WATERSHED PROJECT FINAL REPORT

SECTION 319 NONPOINT SOURCE CONTROL PROGRAM

303d WATERSHED PLANNING AND ASSISTANCE PROGRAM

SPONSOR

SOUTH DAKOTA ASSOCIATION OF CONSERVATION DISTRICTS

JULY 2010

This project was conducted in cooperation with the South Dakota Department of Environment and Natural Resources and the United States Environmental Protection Agency, Region VIII
Grants C998185-99, C998185-00, C998185-02, C998185-03, C998185-04 and C998185-08

EXECUTIVE SUMMARY

Project Title: 303d Watershed Planning and Assistance Project

Grants: C998185-99, C998185-00, C998185-02, C998185-03, C998185-04 and C998185-08

Project Start Date: May 02, 2003 Project Completion Date: June, 30, 2010

Funding:	Project Budget		$33,547,245
	Section 319 Grants	FFY 1999	$ 256,089
		FFY 2000	231,213
		FFY 2002	1,152,092
		FFY 2003	1,102,950
		FFY 2004	207,656
		FFY 2008	515,500
	Total Section 319 Grants		$ 3,456,500
	Section 319 Expenditures		$2,881,500
	Section 319 Match Accrued		$3,720,559
	Total 319 Expenditures		$6,602,059

SUMMARY OF ACCOMPLISHMENTS

The project goal was:

> "Accelerate the planning, design, and implementation of best management practices in selected 303d listed waterbodies in South Dakota."

The goal was attained by reaching objectives designed to provide information, and technical assistance landowners and local organizations need to implement BMPs using a local-state-federal partnership.

The assistance provided resulted in the design of BMPs that are expected to reduce nonpoint source pollution from 146 animal feeding operations; 10,000 acres of cropland; nearly 175,000 acres of pastures and grazing lands; and nearly 371,000 feet of restored, protected or stabilized riparian areas and streambank. The calculated reductions in nitrogen, phosphorus, and sediment prevented from reaching 303d listed waters in South Dakota by the BMPs installed are 1,979,420 pounds, 465,786 pounds and 114,440 tons respectively.

OTHER ISSUES

Project outcomes in addition to NPS pollution control include development of a:

- seamless mechanism to move from TMDL development to implementation,
- pool of trained resource specialist to implement 319 projects in South Dakota, and
- a "stronger" local – state- federal water quality partnership in the state.

ACKNOWLEGEMENTS

The 303d Watershed Planning and Assistance Project was developed and completed by a partnership that included local, state and federal agencies and organizations. While the South Dakota Association of Conservation Districts (SDACD) was the most visible because of its role as the lead project partner, the Association could not have successfully completed the tasks included in the workplan and attained the project goal without the participation and support of the partners listed below.

Belle Fourche River Watershed Partnership
Central Big Sioux Watershed Project – Segment 1
City of Sioux Falls
Dakota Central Resource Conservation and Development Council
East Dakota Water Development District
Eisenbraun Engineering
Hyde County Conservation District
Lake Campbell/Pocasse Implementation Project
Lewis and Clark Watershed Implementation Project
Lower Big Sioux Watershed Project – Segment 1
Lower James Resource Conservation and Development Council
Lower James River Watershed Implementation Project
Medicine Creek Watershed Project
Randall Resource Conservation and Development Council
South Dakota's conservation districts
South Dakota Department of Agriculture
South Dakota Department of Environment and Natural Resources
South Dakota Department of Game, Fish and Parks
South Dakota Discovery Center and Aquarium
South Dakota Grasslands Coalition
South Dakota Pheasants Forever
South Dakota State University
Turkey Ridge Creek Watershed/Vermillion River Basin Implementation Project
Upper Snake Creek Watershed Implementation Project
USDA Farm Service Agency
USDA Natural Resources Conservation Service
US Environmental Protection Agency
US Department of the Interior, Fish and Wildlife Service
US Geological Survey

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INTRODUCTION

The completion of projects in Total Maximum Daily Load (TMDL) watersheds would be expected to progress seamlessly from the watershed assessment to development of the TMDL through the implementation of the TMDL. However, this is the exception rather than the norm. Often, a lag occurs between completion of the TMDL and a project to implement the TMDL. This results in a loss of momentum and interest at the local level when nothing seems to be happening to improve an impaired lake or stream. It was hypothesized that making the process more seamless would address the challenge.

Many of the sites that will require construction of best management (BMPs) to reduce nonpoint source (NPS) pollution are known before the watershed assessment is finished and subsequent TMDL drafted. The 303d Watershed Planning and Assistance Project was initiated to provide a mechanism that renders the progression more seamless and "accelerates" implementation of BMPs in areas in 303d watersheds. The project, initiated during May 2003, provided the technical assistance needed to plan, obtain funding for, and construct BMPs in priority areas in 25 of the 39 waterbodies on the South Dakota 303d list at the time the project was selected for funding.

During the project period, the number of waterbodies assisted was expanded:

- in response to requests from DENR to provide technical assistance in additional TMDL watersheds and needs for assistance identified and
- by areas added in the continuation project workplan funded during 2008.

Additional workplan changes were made to:

- accommodate changes in assistance identified as the project progressed,
- extend the period for which assistance would be provided by the project, and
- provide funding for the assistance included in the continuation project workplan.

The TMDL watersheds and other areas served by the project are listed by South Dakota Association of Conservation Districts (SDACD) area in Table 2. The SDACD areas are shown in Figure 1. The table also provides:

- a comparison of the TMDL watersheds and special concern operations identified in the PIP(s) or added at the request of DENR to those served,
- the result/status of TMDL implementation in the watershed and areas served, and
- identifies conservation districts that were provided assistance.

Technical Assistance was provided by resource management specialists, agronomists, and an engineering firm. The engineering firm designed animal waste management systems in all project areas served. Nine resource management specialists FTEs were authorized by the first grant award; the second six which was later reduced to four of which 1.5 were for agronomists.

The service areas and specific duties of the specialists varied:

- with the number employed and assistance needs as outlined in the first award and continuation project implementation plans (PIPs) and
- as assistance needs changed during the project period.

The resource management specialists worked closely with the conservation districts and other resource management agencies and organizations. The specialists:

- provided technical assistance for the development of NPS strategies and TMDL implementation projects and
- contacted operators who managed sites identified as priorities for NPS pollution control to provide assistance with planning and installing BMPs.

The Lewis and Clark Watershed, Lower Big Sioux River, Turkey Ridge Creek/Vermillion River, and Medicine Creek TMDL implementation projects awarded Section 319 funding through DENR and the mentoring provided for the Spring Creek Project (Lake Campbell/Pocasse Watershed Implementation Project) and Upper Snake Creek Project are products of the NPS development assistance provided at the local and area level.

Assistance provided to land mangers by the resource specialists included:

- implementation of BMPs at sites identified as priority areas for NPS control and
- applying for cost share funds.

Assistance provided by the agronomists filled the nutrient management plan for AFOs assistance void that occurred after the completion of the 319 funded Animal Waste Management Team Project. The agronomists provided nutrient management plan implementation assistance to operators of existing systems. The assistance included services such as review/revision of existing plans, promotion of soil and manure testing, application equipment calibration and rate calculations, and record keeping.

The principal source of cost share funds accessed for BMP installation was the United States Department of Agriculture (USDA) Farm Services Agency's (FSA) Conservation Reserve (CRP), and Natural Resources Conservation Service's (NRCS) Environmental Quality Incentives (EQIP), Wildlife Habitat Incentives (WHIP), Conservation Stewardship, and Wetlands Reserve (WRP) programs. See Table 8 located in the Coordination and Public Participation section for other sources of cost share funds.

Determination of load reductions realized from the BMPs installed was added to the project as an evaluation of success activity with the approval of the continuation project PIP. If the BMP was installed in a watershed included in a 319 implementation project, the reduction was provided to the project coordinator for use in determining progress toward attaining the project's TMDL load reduction goals.

Press releases, direct mailings, a project web site, presentations, displays and personal contacts were used to make and keep producers and the state's residents aware of the project and assistance available. The project web site is located at:

http://www.sdconservation.org/local/watershed.html.

The total project grant increased by $515,500 to $3,465,500 with funding of the 2008 Continuation Project workplan. Required match also increased proportionately with the award of FFY 2008 funds.

During the period included in this report:

- $2,881,500 of the $2,950,000 allocated by the first grant award was expended,
- local project partners and landowners/operators contributed $3,720,459 toward the cost of BMP design and construction

The first grant award included funds from the FFY (federal fiscal year) 1999, 2000, 2002, 2003 and 2004 Section 319 Grants awarded to DENR by EPA. All funds from the 1999, 2000, 2002 and 2003 grants were expended. Unexpended funds totaling $68,500 from the FFY 2004 Section 319 Grant will be used during the continuation segment of the project.

The $3,720,459 contribution (local match) by local project partners and landowners/operators includes $104,160 from the East Dakota Water Development District and $158,330 expended by livestock producers to pay engineering fees associated with the design of animal waste management systems. The remainder is mostly from cash and inkind costs associated with installing BMPs developed with assistance provided through the project.

A comparison of planned versus actual expenditures appears in Table 9 in the Project Budget and Expenditures section of this report.

PROJECT GOAL and OBJECTIVES

Project Goal

The project goal was:

> "Accelerate the planning, design, and implementation of best management practices in selected 303d listed waterbodies in South Dakota."

The goal was attained by reaching objectives designed to provide the information and technical assistance landowners and local organizations need to implement the BMPs through a local-state-federal partnership. A description of the tasks completed to reach the objectives follows. The description includes a summary of the activities completed to accomplish the task and a comparison of milestones accomplished to planned.

Accomplishments by Task

The South Dakota Association of Conservation districts (SDACD) was awarded two Section 319 grants during the project period. The awards and project implementation plans (PIPs) are hereinafter referred to as the first and continuation project or second grant award.

The tasks outlined in the continuation grant award PIP were essentially the same as those for the first grant award. However, the number was reduced. This action was taken as many of the tasks in the first award PIP were, in reality, activities related to completing a task and to facilitate monitoring and reporting activities. The format used to describe task related activities in this section is based on the merged tasks as approved in the continuation PIP but shows milestone accomplishment in relation to both project awards. The task revisions are summarized in Table 1; objectives and tasks as approved in the first award PIP in Appendix A. The total milestones for each activity are shown in Table 6 located in the Evaluation and Relationship to the Management Plan Section of this report

Objective 1. Employ resource management specialist to assist landowners with planning and installing agricultural BMPs that reduce nonpoint source loads reaching selected 303(d) waterbodies.

Task 1. Maintain a trained project staff.

Milestones: 2003 Grant Award - Nine trained, NRCS Certified, 319 funded full time equivalencies (FTEs).
2008 Award – Six trained, NRCS Certified employees with 2.5 319 funded (1.0 resource specialists; 1.5 agronomists).
Total – Not Applicable

Accomplished: Project completed within the authorized number of FTE. All staff members trained, awarded NRCS certification and attended 319 project coordinator training.

Table 1. PIP Consolidation – First Award → Continuation Project.

Continuation Project PIP (FFY 2008)		First Award PIP (FFY 2003)	
Objective	**Task**	**Objective**	**Task**
1	1	1	1, 2.
2	2	2	3, 4, ,
		3	6, 7, 8, 10, 11
		5	15
	3	3	9
	4	5	15
3	5	3	5
4	6	4	12, 13

The number of resource specialists employed varied within the number of 319 funded FTEs authorized. Nine were authorized by the first grant award; four the second (increased from 2.5). The service area (Figure 1) and specific duties of the specialists varied with the number employed and assistance needs as outlined in the project PIPs and that evolved during the project period. For example, in the continuation PIP:

- providing conservation districts in the Missouri River Corridor with assistance to plan NPS abatement strategies was assigned to the Prairie area specialist
- all staff members were required to be NRCS certified nutrient management specialists.

One of the nine employees served as the program manager for this and other SDACD 319 funded technical assistance projects which included the:

- Animal Waste Management Project,
- NPS Buffer Planning and Assistance Project, and
- Grassland Management and Planning Project.

The manager position was eliminated during the latter portion of the project period when the number of staff members employed and the nature of the assistance provided no longer justified the expenditure of project funds for the position.

Staff reductions needed to stay within the authorized number of FTEs was often possible through attrition. The most common reason an employee left was employment with other watershed projects or conservation agencies. For example, the Natural Resource Conservation Service (NRCS) found project staff members excellent candidates for full time employment because of the training and field experience received during their tenure with the project.

NRCS provided SDACD project employees with access to the agency's training programs, computer support and access to the USDA computer network which includes conservation planning tools.

Providing staff for watershed projects was an unexpected project outcome. Offering project sponsors with this staffing option resulted in a pool of trained resource specialists being available from project start to finish and transfer to new projects.

Providing a watershed project coordinator was by contractual agreement between the watershed project sponsor and SDACD. In most instances, the staff member had a split appointment with:

- One-fourth to one-half of the FTE being funded by staffing agreements with a watershed project sponsor and
- the remainder through a combination of this project and NRCS Cooperative Agreement funds to provide assistance over a wider area and access to funding and practices not readily available through a watershed project.

The Grasslands Management & Planning Assistance, Lewis and Clark, Lower Big Sioux River, Turkey Ridge Creek/Vermillion River, Upper Snake Creek, and Medicine Creek Watershed projects entered staffing agreements with SDACD. The Upper Snake Creek agreement was entered to assist the project sponsors with resolving challenges associated with project start up. The agreement was terminated when the challenges were addressed and one of the local project partners agreed to employ and provide support services for a project coordinator.

SDACD partnered with the Natural Resource Conservation Service (NRCS) to provide project employees with:

- training so that plans developed were certifiable by NRCS and therefore eligible for USDA cost share funds.
- access to the NRCS computer network to facilitate use of the agency's planning and conservation practice tracking programs.

NRCS training included conservation planning, TOOLKIT, cultural resource assessment and refresher courses as needed but at least every three years. All staff members earned NRCS Certified Nutrient Management Planner status and maintained the certification by preparing a minimum of one nutrient management plan each year.

Project staff members also attended 319 project coordinator training sponsored by the Department of Environment and Natural Resources (DENR). The training included the agency's 319 program strategies, grant management and load reduction determination.

Table 2. TMDL Watersheds and Other Areas Served.

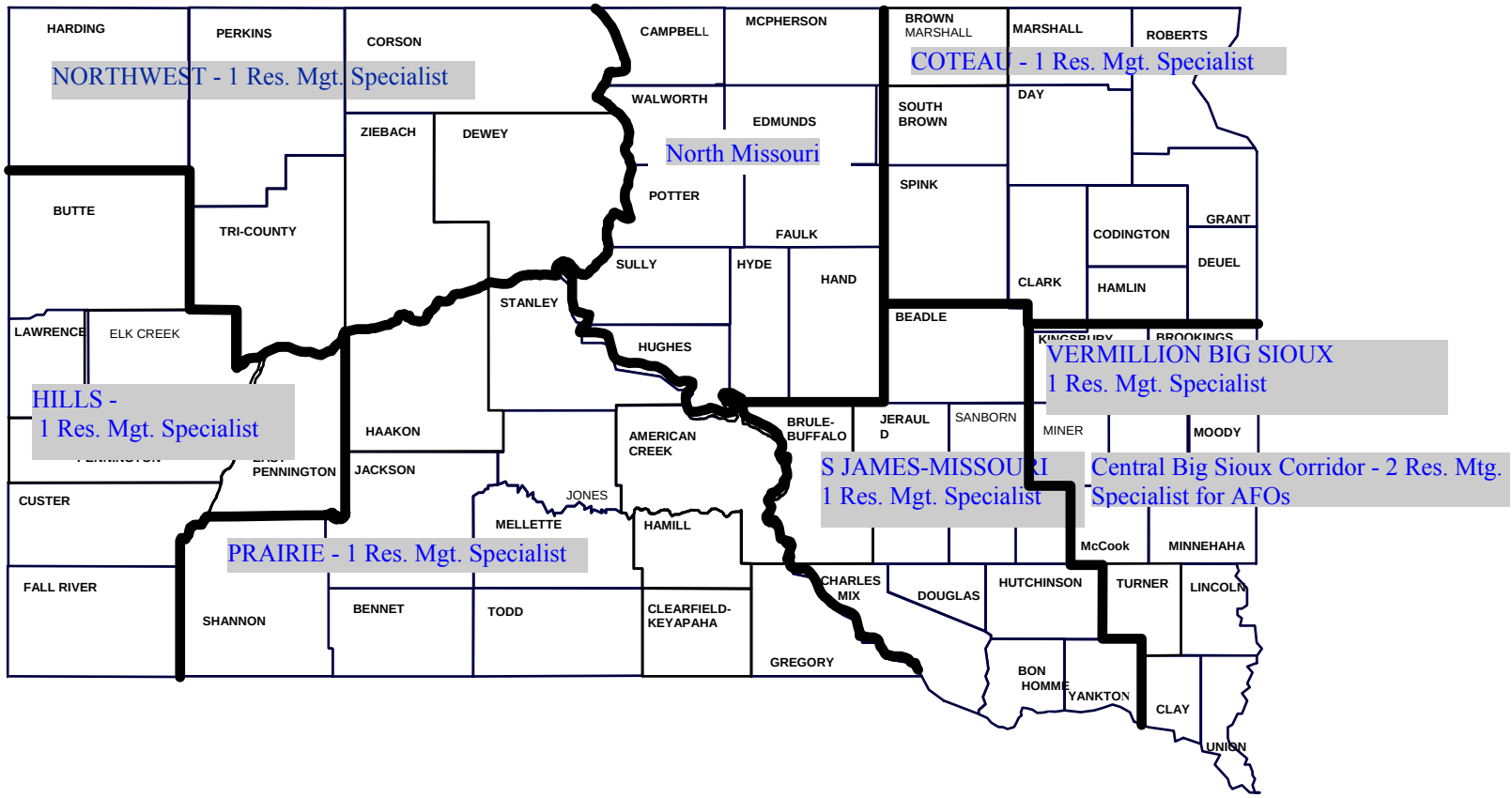
TMDL Watershed/Other Areas by SDACD Area		Included in Project by			Assistance Provided	
Watershed/Other Area	Conservation District	1st Award PIP	2nd Award PIP	DENR Request.	Y/N	Status/Result
Coteau Area						
NE Glacial Lakes Watersheds	Marshall, Roberts			X	Y	NE Glacial Lakes Watershed Improvement Project
Nine Mile Lake	Marshall	X				
South Buffalo Lake	Marshall	X				
South Red Iron Lake	Marshall	X				
White Lake	Marshall	X				
Hills Area						
Bell Fourche River	Butte, Meade	X			Y	Belle Fourche River Watershed Management Project - Accelerated TMDL Implementation; 90,000 grassland acres inventoried and management plans developed.
Bear Butte Creek	Elk Creek (Meade)	X			Y	
Missouri River Corridor						
Conservation Districts bordering both sides of the Missouri River in SD	Campbell, Walworth, Potter, Sully, Hughes, Buffalo, Brule, Charles Mix, Corson, Dewey, Stanley, Lyman, Gregory			X	Y	Lake Campbell/Pocasse (Spring Creek) and American Creek Projects developed; Threatened Habitat Enhancement (grass & wetlands enhancement) Program in Lyman, Jones and Stanley Counties.
Northwest Area						
Coal Springs Reservoir	Perkins	X			N	Desisted - TSI
Dewberry Dam	Dewey	X			N	No Activity - TSI
Flat Creek	Perkins	X			N	No Activity
Lake Isabel	Dewey	X			Y	Assessment Initiated
Prairie Area						
AFOs Rosebud Cattlemen's Assoc.	Clearfield-Keyapaha, Gregory, Hamill			X	Y	58 plans developed; Added to Lewis and Clark Watershed Imp. Project.
Brakke Dam	American Creek	X				Medicine Creek Watershed Implementation Project completed.
Byre Lake	American Creek			X		
Fate Dam	American Creek	X				
Freeman Lake	Jackson	X			Y	TMDLs approved; grazing systems developed with assistance from Grasslands Project,
Hayes Lake	Stanley	X			Y	
Lake Waggoner	Haakon	X			Y	

Table 2. TMDL Watersheds and Other Areas Served. (Cont'd.)

Medicine Creek	American Creek, Jones		X	X	Y	Medicine Creek Watershed Implementation Project; 2 Parameters delisted.
South James Area						
Academy Lake	Charles Mix	X			Y	Lewis & Clark Watershed Implementation Project developed
Lake Andes	Charles Mix	X				
Lewis & Clark Assessment Project	Charles Mix,		X	X		
Corsica Lake	Douglas	X				
Dante Lake	Charles Mix	X				
Geddes Lake	Charles Mix	X				
Lake Platte	Charles Mix	X				
Lower James River Watershed Project	Aurora, Hutchinson, Yankton		X	X		
Vermillion/Big Sioux						
Lake Preston	Kingsbury	X			Y	Turkey Ridge Creek/Vermillion River Basin Implementation Project developed.
Lake Thompson	Kingsbury	X				
Turkey Ridge Creek Watershed	Turner			X		
Vermillion River Watershed	Clay, McCook, Union			X		
Whitewood Lake	Kingsbury	X				Delisted
Central Big Sioux River Corridor						
AFOs – Watertown to Brandon	Brookings, Clark Codington, Deuel, Hamlin, Lincoln, Moody, Minnehaha	X			Y	Provided assistance to Central Big Sioux Watershed project.
Lower Big Sioux River	Union, Lincoln			X	X	Lower Big Sioux Watershed Implementation Project developed.
Statewide						
AFOs on Complaint Basis*	Butte , Custer, Union, Codington, Lincoln, Hutchinson, Jackson, Lyman, Pennington, Fall River			X	Y	Sixteen operators assisted with controlling NPS pollution originating from an AFO.AWM .

* Referred by DENR for determination of complaint validity and to offer options for voluntary compliance.

Figure 1. TMDL Watershed Service Areas



Objective 2. Plan/design and assist with arranging for the installation of BMPs in 303(d) Watershed areas.

Task 2. Develop BMP installation plans/designs in target areas identified by assessment projects and /or models.

Milestone: Priority areas maps
2003 Grant Award – (Number not specified)
2008 Grant Award – Three priority areas maps
Total – Not Applicable

Accomplished: Seven maps plus additional priority site information

Milestone: Landowner Contacts (1 contact = a meeting with a producer)
2003 Grant Award – 1,200
2008 Award – 200
Total – 1,400

Accomplished: 10,426

Milestones: Assistance as requested by conservation districts
2003 Grant Award - Number not specified
2008 Award – Number not specified
Total –Not Applicable

The resource specialists identified sites for BMP installation using information provided by DENR and assessment project coordinators. The information provided the location of priority areas (cells) and animal feeding operations (AFOs) in TMDL watersheds and other service areas The information was usually in the form of maps generated from the Annualized Agricultural Nonpoint Source (AnnAGNPS) modeling of the watershed.. With this knowledge, the resource specialists were able to focus BMP development assistance on sites where maximum load reduction benefits would be realized.

Priority maps provided by DENR and assessment project coordinators for the TMDL watersheds that progressed from assessment to implementation included:

- Turkey Ridge Creek/Vermillion River Basin Implementation Project,
- Medicine Creek Watershed Project,
- Lake Campbell/Pocasse Watershed Implementation Project
- Lewis and Clark Watershed Implementation Project,
- Lower Big Sioux Watershed Project – Segment 1,
- Lower James River Watershed Implementation Project, and
- Upper Snake Creek Watershed Implementation Project.
- Belle Fourche River Watershed Project
- Northeast Area Lakes Project

Priority areas were also identified by other sources which included:

- the Grasslands Management and Planning Project,
- local conservation districts,
- the DENR Surface Water Quality Program, and
- NRCS district conservationists and specialists.

If land management changes occurred at a priority site during the interval between identification and the initiation of BMP planning, project staff reassessed the potential for load reduction. This practice was standard procedure for AFOs. The reassessment was completed using the ANNAGNPS feedlot ranking subroutine during the initial visit with the feedlot operator.

The NRCS TOOLKIT program was used for all planning activities. Plan information was entered into the NRCS data base and Program Contacts System (PROTRACTS). The location of the BMPs was mapped using ARCVIEW during the initial project stages. The mapping was changed when entry of project data into the DENR Project Management System (TRACKER) was initiated during the later stages of completion of the first grant award workplan as amended.

The resource specialists and agronomists worked closely with the conservation districts and other resource management agencies and organizations. The partnerships were essential to:

- identifying land managers in the priority areas,
- assisting with making the initial contact, and
- coordinating delivery of assistance available from the agencies.

The resource management specialists contacted landowners and operators in the project areas served to offer assistance with:

- implementation of BMPs at NPS control priority sites and
- application for cost share funds to offset expenses to install the BMPs.

The 10,426 landowner contacts exceed the project milestone of 1,400 nearly 7.7 fold. The contacts resulted in development of 1,536 funding ready plans of which 1,249 were funded and installed by the operators (Table 3). The totals include 170 plans for AWMS of which 90 were constructed. The installed numbers are expected to increase to 1,429, of which 146 are AWMS, as plans developed are implemented. Many of the plans not completely implemented were developed during the later portion of the period covered by this report.

When the total contacts are considered in relation to the number of implemented plans, the data indicates that the average number of contacts with a producer required to complete all planning and implementation activities is seven to eight. Although the number of contacts by specific BMP was not tracked, anecdotal information indicates

that the number of contacts required to plan and construct an AWMS or complex grazing management plan is two to three times the average.

Based on the seven to eight contacts required/BMP installed during this project, it is suggested that this number should be considered by TMDL implementation project planners when developing a project implementation plan.

When requested, the resource specialists:

- assisted conservation districts with formulating strategies, finding resources, and drafting applications for NPS projects in 303(d) water bodies not addressed elsewhere in the project work plan.
- contacted operators of AFOs that DENR identified as possible sources of NPS pollution
- provided AWMS design/funding package development assistance to operators of AFOs in the Rosebud Cattlemen's Association membership area.

The agronomists provided nutrient management plan technical assistance to operators of systems constructed with assistance from both this project and existing systems.

Project staff provided more than 50 of the state's 69 conservation districts with BMP planning and installation assistance during the project period (Table 2). Technical assistance was also provided to most of the remaining districts. The assistance was often related to information and education or providing an AFO owner with options for voluntary compliance. Assistance to districts also resulted in the development of three watershed implementation project proposals.

The number of BMPs planned and installed by TMDL status is shown in Table 3; location of the BMPs in Figure 3. Inclusion in a TMDL watershed status subcategory is determined was follows:

- 319 Project – the BMP was in a priority TMDL watershed that was incorporated into a watershed implementation area during the project period.
- other TMDL Watershed – The BMP is in a TMDL priority watershed that was not in an implementation project area at the end of the project period.

Practices used to develop the BMPs are listed in Table 4. Descriptions of the practices are found in the USDA FSA standards for the conservation practices and NRCS electronic Field Office Technical Guide (fotg). The guides are available by accessing fsa.usda.gov and nrcs.usda.gov respectively.

While BMP planning and installation assistance was provided the majority of the state's conservation districts, most of the assistance was directed to the 25 TMDL watersheds identified at the beginning of the project period. See Table 1 and Figure 1.

The Lewis & Clark, Lower Big Sioux River, Turkey Ridge Creek/Vermillion River, Medicine Creek, and Lower James River TMDL implementation projects awarded Section 319 funding through DENR were products of the planning assistance provided at the local and area level.

Table 3. BMPs Planned/Installed.

BMP	TMDL Status	Planned	Installed	Installation Expected	
		Number	Number	Number	Units
Ag Waste System (Includes Clean Water Diversions; all systems have a nutrient management plan)	319 Projects	139	81	118	87,620 AU
	Other TMDL Watersheds	31	9	28	6,884 AU
Total		170	90	146	94,504 AU
Conservation Tillage	319 Projects	50	48	49	5,847 Ac
	Other TMDL Watershed	3	3	3	275 AC
Total		53	51	52	6,122 Ac
Critical Area Planting	319 Project	439	427	434	2,997 Ac
	Other TMDL Watershed	106	77	105	750 Ac
Total		545	504	539	3,747 Ac
Grassed Waterways	319 Projects	4	3	4	5,568 Ft
	Other TMDL Watershed	0	0	0	0
Total		4	3	4	5,568 Ft
Grazing Management	319 Projects	181	123	172	169,327 Ac
	Other TMDL Watershed	32	17	30	5,497 Ac
Total		213	140	202	174,824 Ac
Wetlands Restored/Constructed all Watersheds[1]					
Nutrient Management	319 Projects	15	10	10	53
	Other TMDL Watershed	0	0	0	0
Total		15	10	10	53
Riparian Restoration/Protection Including Bank Stabilization	319 Projects	449	368	392	362,460 Ft
	Other TMDL Watershed	22	20	22	8,184 Ft
Total		471	388	414	370,644 Ft
Sediment Trap	319 Projects	60	59	57	1,387 Ac
	Other TMDL Watershed	5	4	5	84 Ac
Total		65	63	62	1,471 Ac
Total all BMPs	319 Projects	1,337	1,119	1,236	
	Other TMDL Watershed	199	130	193	
		1,536	1,249	1,429	

1- Data provided by project resource specialists and NRCS indicates that approximately 1,400 acres wetlands were restored/constructed using Conservation Reserve Program (CRP) funds in areas served by the project during the years 2004 – 2009. Nearly half of the total was constructed to restore/protect riparian areas in marginal pasture lands and in the development of grazing systems; the remainder in other riparian restoration/protection efforts.

Table 4. Practices Used to Develop BMPs.

BMP	Practices[1]
Ag Waste System	CP313[2], CP342, CP350, CP362, CP380, CP382, CP500, CP590
Critical Area Planting	CP342, CP380, CP393, CP412, CP515, CP595, CP612
Grazing Management	CP314, CP328, CP380, CP382, CP472, CP512, CP516, CP528A, CP595, CP612, CP614, CP642
Wetland Restoration	CP,327, CP342, CP382, CP393, CP472, CP644, CP657, CP659
Wetlands Constructed	CP8
Clean Water Diversion	CP342, CP362
Nutrient Management	CP328, CP595, CP590
Sediment Trap	CP350
Riparian Restoration/Protection Includes Bank Stabilization	CP5A,CP8A,CP16,CP18B, CP21, CP23, CP23A,CP25, CP27, CP28,CP30, CP33, CP36, CP37,CP38E

1 See Appendix B for Key to Practices. 2 CP – Conservation Practice. All CPs funded by Conservation Reserve Program. CP + 1 or 2 digits funded through NRCS; CP + 3 digits funded through FSA

The Rosebud Cattlemen's Association membership area is located in Gregory and Tripp Counties. Members of the association determined that becoming players in value-added livestock production would require operational changes. And, that many of the changes would result in development of backgrounding and feeding areas that may be classed as AFOs. Based on this knowledge, members of the association elected to act proactively and requested assistance with installing NPS controls as operational changes were instituted.

The assistance provided resulted in a stronger partnership between a producer group and governmental assistance providers, greater acceptance and understanding of state/federal regulatory issues, and improved water quality through the development of plans to construct 58 nutrient management systems. Of this number, at least 40 are expected to be installed.

Task 3. Project staff will assist with development of a funding package.

Milestones: Funded and installed BMPs
2003 Grant Award – 450 (=90 percent)
2008 Grant Award – 80 (=80 percent)
Total – 530 (= 88.3 percent)

Accomplished: 1,249 BMPs installed (=81.2 percent of plans developed); expected to increase to 1,429 (= 95.2 percent).

Milestones: AWMS (AFOs) Funded and installed
2003 Grant Award – 55 in Central Big Sioux; 27 other project areas
2008 Grant Award -8 AWMS (AFOs)
Total – 90 AWMs (AFOs)

Accomplished: Total – 90 funded and installed. Central Big Sioux – 11; 70 other 319 project areas; 9 other TMDL watersheds. Total expected to increase to 146 = 13, 105 and 28 respectively.

Cost share funds were accessed from local, state, and federal sources. The source of funds was selected using fit-to-program criteria, availability in a timely manner, and the operator's preference and compatibility program criteria with his operation.

Examples of cost share fund sources accessed include:

- USDA Farm Services Agency's (FSA) Conservation Reserve (CRP)
- USDA Natural Resources Conservation Service's (NRCS) Environmental Quality Incentive (EQIP), Wetlands Reserve (WRP), Wildlife Habitat Incentive (WHIP), and Grasslands Reserve (GRP) programs
- South Dakota Natural Resources Conservation Grants
- Section 319 Implementation Project Grants
- SD Pheasants Forever
- US Department of Interior (USDI) Fish & Wildlife Service Wildlife Programs (North American Wetland Conservation Act and Partners for Wildlife)
- SD Dept of Game, Fish & Parks (GFP) wildlife programs
- Ducks Unlimited
- East Dakota Water Development District
- City of Sioux Falls

See Table 9 located in the Coordination and Public Participation section for additional sources of cost share funds.

The number of BMP plans prepared by the resource specialists that were funded/installed is shown in Table 3. The data shows that 81.2 percent of the plans developed have been installed. Installation level is expected to reach 95.2 percent when the remainder of those projected to be completed are installed. When AWMS are subtracted from the totals these installation levels equal 84.8 and 94.9 percent respectively. It is suggested that differences are related to the number of systems planned for the Rosebud Cattlemen's Association area.

Assistance provided to animal feeding operation owners and mangers resulted in the development of 170 AWM construction plans with 13 of those in the Central Big Sioux River corridor; 126 in other 319 implementation project areas and 31 in other TMDL watersheds.

AFO operators were initially required to contribute 15 percent toward the cost of developing the design to ensure commitment to use the plan to construct a system. The 15 percent contribution requirement was increased to 25 percent early in the project period. DENR requested the increase so that the operator's contribution was the same as for other animal waste management design assistance programs offered in South Dakota.

Design services were provided by private contractor and the NRCS Animal Nutrient Management Team. The private contractor was selected using a request for proposals While obtaining services from four engineering firms was planned, it was determined that one firm could service the number of requests for design assistance. Challenges that resulted from this decision are discussed in the Results and Recommendations section of this report.

Livestock feeding operations referred for assistance were reassessed using the ANNAGNPS feedlot subroutine during the first visit by the project resource specialists. After reconfirming the need to construct an AWMS, the specialist coordinated the design and construction through either the private sector engineering firm or the NRCS Nutrient Management Team. Use of the team's services was directed to systems that would use EQIP funds for construction and limited by the number of designs the agency could allocate to 319 projects each year.

During the later stages of the project period, the contract with the private firm expired and producers selected an engineering firm of their choice subject to concurrence with the selection based on NRCS technical assistance provider status or inclusion on the list of firms on the DENR web site.

Ninety of the systems designed have or are in the process of constructing an AWMS with a nutrient management plan. Eleven of the systems are located in the Central Big Sioux Corridor, 70 in other 319 implementation project areas and 9 in other TMDL watersheds.

The project exceeded the statewide construction milestone but fell short of the benchmark for the Central Big Sioux River Corridor. The reason for not meeting the Central Big Sioux milestone was attributed to producer uncertainty regarding financial and long-term operation projections. During the Lower Big Sioux Project pre-implementation phase, several producers in the area between Sioux Falls and Sioux City expressed interest in constructing animal waste systems. Construction of those systems will occur during the implementation phase of the Lower Big Sioux Project.

Load reductions realized from the BMPs installed in TMDL watersheds are included in the reductions reported for the watershed project area in which the practice is located. The location of the BMPs installed was entered in DENR's 319 project management program (Tracker) and used to produce the maps shown in Figure 3.

Task 4. Assist conservation districts with preparing strategies to abate nonpoint source problems in the Missouri River corridor.

Milestones: Applications for watershed implementation project funding
2003 Grant Award – NA
2008 Grant Award – Two
Total – Two

Accomplished: Two project workplans developed; interest in an additional two plans.

The Lewis and Clark, Lower Big Sioux River, Turkey Ridge Creek/Vermillion River, and Medicine Creek TMDL implementation projects awarded Section 319 funding through DENR are products of the NPS development assistance provided at the local and area level.

Two implementation project workplans were developed for watersheds located in the Missouri River Corridor with assistance from project staff. Project staff:

- mentored the Lake Campbell/Pocasse Watershed Implementation Project (Spring Creek) coordinator during the development of a project workplan,
- assisted the Brule-Buffalo Conservation District with development of a watershed project for American Creek in Brule and Aurora Counties, and.
- initiated activities to determine if interest for implementation projects for the Little White River and the mouth of the Cheyenne River can be moved forward.

Objective 3. Implement a Public Outreach Program

Task 5. Create an awareness of project goals and objectives through media presentations using local news sources, mailings, and web based information.

Milestones: Workgroup meetings/News articles/Web page
2003 Grant Award -24 /56/1
2008 Grant Award -6/8/1
Total – 30/64/2

Accomplished: 70 Workgroup meetings/60 News articles/2 web pages.

An outreach program was used to inform producers and the state's residents of the project and assistance available. Data provided by the project's resource specialists indicate that more than 15,300 acres of BMPs were installed as a direct result of the outreach activities. The BMPs installed resulted in reducing NPS pollution to lakes and streams from nitrogen by nearly 19,000 pounds, phosphorus 2,800 pounds and sediment by more than 1,400 tons. The BMPs installed and reductions realized are included in with data for BMPs and load reductions that appear in other sections of this report.

Outreach activities included: press releases, direct mailings, a project web site, presentations, displays, workgroups meetings and personal contacts. The activities are described below and summarized in Table 5. See Objective 2, Task 2 for additional information regarding the number of personal contacts.

A press release was sent to 124 newspapers at the beginning of the project to announce the services available. During the project period, more than 60 press releases and conservation newsletter articles were published in the project areas. Two of the articles were the result of interviews initiated by the Sioux Falls Argus Leader. The Argus has the largest circulation of papers in SD, reaching readers across the state. The articles were about water quality and feedlots in the Central Big Sioux River Watershed.

Another article that had statewide coverage was printed in the SD Farm Bureau's publication. The article resulted in information describing AWMS design and construction reaching the SD Bureau's 1,500 members.

Displays or presentations were set-up or given at more than 50 events sponsored by resource management agencies, conservation districts, resource conservation and development councils, and commodity groups and at universities, technical institutes, public schools, range clinics and farm shows.

The majority of the displays and presentations at commodity group-sponsored functions centered on AWMS design and construction cost share assistance. Water quality and careers were the main topics of presentations at schools and institutions of higher learning

Direct mailings were found to an effective tool for making producers aware of assistance available through the project. When a new TMDL area was added to the project, participation was found to increase following a direct mailing whereas an article in the print media generated a lesser response

Cold calls were found to be more effective than direct mailings in creating awareness that resulted in BMP installation. Direct contacts made using a referral from a conservation district, producer group or USDA agency increased the likelihood the contact would result in a BMP being planned and installed.

During the project period, staff attended 70 meetings sponsored by workgroups, and organizations to assist with planning activities and provide information about how to access assistance available through the project. Workgroup planning sessions were most often held to assist conservation districts and watershed project steering/advisory committees with project development and implementation. Project staff provided presentations or displays at the SDACD annual convention and area meetings, producer group meetings, USDA State Technical Committee and subcommittees, SD NPS Task Force, and SD Conservation Commission meeting; range clinics, farm tours and schools.

During the project period SDACD entered a partnership to increase the resource management capacity of local watershed workgroups and private landowners using funds provided by the SD 319 Information and Education Project minigrant program, SD Natural Resource Conservation Fund, and the USGS; the SD Watershed Boundary Dataset (WBM) was made available on Google Earth at:

http://sd.water.usgs.gov/projects/GoogleHUCSSC/GoogleHUCSSC.html

The association's project partners included the:

Hyde County Conservation District,
South Dakota Conservation Commission,
SD Discovery Center and Aquarium,

South Dakota Departments of Agriculture and DENR,
USDA NRCS,
US EPA, and
US Geologic Survey

A project web suite was developed and periodically updated during the project period. Site design and maintenance was completed by SDACD's web master. The web site is located at:

http://www.sdconservation.org/local/watershed.html.

Persons accessing the site were able to learn about the project, technical and financial assistance available, how to request assistance, and other sources of resource management information. Figures 2a, 2b and 2c show the site home page and the pages that are accessed if a site visitor clicks on "Watershed Project Coverage Areas" and then an area on the map listing served areas. The page that appears for each coverage area includes a brief description of the area and water quality, TMDL watersheds in the area, and a profile and contact information for the assigned resource management specialist.

The site was:

- activated September 9, 2001,
- available except for brief periods when offline for maintenance, and
- accessed nearly 217,500 times during the project period.

While data is not available to assess how effective a tool the web site was relative to project success, project staff reported that several producers told them that they learned about the project and requested assistance with BMP planning and installation after accessing the web site.

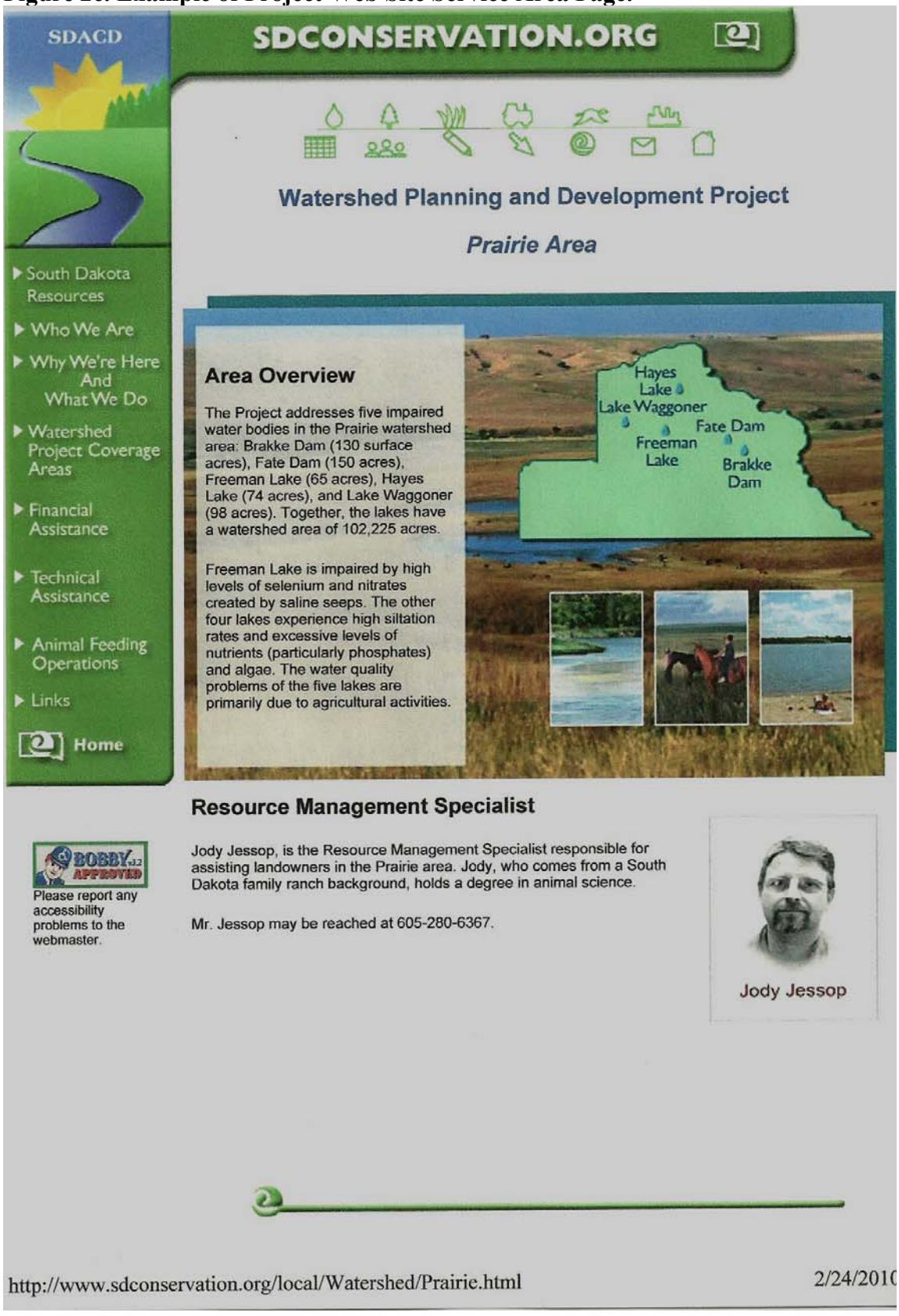
Table 5. Summary of Outreach Activities.

Activity	Coverage	Purpose	Result
New Releases and Newsletters/Bulletins	One Statewide TMDL project and conservation districts	Project awareness and information regarding assistance	Greater than anticipated BMP installations levels.
Direct Mailings	Area specific	Notify producers of assistance available.	Most effective tool for generating requests for assistance.
Web Site	Internet	Project Awareness; Request Assistance	Accessed nearly 217,500 times. Greater than anticipated BMP installation levels.
Workgroup Meetings	Conservation districts and/or project area	Project planning and workplan implementation	Five TMDL project requests; local and industry support; greater than anticipated BMP installation levels.
Presentations	Presentation specific	Project awareness and information; water quality information and career opportunities	Water quality information to students; applications for employment; greater than anticipated BMP installation.

Figure 2a. Project Web Site Home Page

Figure 2b. Project Web Site Service Areas Home Page.

Figure 2c. Example of Project Web Site Service Area Page.



Objective 4. Document project progress and success in meeting project goals.

TASK 6. Monitor project progress and evaluate success.

Milestones: 2003 Grant Award – Submit semi-annual GRTS reports to DENR prior to March 30 and September 30 of each year - Load reductions not required; BMP location map(s)
2008 Grant Award – Submit annual GRTS reports with load reductions by October 15; BMP location map(s)
Total – Seven mid-year reports; seven Annual reports

Accomplished: All required reports submitted

Information was collected to monitor progress toward meeting workplan milestones, prepare reports and build partnerships; and evaluate success in attaining the project goal. Information collected is included with the related task or report section indicated below unless otherwise indicated elsewhere in this report.

Project activities monitored included:

- On-farm visits and landowner/operator contacts (Task 2),
- Workshop and tour attendance (Task 5),
- News releases and other media contacts (Task 5),
- Presentations/attendance at meeting where project activities were discussed (Task 5),
- Implementation of BMPs (Task 2),
- Load reductions and water quality impacts from BMPs installed (Monitoring Results Section),
- Project expenditures (Budget Section),
- Local cash match and in-kind contributions (Budget Section), and
- Success/challenges encountered using consulting engineers (Task 2 and Results and Recommendation Section).

Reports prepared using the information included mid-year and annual GRTS reports, progress reports for SDACD's project partners and a final report (Task 7). The mid-year and annual reports were prepared using a format provided by DENR.

During the project period, the requirement to submit mid-year reports was changed to required only if the project was behind schedule. The requirement change is noted in the accomplished column in the milestone comparison (Table 6) in the Evaluation and Relationship to the Management Plan section of this report.

During the project period, an annual report was submitted each year using the format provided by DENR. Staff changes resulted in a delay in filing the FFY 08 report and load reductions being included in the FFY 09. Corrective actions were taken to address the challenges and reporting requirements were brought on schedule.

Maps showing the location of the BMPs installed as a result of assistance provided by project staff are shown in Figures 3a – 3g. The maps were prepared using the mapping function in the DENR project management program (Tracker). The area shown on each map corresponds to the project service areas shown in Figure 1.

Because of staff turnover and the associated data transfer challenges that resulted, especially during the early part of the project period, the location of and load reductions from some BMPs could not captured for inclusion in this report.

As responsibility to report load reductions was added by the Continuation PIP, reductions were first reported as part of the FFY 2009 annual report. The reductions were calculated using the Spreadsheet Tool for Estimating Pollutant Loads (STEPL). The program, developed by EPA Region V, was accessed through DENR's web based 319 Project Tracking Program. To avoid double reporting, only load reductions for BMPs installed outside of watershed project areas were included with the project annual report.

Tables 7 and 8 located in the Monitoring Results section of this report contain data regarding the load reductions installed in project areas and total load reductions realized from all BMPs installed with project assistance respectively.

Task 7. Prepare a final report using guidance provided by DENR.

Milestone: Final Report submitted by June 30, 2010

Accomplished: Interim final report for first grant award project period as amended submitted on schedule

The report was completed and submitted on schedule using guidance provided by DENR. The submission included both a print and an electronic copy.

The association's project partners were notified that the report is available by accessing the DENR web site using the association's communications network. The network includes electronic messages to the conservation districts and organization and agency partners and reports.

Figure 3a. Location of BMPs Installed – Coteau.

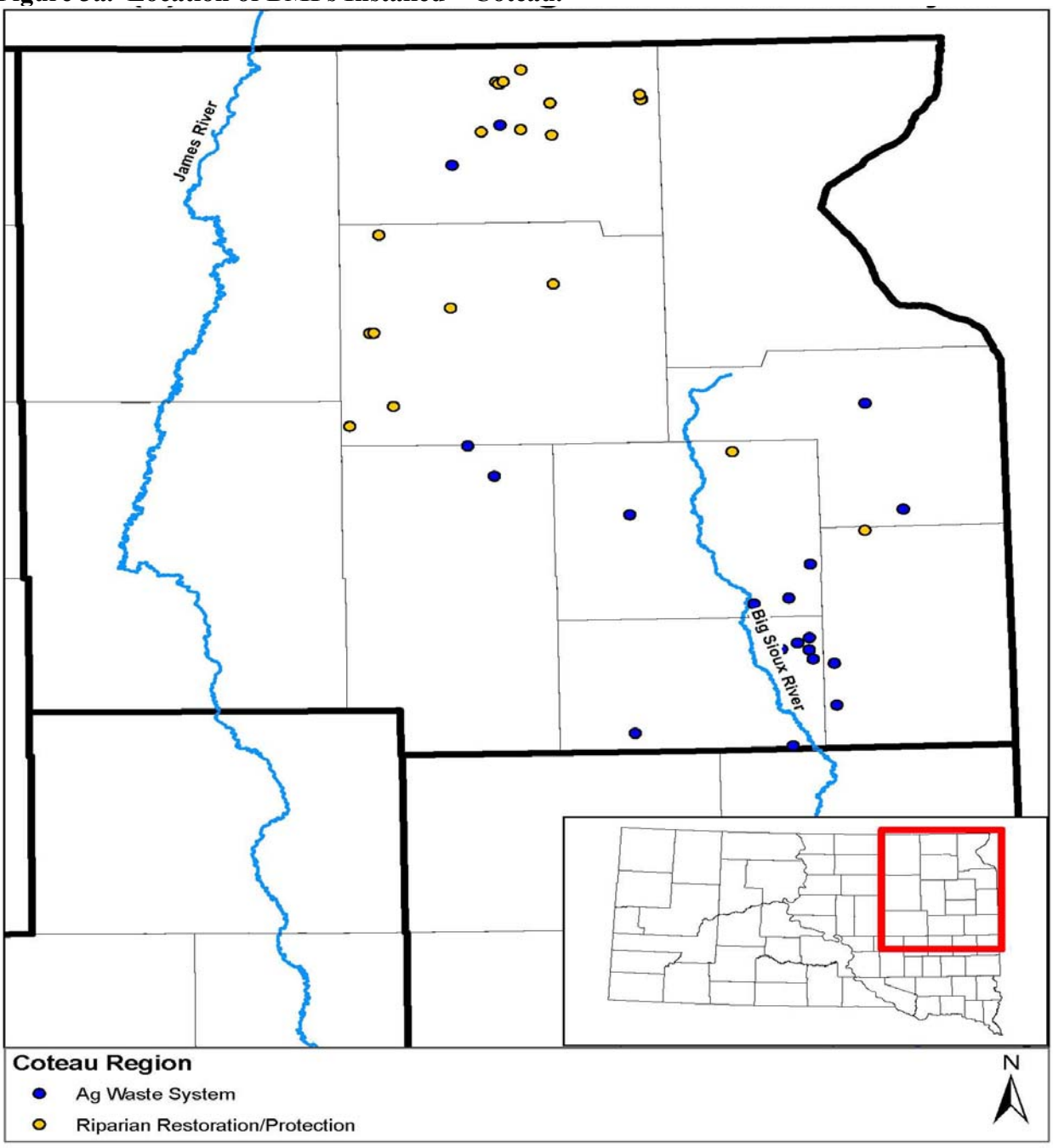


Figure 3b. Location of BMPs Installed – Vermillion/Big Sioux.

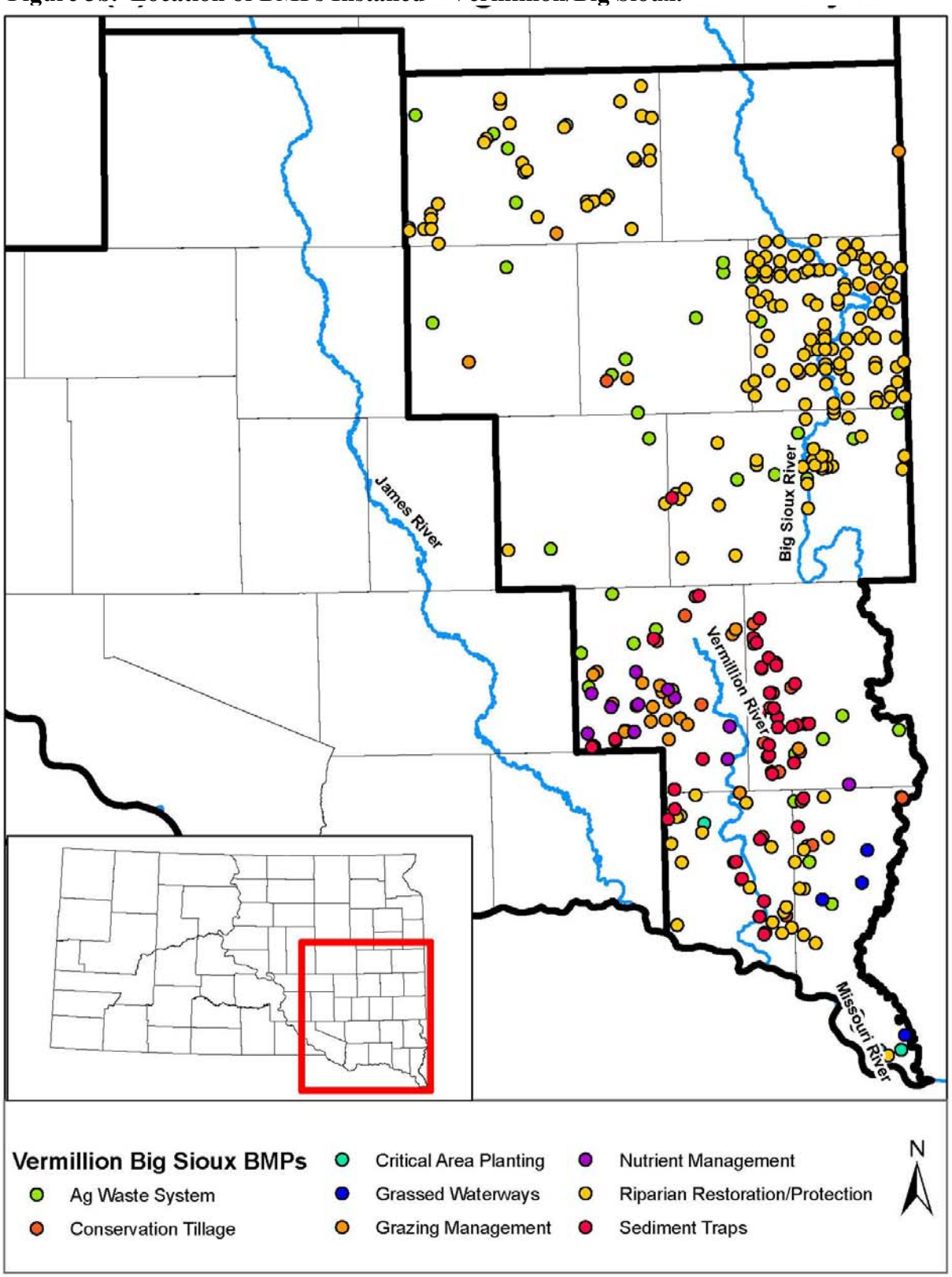


Figure 3c. Location of BMPs Installed – North Missouri.

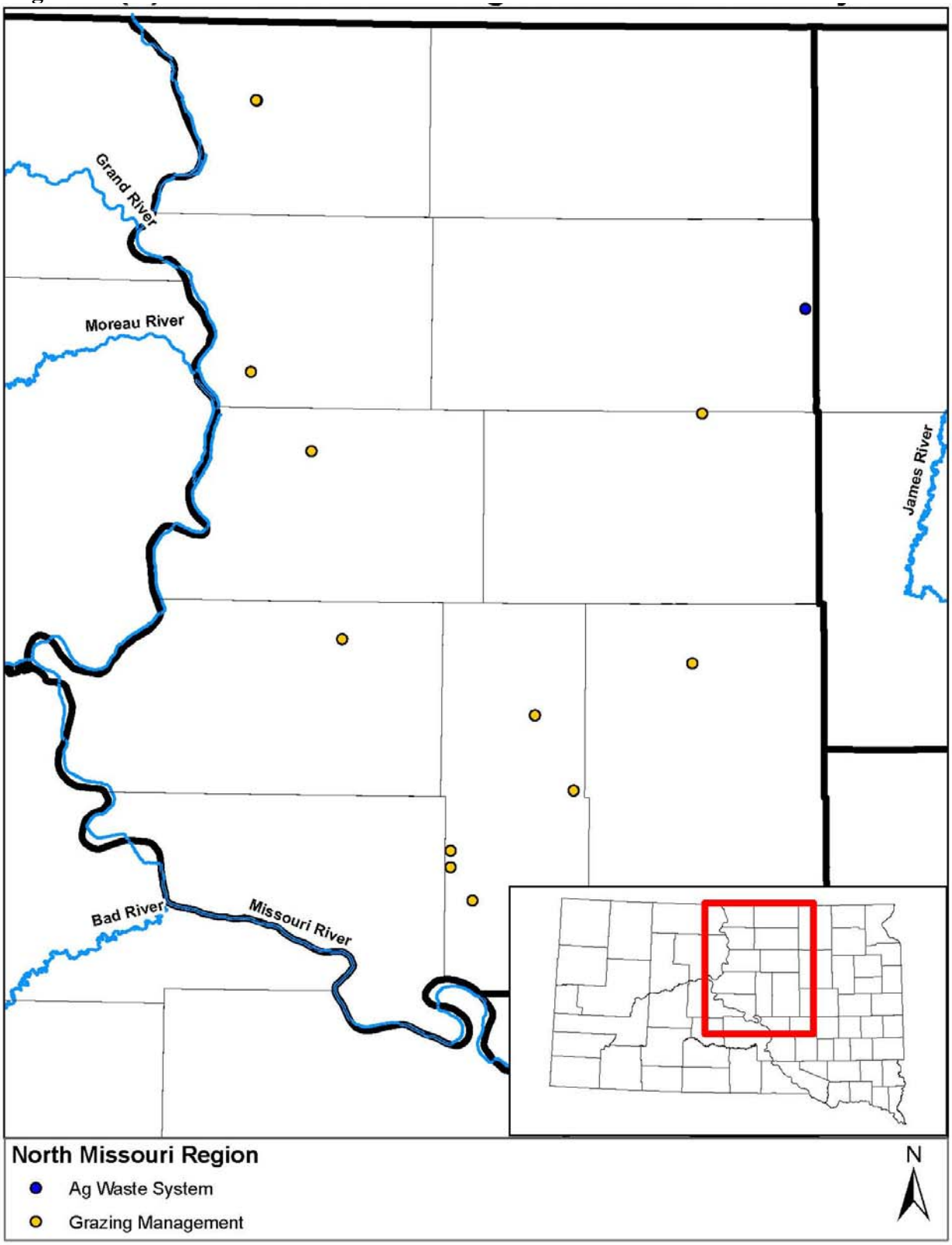


Figure 3d. Location of BMPs Installed –South James/Missouri.

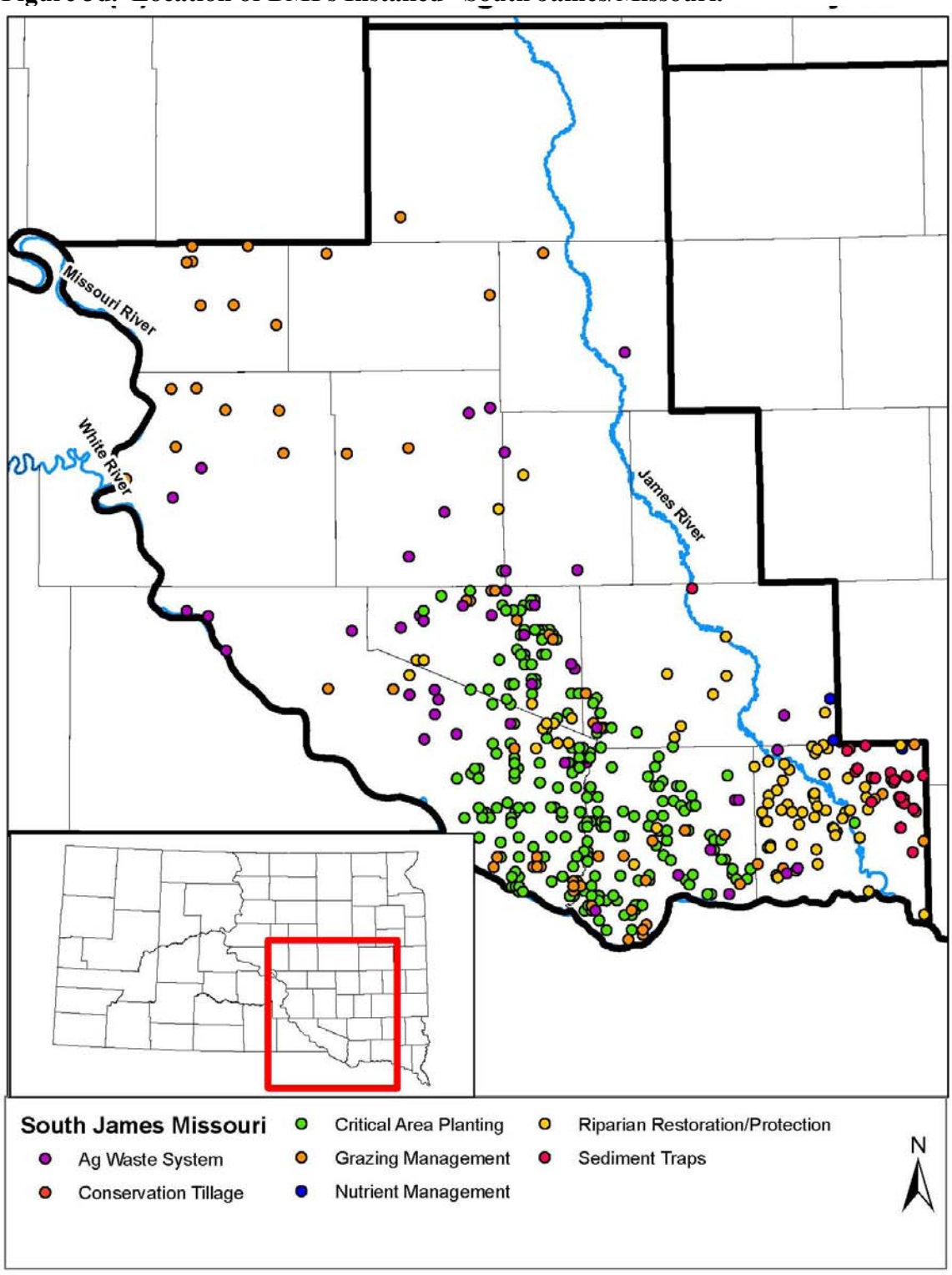


Figure 3e. Location of BMPs Installed – Prairie.

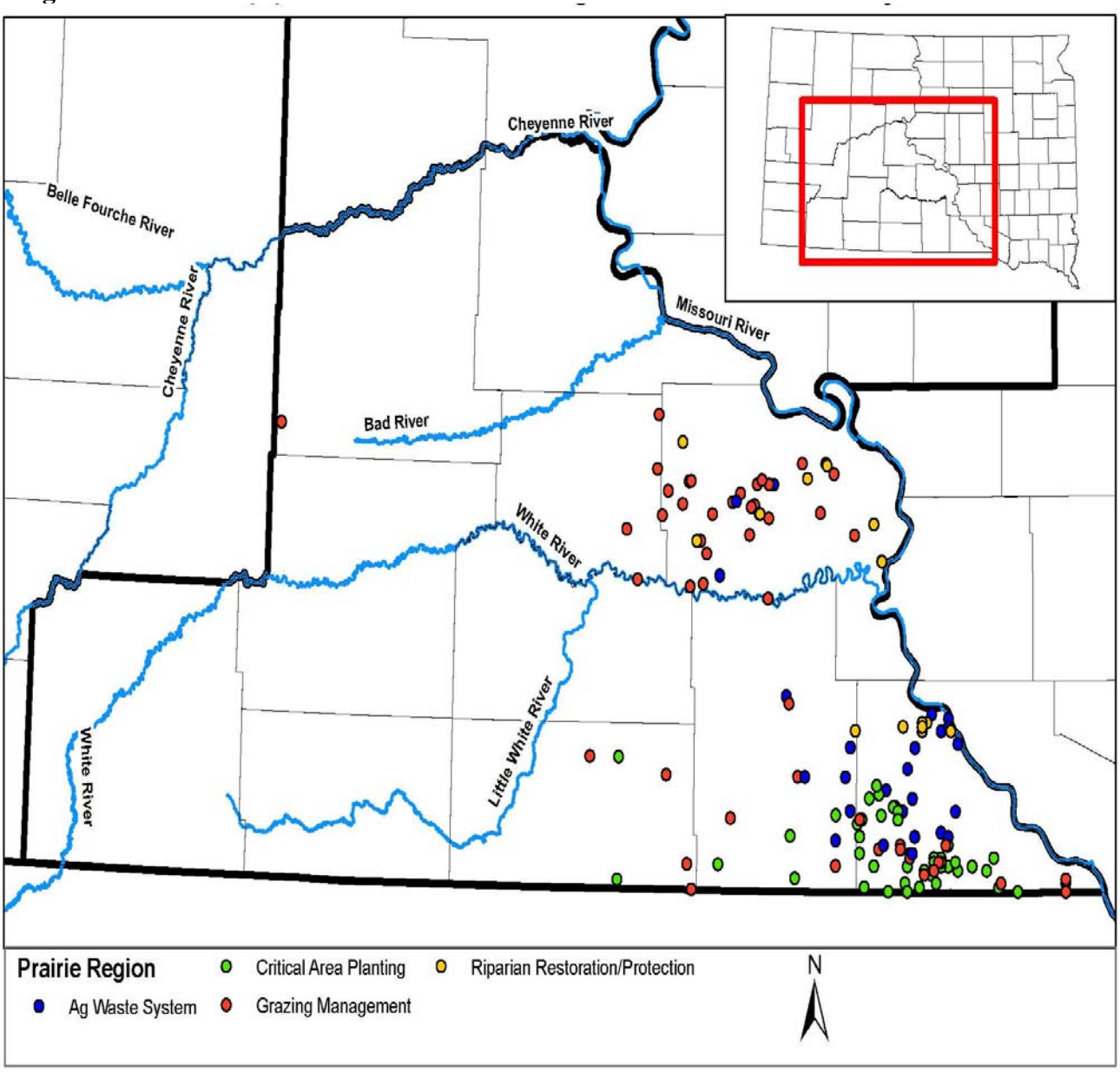


Figure 3f. Location of BMPs Installed – Northwest.

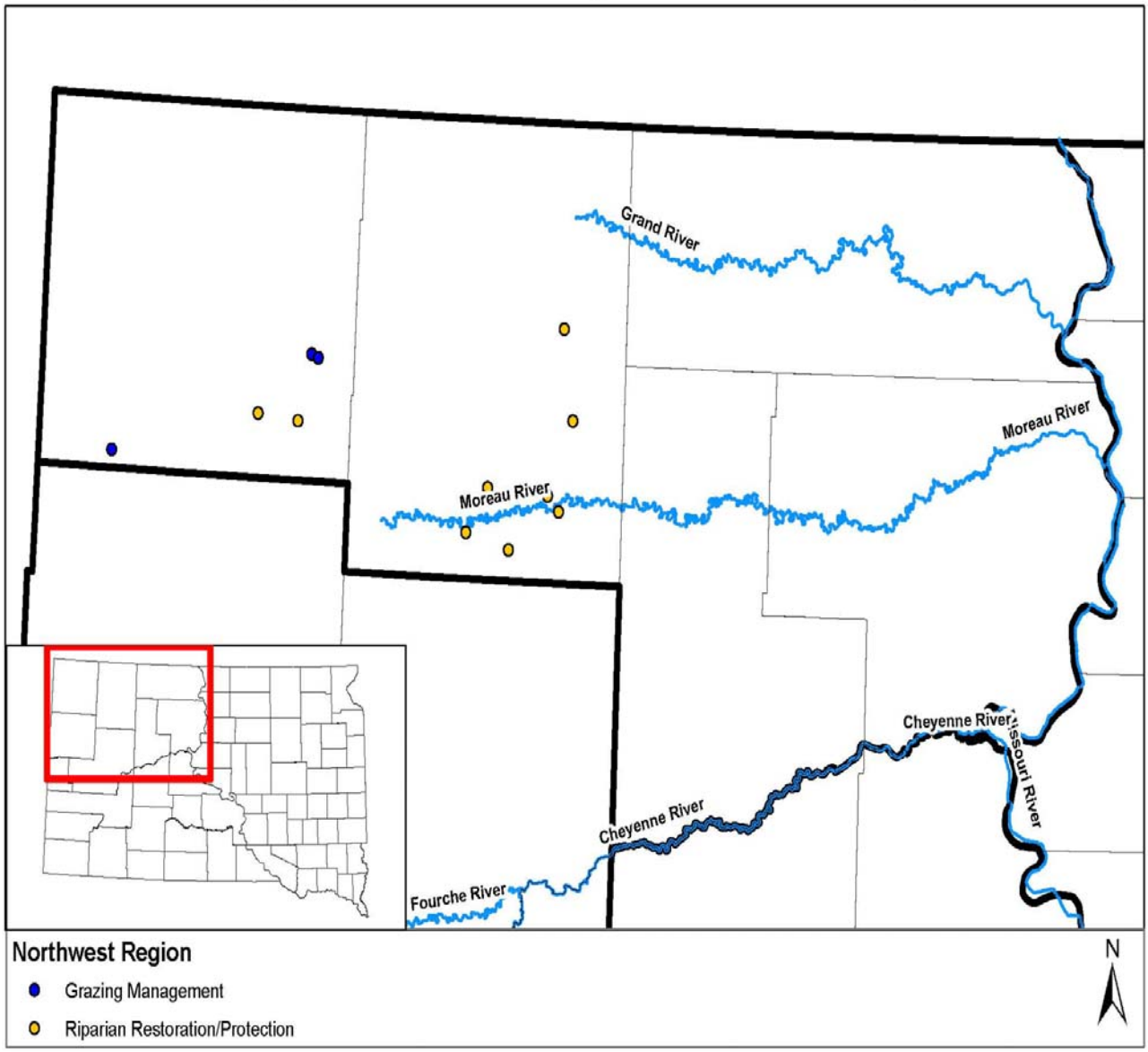
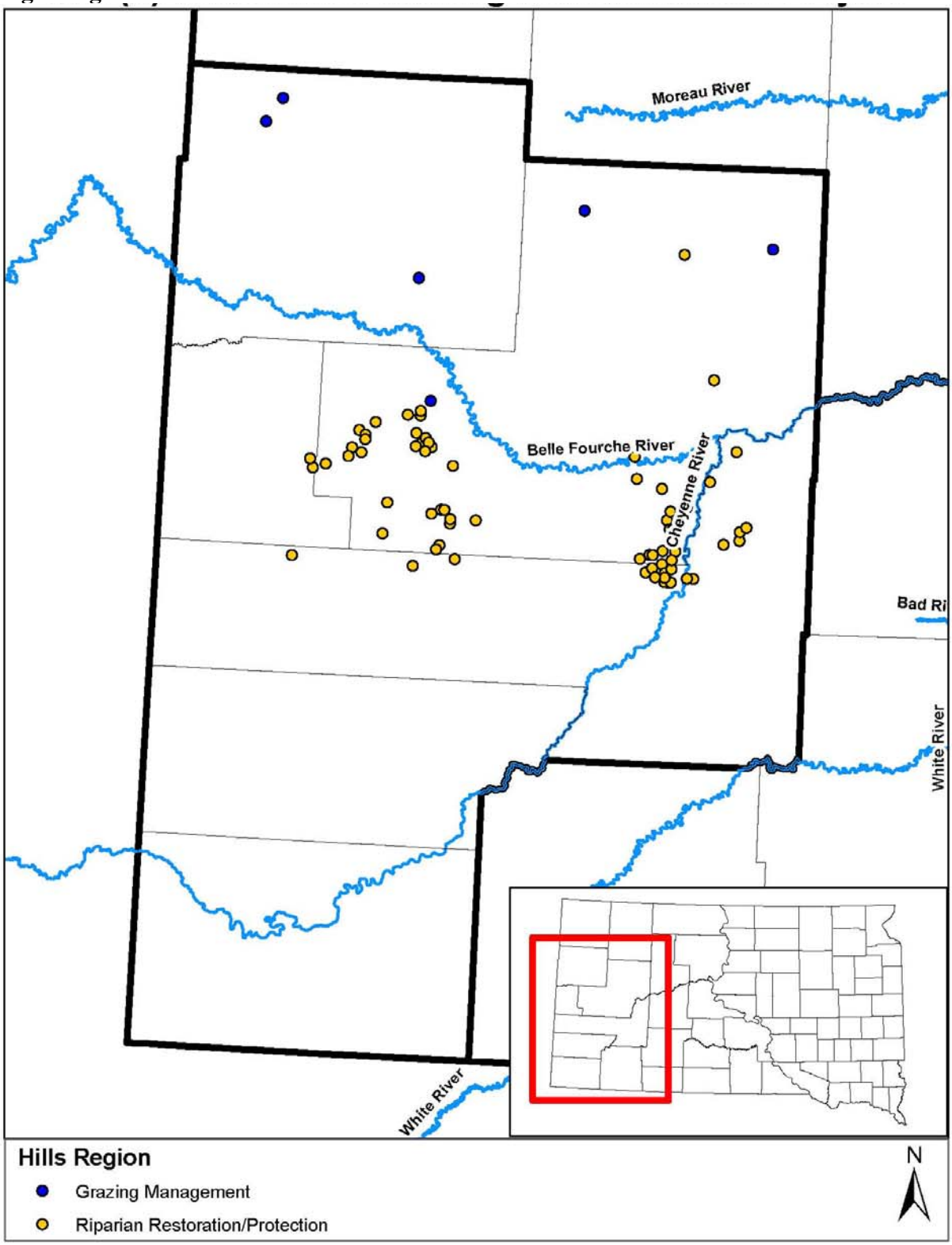


Figure 3g. Location of BMPs Installed – Hills.



EVALUATION AND RELATIONSHIP TO NPS MANAGEMENT PLAN

Evaluation

As shown in Table 6, the milestones established to evaluate project progress and success were met or exceeded for all tasks with the exception of design and construction of AWMS in the Central Big Sioux Corridor.

Table 6. Planned Versus Accomplished Milestone Comparison.

Milestones by Task	PIP		Total	Accomplished		
	03 (1st Award)	08 (Continuation)		03	08	Total
Objective 1						
Task 1						
NRCS certified staff						
319 Funded FTEs	9	2.5	NA	9	2.5	NA
Total FTEs	9	6	NA	9	6	NA
Objective 2						
Task 2						
BMP priority maps	No Specific #	3	3+	7		7
Landowner Contacts	1,200	200	1,400	9,446	990	10,426
Funding Ready BMP designs/plans	500	100	600	1,306	230	1,536
Engineering Contracts	4/year	# Not Specified	NA	1	0	1
AWMS designs[1]						
Central Big Sioux	60	NA	60	5	8	13
Other service areas	30	10	4	177	50	157
Assist Conservation. Dists.[2]	No specific #	No specific #	NA	460	10	470
Task 3						
Funded & Installed BMPs	90% # Funding ready (= 450)	80% # Funding ready plans (=80)	530	1,069[3]	180	1,249[3] (=81.2%)
AWMS funded & installed						
Central Big Sioux	55	NA	55	5[4]	6	11[4]
Other service areas	27	8	35	49	30	79
Task 4						
Applications for funding	NA	2	2	3	2	5
Objective 3						
Task 5						
Work group meetings	24	6	30	60	10	70
News Articles	56	8	64	34	16	50
Web page	1	1	1	1	2	2
Objective 4						
Task 6						
BMP Location Map	1	1	1	1	NA	1
Load Reductions	1 (DENR calculates	4 (with GRTS report)	5	1	1	2
GRTS Reports						
Mid-year (3/30	5 (by 3/30.)	2 (by 4/15)	Not req. unless behind schedule			
Annual (9/30)	5 (by 9/30)	2 (by 10/15)	6	7	2	9
Task 7						
Final Report	1	1	1	1	NA	1

1 – Site Evaluations Total/ Big Sioux: 1St Award 116/48; Continuation; Feasibility Reports: Total/ Big Sioux: 1St Award102/12; Continuation. 2 - Number represents watershed areas comprised of several districts. 3 – Expected 1,429 (=95.2%). 4 – Expected 146 (39 Big Sioux; 107 other watersheds).

Relationship to the SD NPS Management Plan

Activities completed during the project period supported attaining the goal of the SD NPS Program as outlined in the SD NPS Management plan. Examples of support provided by the Watershed Planning and Assistance Project include but are not limited to the following SD NPS Management Tasks:

- Tasks 1 and 7 - Use monitoring data gathered to complete a TMDL for a 303(d) listed waterbody.

  Load reductions realized from BMPs installed during this project were provided to DENR and implementation project coordinators.

- Task 4 – Implement TMDLs within two years of completion.

  Providing the assistance to install BMPs at identified locations prior to funding of implementation projects facilitated the seamless transition from TMDL development to implementation. Doing so supported DENR reaching this management plan milestone.

- Tasks 5 and 14. –Annual GRTS reports with load reduction data.

  GRTS reports with load reduction data were provided to DENR for use in meeting 319 Program reporting requirements. The reductions were calculated using the Spreadsheet Tool for Estimating Pollutant Loads (STEPL)

- Task 8 – Implement clusters of TMDLs on a 12 or 8 digit Hydrologic Unit Codes (HUCs).

  Assistance provided to local project partners encouraged the development and implementation of TMDLs in clusters using approved BMPs. Several implementation projects for clusters of TMDLs were awarded Section 319 funding during the project period. These included: the Lewis & Clark, Lower Big Sioux River, Turkey Ridge/Vermillion River, Medicine Creek, and Lake Campbell/Pocasse (Spring Creek), projects.

- Task 10 – Implement multiple TMDLs for several waterbodies across county and conservation district boundaries using financial and technical assistance from federal, state and local project partners sources to expand the TMDL implementation capabilities of the SD NPS Program.

  See Task 8 above.

BEST MANAGEMENT PRACTICES DEVELOPED OR REVISED

The project was designed to facilitate the implementation of BMPs in TMDL watersheds. Therefore, development of BMPs was not a planned product or an outcome of the project. However, an effective method of using a state/local/federal project partnership to implement BMPs more efficiently was developed and field tested.

The mechanism provides a template for how a local – state - federal water quality improvement partnership can be moved to a "higher level". While DENR, the SD Conservation Commission, and SDACD and NRCS have a record of cooperation that maximizes BMP installation, the training, certification, access to TOOLKIT and PROTRACTS, and computer support NRCS provided accelerated installation of the BMPs in priority watersheds. Accelerated installation of the BMPs supports progress toward attaining water quality and other environmental goals for the partnership's respective programs. Among these are the:

- SD NPS Management Plan and TMDL implementation,
- USDA Clean Water Action Plan, and
- Vision for conservation outlined in *Today and Tomorrow: A Vision to Conserve South Dakota" Natural Resources* developed by SDACD and the SD Conservation Commission.

MONITORING RESULTS

Monitoring Activities

Monitoring activities outlined in the project PIPs centered on documentation of activities completed and calculation of load reductions from the BMPs installed. The monitoring activities completed are described in Objective 4, Task 6, in the Project Goal and Objectives section of this report. Information presented in this report section is restricted to load reductions and water quality.

Load Reductions

Responsibility for calculating load reductions shifted from DENR to the project sponsor with the award of the continuation project grant. As designated by DENR, STEPL was used to calculate the load reductions. To facilitate use of STEPL, information was entered in the DENR project management program (Tracker) for the BMPs planned/installed.

Load reduction reports were not submitted until the final two years of the project period. Factors associated with the delay in submission that caused the included:

- staff turnover during the early portion of the project period,
- changes in responsibility for calculating the reductions, and
- challenges related to transferring BMP location information.

The total Nitrogen, Phosphorus and sediment load reductions realized from the BMPs planned and installed are shown in Table 7.

Table 7. Load Reductions Calculated Using STEPL.

TMDL Priority Area	Load Reduction /Year		
	Nitrogen (Pounds)	Phosphorus (Pounds)	Sediment (Tons)
Other TMDL Watersheds	1,147,539	263,576	33,050
319 Projects			
Grassland Management and Planning	138,152	23,192	12,146
Lewis and Clark Watershed Implementation	388,244	107,360	52,006
Lower Big Sioux Implementation – Segment 1	13,558	4,347	3,114
Medicine Creek Watershed	37,144	8,372	4,634
Turkey Ridge Watershed – Segments 1 & 2	135,031	27,989	523
Vermillion Basin Watershed	119,752	30,950	8,967
Total 319 Projects	831,881	202,210	81,390
Total Reductions	1,979,420	465,786	114,440

Water Quality

While water quality monitoring was not a component of the PIP, the load reductions realized from the BMPs are expected to have a positive impact on water quality. This assumption is based on two factors. The BMPs installed:

- were installed at locations identified as sources of NPS pollution and
- are practices known to reduce NPS loading.

The locations of the BMPs installed were reported to 319 project sponsors and DENR for use in determining water quality improvements in TMDL watersheds and other areas served by the project.

Landowners/operators receiving cost share funds to install BMP are required to maintain the practice for the life of the practice as defined by the program providing the funds. To assist with maintaining the BMP, project staff continued contact with the cooperators after the BMP was installed. Post BMP installation assistance was found to be essential to ensuring the proper functioning, of AWMS and grazing management systems. Both systems require the operator to learn and implement management practices to which they often have had little prior exposure. It has been determined from previous experience that acquiring and putting the skills into action occurs most frequently when onsite assistance is readily available.

COORDINATION AND PUBLIC PARTICIPATION

Coordination

SDACD was the lead project partner. The Association's executive director, with oversight from the SDACD board of directors:

- hired and supervised project staff,
- directed implementation of the project workplan, and
- coordinated participation with local, state and federal project partners.

The Association coordinated activities with its project using one-on-one contacts, reports and presentations at meetings sponsored or hosted by:

- Local workgroups
- Agricultural commodity groups
- Conservation districts
- SD Association of Conservation Districts
- Water development districts
- South Dakota State University Cooperative Extension Service
- SD Vocational/Technical Institutes
- SD Nonpoint Source Task Force
- SD Conservation Commission
- SD Board of Water and Natural Resources
- Resource Conservation and Development Councils
- USDA Farm Service Agency
- USDA NRCS and the NRCS State Technical Committee and subcommittees

The project partners and contributions to project success are summarized in Table 8.

Public Participation

Objective 3, Task 5 outlines the activities completed to provide opportunities for the:

- residents of South Dakota to learn about the project,
- informing project partners of the services offered, and
- notifying landowners and operators of the assistance available to install BMPs.

The activities completed to provide opportunities for participation were effective as indicated by:

- the requests for services from projects staff,
- technical and financial assistance partnerships developed with other resource management agencies and organizations, and
- the number of BMPs installed and resultant load reductions.

See information presented in previous sections for information which supports the observation that the project successfully provided opportunities for participation.

Table 8. Project Partner Contributions to Success

Agency/Organization	Contribution
Nongovernmental	
SD Pheasants Forever	Financial and technical assistance for BMP installation.
Local	
City of Sioux Falls East Dakota Water Development District	Financial and technical assistance for AWMS planning and construction in the Central Big Sioux River Watershed.
Conservation Districts	Technical assistance for BMP prioritization, and installation; coordinate with local workgroups, host meetings; provide office space and clerical support; Develop SD WBM on Google Earth.
State	
SD Department of Agriculture	Financial assistance through the SD Resource Conservation Grants and the joint DENR - SDDA Manure Management System Engineering and Design Assistance for Existing CAFOs Project.
SD Department of Environment and Natural Resources	Financial and technical assistance through the NPS Program, project oversight and training, and the joint DENR- SDDA Manure Management System Engineering and Design Assistance for Existing CAFOs Project.
SD Department of Game, Fish and Parks	Financial and technical assistance for BMP installation and coordinate with SD Pheasants Forever.
Federal	
USDA-Farm Service Agency	Financial assistance for BMP installation through the CRP Program.
USDA-Natural Resources Conservation Service	Financial assistance for BMP installation through Environmental Quality Incentives (EQIP), Grasslands Reserve (GRP), Wildlife Habitat Incentives (WHIP), and Wetlands Reserve (WRP) Programs Technical assistance and training for installation of USDA programs, office space and support, access to computer network and programs such as TOOLKIT and PROTRACTS.
USDI Fish and Wildlife Service	Financial and technical assistance for BMP installation through the North American Wetlands Conservation Act and Partners for Wildlife programs.
US Geologic survey	SD WBM on Google Earth Project.
US EPA	319 funding through SD DENR.

RESULTS AND RECOMMENDATIONS

Results

The results of activities completed during the project are:

- presented in previous sections of this report and
- quantified in data tables that summarize the result of monitoring activities.

Anecdotal information and data indicate that:

- A cadre of specialists trained to install water quality BMPs was developed.
- Installation of BMPs in priority cells was accelerated.
- Seven to eight contacts with a producer are the norm needed to development and implement a BMP.
- Based on calculations, the BMPs reduced nonpoint source pollution.
- Seamlessly moving from TMDL development (assessment) to implementation results in maintaining momentum/local support for a TMDL project.
- BMPs installed supported implementation of the project partner's environmental and water quality management plans and policies.
- The milestones used to measure accomplishment were appropriate benchmarks against which to gauge project progress and identify need workplan amendments.
- Tasks completed supported reaching the project objectives.
- The project goal was attained.

During the project period, it was also confirmed, as suggested by results of the 319 funded Animal Waste Management Team Project, that intensive post construction follow -up with owners of a nutrient management systems is essential to the success of the system.

Aspects of the Project That Did Not Work Well

Although initially effective, using a private sector contractor engineering firm to design AWMS became less so as the project period progressed. The challenges that arose were possibly a result of the contractor's business expanding beyond its capacity to provide quality services. This resulted in errors and delays in the completion of designs, which resulted in producer dissatisfaction and missed deadlines. The contract with the consultant was not renewed and producers were directed to select an engineer of their choosing to design their AWMS.

The procedure used to collect monitoring data and document progress toward reaching milestones and attaining the project goal was not sufficiently developed at the beginning of the project. Staff turnover, especially during the first year(s) of the project, and resultant loss of institutional memory resulted in incomplete information from which to capture some load reduction data.

Recommendations

The assistance provided by this project should be continued. The assistance delivery mechanism developed provides project sponsors and resource management agencies with:

- a seamless mechanism to move from TMDL development to implementation,
- specialized assistance such as from the grasslands team and nutrient planners,
- access to trained coordinators for the duration of a watershed project,
- coordination of programs that cost share water quality improvement BMPs, and
- expertise that can be used to mentor other watershed projects.

The benefits outlined above support implementation of the SD NPS Management Plan, the USDA Water Quality Policy and the water quality goals in the South Dakota Conservation Commission's vision for conservation outlined in *Today and Tomorrow: A Vision to Conserve South Dakota's Natural Resources*.

PROJECT BUDGET AND EXPENDITURES

The budget comparison in Table 9 includes only those funds associated with the first grant award. Unexpended funds from the first award will be used during the continuation segment of the project. All changes to the budget were made with approval by DENR.

During the project period:

- Landowners/operators contributed $3,616,299 toward the cost of BMP implementation
- EDWDD provided $104,160 toward the cost of AWM system design.
- Other federal programs provided financial support for the project. For example, an NRCS Cooperative Agreement provided nearly $300,000 for BMP development and installation technical support. Additional information relative to other federal funds will be included in the report file after the completion of the continuation segment of the project.

Table 9. Project Budget Summary with Planned/Expended Comparison.

Item	BUDGET		EXPENDED	
[redacted]	319	Other Funds	319	Other Funds
Printing & Supplies	12,770		11,379.74	
Postage	1,800		1,912.67	
Telephone	41,040		42,709.73	
Multi-media Services	59,000		20,239.09	
Rent			8,320.87	
Equipment & Liability Insurances	59,581		66,977.26	
Personnel Salaries	893,623		1,598,072.72	
Personnel Benefits	151,360		153,328.19	
Employer Payroll Taxes	134,576		169,381.79	
SDACD Staff Support	125,850		48,755.51	
SDACD Director Expenses	5,000		1,481.03	
Administrative Expenses	20,000		5,969.25	
Contractual Expenses	1,159,500	398,800	454,209.27	263,817.00
Computer & Survey Equipment	37,500		18,944.92	
Repairs	10,800		7,527.93	
Transportation	237,600		272,290.42	
TOTAL	2,950,000	398,800	2,881,500.39	263,817.00

CONCLUSIONS

The data collected using monitoring activities and anecdotal information recorded support the conclusion that the workplan activities, as amended, resulted in

> "Accelerated planning, design, and implementation of best management practices in selected 303d listed waterbodies in South Dakota."

The project goal was attained.

Attaining the goal facilitated moving a local - state - federal partnership to a "higher" level which:

- better coordinates and supports the implementation of local, state, and federal resource management organizations' and agencies' water quality management plans and policies,
- provides a mechanism to seamlessly move from TMDL development to implementation, and
- develops a pool of trained resources specialists to:
    1. sustain the accelerated implementation of BMPs in TMDL watersheds and
    2. coordinate projects for local sponsors.

APPENDIX A

First Grant Award PIP Objectives and Tasks

First Grant Award PIP Objectives and Tasks

Objective 1. Recruit, hire and train a cadre of eight resource management specialists and their supervisor to assist landowners with planning and implementation of agricultural practices to reduce nonpoint source loadings to selected 303(d) listed water bodies

Task 1 Recruit, interview, hire and employ nine staff for this project.

Task 2 Train project staff in NRCS planning techniques and documentation practices so that plans prepared will be certifiable by NRCS for USDA funding.

Objective 2. Implement progressive targeting to abate nonpoint sources of pollution in watersheds of selected 303(d) water bodies.

Task 3. Set initial target areas for agricultural BMPs in each watershed based on current DENR assessment information, expected practice funding and priority rankings, and local conservation district and USDA staff knowledge of sources.

Task 4. Refine BMP targeting in project watersheds as DENR provides results of ANNAGNPS computer modeling and TMDLs.

Objective 3. Accelerate the planning, design, and implementation of agricultural BMPs in watersheds with selected 303(d) waterbodies.

Task 5. Create an awareness of project goals and objectives through media presentations in local news sources and mailings, and web based information. Staff will also attend and make presentations at meetings of local work groups, USDA State Technical Committee, NPS Task Force, Conservation Commission , etc.

Task 6. SDACD will Contract with one or more engineering firms to provide engineering design, including comprehensive nutrient management plans for 90 animal feeding operations (AFOs).

Task 7. Contact owners and operators of lands targeted in Objective 2 to explain the project mission, services available, and funding opportunities as well as the potential of their operation to contribute pollutants to the impaired waterbody.

Task 8. Provide planning of BMPs , excluding the 60 AFO designs in the vermillion – Big Sioux resource area, in the six regions to reduce nonpoint source pollution which will meet landowner/operator's needs and meet USDA standards. Assistance will include help in providing adequate documentation to apply for USDA funding.

Task 9. Funding and installation of approximately 90 percent of the plans developed in Task 8.

Task 10. In the Central Big Sioux River Corridor, design through consulting engineering firms, sixty animal waste systems and comprehensive nutrient management plans for AFOs and prepare funding applications. This project will provide 85% of the cost share of design.

Task 11. Funding and installation of approximately 90% of the plans developed in Task 10.

Objective 4. Document project progress and success in meeting TMDL goals.

Task 12. Produce a map of the location of all BMPs that have been funded through the specialists efforts and, if possible, installed through other efforts using ARC View and TOOLKIT and provide this information to DENR for load reduction analysis.

Task 13. Provide Semi annual project status reports to DENR for GRTS input and to SDACD areas. The reports shall quantify the results that have been achieved by each of the seven SDACD areas as well as the overall achievements of the project.

Task 14. Produce a project final report meeting the Region VIII final report guidance.

Objective 5. Assist conservation districts in preparing strategies to abate nonpoint source problems in other 303(d) listed water bodies.

Task 15. As requested by individual conservation districts, resource management specialists may assist the district in formulating strategies, finding resources and drafting applications for projects to abate nonpoint source water pollution in 303(d) water bodies not addressed specifically elsewhere in this project work plan.

APPENDIX B

Key to Conservation Practices

Conservation Practices

CP5A	Field Windbreak
CP8	Grass Waterway
CP8A	Grass Waterways
CP16	Shelter Belt
CP18B	Establish Permanent Vegetation to Reduce Salinity
CP21	Filter Strips
CP23	Wetland Restoration
CP23A	Wetland Restoration - Nonflood plain
CP25	Rare Declining Habitat (Prairie Ecosystem – Tall Grass)
CP 27	Farmable Wetlands – Pilot Wetland
CP28	Farmable Wetland Buffer
CP30	Marginal Pastureland Wetland Buffer
CP33	Upland Bird Habitat Buffer – Bob White Quail
CP36	Prairie Pothole Duck Habitat Initiative
CP37	Duck Nesting Habitat Initiative
CP38E	Habitat for Upland Birds (CRP SAFE)
CP313	Waste Storage Facility
CP314	Brush Management
CP327	Conservation Cover
CP328	Conservation Crop Cover
CP342	Critical Area Planting
CP350	Sediment Basin
CP362	Diversion
CP378	Pond
CP380	Windbreak or Shelterbelt Establishment or Renovation
CP382	Fence
CP393	Filter Strip
CP412	Grassed Waterway
CP472	Access Control
CP500	Obstruction Removal
CP512	Pasture and Haying
CP516	Pipeline
CP528A	Prescribed Grazing
CP590	Nutrient Management
CP595	Integrated Pest Management
CP612	Tree/Shrub Establishment
CP614	Watering Facility
CP642	Water Well
CP644	Wetland Wildlife Habitat Management
CP657	Wetland Restoration
CP659	Wetland Enhancement