTS in the watershed.**



To: Pomme de Terre Fecal Coliform Stakeholder Group
From: Marilyn Bayerl, Bayerl Water Resources and the
Pomme de Terre River Association Joint Powers Board
Date: March 11, 2008
Re: Fecal Coliform TMDL Implementation Plan Development

Message:

The Pomme de Terre Stakeholder group will meet again on **Tuesday, March 25th**, from 7:00 to 9:00 PM at the ARS Soils Lab at 803 Iowa Avenue in Morris, MN. The Agenda for the meeting is as follows:

- 2007 monitoring assessment - Chandra Carter, MPCA
- Discussion of management practices for Fecal Coliform TMDL Implementation Plan - Marilyn Bayerl, Bayerl Water Resources
- Questions about the TMDL process – Katherine Pekarek-Scott and Kelli Daberkow, MPCA Project Managers

If you have any questions or concerns, please feel free to contact me at 320-283-6127. Thank-you for your commitment to the Pomme de Terre River.

Marilyn Bayerl
Bayerl Water Resources
9083 State Hwy 114 SW
Alexandria, MN 56308
320-283-6127



To: Pomme de Terre Fecal Coliform Stakeholder Group
From: Marilyn Bayerl, Bayerl Water Resources and the
Pomme de Terre River Association Joint Powers Board
Date: April 1, 2008
Re: Fecal Coliform TMDL Implementation Plan Development

Message:

The Pomme de Terre Stakeholder group will meet again on **Tuesday, April 8th**, from 7:00 to 9:00 PM at the ARS Soils Lab at 803 Iowa Avenue in Morris, MN. This will be the last meeting of the stakeholder group. The Agenda for the meeting is as follows:

7:00 PM Clean Water Legacy Funding opportunities for the Pomme de Terre River Fecal Coliform TMDL – **Matt Drewitz**, Board of Water and Soil Resources

7:30 PM Programs available locally to address fecal TMDL:

- **Joe Montonye**, Grant County SWCD
- **Bill Kleindl**, Stevens County Environmental Services
- **Jeff Hellermann**, Stevens County NRCS

8:15 PM DRAFT Implementation Plan – **Marilyn Bayerl**

8:45 PM Questions about the TMDL process – **Katherine Pekarek-Scott** and **Kelli Daberkow**, MPCA Project Managers

If you have any questions or concerns, please feel free to contact me at 320-283-6127.

Marilyn Bayerl
Bayerl Water Resources
320-283-6127

AGENDA

Technical Advisory Committee Meeting
Pomme de Terre River Watershed Project
March 3, 2008

1. Pomme de Terre Fecal Coliform TMDL

- Review of TMDL progress, Katherine Pekarek-Scott
Report approved December 7, 2007
- Workplan for Implementation Plan, Katherine Pekarek-Scott
- Activities completed to date, Marilyn Bayerl
- Activities to complete during next 6 mo., Marilyn Bayerl
- TAC's role, Marilyn Bayerl

2. Pomme de Terre Turbidity TMDL

- Review of TMDL progress, Katherine Pekarek-Scott
- Workplan for TMDL Assessment, Katherine Pekarek-Scott
- Activities worked on to date, Kris Beuckens
- Activities to complete during next 6 mo., Kris Beuckens
- TAC's role, Kris Beuckens → *Next year* ←

3. Additional monitoring efforts

- MPCA and others, Kelli Daberkow

4. TAC meeting schedule, All

5. Any other business, All

6. Adjourn

DATE	NAME	ADDRESS	TIME IN	TIME OUT	PURPOSE	ARS HOST
Mar. 03/08	Kris Bueckens	Hoffman	12:40		TAC Meeting	
3/3/08	Joe Montano	Elbow Lake	1:30		TAC Meeting	
3/3/08	Martin Bayard	Alex	1:30		TAC Mtg	
3/3/08	Meghan Hark	Marina			"	
3/3/08	Kelli Daverkov	Marshall	1:30		"	
3-3-08	Katherine Petranko	"	"		"	
3-3-08	Greg Lillemor	Elbow Lake	1:32		"	
3-3-08	Al Schmidt	DNR - Glenwood	1:30		"	
3-3-08	Matt Eden-saw	Sawd	1:30		"	
3-3-08	Julie Andland	DNR	1:30		TAC MTG	
3-3-08	Chris Gaebler	Sawd	1:30		"	
3/3/08	Emily Sura	Douglas Sura	1:30		"	
3/3	David Sile	BWSR - Musher	"		"	
3/3	Bill Kleindl	Stevens Em. Sav	"		"	
3/3/08	Paul Meggers	WOT Sawd	1:30		"	
3/7/08	PETE WALTER	BWSR - FF	1:30		"	
3/7/08	Camille	Big Stone Sura	1:30		"	
3-10-08	Sharon McCleung	Ames, IA	9:00		Pollination Tack	
3-10-08	Steve Handlin	Ames, IA	9:00		"	
3-10-08	Kerl Asmes	Morris	10:45	2:30	dish washer	
3-10-08	Andy Astoyan	"	"	2:30	"	
3/10/08	A Oak	Appleton	1:30		bee's	

JOINT MEETING AGENDA

POMME DE TERRE RIVER ASSOCIATION

JOINT POWERS BOARD & TECHNICAL ADVISORY COMMITTEE

DATE: FRIDAY, MAY 9, 2008

TIME: 9:00 A.M.

USDA – ARS SOILS LAB, MORRIS, MN

- I. INTRODUCTIONS, AGENDA ADDITIONS AND APPROVAL
- II. APPROVE MINUTES FROM MARCH 10, 2008 JPB MEETING
- III. REVIEW OF FECAL COLIFORM IMPLEMENTATION PLAN – MARILYN BAYERL
- IV. 2007 PHASE 1 INTENSIVE MONITORING DATA – KELLI DABERKOW
- V. SET NEXT MEETING DATE AND ADJOURN

PLEASE NOTE!!!

THIS MONTH'S MEETING IS AGAIN SCHEDULED TO **BEGIN AT 9:00 A.M.** THANKS!

DATE	NAME	ADDRESS	TIME IN	TIME OUT	PURPOSE	ARS HOST
5-9	Kelli Duberkow	MPCA	8:30		Pd T	
"	Katherine Tokovak-Scott	MPCA	8:30		Pd T	
"	Marilyn Bayard	BWR	8:30		Pd T	
"	Heck Khan	Dunn Detention	8:30		Pd T	
"	Lee Luv	Appleton	8:46			
"	Rick Gronseth	NRCS	8:50		Pd T	
"	Shawn Mungall	Steven SWCD	8:50		Pd T	
"	Chris Storker	SWCD	8:50		"	
"	Dennis Mosher	DALTON - OTTAWA	8:55		Pd T	
"	Howard Johnson	Big Stone Comm	8:55		Pd T	
"	Matt Selersacs	Acron SWCD	8:55		Pd T	
"	Bill Kleindl	Steven Env.	8:56		Pd T	
"	Joel Hildebrand	600 SWCD	8:57		Pd T	
"	Therese Johnson	Steven SWCD	"		"	
"	Sharon Newirth	Soils Lab	"		"	
"	Alma Verney	Steven SWCD	9:00		Pd T	
"	Joe Montano	Grant SWCD	9:00			
"	Greg Helmer					

Pomme de Terre River Association
Joint Powers Board
Meeting Minutes
August 22, 2008

Appendix A
Item 5

University of Minnesota West Central Research & Outreach Center, Morris

Board members present: Mary Ann Scharf, Herb Kloos, Rod Wenstrom, Paul Barsness, Jerry Johnson, Dennis Mosher, Joe Fox. Others present: Marilyn Bayerl, Bayerl Water Resources; Katherine Pekarek-Scott, MPCA; Shaun McNally, Matt Solemsaas, and Chris Staebler, Stevens SWCD.

- I. President Scharf called the meeting to order at 9:05 a.m. Herb Kloos moved to approve the agenda. Seconded by Rod Wenstrom and all members voting aye, the motion passed.
- II. Dennis Mosher moved to approve the minutes from the July 25, 2008 JPB meeting. Seconded by Joe Fox and all members voting aye, the motion passed.
- III. Marilyn Bayerl presented the Fecal Coliform TMDL Implementation Plan to the board for approval. The budget and plan were reviewed and questions answered. Joe Fox moved to approve the plan as presented. Second by Dennis Mosher and all members voting aye, the motion passed.
- IV. Katherine Pekarek-Scott gave an update from the MPCA. There is monitoring being done in Drywood Creek and all the fecal coliform levels have been exceedingly higher than the standard. Some cattle have been removed from a pasture upstream of the monitoring site and they are interested to see how that affects the next readings.
- V. See written report from Shaun McNally, Watershed Project Coordinator. The purchasing of flow meters and other monitoring equipment was left on the table.
- VI. The next meeting will be held September 12 at 9:00 a.m. at the USDA-ARS Soils Lab in Morris. The meeting was adjourned at 10:15 a.m.

Respectfully submitted,

Mary Ann Scharf (Stevens County)
President

Pomme de Terre River Fecal Coliform TMDL

Katherine Pekarek-Scott
 Minnesota Pollution Control Agency
 February 21, 2008

Total Maximum Daily Load The Formula:

TMDL = WLA + LA + MOS + RC

- WLA = Waste Load Allocation = Point Source
- LA = Load Allocation = Nonpoint Source
- MOS = Margin of Safety
- RC = Reserve Capacity = Growth



Listing the Pomme de Terre River

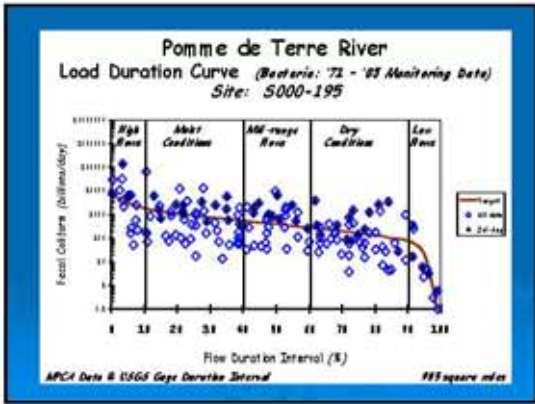
Reach	Description	Year listed	River Assessment Unit ID	# months with >5 DIs	# months Geomean >200cfu/100 mL	Year Of Data
Pomme de Terre River	Muddy Creek to Minnesota River (Marsh Lake Dam)	04	07020003 501	7	2	71-04

- > Classified as Class 2B, 3B, 4A, 4B, 5, and 6
- > Water Quality Standard: fecal coliform shall not exceed 200cfu/100 mL for a geometric mean of a given calendar month



Sources of Fecal Coliform

- o Point Source – Waste Load Allocations (WLA)
 - Permitted WWTF
 - Livestock facilities requiring NPDES permits
 - Stormwater permitted communities - None
 - Failing ISTSs
- o Nonpoint Source – Load Allocations (LA)
 - o Manure runoff
 - Cropland
 - Pastures
 - Smaller non-NPDES permitted feedlots
 - Stormwater runoff from non-permitted communities
 - Wildlife fecal coliform contributions (background)



TMDL for Fecal Coliform in the Pomme de Terre

Average flow for 10th week (cfs)	968.8	Flow Zone				
		High	Mid	Mid	Dry	Low
Load Allocation (lb/day)	9.79					
Individuals	11.33	Billion organisms per day				
TOTAL DAILY LOADING CAPACITY		2088	888	461	166	21
Watershed Allocation						
Permitted Wastewater Treatment Facilities		88	88	88	8	8
Communities Subject to MS4 NPDES Requirements		18	8	2	8	8
Livestock Facilities Requiring NPDES Permits		8	8	8	8	8
"Bright Pipe" Septic Systems		8	8	8	8	8
Load Allocation		1778	462	181	8	8
Margin of Safety		1111	338	122	166	NA

Note: Allowed load = (flow available from gage) x (TMDL) x (flow gage) / (flow gage)

- ### Some Points to Ponder in the Pomme de Terre
- High fecal coliform concentrations during storm events
 - Individual Sewage Treatment Systems
 - 435 households with failing septic systems or 1,085 people
 - NonCAFO Facilities and Manure
 - 45,486 animal units
 - 69% of all fecal coliform producers
 - Over half of the land in the watershed is cultivated – 66%



Pomme de Terre River Watershed Phase I
Monitoring 2007 Preliminary Results



Chandra Carter
Minnesota Pollution Control Agency
Pomme de Terre Stakeholder Group Meeting
March 25, 2008

Healthy Stream



Chemistry Sampling

- > pH
- > Conductivity
- > Dissolved Oxygen
- > Phosphorus
- > Nitrates
- > Ammonia
- > E. coli
- > Total suspended solids
- > Transparency tube
- > Chlorides
- > Sulfate

Pomme de Terre River Watershed Phase I



Appendix A
Chapter 6b
Chandra Carter

- > Fish and invertebrates are samples to serve as indicators of the health of the stream
- > Use attributes such as # of minnow species and intolerant to human disturbance are used to create a score or health rating
- > Can show what's going on long-term in the system
- > This information is only using fish data

Unhealthy Stream

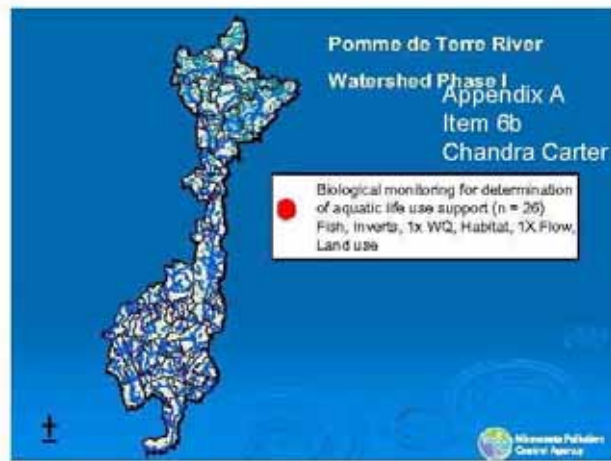
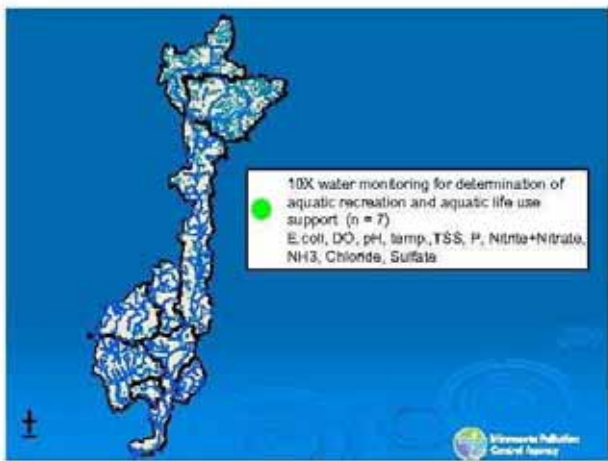


Watershed Monitoring

Phase 1– first year

- > **Objectives:**
 - Determine condition of the watersheds
 - Aquatic life - fish & invertebrate score, dissolved oxygen, turbidity
 - Aquatic recreation - bacteria
 - Aquatic consumption – Mercury & PCB's
 - Locate watersheds with impairments
 - Time trends in the future





How we sample

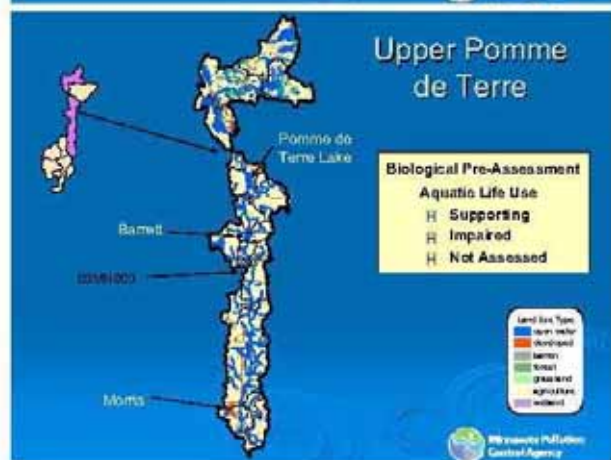
- > Electroshocking
- > Water chemistry



Watershed: PELICAN CREEK														
Basin ID: 001410														
Project ID: 0700001 - Pelican Creek II Dept BDC														
Parameter	Olivette		OO		E. coli		NH3-N		NO3-N		pH		Temp	
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Mean*	10.25	4.26	2.7	38	695	1.26	7.46	81.06	7.7	10.2	15.2	20.8		
WQI (method)	200	8	106		65	6.8	100					20		
# samples > standard	0/2	0/1			0/1	0/1						0/1		
HQP 10% percentiles**				0.26	0.12	0.4	0.17		3.6			21		

* Geometric mean is provided for E. coli
** Based on 1970-1992 baseline data. See Descriptive Characteristics of the Green Economy in Minnesota (Feb. 1992)

Elevated levels of E. coli and conductivity



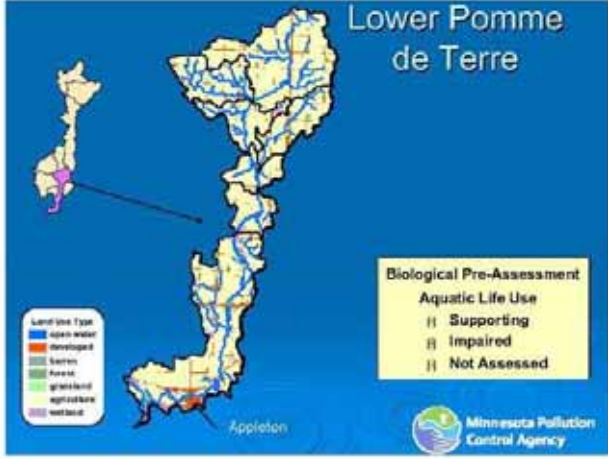
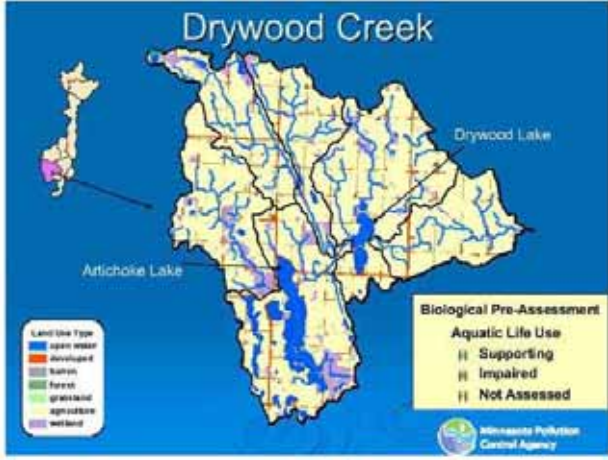
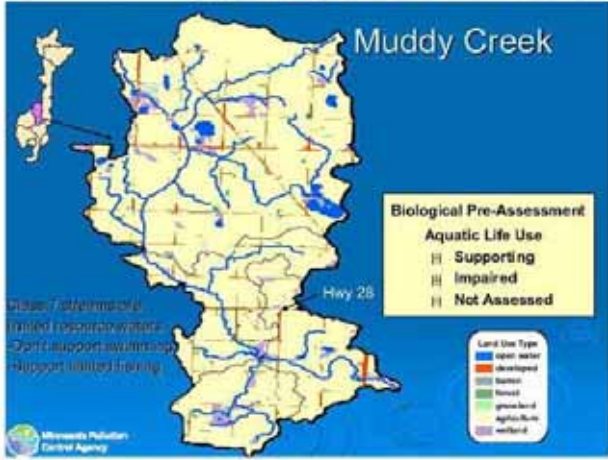
Watershed: POMME DE TERRE RIVER AT RBY 1														
Basin ID: 001411														
Project ID: 0700001 - Upper Pomme de Terre II Dept BDC														
Parameter	Olivette		OO		E. coli		NH3-N		NO3-N		pH		Temp	
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Mean*	1.66	3.40	20.66	1.26	147	3.27	20.1	11.15	20.9	81.2	13.46	17.2		
WQI (method)	200	8	106		65	6.8	100					20		
# samples > standard	0/2	0/1			0/1	0/1						0/1		
HQP 10% percentiles**				0.26	0.12	0.4	0.17		3.6			21		

* Geometric mean is provided for E. coli
** Based on 1970-1992 baseline data. See Descriptive Characteristics of the Green Economy in Minnesota (Feb. 1992)

Watershed: POMME DE TERRE RIVER AT RBY 1														
Basin ID: 001411														
Project ID: 0700001 - Upper Pomme de Terre II Dept BDC														
Parameter	Olivette		OO		E. coli		NH3-N		NO3-N		pH		Temp	
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Mean*	1.66	3.40	20.66	1.26	147	3.27	20.1	11.15	20.9	81.2	13.46	17.2		
WQI (method)	200	8	106		65	6.8	100					20		
# samples > standard	0/2	0/1			0/1	0/1						0/1		
HQP 10% percentiles**				0.26	0.12	0.4	0.17		3.6			21		

* Geometric mean is provided for E. coli
** Based on 1970-1992 baseline data. See Descriptive Characteristics of the Green Economy in Minnesota (Feb. 1992)

Fish in Upper PDT



Little Muddy Creek

Appendix A
 Item 6b
 Chandra Carter
 Alberta



Water name	LITTLE MUDDY CREEK											
Water ID	8004-412											
Point ID	3038002 - Little Muddy Creek 11 Days 2007											
	Conduct	DO	E. coli	TSS	TP	TRP	SRP	SRP	SRP	SRP	SRP	SRP
	µg/L	mg/L	MPN/100 mL	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Mean	214.0	10.20	108.0	28.0	1.0	0.18	2.0	0.08	0.08	0.08	0.08	0.08
WQ matched	1	100				0.5	0.0	0.0	0.0	0.0	0.0	0.0
Exceeded - matched	0/1	0/1				0/1	0/1	0/1	0/1	0/1	0/1	0/1
WQ 10% percentile**	1.00	1.40	0.5	0.28	0.08	0.0	0.0	0.0	0.0	0.0	0.0	0.0

* Generated report is provided for E. coli
 ** Based on 1970-1980 summer data, see Descriptive Characteristics of the River Ecosystems of Minnesota (Page 134)

Elevated levels of Nitrates and conductivity

Water name	DRYWOOD CREEK AT DCP PT											
Water ID	8004-413											
Point ID	3038002 - Drywood Creek 11 Days 2007											
	Conduct	DO	E. coli	TSS	TP	TRP	SRP	SRP	SRP	SRP	SRP	SRP
	µg/L	mg/L	MPN/100 mL	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Mean	148.0	8.8	107.0	25.0	0.9	0.30	0.08	0.08	0.08	0.08	0.08	0.08
WQ matched	0/1	1/1	0/1			0.5	0.0	0.0	0.0	0.0	0.0	0.0
Exceeded - matched	0/1	0/1				0/1	0/1	0/1	0/1	0/1	0/1	0/1
WQ 10% percentile**	1.00	1.40	0.5	0.28	0.08	0.0	0.0	0.0	0.0	0.0	0.0	0.0

* Generated report is provided for E. coli
 ** Based on 1970-1980 summer data, see Descriptive Characteristics of the River Ecosystems of Minnesota (Page 134)
 *** Method also used for phosphorus mean value (due to a fault at 1/10/07)

Elevated levels of E. coli and Phosphorus

Water name	LOWER POMME DE TERRE SPUR AT CL 79											
Water ID	8004-411											
Point ID	Lower Pomme de Terre 11 Days 2007											
	Conduct	DO	E. coli	TSS	TP	TRP	SRP	SRP	SRP	SRP	SRP	SRP
	µg/L	mg/L	MPN/100 mL	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Mean	112	7.30	100.0	30.0	0.8	0.10	0.08	0.08	0.08	0.08	0.08	0.08
WQ matched	0/1	0/1	0/1			0.5	0.0	0.0	0.0	0.0	0.0	0.0
Exceeded - matched	0/1	0/1				0/1	0/1	0/1	0/1	0/1	0/1	0/1
WQ 10% percentile**	1.00	1.40	0.5	0.28	0.08	0.0	0.0	0.0	0.0	0.0	0.0	0.0

* Generated report is provided for E. coli
 ** Based on 1970-1980 summer data, see Descriptive Characteristics of the River Ecosystems of Minnesota (Page 134)

Elevated E. coli levels

Parameter	Observed	Q5	Q10	Q25	Q50	Q75	Q90	Q95	Q99	Stat	Stat	Stat	Stat	Stat	Stat
Flow (cfs)	1450	1000	800	600	400	200	100	50	20	10	5	2	1	0.5	0.2
TP (ppm)	0.15	0.10	0.08	0.06	0.04	0.03	0.02	0.01	0.005	0.002	0.001	0.0005	0.0002	0.0001	0.00005
TSS (ppm)	100	50	30	20	10	5	2	1	0.5	0.2	0.1	0.05	0.02	0.01	0.005
Conductivity (µmhos/cm)	150	120	100	80	60	40	20	10	5	2	1	0.5	0.2	0.1	0.05

2007 Elevated levels of E. coli, Total Suspended Solids, and low Transparency tube values
 2000-2006 elevated levels of turbidity, Total suspended solids



Aquatic Health & Recreation

- 3 of 5 watersheds have elevated E. coli levels
- 2 of 5 watersheds have elevated TSS levels or low transparency values
- 2 of 5 watersheds have elevated conductivity levels
- 1 of 5 watersheds has elevated TP levels
- 1 of 5 watersheds has elevated nitrate levels

Aquatic health

- 32 sites sampled
 - 13 were able to be assessed
 - 3 sites had preliminary impaired results
 - 14 sites were ditched or located on a class 7 stream
 - 8 would be impaired if ditches were being assessed
 - Will be held to different standard, but has effect on downstream waters
- 2 of 8 watersheds have a fish biological impairment
 - Invertebrate data will be assessed later

Aquatic Consumption

- Carp, walleye and northern pike collected along the Pomme de Terre River had tissue samples taken to test for mercury and PCB's
 - PCB results are not yet back
 - Of 25 fish collected, 8 had a mercury concentration higher than the proposed standard of .2 ppm
 - Trigger for MDH fish advisory of not eating more than one fish/week

Phase 2

- Either the Lower Pomme de Terre or Drywood Creek sections
 - Goal is to determine potential stressors
 - E. coli, turbidity
 - More biological stations
 - More water chemistry stations
 - Dissolved oxygen readings throughout the day and night
 - Geomorphology stations
 - Flow monitoring



Appendix A
Item 6
Chandra Carter

Site assessments included in the presentation in Appendix 6b by Chandra Carter should be considered preliminary as stated in her presentation. The MPCA is currently re-evaluating the calibration of IBI scores for the whole state. Some assessments may change if they are close to the impairment threshold. New assessments should be ready for peer review and public comment in fall of 2009.

The Clean Water Legacy Act: Relationship to the Pomme de Terre River and TMDL Implementation Planning

April 8, 2008

Matt Drewitz
 BWSR Clean Water Specialist
 Cell phone: 507-766-5020
 Office phone: 507-359-6076
 E Mail: matt.drewitz@state.mn.us

The Purpose of the Clean Water Legacy Act

Protect, restore, and preserve the quality of Minnesota's surface waters by providing authority, direction, and resources to achieve and maintain water quality standards for surface waters as required by section 303(d) of the Clean Water Act.

Clean Water Legacy (CWL) Act is ...
 ...Minnesota's strategy to meet the
 Federal Clean Water Act (CWA)

CWL Act: Dual Approach

- Restoration: actions, including effectiveness monitoring, that are taken to achieve and maintain water quality standards for impaired waters in accordance with an approved TMDL (ex. Pomme de Terre River TMDL).
- Protection: implementation of measures to prevent waters from becoming impaired and to improve waters that are listed as impaired but have no approved TMDL addressing the impairment.

TMDL Process Overview (Restoration Projects)

The TMDL Process

Assess the State's waters

↓

List those that do not meet Standards

↓

Identify sources and reductions needed (TMDL Study)

↓

Implement restoration activities (Implementation Plan)

↓

Re-evaluate water quality

CWL Act Implementation Goals

Identify all Impaired Waters

Submit TMDLs to EPA on Time

Develop a Reasonable Time-Frame for Restoration

Comply with the Federal Clean Water Act

CWL Act Goals

De-list Waters

Provide Technical and Financial Assistance (BWSR)

Creation of State Clean Water Council (CWC)

- Council was created to advise on the administration and implementation of the CWL Act
- 19 citizens on the Council
- Agencies (BWSR, MPCA, DNR, MDA) represented on the Council, but are ad hoc members that do not vote



Where is CWL Act Funding Going Currently?

- Most funding going towards TMDLs:
 - TMDL development (MPCA)
 - Water quality monitoring (MPCA/DNR)
- Other funding dedicated to implementation and research:
 - Implementation funding (BWSR C-S and Technical assistance) (MCC funds fit in here)
 - Ag research (MDA)
 - Infrastructure upgrades (Public Facilities Authority)

CWL Implementation Funding

- Strategy for implementation funding
- First two years of funding...results
- Future funding
- How the Pomme de Terre watershed can prepare for implementation and funding



Strategy: Leveraging Funds

- Match State funds with Federal funds (EQIP, MPCA 319)
- Local buy-in from landowners (cost share)
- Local organizations contributing

13


Strategy: Ranking of Implementation Projects

- Relationship to a TMDL or water plan
- Measurable results and estimated effect
- Leveraging of CWL funding
- Tracking project effectiveness
- Readiness to proceed
- Coordination and cooperation

14

Types of Funds Available in the FY07 Competitive CWL Allocation

- Cost share and incentives
- Technical assistance and engineering
- Public Interest Lands (bonding funds)
- Land and River Management grants
- 319 Grants
- AgBMP Loans




15

FY07 CWL Applications

Successful Applicants

- 53 Awards (180 applicants)
- \$8 million (\$44M requests)



16

Sampling of BMPs that will be Implemented with BWSR CWL Funds Statewide

<ul style="list-style-type: none"> • 20 shoreland Restorations • 8,000 Ac Forest Stewardship • 25 shoreland protection • 13 Manure storage facilities • 100 acres of filter strips • 12 livestock exclusions • 10 grassed waterways 	<ul style="list-style-type: none"> • 11 sediment basins • 55 inlet structures • 5600 ft stream bank protection • 12 rain gardens • 5 miles Field Windbreaks • 100 acres of buffer strips • 14 sediment control structures • 1000 ac conservation tillage incentives
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FY 2008-2009 CWL Interagency Competitive Implementation Funds

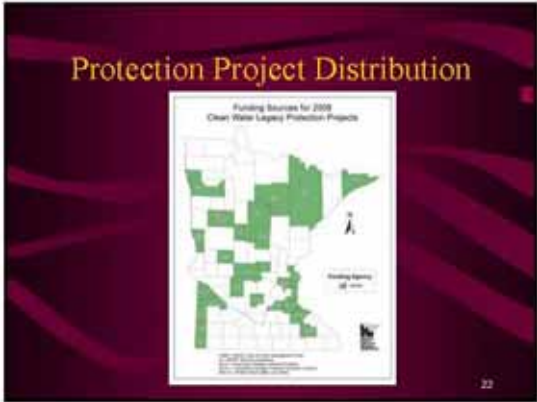
- Cost share and incentives (BWSR)
- Technical assistance and engineering (BWSR)
- Protection lake and river management grants(BWSR)
- ISTS/SSTS Inventory and Installation Funds (BWSR/MPCA)
- 319 Grant Funds (MPCA)
- AgBMP Loans (MDA)

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FY08 CWL Funds Available vs. Requests

Agency Funds	Available	Requests
MDA Ag BMP Loan	\$1,000,000	\$2,985,300
MPCA 319 Grant	\$1,000,000	\$1,979,180
BWSR Cost Share Grant	\$550,000	\$2,162,775
BWSR Technical Assistance and Engineering Grant	\$815,000	\$5,013,248
BWSR Lake and River Management Grant	\$850,000	\$8,440,669
BWSR/MPCA STTS Inventory Grant	\$980,000	\$1,403,669
BWSR/MPCA STTS Installation Grant	\$1,000,000	\$5,108,800
Totals	\$6,211,000	\$27,093,521

- ### Who Applied for Funds?
- 144 applications (102 Protection, 42 Restoration)
 - 52 from SWCDs
 - 32 from Counties
 - 27 from Cities
 - 16 from Watershed Districts
 - 15 from Joint Power Organizations
 - 2 from "other"



- ### Other CWL Funds: BWSR Direct Appropriations of Implementation Funds
- Minnesota Conservation Corp
 - Ag Hydro Restoration Project
 - Feedlot Water Quality Management Grants

- ### FY09 (Fall 2008) Competitive Grants for CWL Restoration Projects
- BWSR Cost Share and Technical Assistance
 - MPCA 319 Grants
 - ...potential legislative appropriations during session (BWSR bonding proposal unlikely)

Future CWL Funding Sources

- Dedicated funding through constitutional amendment...future?
- General fund appropriations made permanent...future?
- General fund one-time, limited appropriations...now

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How can the Pomme de Terre River Watershed Prepare for Future Funding Cycles?

- Finish TMDL and Implementation Plan to get into the funding door
- Prioritize what needs to get funded first
- Develop a list of projects to be initiated
- Apply for funds
- Implement funds to meet TMDL goals

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What to Prioritize?

- **Practices:** What are the priority best management practices (BMPs)?
- **Projects:** What priority projects are known that should be accomplished?
- **Watershed(s):** Are there priority sub-watersheds that should be addressed first?

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How to Plan Priorities relate to a CWL Application?

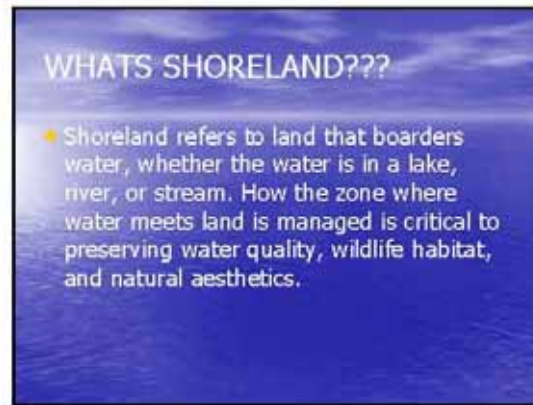
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graph TD; A[Implementation Plan] --> B[Priorities within TMDL Implementation Plan]; B --> C[Work with Landowners]; C --> D[Identify Specific Projects and Costs];
```

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Questions and Comments

[BWSR CWL Website](#)

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CCRP Buffer Practices

- **CP21 Filter Strips**

The purpose of this practice is to remove nutrients, sediment, organic matter, pesticides, and other pollutants from surface runoff and subsurface flow by deposition, absorption, plant uptake, denitrification, and other processes, and thereby reduce pollution and protect surface water and subsurface water quality while enhancing the ecosystems of the water body.

CCRP Buffer Practices

- **CP22 Riparian Buffer**

The purposes of this practice are to: remove nutrients, sediment, organic matter, pesticides, and other pollutants from surface runoff and subsurface flow by deposition, absorption, plant uptake, denitrification, and other processes, and thereby reduce pollution and protect surface water and subsurface water quality while enhancing the ecosystems of the water body; create shade to lower water temperature to improve habitat for aquatic organisms; provide a source of detritus and large woody debris for aquatic organisms and habitat for wildlife.

CCRP Buffer Practices

- **CP27 Farmable Wetlands Program (FWP)**
- **CP28 Farmable Wetlands Buffer**

- The purpose of the CP27 practice is to restore the functions and values of wetlands that have been devoted to agricultural use. Hydrology and vegetation must be restored to the maximum extent possible.

- The purpose of the CP28 is to provide a vegetative buffer around the CP27 to remove sediment, nutrients, and pollutants from impacting the wetland and to provide wildlife habitat for the associated wetland. The maximum amount per tract for both CP27/CP28 is limited 40 acres.

CCRP Buffer Practices

- **CP29 Marginal Pastureland Wildlife Habitat Buffer**

- The purpose of this practice is to remove nutrients, sediment, organic matter, pesticides, and other pollutants from surface runoff and subsurface flow by deposition, absorption, plant uptake, denitrification, and other processes, and thereby reduce pollution and protect surface water and subsurface water quality while enhancing the ecosystems of the water body. By restoring native plant communities, characteristics for the site will assist in stabilizing stream banks, reducing flood damage impacts, and restoring and enhancing wildlife habitat.

CCRP Buffer Practices

- **CP30 Marginal Pastureland Wetland Buffer**

The purpose of this practice is to remove nutrients, sediment, organic matter, pesticides, and other pollutants from surface runoff and subsurface flow by deposition, absorption, plant uptake, denitrification, and other processes, and thereby reduce pollution and protect surface water and subsurface water quality while enhancing the ecosystems of the water body. The practice will enhance and/or restore hydrology and plant communities associated with existing or degraded wetland complexes. The goal is to enhance water quality, reduce nutrient and pollutant levels, and improve wildlife habitat. The presence of livestock would be a prerequisite for initial eligibility.

CCRP Buffer Practices

- **CP23A Wetland Restoration, Non-Floodplain**

- The purpose of the practice is to restore ecosystems that have been devoted to agricultural use that are entirely outside the 100-year floodplain.

Programs to Establish Buffers on Non-Ag land

- Shoreland Habitat Restoration Grant Program**
Program Summary: To expand the diversity and abundance of native aquatic and shoreland plants; improve and protect the quality of shoreline habitat; enhance and protect water quality; raise awareness of the value of native shoreline and aquatic vegetation. Shoreland Habitat Block Grants are to provide cost share funding to counties, cities, watershed districts, other local units of government, conservation groups and lake associations to conduct shoreline restoration projects with native plants, to improve fish and wildlife habitat.

STATE COST-SHARE PROGRAM

Purpose

The purpose of this program is to provide grants to Soil and Water Conservation Districts (SWCDs) so they can help local landowners or land occupiers offset the costs of installing conservation practices that protect and improve water quality by controlling soil erosion and reducing sedimentation.

Eligible projects

- Critical Area Stabilization
- Diversions
- Field Windbreaks
- Filterbelts
- Grassed Waterway
- Nutrient and Feedlot Runoff Control
- Plant Strips
- Sediment Basins
- Streambank, Shoreland, and Roadside Protection
- Stripcropping
- Terraces
- Unused Well Sealing

AG BMP LOW INTEREST LOAN PROGRAM

- Provides low interest financing to farmers, rural landowners, and agriculture supply businesses to implement practices that prevent water pollution
- Provides loans for projects that reduce existing water quality problems caused by agricultural activities or failing septic systems
- Helps landowners comply with water related laws or rules
- Can be used with state and federal cost share or other sources of funding

AG BMP LOW INTEREST LOAN PROGRAM

Terms of Loans

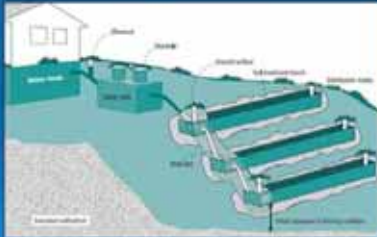
- Loan amounts are limited to \$50,000 for most projects; \$100,000 for TSS Cluster systems.
- Maximum Loan Length:
 Animal Waste Storage - 10 years
 Equipment - 5 years
 Septic systems - 10 years
 Well sealing - 10 years
- The maximum interest rate is 3%, interest plus usual and customary fees charged by the lender.
- The county and local banker may set additional terms and requirements for eligibility of projects.
- These loans are meant to encourage water quality protection and may only be used to solve existing water quality problems.

Who May Apply for Loans

- Farmers
- Rural Landowners
- Agriculture Supply Businesses



Chapter 7080 Individual Sewage Treatment Systems



Failing septic systems pose a health risk through the spread of hepatitis, dysentery and other diseases that may spread by bacteria, viruses and parasites in waste water.

- Flies & mosquitoes are attracted to and breed in wet areas from failing systems
- Household cleaning products/chemicals can reach surface waters where they may become toxic to humans/pets/wildlife
- High nitrate levels in drinking water can cause health problems for infants
- Excess nutrients reaching lakes or streams promote algae growth causing conditions unsuitable for swimming/boating/fishing

In 1994 legislation governing septic systems was signed into law taking aim at pollution and health problems associated with failing systems. It provided requirements for :

- Minimum treatment standards
- New construction
- Replacement of systems
- Disclosure of system information at property transfer
- Licensing program for designers, installers, inspectors, pumpers
- Required counties to adopt ordinances by January 1, 1999

Chapter 7080-7083 – Subsurface Sewage Treatment Systems

- Recently revised February 4, 2008
- 7080 - ISTS up to 5,000 gpd
- 7081 - MSTs from 5,000 - 10,000 gpd
- 7082 - Requirements for LGU program
- 7083 - Certification & licensing, product registration & an advisory committee

Stevens County Ordinance

- New/upgraded systems need to be designed by licensed designer, installed by licensed installer and construction inspection by the County
- Compliance inspection required for bedroom addition permits
- Compliance inspection required for any building permits in shoreland
- Investigate signed, written complaints

Grants/Loans

- \$500 from LWP for upgrades in Pomme de Terre Watershed
- MDA AgBMP low interest loan (10 yr @ 3%)

Chapter 7020 State/County Feedlot Program



Feedlot Program Overview

- MN has more than 30,000 registered feedlots
- Animal agriculture comprises a major portion of the state's economy (nearly \$10 billion annually)
- MPCA Feedlot Rules (Chapter 7020) regulates the collection, transportation, storage, processing and disposal of manure

- MPCA implements rules governing feedlot activities and provides assistance to counties and the livestock industry.
- Rules apply to most aspects of feedlots including location, design, construction, operation and management and manure handling facilities.
- MPCA staff includes engineers, hydrologists, soil scientists and pollution control specialists.

Feedlot Rule Revised in 2000

- In October of 2000 a major revision of the feedlot rule became effective.
- Main Goals:
 - Register all feedlots 50 animal units or more (10 in shoreland)
 - Focus on feedlots having greatest potential for environmental impact
 - Expand role of delegated counties in the feedlot program
 - Increase MPCA staff field presence

Definition of Animal Feedlot

- A lot or building or combination of lots and buildings intended for the confined feeding, breeding, raising, or holding of animals and specifically designed as a confinement area in which manure may accumulate, or where the concentration of animals is such that a vegetative cover cannot be maintained within the enclosure. Pastures shall not be considered animal feedlots under these parts.

Definition of Pasture

- Areas where grass or other growing plants are used for grazing and where the concentration of animals is such that a vegetative cover is maintained during the growing season except in the immediate vicinity of temporary supplemental feeding or water devices.

Definition of Animal Unit

- > A unit of measure used to compare differences in the production of animal manure that employs as a standard the amount of manure produced on a regular basis by a slaughter steer or heifer for an animal feedlot or a manure storage area. Multiply the number of animals of each type by their multiplication factor and add the values to obtain the total number of animal units.

Delegated County Program

- > 55 counties have signed a cooperative arrangement to implement feedlot regulations for facilities with fewer than 1000 animal units.
- > County receives approximately \$16,000 annually to administer the program.
- > Responsibilities include registration, permitting, inspections, education and assistance and complaint follow-up.

Feedlot Permits

- > **Five Types of Feedlot Permits**
 - Interim – any feedlot < 1000 AU with a pollution hazard
 - Construction Short-Form - > 300 AU without pollution hazard
 - State Disposal – Facilities proposing new technology
 - General NPDES - > 1000 AU where there is no discharge
 - Individual NPDES - > 1000 AU where owners have agreed to permit conditions to fix pollution hazard within a certain time-frame.

Nutrient & Manure Management

- > Livestock manure is a valuable resource if managed properly
- > **Manure nutrient testing**
 - Manure from storage areas storing manure from a >100 AU feedlot must be tested for nitrogen & phosphorus content a minimum of once every four years
 - Test once/year for at least three years if manure is from a 300 AU or more storage area & then every four years

Manure Management Plan Requirements

- > Required when applying for a permit
- > If not requiring a permit, feedlots >300 AU must prepare a plan unless the manure is applied by a commercial animal-waste technician or certified private manure applicator
- > Required information in a MMP
 - Storage & application methods
 - Field locations & acreage
 - Amount of manure to be applied to each field
 - Manure-nutrient testing plans
 - Soil-nutrient testing plans
 - Crop-nutrient needs and/or expected nutrient removal
 - Protective measures when applying in sensitive areas
 - Protective measures when applying during winter months

Record Keeping

- > **100-299 AU feedlots records must include:**
 - Manure-nutrient test results and all information needed to credit nitrogen from manure applications
- > **>300 AU records must include:**
 - Field acreage & location
 - Amount of manure applied to each field
 - Manure test results
 - Dates of manure application & incorporation
 - Expected amounts of plant-available nutrients from manure & commercial fertilizer each year
 - Soil test results
 - Any changes to the MMP

Grants/Loans/Cost-share

- EQIP – NRCS
- State Cost-share – SWCD/BWSR
- Low Interest Loan – MDA AgBMP Loans
- LWP Dollars - \$1,000 per feedlot upgrade



Questions???



Appendix B – Project Timeline

Pomme de Terre River Fecal Coliform TMDL Implementation Plan Timeline													
	Year	1	2	3	4	5	Evaluate	6	7	8	9	10	Evaluate
OBJECTIVE 1: Non-point Source Measures													
Task A	Feedlot Runoff Controls												
	Waste Storage Facilities	X	X	X	X	X	X	X	X	X	X	X	X
	Clean Water Diversion	X	X	X	X	X	X	X	X	X	X	X	X
	Vegetated Buffer Strips	X	X	X	X	X	X	X	X	X	X	X	X
Task B	Pasture Management												
	Livestock Exclusion	X	X	X	X	X	X	X	X	X	X	X	X
	Rotational Grazing	X	X	X	X	X	X	X	X	X	X	X	X
	Vegetated Buffer Strips	X	X	X	X	X	X	X	X	X	X	X	X
Task C	Surface-Applied Manure Management												
	Nutrient (Manure) Management Planning	X	X	X	X	X	X	X	X	X	X	X	X
	Vegetated Buffer Strips	X	X	X	X	X	X	X	X	X	X	X	X
OBJECTIVE 2: Point Source Management Measures													
Task A	Inspect SSTS												
	Ordinance Revisions	X	X	X	X	X	X	X	X	X	X	X	X
	Inspection Program			X	X	X	X	X	X	X	X	X	X
Task B	Upgrade Non-complying SSTS												
	Upgrade of surfacing systems				X	X	X	X	X	X	X	X	X
	Low Interest Loans	X	X	X	X	X	X	X	X	X	X	X	X
Task C	Education												
	SSTS Homeowners Workshops	X											
Task D	Urban Stormwater Management												
	Pet Waste Collection System	X	X	X	X	X	X	X	X	X	X	X	X

Pomme de Terre River Fecal Coliform TMDL Implementation Plan Timeline													
	Year	1	2	3	4	5	Evaluate	6	7	8	9	10	Evaluate
OBJECTIVE 3: Education and Outreach													
Task A	Promote Project through Media	X	X	X	X	X	X	X	X	X	X	X	X
	Newsletter		X	X	X	X		X	X	X	X	X	
	Advertising	X	X	X	X	X	X	X	X	X	X	X	X
	Website	X	X	X	X	X	X	X	X	X	X	X	X
Task B	Promote Project through Events												
	Joint Powers Board Meetings	X	X	X	X	X	X	X	X	X	X	X	X
	Technical Advisory Committee Meetings	X	X	X	X	X	X	X	X	X	X	X	X
	Annual Stakeholder Meeting	X	X	X	X	X	X	X	X	X	X	X	X
	Public Events	X	X	X	X	X	X	X	X	X	X	X	X
OBJECTIVE 4: Research													
Task A	Determine Bacteria Contribution of Geese												
	Monitoring Crystal Lake		X	X	X	X	X						
OBJECTIVE 5: Project Evaluation													
Task A	Monitor Water Quality												
	Effectiveness Monitoring					X						X	
OBJECTIVE 6: Administration													
Task A	Project Coordination												
	Project Coordinator	X	X	X	X	X	X	X	X	X	X	X	X

Appendix C – Budget

1 – Itemized Program Budget

2 – Best Management Practices In-kind Estimates

3 – Joint Powers Board In-kind Estimates

4 – Technical Advisory Committee In-kind Estimates

Itemized Program Objective Budget									
Objective 1 - Non-Point Source Pollutant Loading Reductions	Unit Cost	Unit	Quantity	Existing Programs	Cash	In-Kind	Loan	Total	
Task A: Feedlot Runoff Controls									
Waste Storage Facilities									
Cost-Share	\$ 168,750.00	facility	8 facilities	\$675,000.00	\$337,500.00	\$337,500.00		\$1,350,000.00	
Staff Time	\$ 31.00	hour	12,635 hours		\$391,685.00	\$391,685.00		\$391,685.00	
Clean Water Diversions									
Cost-Share	\$ 6,500.00	diversion	2 diversions	\$6,500.00	\$3,250.00	\$3,250.00		\$13,000.00	
Staff Time	\$ 31.00	hour	122 hours		\$3,782.00	\$3,782.00		\$3,782.00	
Vegetated Buffer Strips									
Incentive	\$ 100.00	acre/yr for 10 yrs	32 acres		\$32,000.00			\$32,000.00	
Staff Time	\$ 31.00	hour	300 hours			\$9,300.00		\$9,300.00	
Task B: Pasture Management									
Livestock Exclusion									
Cost-Share	\$ 0.60	foot	360,000 feet	\$108,000.00	\$54,000.00	\$54,000.00		\$216,000.00	
Staff Time	\$ 31.00	hour	2,022 hours		\$62,682.00	\$62,682.00		\$62,682.00	
Rotational Grazing									
Cost-Share	\$ 90.00	acre	4,850 acres	\$218,250.00	\$109,125.00	\$109,125.00		\$436,500.00	
Staff Time	\$ 31.00	hour	4,085 hours		\$126,635.00	\$126,635.00		\$126,635.00	
Vegetated Buffer Strips									
Incentive	\$ 100.00	acre/yr for 10 yrs	224 acres		\$224,000.00			\$224,000.00	
Staff Time	\$ 31.00	hour	2,395 hours		\$74,245.00	\$74,245.00		\$74,245.00	
Task C: Surface-Applied Manure Management									
Nutrient Management Planning									
Incentive	\$ 4,500.00	plan	24 plans		\$108,000.00			\$108,000.00	
Staff Time	\$ 31.00	hour	712 hours		\$22,072.00	\$22,072.00		\$22,072.00	
Vegetated Buffer Strips									
Incentive	\$ 100.00	acre/yr for 10 yrs	64 acres		\$64,000.00			\$64,000.00	
Staff Time	\$ 31.00	hour	600 hours		\$18,600.00	\$18,600.00		\$18,600.00	
SUBTOTAL OBJECTIVE 1				\$1,007,750.00	\$931,875.00	\$1,212,876.00	\$0.00	\$3,152,501.00	

Itemized Program Objective Budget									
Objective 2 - Point Source Pollutant Loading Reductions									
Cost Category	Unit Cost	Unit	Quantity	Existing Programs	Cash	In-Kind	Loan	Total	
Task A: Inspect SSTS									
Ordinance Revisions									
Staff Time	\$ 31.00	hour	561			\$17,391.00		\$17,391.00	
Inspection Program									
Time, mileage, materials	\$ 200.00	system	1,229	systems	\$245,800.00			\$245,800.00	
Staff Time	\$ 31.00	hour	800	hours		\$24,800.00		\$24,800.00	
Task B: Upgrade non-complying SSTS									
Upgrade Surfacing SSTS									
Installation Costs	\$ 8,000.00	system	481	systems	\$3,848,000.00			\$3,848,000.00	
Staff Time		31 hour	530	hours		\$16,430.00		\$16,430.00	
Low-interest Loans									
Staff Time	\$ 31.00	hour	750	hours		\$23,250.00		\$23,250.00	
Low-interest Loans	\$ 8,000.00	system	1,259	systems			\$10,072,000.00	\$10,072,000.00	
Task C: Education									
SSTS Homeowners Workshops									
Workshops	\$ 675.00	workshop	6	workshops	\$4,050.00			\$4,050.00	
Staff Time	\$ 31.00	hour	20	hours		\$620.00		\$620.00	
Task D: Urban Stormwater Management									
Pet waste Collection Program									
Waste Disposal Stations	\$ 450.00	station	4	stations		\$1,800.00		\$1,800.00	
Signs	\$ 87.50	sign	8	signs		\$700.00		\$700.00	
Staff Time	\$ 35.00	hour	965	hours		\$33,775.00		\$33,775.00	
SUBTOTAL OBJECTIVE 2					\$0.00	\$4,097,850.00	\$10,072,000.00	\$14,288,616.00	

Itemized Program Objective Budget									
Objective 3 - Education and Outreach	Cost Category	Unit Cost	Unit	Quantity	Existing Programs	Cash	In-Kind	Loan	Total
Task A: Promote Project through Media Newsletter									
	Printing	\$ 1.58	newsletter	7,460	newsletters	\$11,786.80			\$11,786.80
	Mailing	\$ 0.26	newsletter	7,460	newsletters	\$1,939.60			\$1,939.60
	Bulk Mailing	\$ 180.00	year	10	years	\$1,800.00			\$1,800.00
Advertising (7 Newspapers)									
	Newspaper Printing	\$ 81.00	ad	210	ads	\$17,010.00			\$17,010.00
	Website	\$ 280.00	year	10	years	\$2,800.00			\$2,800.00
Task B: Promote Project through Events									
Joint Powers Board Meetings									
	Supplies	\$ 5.00	meeting	120	meetings	\$600.00			\$600.00
	Members' Time	\$ 18.16	hour	6,240	hours	\$113,318.40			\$113,318.40
	Members' Mileage	\$ 0.505	per mile	118,200	miles	\$59,691.00			\$59,691.00
Technical Advisory Committee Meetings									
	Supplies	\$ 10.00	meeting	40	meetings	\$400.00			\$400.00
	Members' Time	\$ 29.34	hour	2,490	hours	\$73,056.60			\$73,056.60
	Members' Mileage	\$ 0.505	per mile	50,580	miles	\$25,542.90			\$25,542.90
Annual / Stakeholder Meetings									
	Meals	\$ 10.00	meal	1,500	meals	\$15,000.00			\$15,000.00
	Building Rent	\$ 250.00	year	10	years	\$2,500.00			\$2,500.00
	JPB Time	\$ 365.00	meeting	10	meetings	\$3,650.00			\$3,650.00
	JPB Mileage	\$ 0.505	mile	2,800	miles	\$1,414.00			\$1,414.00
	TAC Time	\$ 415.00	meeting	10	meetings	\$4,150.00			\$4,150.00
	TAC Mileage	\$ 0.505	per mile	2,850	miles	\$1,439.25			\$1,439.25
Public Events									
	Event Planning (setup, speaker, rental, etc)	\$ 500.00	year	10	years	\$5,000.00			\$5,000.00
	Promotional Items	\$ 500.00	year	10	years	\$5,000.00			\$5,000.00
	Display Items	\$ 50.00	year	10	years	\$500.00			\$500.00
SUBTOTAL OBJECTIVE 3					\$0	\$64,336.40	\$282,262.15	\$0.00	\$346,598.55

Itemized Program Objective Budget

Objective	Cost Category	Unit Cost	Unit	Quantity	Existing Programs	Cash	In-Kind	Loan	Total
Objective 4 - Research	Task A: Bacteria Contribution from Geese Monitoring Crystal Lake						\$1,500.00		\$1,500.00
	Graduate Student Expenses and Lab fees				\$0	\$0.00	\$1,500.00	\$0.00	\$1,500.00
	SUBTOTAL OBJECTIVE 4								
Objective 5 - Project Evaluation	Task A: Monitor Water Quality Effectiveness Monitoring								
	Sample analysis	\$ 13.00	sample	210 samples		\$2,730.00			\$2,730.00
	Shipping	\$ 15.00	occasion	70 occasions		\$1,050.00			\$1,050.00
	Flow gauges	\$ 4,300.00	site	3 sites			\$12,900.00		\$12,900.00
	Mileage	\$ 0.51	mile	37,500 miles			\$18,937.50		\$18,937.50
SUBTOTAL OBJECTIVE 5					\$0.00	\$3,780.00	\$0.00	\$35,617.50	
Objective 6: Administration	Task A: Project Coordination								
	Project Coordinator								
	Wages	\$ 41,102.88	year	10 years		\$411,028.80			\$411,028.80
	Benefits	\$ 9,453.12	year	10 years		\$94,531.20			\$94,531.20
	SUBTOTAL OBJECTIVE 6					\$0.00	\$505,560.00	\$0.00	\$505,560.00
SUBTOTAL OBJECTIVE 1					\$1,007,750.00	\$ 931,875.00	\$ 1,212,876.00	\$0	\$ 2,144,751.00
SUBTOTAL OBJECTIVE 2					\$0	\$ 4,097,850.00	\$ 118,766.00	\$10,072,000	\$ 14,288,616.00
SUBTOTAL OBJECTIVE 3					\$0	\$ 64,336.40	\$ 282,262.15	\$0	\$ 346,598.55
SUBTOTAL OBJECTIVE 4					\$0	\$ -	\$ 1,500.00	\$0	\$ 1,500.00
SUBTOTAL OBJECTIVE 5					\$0	\$ 3,780.00	\$ 31,837.50	\$0	\$ 35,617.50
SUBTOTAL OBJECTIVE 6					\$0	\$ 505,560.00	\$ -	\$0	\$ 505,560.00
GRAND TOTAL					\$1,007,750.00	\$ 5,603,401.40	\$1,647,241.65	\$10,072,000	\$ 17,322,643.05

Fecal Coliform TMDL Implementation - BMP In-kind Estimates

County	Unit Cost	Unit	Quantity	hours	In-Kind	Program Element	
Otter Tail County SWCD/NRCS	\$25.00	Hour	1000	hours	\$25,000	BMPs	Brad Mergens
Otter Tail County P&Z					\$10,000	SSTS	Bill Kalar
Stevens County SWCD/NRCS	\$35.00	Hour	10400	hours	\$364,000	BMPs	Matt Solemsaas
Stevens County P&Z					\$20,000	SSTS	Bill Kleindl
Grant County SWCD/NRCS	\$35.00	Hour	3000	hours	\$105,000	BMPs	Joe Montonye
Grant County P&Z					\$17,500		Greg Lillemon
Douglas County SWCD/NRCS	\$30.00	Hour	500	hours	\$15,000	BMPs	Emily Siira
Douglas County P&Z					\$10,000	SSTS	Rebecca Sternquist
Swift County SWCD/NRCS					\$200,000	BMPs	Rick Gronseth
Swift County P&Z					\$15,000	SSTS	Scott Collins
Big Stone County SWCD/NRCS	NA	NA	NA	NA	NA	NA	Gary Hoffman
Big Stone County P&Z	\$35.00	Hour	286	hours	\$10,000	SSTS	Darren Wilke
TOTAL					\$791,500		

**Pomme de Terre Fecal Coliform TMDL Implementation Plan Meetings:
Monthly Joint Powers Board Meetings In-kind commitment:**

County	Cost per Hour	Hours per Meeting	Total Hours x 10 years	Mileage	Total Miles x 10 years	Cost at \$0.505/mile	Total In-Kind
Otter Tail County Commissioner	\$18.18	4	\$8,726.40	88	10,560	\$5,332.80	\$14,059.20
Otter Tail SWCD Board	\$18.18	4	\$8,726.40	120	14,400	\$7,272.00	\$15,998.40
Grant County Commissioner	\$18.18	3	\$6,544.80	40	4,800	\$2,424.00	\$8,968.80
Grant SWCD Board	\$18.18	3	\$6,544.80	40	4,800	\$2,424.00	\$8,968.80
Douglas County Commissioner	\$18.18	4	\$8,726.40	60	7,200	\$3,636.00	\$12,362.40
Douglas SWCD Board	\$18.18	3	\$6,544.80	60	7,200	\$3,636.00	\$10,180.80
Stevens County Commissioner	\$18.18	2	\$4,363.20	19	2,280	\$1,151.40	\$5,514.60
Stevens SWCD Board	\$18.18	3	\$6,544.80	10	1,200	\$606.00	\$7,150.80
Stevens County SWCD employee	\$35.00	2	\$4,200.00	4	240	\$121.20	\$4,321.20
Stevens County SWCD employee	\$20.00	2	\$4,800.00	4	480	\$242.40	\$5,042.40
Swift County Commissioner	\$18.18	4	\$8,726.40	46	5,520	\$2,787.60	\$11,514.00
Swift SWCD Board	\$18.18	4	\$8,726.40	60	7,200	\$3,636.00	\$12,362.40
Big Stone County Commissioner	\$18.18	4	\$8,726.40	118	14,160	\$7,150.80	\$15,877.20
Big Stone SWCD Board	\$18.18	4	\$8,726.40	118	14,160	\$7,150.80	\$15,877.20
MPCA	\$106.00	per mtg	\$12,720.00	200	24,000	\$12,120.00	\$24,840.00
TOTAL		\$52.00	\$113,347.20		\$118,200.00	\$59,691.00	\$173,038.20

Pomme de Terre Fecal Coliform TMDL Implementation Plan Meetings:						
Quarterly Technical Advisory Committee Meetings In-kind commitment:						
County	Unit Cost	Unit	Quantity	In-Kind	Program Element	Quarterly Meetings
Pomme de Terre JPB Chair	\$18.18 Hour	Hour	160 hours	\$2,908.80	TAC meetings	4 hours per meeting (attend 4x/yr)
	\$0.505 Mileage Rate	Mileage	2240 miles	\$1,131.20	Mileage	average JPB mileage of 56 miles
Otter Tail County SWCD	\$35.00 Hour	Hour	80 hours	\$2,800.00	TAC meetings	4 hours per meeting (attend 2x/yr)
	\$0.505 Mileage Rate	Mileage	2400 miles	\$1,212.00	Mileage	120 miles per meeting
Otter Tail County P&Z	\$35.00 Hour	Hour	40 miles	\$1,400.00	TAC meetings	4 hours per meeting (attend 1x/yr)
	\$0.505 Mileage Rate	Mileage	1200 miles	\$606.00	Mileage	120 miles per meeting
Grant County SWCD	\$30.00 Hour	Hour	120 hours	\$3,600.00	TAC meetings	3 hours per meeting
	\$0.505 Mileage Rate	Mileage	2720 miles	\$1,373.60	Mileage	68 miles per meeting
Grant County P&Z	\$35.00 Hour	Hour	75 hours	\$2,625.00	TAC meetings	3 hours per meeting (attend 2.5x/yr)
	\$0.505 Mileage Rate	Mileage	1700 miles	\$858.50	Mileage	68 miles per meeting
Douglas County SWCD	\$20.00 Hour	Hour	160 hours	\$3,200.00	TAC meetings	4 hours per meeting
	\$0.505 Mileage Rate	Mileage	4000 miles	\$2,020.00	Mileage	100 miles per meeting
Douglas County P&Z	\$35.00 Hour	Hour	40 hours	\$1,400.00	TAC meetings	4 hours per meeting (attend 1x/yr)
	\$0.505 Mileage Rate	Mileage	1000 miles	\$505.00	Mileage	100 miles per meeting
Stevens County SWCD	\$20.00 Hour	Hour	80 hours	\$1,600.00	TAC meetings	2 hours per meeting
	\$35.00 Hour	Hour	80 hours	\$2,800.00	TAC meetings	2 hours per meeting
Stevens County LWMP	\$37.50 Hour	Hour	80 hours	\$3,000.00	TAC meetings	2 hours per meeting
Swift County SWCD	\$25.00 Hour	Hour	160 hours	\$4,000.00	TAC meetings	4 hours per meeting
	\$0.505 Mileage Rate	Mileage	2000 miles	\$1,010.00	Mileage	50 miles per meeting
Swift County P&Z	\$35.000 Hour	Hour	40 hours	\$1,400.00	TAC meetings	4 hours per meeting (attend 1x/yr)
	\$0.505 Mileage Rate	Mileage	900 miles	\$454.50	Mileage	90 miles per meeting
Big Stone County SWCD	\$25.000 Hour	Hour	80 hours	\$2,000.00	TAC meetings	4 hours per meeting (attend 2x/yr)
	\$0.505 Mileage Rate	Mileage	2000 miles	\$1,010.00	Mileage	100 miles per meeting
Big Stone County P&Z	\$35.000 Hour	Hour	80 hours	\$2,800.00	TAC meetings	4 hours per meeting (attend 2x/yr)
	\$0.505 Mileage Rate	Mileage	2000 miles	\$1,010.00	Mileage	100 miles per meeting
DNR	\$150.00 Meeting	Meeting	30 meetings	\$4,500.00	TAC meetings	3 per year
	\$0.505 Mileage Rate	Mileage	2700 miles	\$1,363.50	Mileage	90 miles per meeting (attend 3x/yr)

Pomme de Terre Fecal Coliform TMDL Implementation Plan Meetings:						
Quarterly Technical Advisory Committee Meetings In-kind commitment:						
County	Unit Cost	Unit	Quantity	In-Kind	Program Element	Quarterly Meetings
DNR	\$33.00	Hour	120 hours	\$3,960.00	TAC meetings	3 per year
	\$0.505	Mileage Rate	2550 miles	\$1,287.75	Mileage	85 miles per meeting (attend 3x/yr)
DNR	\$32.00	Hour	80 hours	\$2,560.00	TAC meetings	4 hours per meeting (attend 2x / yr)
	\$0.505	Mileage Rate	2120 miles	\$1,070.60	Mileage	106 miles per meeting (attend 2x/yr)
BWSR	\$35.00	Hour	120 hours	\$4,200.00	TAC meetings	6 hours per meeting (attend 2 x/yr)
	\$0.505	Mileage Rate	3600 miles	\$1,818.00	Mileage	180 miles per meeting
BWSR	\$35.00	Hour	120 hours	\$4,200.00	TAC meetings	4 hours per meeting (attend 3 x/yr)
	\$0.505	Mileage Rate	3600 miles	\$1,818.00	Mileage	120 miles per meeting x3/yr x 10 yrs
MPCA	\$106.00	Meeting	40 meetings	\$4,240.00	TAC meetings	4 meetings per year
	\$0.505	Mileage Rate	8000 miles	\$4,040.00	Mileage	200 miles per meeting
UDDA-ARS	\$40.00	Hour	80 hours	\$3,200.00	TAC meetings	2 hours per meeting
Prairie Country RC&D	\$35.00	Hour	125 hours	\$4,375.00	TAC meetings	5 hours per meeting (attend 2.5 x/yr)
	\$0.505	Mileage Rate	2850 miles	\$1,439.25	Mileage	114 miles per meeting
WesMin RC&D	\$35.00	Hour	180 hours	\$6,300.00	TAC meetings	6 hours per meeting (attend 3 x/yr)
	\$0.505	Mileage Rate	3000 miles	\$1,515.00	Mileage	100 miles per meeting
TOTAL			2490 hours	\$98,611.70		
No Commitment From:		Reason:				
Deb Beck, USFWS		No response to three emails			1826.72	Avg cost per meeting
Darren Newville, EOTSWCD, LWMP		Remove from list (WOTSWCD will attend)			83	Avg cost per person per meeting
Muriel Runholt, MPCA		Remove from list (Retired)			85	50580 miles
Norm Haukos, DNR		Remove from list (Request)			29	\$25,542.90 mileage cost
Steve Delehanty, USFWS		Remove from list (Deb Beck to replace)				\$73,068.80 meeting in-kind
Dr. James VanAlstine		Remove from list (Request)				\$98,611.70