Le Sueur River and Little Beauford Ditch
Acetochlor Impairment Response Work Plan

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INTRODUCTION

In 2008, the Minnesota Pollution Control Agency (MPCA) included two water bodies, the Le Sueur River and Little Beauford Ditch, on the state's 303(d) Total Maximum Daily Load (TMDL) list of impaired waters[1] for violations of the acetochlor water quality standard. Acetochlor is a corn herbicide whose use is regulated by the Minnesota Department of Agriculture (MDA).

This work plan describes specific activities to be completed or evaluated in response to these water quality impairments. Some of the activities are in direct response to the acetochlor water quality impairments; others are in response to MDA's on-going responsibility to assure pesticides are used in a manner that does not cause unreasonable adverse effects on the environment. The end product of the work plan is an Acetochlor Impairment Response Report scheduled for completion in 2012. The MPCA contract will fund Activities 1, 5 and 10 in the work plan. Activities 2, 3, 4, 6, 7, 8 and 9 are funded separately through MDA and the Acetochlor Registration Partnership (ARP).

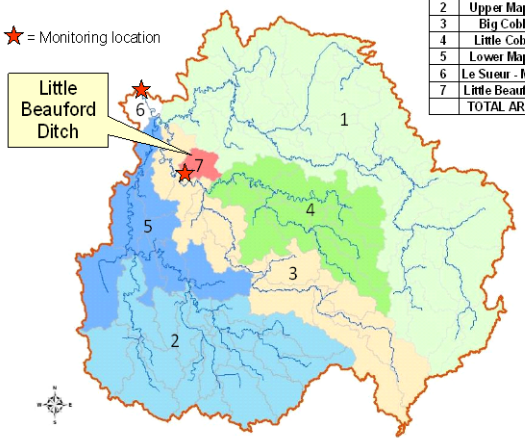
I. PROBLEM STATEMENT

Concentrations of acetochlor in the Le Sueur River and the Little Beauford Ditch have violated the MPCA Chronic Water Quality Standard for Acetochlor, resulting in their placement in 2008 on the state's 303(d) TMDL list of impaired waters. The Chronic Water Quality Standard for Acetochlor is 3.6 µg/L over four days and was established for the protection of aquatic life.

The standard needs to be exceeded twice during a three-year period to support an impairment listing. This occurred early in the 2001 growing season for the Le Sueur River (four-day average acetochlor concentrations of 5.67 µg/L and 4.81 µg/L) and early in the 2005 growing season for Little Beauford Ditch (four-day average acetochlor concentrations of 5.43 µg/L and 4.90 µg/L). The Le Sueur River exceeded the standard again in 2005 (a four-day average acetochlor concentration of 4.19 µg/L). No subsequent exceedance has been documented in either water body since 2005.

Le Sueur River & Little Beauford Ditch Watersheds

Code	Sub-watershed	Area, acres	Area, %
1	Little Le Sueur	285,000	40
2	Upper Maple	146,700	21
3	Big Cobb	113,400	16
4	Little Cobb	84,100	12
5	Lower Maple	71,000	10
6	Le Sueur - Main	6,100	1
7	Little Beauford	5,500	1
	TOTAL AREA	711,800	100



II. WORK PLAN GOALS

a. Characterize the fate and transport mechanisms of acetochlor in the Le Sueur River and Little Beauford Ditch watersheds.

b. Identify management strategies that are practical and demonstrate potential of preventing exceedance of the acetochlor water quality standard in the Le Sueur River and Little Beauford Ditch.

[1] The Minnesota Pollution Control Agency maintains the Minnesota 303(d) TMDL list of impaired waters and updates it in even number years. It is available at: www.pca.state.mn.us/water/tmdl/

III. BACKGROUND INFORMATION

The Le Sueur River and Beauford Ditch Watersheds[2]

The Le Sueur River watershed is one of the twelve major watersheds of the Minnesota River Basin. It is located in south central Minnesota within Blue Earth, Faribault, Freeborn, Le Sueur, Steele, and Waseca counties. The Le Sueur River watershed spans 45 miles from the city of Mankato in the northwest to the city of Albert Lea in the southeast and is 711,800 acres in area. Agriculture is the predominant land use within the watershed with corn and soybeans being major crops grown. The Little Beauford Ditch is a subwatershed of the Le Sueur River watershed. It is 5,500 acres in size and located entirely in Blue Earth County, just south of the city of Mankato.

The Le Sueur River is listed as impaired by acetochlor, fecal coliform, mercury and turbidity, and the Little Beauford Ditch is listed as impaired by acetochlor, mercury, turbidity and PCB.

Acetochlor use[3]

Acetochlor is used to control weeds in corn. In 2007, it was applied to 23% of Minnesota corn acres, making it the second-most-used corn herbicide in the state in terms of acres covered.

Acetochlor controls weeds by inhibiting growth of seedlings. It needs to be applied before weeds germinate and therefore is typically applied just before or after corn planting. Acetochlor provides good control of most annual grassy weeds and a number of annual broadleaf weeds. It is often used in combination with other herbicides to obtain "broad-spectrum" weed control.

Acetochlor use is regulated by the MDA. It is currently not a Restricted Use Pesticide, therefore no special license or certification is needed for its use unless it is being applied for hire or if it is being used in combination with a Restricted Use Pesticide such as atrazine. If acetochlor is being applied for hire or used in combination with a Restricted Use Pesticide, pesticide applicators need to be licensed or certified by the MDA, a process which includes passing an exam on proper pesticide use.

History of MDA response

The MDA has monitored the use of acetochlor and its presence in surface and ground water since the mid-1990s. Acetochlor use and monitoring data are reviewed in the context of MDA's Pesticide Management Plan (PMP)[4] to prevent, evaluate and mitigate the environmental impacts of pesticides.

When detections of pesticides in surface water exceed 10-50% of a pesticide-specific water quality benchmark, the PMP directs the MDA to develop voluntary Best Management Practices (BMPs) for the pesticide. Based on repeated detections of acetochlor in surface water approaching, and at times exceeding, the water quality benchmarks available at the time, acetochlor-specific BMPs were developed in 2004. The BMPs are designed to prevent exceedances of the benchmark, and the MDA works with the multi-stakeholder Education and Promotion Team to promote the adoption of the BMPs.

The Le Sueur River and Little Beauford Ditch acetochlor impairment determinations were made in January 2008 based on the MPCA Chronic Water Quality Standard for Acetochlor and a review of historic MDA water quality data. In May 2008, the MDA announced an effort to revise the acetochlor BMPs based, in part, on the impairment decisions. The MDA continues to evaluate the BMPs through demonstration projects and long-term monitoring of water resources.

[2] Content obtained from Minnesota River Basin Data Center, http://mrbdc.mnsu.edu/major/lesueur/desc32.html
[3] Content obtained from Minnesota Department of Agriculture, www.mda.state.mn.us/acetochlor
[4] Minnesota Pesticide Management Plan available at www.mda.state.mn.us/protecting/waterprotection/pmp.htm

Minnesota's Impaired Waters Program[5]

Under direction of the federal Clean Water Act, Minnesota has adopted water quality standards to protect waters from pollution. These standards define how much of a pollutant can be in the water and still allow it to meet designated uses, such as drinking water, fishing, and swimming. A water body is "impaired" if it fails to meet one or more water quality standards.

To identify and restore impaired waters, the MPCA:
- Assesses waters of the state to determine if they meet water quality standards;
- Lists impaired waters that do not meet standards and updates the list in even-numbered years;
- Conducts studies to set pollutant reduction goals needed to restore impaired waters;
- Coordinates closely with other state and local agencies on restoration activities.

This work plan addresses the last two items in the above list.

V. WORK PLAN APPROACH

Acetochlor Impairment Response Report

The end product of this work plan is an Acetochlor Impairment Response Report scheduled for completion in 2012. The report will fulfill the two work plan goals listed on page 1.

The Acetochlor Impairment Response Report will combine and coordinate information relating to actions being done in direct response to the acetochlor water quality impairments with those being done as part of MDA's on-going responsibility to assure pesticides are used in a manner that does not cause unreasonable adverse effects on the environment.

This work plan and the resulting Acetochlor Impairment Response Report can be used as a guide, but not a blueprint, of how future pesticide impairments can be addressed, should they occur. Each pesticide impairment will have its own set of conditions and factors that need to be considered in deciding how best it should be addressed.

Potential actions resulting from the Acetochlor Impairment Response Report

If water monitoring results indicate no additional acetochlor standard violations, and the outcomes of the Acetochlor Impairment Response Report suggest current actions are adequate to prevent future violations, the Le Sueur River and/or Little Beauford Ditch may be considered for removal (delisting) from the 303(d) TMDL list of impaired waters.

If water monitoring results indicate a new violation of the acetochlor standard, or the outcomes of the Acetochlor Impairment Response Report suggest current actions are inadequate to prevent future violations, the acetochlor impairment may be addressed through the Total Maximum Daily Load (TMDL) planning process.

Recommendations for delisting water bodies from the 303(d) TMDL list of impaired waters are made by the MPCA Delisting Review Committee consisting of MPCA basin coordinators and MPCA monitoring and data assessment staff. The Delisting Review Committee can request input from MPCA project managers as well as local staff whose data was used in the assessments. In the case of acetochlor, MDA staff would be asked to participate. The Delisting Review Committee only makes recommendations for delisting water bodies from the 303(d) TMDL list of impaired waters; final determinations are made by EPA.

[5] Content obtained from Minnesota Pollution Control Agency, www.pca.state.mn.us/water/tmdl

Recommendations for delisting are based on the weight of evidence with consideration given to quality and quantity of available data, weather and flow conditions and documented changes in the watershed that could affect water quality. Particularly important for the delisting of a river reach impaired for acetochlor would be 1) records indicating water quality samples were taken during critical spring run-off events; 2) changes in acetochlor use or management sufficient to provide reasonable assurance that future exceedances are unlikely even during critical spring run-off events; and, 3) no violations of the Chronic Water Quality Standard for Acetochlor within the last ten years. [6]

Roles in work plan implementation

Activities proposed in this work plan will be conducted by MDA staff with assistance from the MPCA, industry, and local entities.

Work plan oversight will be provided by a MPCA staff person or persons serving as Work Plan Project Manager. The Work Plan Project Manager will assure that work plan activities are conducted correctly and on schedule. The Work Plan Project Manager will also provide fiscal oversight.

Collaboration with a variety of partners and stakeholders is anticipated in the completion of this work plan including:

- county government;
- soil and water conservation districts;
- crop producers and crop producer organizations;
- watershed and environmental protection organizations;
- pesticide applicators and dealers;
- crop consultants;
- University of Minnesota; and,
- The Acetochlor Registration Partnership.

The MPCA holds final authority for the acetochlor impairment response process. A letter of plan approval from MPCA will initiate MDA's formal implementation of this work plan.

VI. WORK PLAN ACTIVITIES

The following pages describe work plan activities that will be completed in the development of the Acetochlor Impairment Response Report. A work plan timetable and budget follow the activity descriptions.

Some work plan activities are being done in direct response to the acetochlor water quality impairments; others are in response to MDA's on-going responsibility to assure pesticides are used in a manner that does not cause unreasonable adverse effects on the environment. This difference is noted in the activity descriptions.

Work plan activities funded through MDA and ARP have already started. Work plan activities 1 and 5 will begin upon execution of the MPCA contract. All activities will culminate in May 2012 with the completion of the Acetochlor Impairment Response Report (work plan activity 10).

VII. WORK PLAN REVISION

The work plan will be revised as necessary to reflect changing conditions. Work plan revisions will be jointly agreed upon in writing by the MDA and MPCA. Work plan revisions which necessitate changes in the funding provided by MPCA to MDA will also require Minnesota Department of Administration approval.

[6] A detailed description of the delisting process can be found in Section XIII of the "Guidance Manual for Assessing the Quality of Minnesota Surface Waters for Determination of Impairment: 305(b) Report and 303(d) List". It is available at: http://old.pca.state.mn.us/publications/wq-iw1-04.pdf. This URL may change with website revisions.

Activity 1:	Technical advisory group and stakeholder group development and involvement.
Responsible party:	MDA
On-going or impairment-specific:	This activity is in direct response to the acetochlor impairments.
Scope:	Groups will be carefully recruited to represent the different interests found in the watersheds and needed knowledge bases. Meetings will be scheduled to provide input on: 1) data collection and analysis, and 2) acetochlor management strategies, and report development. Group member time will be respected and their contributions valued.
End product:	Technical and stakeholder input into data collection and impairment response document development.
Timeline:	Group formation and orientation: June 2010 Input on work plan design: June 2010 Input on acetochlor management strategies: December 2010 Input on data analysis and strategy development: December 2011 Review and comment on draft impairment response report: March - April 2012
Budget:	144 hours X $65 per hour = $9,360 ($3,120 in 2010, $3,120 in 2011 and $3,120 in 2012)
Source of funds:	MPCA

Activity 2:	Examine modeling information to characterize the nature of the acetochlor impairment.
Responsible party:	MDA in collaboration with the University of Minnesota.
On-going or impairment-specific:	This activity is in direct response to the acetochlor impairments.
Scope:	A project was initiated March of 2007 with University of Minnesota (UM) researchers using the Soil Water Assessment Tool (SWAT2005) to refine estimates of agricultural contributions to pollutant loads of the Le Sueur River watershed. Information on acetochlor use was obtained from surveys conducted by MDA with agricultural cooperatives in the region. The model has been calibrated and validated at various scales in which water quality data was available including the outlet of the Le Sueur River and the Little Beauford Ditch. These activities have provided insight into the circumstances contributing to the observed impairments. A final report was submitted September 2009.
End product:	Report
Timeline:	March 2007 to September 2009
Budget:	$80,000 (existing contract with the UM)
Source of funds:	MDA FY2007 Clean Water Legacy Funding (funds already allocated)

Activity 3:	Evaluate watershed modeling findings to develop recommendations for acetochlor management strategies.
Responsible party:	MDA in collaboration with UM and MPCA.
On-going or impairment-specific:	This activity is in direct response to the acetochlor impairments.
Scope:	A project was initiated in March of 2007 with University of Minnesota (UM) researchers using the Soil Water Assessment Tool (SWAT2005) to refine estimates of agricultural contributions to pollutant loads of the Le Sueur River watershed. Information on acetochlor use was obtained from surveys conducted by MDA with agricultural cooperatives in the region. The model has been calibrated and validated at various scales in which water quality data was available including the outlet of the Le Sueur River and the Little Beauford Ditch. These activities have provided insight into the circumstances contributing to the observed impairments. A second objective of the project is to evaluate various BMPs for acetochlor developed by MDA. A number of BMP scenarios were submitted to UM researchers. These scenarios included individual evaluations of the BMPs as well as combinations of BMPs. The comprehensive set of scenarios was simulated in the Little Beauford Ditch subwatershed. Based on those findings, a more refined set of scenarios has been recommended for model simulations conducted for the entire Le Sueur River watershed. A final report was submitted September 2009.
End product:	Report
Timeline:	March 2008 to September 2009
Budget:	Included in $80,000 budget for Activity 2
Source of funds:	MDA FY2007 Clean Water Legacy Funding (funds already allocated)

Activity 4:	Conduct watershed scale water quality monitoring to determine primary transport pathways and the spatial extent of acetochlor in the Le Sueur River and Little Beauford Ditch watersheds.
Responsible party:	MDA
On-going or impairment-specific:	This is an on-going activity conducted by the MDA through the Minnesota Pesticide Management Plan.
Scope:	Tier 3 intensive pesticide evaluation at the mouth of the Le Sueur River and at the mouth of Little Beauford Ditch using equal-time based composite sampling. Tier 1 and precipitation sampling at the Little Cobb River site near Little Beauford Ditch. See the current MDA Surface Water Monitoring Plan for details: www.mda.state.mn.us/monitoring.
End product:	Reports
Timeline:	On-going
Budget:	Analytical: $15,000 per year X 6years = $90,000 Staff: $15,000 per year X 6 years = $90,000 TOTAL: $180,000
Source of funds	Pesticide Regulatory Account managed by the MDA.

Activity 5:	Conduct sub-watershed scale water quality monitoring to determine primary transport pathways and the spatial extent of acetochlor in the tributaries of the Le Sueur River including the Little Beauford Ditch.
Responsible party:	MDA with assistance from MPCA.
On-going or impairment-specific:	This activity is in direct response to the acetochlor impairments.
Scope:	Collect and evaluate enzyme-linked immunosorbent assays (ELISA) for the analysis of acetochlor in surface water samples from the major tributaries of the Le Sueur River. The goal of this project is to evaluate this screening tool and provide data on the spatial and temporal distribution of acetochlor in the Le Sueur River Watershed. Data collected from this project when analyzed in conjunction with acetochlor use data should indicate if parts of the watershed are delivering disproportionate levels of acetochlor. As part of this project, the reliability and cost effectiveness of the acetochlor ELISA will be evaluated. By comparing split sample ELISA results with conventional gas chromatography mass spectrometry (GC/MS) or liquid chromatography tandem mass spectrometry (LC-MS/MS) results, a meaningful evaluation of the reliability of the methods will be possible.
End product:	Reports
Timeline:	April 1st, 2009 through October 31st, 2012
Budget:	Analytical: $5,000 per year (1 yr MDA, 3 yrs MPCA) Staff: In-kind MDA TOTAL: $5,000 MDA, $15,000 MPCA
Source of funds:	Funding for the 2009 ELISA analysis came from the Pesticide Regulatory Account managed by the MDA. Funding for 2010, 11, 12 will come from the MPCA.

Activity 6:	Collection of farming system information on acetochlor usage in the Le Sueur River and Little Beauford Ditch watersheds.
Responsible party:	MDA
On-going or impairment-specific:	This is an on-going activity conducted by the MDA through the Minnesota Pesticide Management Plan.
Scope:	Crop producer FANMAP survey of pesticide and BMP use coupled with similar surveys of watershed pesticide dealers, pesticide applicators, and crop consultants. Surveys will provide land use data to complement water monitoring. Survey organized around six subwatersheds: Lower and upper Little Le Sueur, lower and upper Cobb, lower and upper Maple.
End product:	Survey reports on pesticide and BMP use.
Timeline:	Pesticide dealer, et.al., surveys, June 2010, FANMAP surveys, November 2010 and November 2011 (tentative; final dates depend on multiple factors)
Budget:	<u>Survey of pesticide dealers, pesticide applicators and crop consultants</u> 25 interviews @ $150 per interview = $3,750 <u>FANMAP for pesticides: 200 farms</u> (200 farms is an estimate; the goal is a sample size large enough to provide significance at the subwatershed level.) FANMAP survey advance calls for 200 farms: 0.5 hours per survey X $50 per hour = $5,000 (potential for this to be done as an in-kind service) FANMAP survey of 200 farms @ $200 per farm = $40,000 Total for 200 FANMAP surveys (advance calls plus survey) = $45,000* <u>TOTAL for all survey work</u>: $48,750 * Note: FANMAP survey costs are for gathering information relative to pesticide use and herbicide BMPs. Survey costs would be greater if other information is gathered such as tillage, nutrient and manure management.
Source of funds:	MDA Pesticide Regulatory Account

Activity 7:	Collection of voluntary acetochlor BMPs use in the Le Sueur River and Little Beauford Ditch watersheds.
Responsible party:	MDA
On-going or impairment-specific:	This is an on-going activity conducted by the MDA through the Minnesota Pesticide Management Plan.
Scope:	BMP adoption tracking: A subgroup of 15 growers who are able and interested in expanding BMP use will be assisted and their success tracked over two seasons.
End product:	Annual reports on BMP adoption by participating growers.
Timeline:	2010 and 2011
Budget:	24 hrs per farm X 15 farms = 360 hours per year X $65 per hour = $23,400 per year X 2 years = $46,800
Source of funds:	MDA Pesticide Regulatory Account

Activity 8:	Evaluate effectiveness of reduced application rate BMP.
Responsible party:	MDA with assistance from the Acetochlor Registration Partnership (ARP) and local cooperators.
On-going or impairment-specific:	This is an on-going activity conducted by the MDA through the Minnesota Pesticide Management Plan.
Scope:	Evaluation of reduced acetochlor rate BMP on loss to tile water: Agricultural subsurface drainage tile have been instrumented and are being monitored at MDA demonstration farms for acetochlor and other water quality constituents in the Le Sueur River Watershed. Acetochlor monitoring will be limited to the years when acetochlor is applied to the fields being monitored (2007, 08, 10, 11). In addition the MDA has contracted with the University of Minnesota Southern Research and Outreach Center in Waseca to evaluate acetochlor movement to agricultural tile in a controlled setting at the plot scale (2008, 09, 10).
End product:	Reports
Timeline:	MDA Demonstration Farms: 2007, 2008, 2010, 2011 UM Southern Research Center: 2008, 2009, 2010
Budget:	Evaluation of reduced acetochlor rate BMP on loss to tile water: MDA QA/QC analytical: $5,000 per yr X 4 yrs. = $20,000 MDA staff: $10,000 per yr X 4 yrs = $40,000 MDA contract to UM for study management: $10,000 per yr X 3 yrs = $30,000 ARP staff and analytical: In-kind TOTAL: Not possible to calculate without cash figure for ARP in-kind.
Source of funds:	– Funding for the field demonstration portion of this activity will come from the Pesticide Regulatory Account managed by the MDA. – Funding for the UM study management will come from FY2008 MDA Clean Water Legacy Funding. – The ARP will fund the majority of acetochlor analytical lab costs.

Activity 9:	Evaluate effectiveness of vegetative filter strip BMP.
Responsible party:	MDA with assistance from the Acetochlor Registration Partnership (ARP) and local cooperators.
On-going or impairment-specific:	This is an on-going activity conducted by the MDA through the Minnesota Pesticide Management Plan.
Scope:	<u>Evaluation of vegetative filter strips BMP for removal of acetochlor, nutrients and sediment from cropland runoff</u>: Surface runoff potential and the effectiveness of vegetative filter strips as a BMP on side-inlets is being evaluated in coordination with the Acetochlor Registration Partnership (ARP). After a year of calibration, vegetative filter strips will be established on two of the four side inlets so that the affect of vegetative filter strips on acetochlor runoff can be measured (the other two inlets serving as untreated controls). In addition to acetochlor, runoff will be monitored for nitrate, phosphorous and suspended solids to assess the effectiveness of vegetative filter strips in reducing these pollutants in the Le Sueur River watershed.
End product:	Reports
Timeline:	2009 – 2013 (2009 – 2012 budgeted in this work plan)
Budget:	MDA analysis of nutrients and sediment: 100 samples per yr X $70 = $7,000 per yr X 4 yrs = $28,000 MDA staff: $10,000 X 4 yrs = $40,000 ARP equipment purchase and setup, field site, staff time and analytical: In-kind TOTAL: Not possible to calculate without cash value of ARP in-kind.
Source of Funds:	– Funding for MDA staff involvement in this ARP sponsored project comes from the Pesticide Regulatory Account managed by the MDA. – Funding for the nutrient and sediment analytical lab costs will come from MDA Clean Water Legacy Funding. – The ARP will fund most of the coordination, planning, equipment and all acetochlor analytical lab costs.

Activity 10: Develop an Acetochlor Impairment Response Report which lists acetochlor management strategies that are practical and provide reasonable assurance of preventing acetochlor water quality standard exceedances in the Le Sueur River and Little Beauford Ditch.

Responsible party: MDA

On-going or impairment-specific: This activity is in direct response to the acetochlor impairments.

Scope: The report will include:

– Review of how pesticide impairments have been approached in other states and rationale for approach taken in this document;	35 hrs
– An examination of the climate, geology, hydrogeology, soils, land use, and agriculture of the impaired watersheds;	35 hrs
– Characterization of acetochlor's fate and transport mechanisms;	80 hrs
– Characterization of acetochlor's role and use in the watersheds;	120 hrs
– Evaluation of acetochlor BMP use and effectiveness in the watersheds; and,	150 hrs
– Acetochlor management strategies that are practical and provide reasonable assurance of preventing exceedance of the acetochlor water quality standard in the Le Sueur River and Little Beauford Ditch.	180 hrs
TOTAL	600 hrs

End product: Acetochlor Impairment Response Report (described on page 3)

Timeline: November 2011 to May 2012

Budget: 600 hours X $65 per hour = $39,000

Source of funds: MPCA Clean Water Fund

VI. TIMETABLE

Year	2007				2008				2009				2010				2011				2012	
Quarter	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2
1: Stakeholder group input																						
Stakeholder group devel.																						
Work plan design input																						
Acetochlor mgt. strategy																						
Data review & strategy dev.																						
Review of draft report																						
2: Watershed modeling																						
3: Strategy dev. with model																						
4: Monitoring – Watershed																						
5: Monitoring – Sub/shed *																						
6: Farming system survey																						
Pesticide dealer visits																						
FANMAP surveys																						
7: BMP use expansion																						
8: Reduced rate BMP eval.																						
9: Filter strip BMP eval.																						
10: Develop report																						

VII. BUDGET – Activity by Year

	2007				2008				2009				2010				2011				2012				TOTAL
	ARP	MDA PRA	MDA CWL	MPCA	ARP	MDA PRA	MDA CWL	MPCA	ARP	MDA PRA	MDA CWL	MPCA	ARP	MDA PRA	MDA CWL	MPCA	ARP	MDA PRA	MDA CWL	MPCA	ARP	MDA PRA	MDA CWL	MPCA	
Activity 1 Stakeholder Groups																3,120				3,120				3,120	9,360
Activity 2 Watershed Modeling			26,667				26,667				26,666														80,000
Activity 3 Strategy Development							Incl. above				Incl. above														0
Activity 4 Monitoring Watershed		30,000				30,000				30,000				30,000				30,000				30,000			180,000
Activity 5 Monitoring Subwatershed										5,000						5,000				5,000				5,000	20,000
Activity 6 Farming Sys. Survey														24, 375				24,375							48,750
Activity 7 BMP Use Expansion														23,400				23,400							70,200
Activity 8 BMP Eval. Red. rates	In-kind	15,000			In-kind	15,000	10,000		In-kind		10,000		In-kind	15,000	10,000		In-kind	15,000							90,000 *
Activity 9 BMP Eval. Filter strip									In-kind	10,000	7,000		In-kind	10,000	7,000		In-kind	10,000	7,000		In-kind	10,000	7,000		68,000 *
Act. 10 Develop Report																				19,500				19,500	39,000
Partner Totals / Yr	In-kind	45,000	26,667	0	In-kind	45,000	36,667	0	In-kind	45,000	43,666	0	In-kind	102,775	17,000	8,120	In-kind	102,775	7,000	27,620	In-kind	40.000	7,000	27,620	605,310 *
Activity Totals / Yr	71,667				81,667				88,666				127,895				137,395				74,620				**605,310** *

BUDGET – Partner by Activity

		Activity 1 Stakeholder Groups	**Activity 2** Watershed Modeling	**Activity 3** Strategy Development	**Activity 4** Monitoring Watershed	**Activity 5** Monitoring Subwatershed	**Activity 6** Farm System Survey	**Activity 7** BMP Use Expansion	**Activity 8** BMP Eval. Red. rates	**Activity 9** BMP Eval. Filter strip	**Activity 10** Report Development	**PROGRAM TOTAL**
ARP	Acetochlor Registration Partnership								In-kind	In-kind		In-kind *
MDA - PRA	MDA – Pesticide Regulatory Account				180,000	5,000	48,750	46,800	60,000	68,000		408,550
MDA - CWL	MDA – Clean Water Legacy Fund		80,000	Incl. in #2					30,000			110,000
MPCA	Minnesota Pollution Control Agency	9,360				15,000					39,000	63,360
	ACTIVITY TOTAL	9,360	80,000		180,000	20,000	48,750	46.800	90,000 *	68,000 *	39,000	**581,910** *

* Total figures do not include cash value of ARP in-kind contributions, which are substantial.

MINNESOTA DEPARTMENT OF AGRICULTURE

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