

South Dakota
Nonpoint Source Pollution Program Annual Report
Federal Fiscal Year 2007

Prepared By The
Water Resources Assistance Program

South Dakota
Department of Environment and Natural Resources

Joe Foss Building
Pierre, South Dakota 57501

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Department Of Environment and Natural Sources
Nonpoint Source Pollution Program Annual Report

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South Dakota NPS Program Structure and Management

The South Dakota Nonpoint Source Pollution (NPS) Program is administered by the South Dakota Department of Environment and Natural Resources' (DENR) Water Resources Assistance Program (WRAP). NPS pollution activities completed by program staff are selected to improve, restore and maintain the water quality of the state's lakes, streams, wetlands, and ground water in partnership with other organizations, agencies and citizens. Visit:

<http://www.state.sd.us/denr/DFTA/WatershedProtection/wpprg.htm>

for the information about Watershed Protection's NPS activities.

The South Dakota Nonpoint Source Task Force is DENR's primary partner for implementation of the South Dakota NPS Program. The task force is a citizen's advisory group with a membership of approximately eighty agencies, organizations and tribal representatives. The task force:

- provides a forum for the exchange of information about activities which impact nonpoint source pollution control,
- assists DENR NPS program staff with the development of guidance and application procedures for funding NPS source control projects,
- reviews Section 319 project applications and makes funding recommendations to the South Dakota Board of Water and Natural Resources,
- serves as the coordinating body for the review and direction of federal, state, and local government programs to ensure that the programs facilitate NPS source pollution control an efficient manner,
- facilitates the development and distribution of NPS pollution information, education, and public awareness materials and activities,
- provides oversight of and prioritizes NPS control activities, and
- serves as a forum for the discussion and resolution of NPS program conflicts.

For additional information about the task force visit:

<http://www.state.sd.us/denr/DFTA/WatershedProtection/npstf.htm>

Since the reauthorization of the Clean Water Act during 1987, the South Dakota NPS Pollution Program has used Section 319, 104(b)(3), 106, and 604(b) funding to support nearly 210 NPS projects (Appendix A). Historically, the majority of the projects funded focused on reducing NPS pollution originating from agricultural operations. During recent years, an increased proportion of the funds have been used to support local initiatives that:

- develop and implement total maximum daily loads (TMDLs) for impaired waterbodies,
- determine sources and causes of NPS pollution within priority watersheds,
- provide local project partners with assistance for planning and identifying sources of funding for the installation of NPS control best management practices (BMPs), and
- evaluate water quality conditions in urban as well as rural areas.

During 2005 it was determined that to successfully address priority NPS pollution issues and sources in the state, required that DENR better focus its limited resources. To address the need, DENR worked with its state, federal, and local financial assistance partners to develop and implement a policy that directed the use of 319 funds to:

- projects that develop or implement a TMDL or cluster of TMDLs and
- specific implementation project activities:
 1. planning, administration, salaries and travel and monitoring/evaluation activities;
 2. information and education activities;
 3. animal nutrient management system design and construction with a 25 percent minimum landowner contribution required; and
 4. riparian buffers, shoreline stabilization and practices required to exclude livestock.

During FFY 2006, criteria for cost sharing the manure management components of monoslope barns and hoop structures were developed in cooperation with the USDA Natural Resources Conservation Service (NRCS) and the South Dakota Department of Agriculture (SDDA):

- cost share is based on \$75.00/head with a maximum award of \$150,000 and
- additional assistance authorized on a case-by-case basis to bring the assistance to the level that would be needed to construct a conventional system at a new location when relocation is necessary to address the required pollution reduction.

With the change, funding for other project activities and many of the BMPs previously cost-shared using 319 funds was moved to other funding sources such as the USDA conservation programs, the SD Soil and Water Grant Program, US Fish and Wildlife Service, and private organizations such as Ducks Unlimited and Pheasants Forever.

While the size, target audience, and structure of South Dakota's NPS projects vary, all share common elements:

- increase awareness of NPS pollution issues;
- identify, quantify, and locate sources of nonpoint source impairment;
- reduce/prevent the delivery of NPS pollutants to waters of the state with emphasis on meeting targets established through TMDLs;
- comply with threatened and endangered species, historic preservation, storm water construction control, and 404 and 401 permit requirements;
- implement TMDLs on a watershed basis; and
- disseminate information about effective solutions to NPS pollution.

Projects applications are developed:

- on a watershed basis to either develop or implement a cluster of TMDL(s) or support TMDL development or implementation,
- in partnership with local, state and federal agencies and organizations, and
- with assistance from DENR.

Project applications are solicited by:

- ads in daily newspapers;
- mailings and other correspondence to the NPS task force members, conservation districts other agency and private organizations; and
- posting the request for proposals on the Watershed Protection website home page:

<http://www.state.sd.us/denr/DFTA/WatershedProtection/wpprg.htm>

The website also contains EPA and South Dakota 319 project guidelines, application information and deadlines for submitting applications to DENR.

Project applications submitted are reviewed using a competitive process. The initial review is by the NPS Task Force. The task force provides its recommendations for funding to the South Dakota Board of Water and Natural Resources (BWNR). The board is the designated governmental entity that provides South Dakota's 319 funding recommendations to EPA. In addition, the BWNR considers input from DENR NPS staff and concerned citizens who may be in attendance at the board meeting or provide written input. The board periodically conducts meetings using video conferencing to reduce travel costs and facilitate greater participation in the decision making process. Video conference meeting normally have three remote sites, one in western SD; two in eastern in addition to the main studio located in Pierre.

The projects selected for funding fit into one of three categories:

- assessment/project development,
- information and education (I&E), or
- watershed implementation.

Although most projects fit into one of the categories, several have included components of each.

The primary purpose of an assessment/development project is:

- identify beneficial use impairments or threats to specific water bodies,
- determine the extent to which the threats or impairments originate from NPS pollution, and
- develop TMDLs.

Assessment priority is given to waterbodies on the 303(d) list of impaired water bodies. The current list is contained in the state's *2006 Integrated Report for Water Quality Assessment*. A copy of the report is available from DENR or may be accessed at:

<http://www.state.sd.us/denr/DFTA/WatershedProtection/tmdl.htm>

TMDLs are developed for the listed water bodies as a part of an assessment project. The department prefers to develop the TMDLs in 12 digit or larger hydrologic unit clusters that include all of the NPS TMDLs needed for a river basin. For larger basins, such as the Big Sioux, the basins are studied by dividing the basin into multiple TMDL sub-basins.

Activities completed during assessment and TMDL development projects typically include an inventory of existing data and information and supplemental monitoring, to accurately identify sources of water quality impairment. DENR and its project partners use the information to:

- determine the extent to which beneficial uses are impaired,
- identify specific sources and causes of the impairments,
- establish preliminary pollutant reduction goals or TMDL endpoints, and
- identify management practices and alternatives that will reduce the pollution at its source(s) and restore or maintain the beneficial uses of the water body.

Assessment/development projects typically range from one to three years in length.

For information about the location, status and results of South Dakota assessment projects visit:

<http://www.state.sd.us/denr/DFTA/WatershedProtection/tmdl.htm>

Information and education (I & E) projects are designed to provide information about NPS pollution issues and solutions or develop BMPs. While most I & E projects range from two to three years in length; BMP development and assistance projects may extend to four or five years.

Information transfer tools typically used by the department and its project partners include brochures, print and electronic media, workshops, “how to” manuals, tours, exhibits, and demonstrations. Many of the publications are available on the department’s website at:

<http://www.state.sd.us/denr/DFTA/WatershedProtection/wpprg.htm>

then click on publications in the box located on the left hand side of the screen.

BMP development projects are, for the most part, completed through partnerships with the academic community, cooperative extension service, NRCS, and private consultants.

To ensure the BMPs are accepted by the resources managers who will install the practices, industry trade groups are involved in planning the projects. The South Dakota Cattlemen’s, Pork Producers and Corn Grower’s associations, Grassland Coalition, South Dakota Forest Resources Association, and South Dakota Association of General Contractors are examples of commodity groups and trade associations, respectively, that have been involved in recent BMP development and training projects.

Watershed implementation projects are the most comprehensive of the projects implemented through the South Dakota NPS Pollution Program. Implementation projects are typically long-term in duration and designed to implement clusters of TMDLs on a 12 digit or larger hydrologic unit basis. Implementation project objectives include:

- protect/restore impaired beneficial uses through the promotion and voluntary implementation of best management practices (BMPs) that prevent/reduce NPS pollution,

- disseminate information about NPS pollution and effective solutions, and
- evaluate project progress toward use attainment or NPS pollutant reduction goals using models and targeted monitoring.

South Dakota watershed implementation projects typically range from four to ten years in length with the duration dependant on the size of the watershed and extent of the NPS pollution that must be addressed. During 2004, the department determined that funding projects for longer than three to four years was not an efficient use of limited financial resources nor did it allow the flexibility needed to install practices needed to attain TMDLs for large watersheds. To address the issues, an incremental funding strategy was initiated for large projects.

Large projects that require longer than three to four years to complete are funded in segments. The initial request for funding contains an outline of the practices needed to attain the TMDL/water quality goal established during an assessment project. Subsequent requests are modified to address progress toward the goal and ongoing evaluations of practices needed to attain the goal. A final report is required for each project segment. The reports summarize the accomplishments of the segment and the cumulative accomplishments of previous project segments. The report for the final project segment is, therefore, a comprehensive document of all activities completed and contains an evaluation of success in attaining the TMDL(s).

The implementation of incremental funding for large projects has proven to be a sound strategy both from both a financial and BMP installation aspect:

- projects are funded adequately for the short term with long term needs identified,
- DENR and local staff are able to more effectively monitor project progress and make necessary changes to the types of BMPs that will be installed to attain the project goal and TMDLs and the installation milestones, and
- projects that are not progressing are identified sooner and can be closed out with unexpended funds redirected to address other priorities.

NPS Management Plan

Implementation of the South Dakota NPS Pollution Management Program is guided by the South Dakota NPS Management Plan South Dakota's NPS Management Plan was approved during March 2000. The plan:

- addresses the nine mandated elements required to access Section 319 incremental funds,
- expands activities included in previous editions of the plan, and
- continues to achieve improved water quality through voluntary actions developed in partnership with the landowners and managers.

The primary tools selected to accomplish the tasks outlined in the plan include:

- technical and financial assistance delivered through program staff and project partnerships, and
- a comprehensive information and education effort.

A revision of the plan was completed during 2007. The revised plan will be reviewed by the NPS Task Force during December 2007 then forwarded to EPA for approval.

Both the 2000 and proposed revision is available upon request or by visiting:

www.state.sd.us/denr/watershed

The water quality assessment and implementation strategy outlined in the management plan has been amended to address the development and implementation of TMDLs. The department established a goal of:

Develop 11 TMDLs and implement five work plans each year to achieve the TMDLs for all of the state's impaired waters over a 13 year period.

Waterbodies assessed are selected from those on the 303(d) list of impaired waterbodies. Activities included in implementation project workplans are selected to attain the TMDLs developed as part of the assessment process.

The 2006 Integrated Report (combined 303(d) and 305(b) reports) was developed using the most recent monitoring and assessment data available when the report was prepared. The 303(d) list includes 86 streams or stream segments and 61 lakes which need assessments and nonpoint source pollution TMDLs.

To date, EPA has approved 66 nonpoint source TMDLs developed by DENR and its project partners. The TMDLs are available by visiting:

<http://www.state.sd.us/denr/DFTA/WatershedProtection/tmdl.htm>

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<http://www.state.sd.us/denr/DFTA/WatershedProtection/tmdl.htm>

During FFY 2007:

- six TMDLs were approved by EPA,
- thirty-three TMDLs were completed and submitted for public comment but were not approved before the end of the FFY, and
- twenty-five stream segments or lakes were delisted as a result of data available to prepare the 2006 Integrated Report.

Progress in implementing the management plan, with the exception of post-project assessments, is on schedule as summarized below:

- TMDL assessments have been completed for 74 waterbodies,
- tasks 3-6 and 12-16 were superseded by the 303(d) / TMDL priority approach,
- task 11, sorting and ranking streams based on ecoregions, was suspended to redirect limited staff resources to TMDL related priorities,
- task 28, post-project assessments, is behind schedule because of limited resources and TMDL related priorities, and
- all other tasks are on schedule, have been completed, or exceeded planned outputs.

319 Grant

The South Dakota Department of Environment and Natural Resources' FFY 2007 Section 319 Grant award from EPA consisted of \$1,512,100 in base funds and \$1,638,600 in incremental funds. The \$3,150,700 total award was allocated as follows:

- Staff & Support - \$680,000 and
- 319 Projects - \$2,470,700 (\$1,638,600 incremental and \$832,100 base).

Projects awarded funding from the department's 2007 FFY 319 Grant are listed in the Table 1.

Table 1. FFY 2007 Section 319 Project Awards.

Project	Project Grant (\$)		
	Base	Incremental	Total
Assessment			
Lower Cheyenne River TMDL Assessment – Segment 2	383,392		383,392
Implementation			
SD NPS I & E Project - Continuation	200,000		200,000
Grassland Management and Planning - Continuation	208,400	191,600	400,000
NE Glacial Lakes Watershed Improvement & Protection		390,000	390,000
Firesteel Creek/Lake Mitchell Watershed - Continuation		250,000	250,000
Lake Poinsett Watershed Implementation - Continuation		435,000	435,000
Lewis and Clark Watershed Project – Segment 2	40,308	372,000	412,308
Total	832,100	1,638,600	2,470,700

Three projects (Table 2) were awarded 319 funding during FFY 2007 using prior year funds reverted from projects that were completed but did not expend the total amount awarded.

Table 2. Projects Awarded Section 319 Grants From Prior Year Reverted Funds.

Project	Project Grant (\$)	319 Grant Year
Assessment		
Cheyenne River Phase I TMDL Assessment	100,586	1999
Implementation		
Evaluating Vegetative Treatment Area Performance	20,000	2001
Grasslands Management and Planning	112,870	2004
Total	233,456	

Active 319 Projects

A list of Section 319 projects funded by previous grant awards that were open during the FFY 2007 reporting period is provided in the Appendix B. The list is arranged by river basin.

Completed 319 Projects

Table 3 contains a list of 319 projects closed during FFY 2007. The status of the final report is listed for each project. Load reductions achieved for implementation projects closed during the year are shown in Table 18

Table 3. Projects Closed During FFY 2007.

Project	Final Report Status				
	In Preparation	In Review		Approved	
		DENR	EPA	DENR	EPA
Amsden Dam/Minnewasta Lake Assessment			X	X	
Animal Waste Design IV				X	
Bad River Phase III – Water Quality Project (Includes Bad River National Monitoring Project)				X	X
Bell Fourche River Watershed Management Plan II				X	X
Cheyenne Rive Phase 1 TMDL Assessment	X ¹				
Cottonwood Lake/Lake Louise Implementation				X	X
Grassland Management and Planning		X			
Lake Faulkton Watershed Restoration				X	X
Lake Nordon/Lake Albert/Lake St. John Assessment	X ²				
Lake Poinsett Watershed				X	
Little Minnesota River/Big Stone Lake Watershed				X	X
Lower Cheyenne River TMDL Assessment Phase 1		X			
Manure Management Base on Soil P – Additional Soils				X	X
NC Big Sioux River/Oakwood Lakes Assessment			X	X	
Terry Redlin Freshwater Inst. Wetlands Education				X	X

¹ Project continuing, final report will be part of comprehensive report when later project segment are complete.

² Final reports in preparation by DENR NPS staff.

Three projects for which the final report was not complete were listed as complete in the FFY 2006 report. The projects were the:

- Belle Fourche River Watershed Assessment,
- Lake Traverse Watershed Assessment, and
- SD Nonpoint Source Information and Education -98.

Reports for the projects have since been completed.

Pictures illustrating the types and location of BMPs installed using 319 grant and funds provided by project partners are located in Appendix B. The pictures are copied from annual and final reports submitted by project sponsors.

A comprehensive list of Section 319 projects completed by DENR and its project partners is provided in Appendix A. The projects are listed alphabetically by river basin. Unless otherwise indicated (superscript), a

final report for each project has been filed with EPA, entered in GRTS, and is available from the SD State Library. Several of the reports are also available by visiting:

<http://www.state.sd.us/denr/DFTA/WatershedProtection/wpprg.htm>

During the 2007, DENR continued activities initiated during FFY 2005 to close out all 319 grants awarded to the department prior to FFY 2000 and all grants issued subsequent to that date by the end of the initial grant period. The activities completed during FFY 2006 resulted in closure of all 319 grants awarded prior to 1999. Activities completed during FFY 2007 resulted in the closure of the 1999, 2000, and 2001 grants and all other 319 grant being on target for closure by their current expiration dates.

604(b) Grant

One administrative action took place during the FFY 2007 reporting period:

1. Grant C699813107 was amended to increase the award by \$100,000. The amended grant total is \$264,000. Projects funded with this grant are listed in Table 4.

Table 4. 604(b) Projects Open/Funded During FFY 2007.

Project	Project Grant (\$)
Sioux Falls – Big Sioux River/Covell Lake TMDL	125,000
Lake Campbell TMDL Assessment Project	56,583
Black Hills Biological Sampling (2006 samples)	17,805
Black Hills Biological Sampling (2007 samples)	25,000
Program Administration/Travel	39,612
Total	264,000

Program administrative costs include:

- preparing grant applications, project workplans, and sub-agreements with project partners;
- providing project oversight;
- attending meetings with project partners and department staff ; and
- processing requests for reimbursement received from sub-grantees.

604(b) Projects Completed and Closed

During the reporting period, two 604(b) funded projects were closed, or shifted to other funding sources or other projects. These included the:

- Black Hills Biological Sampling - 2006 samples (closed) and
- Covell Lake TMDL (combined with the Big Sioux River TMDL Project).

A historical listing of completed 604(b) funded projects is located in Appendix A.

Section 106 Grant

The Water Resources Assistance Program has provided financial assistance to 23 projects using Section 106 Water Pollution Control grant funds. Sixteen of the projects initiated or increased support for TMDL development for impaired lakes or stream segments. Seven funded additional tools or information DENR and its partners needed to more effectively develop, implement, and evaluate TMDLs. The projects that were active during FFY 2007 supported totally or in part by 106 Grant funds are listed in Table 5; completed projects in Table 6.

Table 5. Active Projects Supported Using 106 Grant Financial Assistance.

Project	Grant Award (\$)
Lower James River Watershed TMDL Assessment	109,126
National Lakes Survey / Statewide Lakes Assessment (2007)	210,000
Gauging Equipment	25,471
Mercury Sampling	26,000
Missouri River Monitoring	172,447
Lower Cheyenne River TMDL Assessment – Phase II ¹	1,093,566
Total	1,636,610

1. Awarded FFY 2007

Table 6. Closed Projects Supported Using 106 Grant Financial Assistance.

Project	Grant Award (\$)
Cottonwood Creek Watershed TMDL Assessment	28,415.00
Lower Cheyenne River TMDL Assessment – Phase I	57,390.00
Upper Cheyenne River TMDL	267,490.00
Statewide Lakes Assessment (2002 – 2006)	97,118.24
Center Lake Report Writing	20,000.00
Fish Lake/Lake Alice Assessment	5,414.23
School – Bullhead Watershed Assessment - TMDL	55,522.00
Spring Creek/Sheridan Lake Assessment	127,264.17
Upper Rapid Creek Assessment	49,999.32
Lake Hanson Assessment Project	45,044.00
Lewis and Clark Watershed Assessment	273,500.00
Remote Sensing – AGNPS Crop Layers	92,004.00
Statistics Training Course	23,500.00
Digital Line Graphs	65,000.00
Digitized SD Soil Survey	150,000.00
Gauging Stations	382,937.00
Equipment for Lower Big Sioux and Spring Creek Assessment	123,639.01
Total	1,864,236.97

EPA Region VIII Priorities Grant Program

DENR encourages local stakeholders to apply for EPA Region VIII Priorities Grant Program (formerly Consolidated Funding Process) grants. The program is promoted at SD NPS Task Force meetings, by personal contact with groups that have inquired about potential sources of financial assistance and on the Watershed

Protection website. In addition, the department offers stakeholder groups assistance with preparing an application when requested so to do.

During FFY 2007 DENR provided assistance for the preparation of two proposals submitted for funding through the program. These were a:

- Sustainable Agriculture Grant submitted by the Upper Big Sioux Watershed Project on behalf of a producer, and
- Regional Geographic Initiative proposal submitted by the Belle Fourche River Watershed Partnership.

The department is unaware of the disposition of the proposals with regard to funding.

During previous years, three DENR - NPS project partnerships were awarded financial assistance through the Region VIII Priorities Grant Program:

- Lower Big Sioux River TMDL Project,
- SD Volunteer Water Quality Monitoring Program, and
- Terry Redlin Freshwater Institute Education Program.

The Lower Big Sioux TMDL Project was awarded \$300,000 from the 104(b)(3) TMDL Program Funding pool (\$100,000 FFY 2001 and \$200,000 FFY 2002) to support an assessment of the Lower Big Sioux River watershed in partnership with the State of Iowa. Each state was responsible for funding and completing activities in the portion of the watershed located in their respective state with South Dakota also monitoring the main channel. Iowa received a similar grant from USEPA Region VII for the project. A final report for Consolidated Funding Process Grant funded activities was accepted by EPA during April 2005. Financial assistance for the completion of the assessment project was provided by other funds available to the partners.

The South Dakota Discovery Center and Aquarium coordinates the SD NPS Information and Education (I & E) effort using a Section 319 Grant awarded through DENR. The project grant includes support for the SD Volunteer Water Quality Monitoring Program. The Discovery Center partners with the Rocky Mountain Watershed Network for support of some of the activities necessary to maintain the volunteer monitoring program.

The Terry Redlin Freshwater Institute was awarded \$25,000 from the FFY 2004 Wetlands Funding pool. The grant provided additional funds for activities funded by a \$70,000 319 grant awarded through DENR during FFY 2004. The project sponsor completed activities included in the amended workplan during FFY 2007.

Targeted Watershed Grant Program

DENR provided assistance to the Belle Fourche River Watershed Partnership with the preparation of a Targeted Watershed Grant Program grant proposal during FFY 2006. The proposal, as originally drafted, included the portions of the Belle Fourche River watershed located in both South Dakota and Wyoming. The proposal was modified prior to submission to include only the South Dakota portion of the watershed when support for the proposal was withdrawn by project partners in Wyoming. The application was not awarded funding by EPA.

Grants Reporting and Tracking System

South Dakota enters information about 319(h) funded projects into the EPA Grants Reporting and Tracking System (GRTS) database. The database contains information about project funding, goals, and tasks. During FFY 2007, DENR entered:

- mid-year evaluations for projects behind schedule,
- annual evaluations for all existing projects, and
- mandated elements for new projects funded during the year.

During FFY 2007, mid-year evaluations were entered for projects that were determined to be behind schedule. These evaluations recorded activities from October 1 – March 31. Annual evaluations were entered for all project active during FFY 2007. The reports described project activities and progress for the period October 1, 2006 – September 30, 2007.

Mid-Year evaluations were entered during May and June; annual evaluations during November and December. The reports contain:

- a description of activities, challenges encountered, and, if behind schedule, steps proposed to bring the project back on-schedule,
- summaries of project activities completed during the reporting period,
- cumulative summaries of accomplishments since the initiation of the project,
- a comparison of accomplishments relative to workplan milestones, and
- workplan amendments.

DENR is:

- continuing to review the status of assessment projects. Where appropriate, the project status is updated to complete and an administrative final report entered for projects that have completed all project objectives, but the TMDL remains in administrative review.
- using STEPL to estimate load reductions realized from BMPs installed,
- increasing the capability to generate GRTS reports/information using the SD NPS Project Management System and other web based report preparation tools, and
- Participating in regional and national meetings for transition to the new GRTS system.

The department continues to improve proficiency and consistency in meeting reporting requirements by:

- Revising features to the program's electronic, web based reporting program that allow the department's project partners to incorporate tables, figures and photographs into the GRTS report. The program can be accessed at:

<http://www.state.sd.us/denr/DFTA/WatershedProtection/GRTS.htm>

- providing input to EPA Regional and headquarters staff during their efforts to modify the regional mandates list,

- continuing efforts with EPA Region VIII staff to reconcile cumulative grant and project award totals in the system, and
- attending the EPA Region VIII and national GRTS meetings.

Staff & Support

During the reporting period, the Watershed Protection Section was authorized 15.5 full time equivalents. Included in the number were 12 environmental scientists, two natural resources engineers, a secretary and a half time office administrator. Visit the Watershed Protection

website for contact information and areas of program responsibility:

<http://www.state.sd.us/denr/DFTA/WatershedProtection/staff.htm>

Program staff has access to the services of other Division of Financial and Technical Assistance and department media program staff as needed to carry out the mission of the Watershed Protection Program.

The Watershed Protection staffing plan goals are:

- provide sufficient administrative and financial support for the watershed/nonpoint source pollution control program to create and maintain functional, well-managed projects, and sustain an effective statewide program;
- develop and conduct watershed and site-specific assessments in priority areas for the preparation and implementation of TMDLs;
- provide technical support for the watershed/nonpoint source pollution control program to create and maintain effective projects using state-of-the-art science and engineering;
- provide staff to implement the information and education (I & E) work plan and activities that provide general information and education support to the program and project sponsors; and
- facilitate partnering and coordination among agencies and project sponsors in the development and implementation of nonpoint source pollution control projects.

Detailed information about the goals is available in the program staff & support work plan.

To maximize the department's activities in attaining the goals, Water Resources Assistance Program staff maintains a close working relationship with several stakeholder groups and agencies. Staff routinely attends meetings of the SD Association of Conservation Districts Board of Directors, SD Board of Water and Natural Resources, SD Conservation Commission, USDA NRCS SD Technical Committee and program subcommittees, the NRCS State Conservationists Conservation Partners, SD Nonpoint Source Task Force, SD Grasslands Coalition, and local conservation districts that are sponsors of or considering sponsoring nonpoint source control projects. Program staff also meets periodically with staff from the US Army Corps of Engineers, Natural Resources Conservation Service, US Forest Service, Environmental Protection Agency, US Bureau of Reclamation, SD Department of Game, Fish and Parks, SD Department of Agriculture, and other state agencies, local governmental units, universities, agricultural producer groups, and industry and environmental interest organizations.

Program staff provided funded projects with technical assistance and project oversight through onsite and electronic means during FFY 2007. They also assisted prospective project partners with the preparation of

project proposals and implementation plans. See previous sections of this report for projects assisted/developed.

In administering the projects developed/assisted, program staff initiated:

- twenty contracts obligating \$3,560,097 and processed 239 payment requests totaling \$4,212,848 in federal funds from all sources, and
- five contracts obligating \$707,994 and processed 39 payment requests totaling \$1,707,986 in state funds (total includes SRF NPS loans).

Training

Training was provided for department program staff, local watershed implementation and assessment project staff, stakeholder groups, and volunteer water quality monitors. A description of the training provided follows.

Watershed Implementation and Assessment Project Staff

Two types of training are provided for local project personnel:

1. onsite assistance, and
2. workshops.

At the beginning of each project, NPS staff provides onsite project management training for the coordinator and other staff hired by the project sponsor. Topics covered typically include:

- review of the project implementation plan,
- record keeping,
- financial management,
- match documentation,
- reporting requirements (GRTS and load reduction models),
- use of the computer based SD NPS Project Management System program (Tracker),
- EPA and DENR NPS Program guidance and policies, and
- how to access financial and technical assistance from other project partners.

Additional onsite training is provided as needed throughout the duration of the project.

Additional specialized training is provided to project staff involved with monitoring and assessment activities.

The training includes:

- water quality sample and data collection to include a review of quality assurance procedures, and
- Use of Annualized Agricultural Nonpoint Source Pollution Model (AnnAGNPS).

Project management and water quality monitoring training is provide to project coordinators and technicians, agency project partner representatives, and DENR program staff at workshops. The workshops are held every one to two years with the frequency based on the number of new coordinators hired and program changes instituted since the last workshop. The state's assigned EPA Region VIII Project Officer is invited to participate in all workshops scheduled.

A joint North Dakota/South Dakota workshop was held February 12-13, 2007, in Aberdeen, South Dakota. Attendance by state/organization is shown in Table 7.

Table 7. 2007 Joint SD-ND 319 Coordinator Workshop Attendance.

Affiliation	State/ Program/Organization			
	SD	ND	EPA ¹	Organizations
Number of Projects/Programs/Organizations	20	16	1	3
Attendance by State/Agency/Organization				
Local Projects	22	21		
State Agencies	11	12		
University	4	2		
Federal Agencies	6	18		
Tribes	2	1		
Total	45	55		

¹ SD 319 Program Project Officer and Tribal and Wetlands Team member

Topics covered during the workshop with the evaluation rating for the session are shown in Table 8. The ratings are based on a 4 point scale in response to the statement “The information presented will be useful in planning or implementing a 319 project.” The numeric values assigned to each response was:

- Strongly agree – 4,
- Agree – 3,
- Neutral – 2, and
- Disagree – 1.

The workshop as a whole was also evaluated using a 10 point continuum scale with:

- 10 = Excellent,
- 5 = average, and
- 1 = poor.

The results of the evaluation are shown in Table 9.

The results as shown in tables 8 and 9 and in combination with written comments allow the following conclusion to be reached regarding the workshop.

The workshop provided a good learning experience at an appropriate time of the year and location. However, the guest rooms at the workshop facility were less than many of those attending found acceptable. The low facility rating may have effected the overall workshop rating.

The lower rating in many instances is essentially state specific as the lower rating appears to vary by topic by how directly the information presented is applicable to the respondents project(s) by state.

Table 8. Coordinator Workshop Session Evaluation.

Session	Rating by State/EPA			
	SD	ND	EPA	Combined
Animal Nutrient Management Alternatives				
Composting	3.0	3.5	3.5	3.3
Manure Placement	2.8	2.7	3.0	2.8
Vegetative Treatment Systems	3.2	3.0	3.0	3.1
Monoslope Barns and Hoop Structures	3.3	3.0	3.0	3.0
Riparian Alternatives				
Lessons Learned	3.5	3.2	3.5	3.3
Conservation Easements	3.0	2.5	3.5	2.7
Central Big Sioux Project Survey	3.0	2.8	3.0	2.9
Resource Management Partnership Opportunities				
EPA	2.9	2.3	3.25	2.5
NRCS	3.1	2.8	3.5	2.9
USFWS	3.3	3.1	3.5	3.2
Ducks Unlimited	3.0	3.1	3.5	3.0
Land Trusts	2.7	2.3	3.5	2.5
Concurrent Sessions				
North Dakota				
BMP cost share Revisions		3.3	3.0	3.3
Reporting		3.2	3.0	3.2
NRCS Coordination		3.1	3.0	3.1
Anaerobic Digesters		2.9	3.0	2.9
South Dakota				
State Funds Opportunities				
Consolidated/SRF	3.1		3.0	3.1
NPS I & E Mini-grants	2.9		3.5	3.0
Soil and Water Conservation Fund	3.2		3.5	3.2
GFP Private Lands Program	3.1		3.5	3.1
ANM Team Assistance to Projects	2.7		3.5	2.7
Project Evaluation				
Load Reduction Calculation (STEPL)	2.9		3.5	3.0
GRTS Reports (mid-year and annual)	3.1		3.5	3.2
Water Quality Monitoring	3.2		3.5	3.2

Table 9. Coordinator Workshop Evaluation.

Evaluation Category	Rating by State/EPA			
	SD	ND	EPA	Combined
Workshop as a Whole	8.2	7.1	7.5	7.5
Topics	7.9	6.9	8.5	7.3
Materials	7.7	6.6	8.0	7.0
Time of Year	7.4	8.1	8.5	7.9
Location	7.4	6.6	8.5	7.1
Facility	6.3	5.0	7.5	5.6

Training Opportunities Provided Through Project Partners

In addition to the training opportunities provided with direct involvement by the department, training is provided by 319 implementation project sponsors. Examples of training opportunities provided follow.

1. Volunteer Water Quality Monitoring

Water quality sample collection training is provided for volunteer water quality monitors through a partnership with the South Dakota Volunteer Water Quality Monitoring Network managed by the South Dakota Discovery Center and Aquarium with support from DENR. Additional support for the volunteer monitoring program is provided by the East Dakota Water Development District and Rocky Mountain Watershed Network.

2. Managed Grazing

The South Dakota Grassland Coalition in partnership with South Dakota State University and NRCS sponsored the fifth Annual South Dakota Grazing Workshop with financial assistance from the Grassland Management and Planning grant. The two day plus workshop includes both classroom and field exercises designed to acquaint ranchers and resource managers with the principles needed to establish and operate a managed grazing system. Attendance is limited to 30 participants each year with no more than 10 of the number being from agencies.

The Coalition also sponsors field days at the managed grazing system demonstration sites funded by the Grassland Management and Planning grant. Information gained from field monitoring of the sites is summarized on the project website located at:

<http://www.sdconservation.org/grassland/managing/gmd/index.html>

In addition to the workshop and field demonstration sites, the coalition sponsors other grazing workshops and field days during the year. These and local grazing workshops, such as the Coteau Grazing Conference, sponsored by other watershed projects are leading to the increased adoption of managed grazing by producers across the state. The Coteau conference, cosponsored by the Poinsett and Upper Big Sioux Watershed Projects during FFY 2006, was attended by approximately 300 individuals. The success of the Coteau conference indicates increased interest in grazing management in the eastern portion of the state where agriculture is dominated by row crop production.

Department Program Staff

Several department program staff persons received specialized training during the FY 2007 to acquire additional or improve skills needed to manage a successful nonpoint source program. Training included:

- sediment tracking and bank stability model training provided by Andrew Simon,
- operation of monitoring equipment provided by company representatives or the assessment team,
- GIS/ARC View applications, and
- Historic Preservation Act compliance.

Project Guidance & Oversight

DENR staff provides project management assistance to project sponsors during all phases of project development, implementation, and evaluation. The assistance is provided using a combination of onsite visits, verbal and written communications, and guidance and publications.

The guidance and other documents are, for the most part, web based at:

<http://www.state.sd.us/denr/DFTA/WatershedProtection/wpprg.htm>

Program project officers are encouraged to complete at least two onsite visits to each assigned project each year. During the visits the project officers:

- review project financial records,
- evaluate project progress in relation to established milestones and goal attainment,
- identify needed workplan revisions, and
- verify construction and operation and maintenance of BMPs installed.

The primary resources used during the visits included:

- the South Dakota NPS project management notebook developed during 2004 with updates sent or provided at the 2005 and 2007 workshops, and
- EPA and state nonpoint source guidance documents and policy papers.

The department uses the information gained during the onsite visits, project annual reports, and communications with the project sponsor and coordinator to complete an annual review of all 319 projects. The information gained from the review is used by program staff to assist project sponsors with the development of workplan revisions that may be needed to facilitate attaining the project goal.

During FFY 2007, the review resulted in the revision of several project implementation plans, development of exit strategies for two projects at the current expiration date, and initiation of actions to bring three operators who had received 319 funds into compliance with their operations and maintenance agreements. The decision to exit the two projects prior to installing all planned BMPs was based on the determination that the progress toward completing the project workplan indicated the likelihood of realizing success was doubtful. The noncompliance incidences were taken through the sponsor of the projects where the practice had been installed. All actions resulted in the producer completing corrective actions.

A project oversight tour was conducted with the EPA Region VIII project officer during June 2007. During the tour, EPA and DENR NPS program staff met with local project staff and or board members to discuss project progress and items of concern and visited BMP implementation sites. Projects visited included:

- Lewis and Clark Watershed Improvement Project,
- Turkey Ridge Creek Watershed Project,
- Vermillion River Basin Watershed Assessment Project,
- Firesteel Creek/Lake Mitchell Watershed project,
- Evaluating Vegetative Treatment Areas (VTA) Project (Miner County VTA Site), and
- Central Big Sioux Watershed Improvement Project.

The Evaluating VTA Project visit was at the Miner County VTA site. The Central Big Sioux Project visit was a meeting with project and Northern Prairies Land Trust staff to discuss the conservation easement component of the project and how it might be expanded to other project areas.

A Vermillion River Water Development District Board meeting was attended as part of the tour to discuss expansion of the Turkey Ridge Creek Project to encompass the entire Vermillion River Basin, as outlined in the strategy developed when the Turkey Ridge Project was initiated. The meeting resulted in the Board and Conservation Districts in the Vermillion River Basin agreeing to expand the project under the leadership of the McCook Conservation District.

Information and Education

The South Dakota NPS Information and Education (I & E) Program has been operational since the South Dakota NPS Program was initiated. Until recently, the program was implemented through the Water Resources Assistance Program and relied primarily on community based partnerships to deliver NPS information and education opportunities to the state's residents. This approach resulted in an outreach and information transfer mechanism that:

- is consistent with the Clean Water Action Plan,
- addresses priorities identified in the South Dakota – State - EPA PPG,
- enjoys broad-based support from agricultural and environmental groups and governmental agencies, and
- is holistic and sustainable.

The NPS Information and Education Program is implemented through DENR's Water Resources Assistance Program. Activities selected for completion through the I & E program are:

- based on local, state, and national priorities;
- chosen to complement other resource management groups and agencies actions;
- designed to effectively reach an identified target audience; and
- part of a statewide NPS I & E Strategy adopted by the South Dakota Task Force.

The NPS priority areas addressed by the strategy are:

- animal feeding operations (AFOs),
- nutrient management, and
- TMDLs.

Staff availability to continue delivery of the program became limited beginning mid – FFY 2003. This resulted in the decision to outsource primary responsibility for the implementation of statewide NPS I & E workplan to the South Dakota Discovery Center and Aquarium. The Discovery Center was awarded a \$200,000, two year grant during FFY 2004 for that purpose. The Center was awarded \$200,000 in FFY 2007 Section 319 funds to continue the project.

The Discovery Center uses a combination of project staff and a mini-grants program to continue many of the programs previously provided assistance and expand the target audience reached. DENR maintains a close working relationship with the Discovery Center to ensure program milestones are met and that notices of

opportunities for participation in the mini-grants program are widely advertised. Information about the mini-grants program is provided at NPS Task Force meetings at training sessions, through the Discovery Center's outreach activities, and is advertised on the Watershed Protection home page at:

<http://www.state.sd.us/denr/DFTA/WatershedProtection/wpprg.htm>

Table 10 contains a list of projects funded by the mini-grants program.

In addition to the projects listed, Discovery Center staff provided financial and technical assistance to local groups for the completion of water quality related outreach projects and programs in the amount of \$8,056 during FFY 2007 bring the total assistance provided using funds from its 319 grant award to \$17,866.

Table 10. Projects Funded by the NPS I & E Mini-grant Program.

Project	Project Sponsor	Total Project (\$)	Grant (\$)
KIDS Fair	Project Learning Tree	7,300.00	1,700.00
Water Quality for Live Stock	Miner Conservation District	6,750.00	1,600.00
Wall Lake Interpretive Signage	Minnehaha Conservation District	6,620.10	3,973.10
Storm Water Public Education	SD Department of Transportation	31,250.00	12,500.00
My Home Planet Earth	North Central RC&D	15,500.00	5,000.00
Kids Helping Kids	Growing Up Together	7,438.00	1,000.00
Lakes Are Cool	Day County Conservation District	500.00	99.00
WQ of Covered/Uncovered Ponds	Parkston School	2,000.00	500.00
Living Guide	Soil & Water Conservation District	9,605.00	4,500.00
Soil Survey	Minnehaha Conservation District	2,500.00	500.00
4H Hughes/Stamley	River 4H	500.00	100.00
Basic Limnology	SD State University	4,312.00	3,500.00
Bacteria Monitoring	SD Lakes and Streams Association	8,145.00	4,745.00
No Till Conference	SD No-Till Association	32,930.00	3,000.00
Groundwater Training	East Dakota Water Development District	7,500.00	4,500.00
Rapid Watershed Assessment	Codington County Conservation District	11,776.00	5,000.00
Publication	Clear Lake Betterment Association	729.00	429.00
SPLAH Publication	South Dakota Lakes & Streams Association	2,059.66	500.00
Total		\$157,414.76	\$53,146.10

Additional outreach activities with which the department was involved during FFY 2007 include (also see Training Section)

Manure as a Resource Series

The five publication manure as a resource series developed and printed through a partnership with NRCS, South Dakota State University (SDSU) Cooperative Extension Service, SD Department of Agriculture, and SD

Association of Conservation Districts continues to be one of the primary resources used to provide the livestock industry with tools needed to better manage manure. Titles included in the five publication series are:

- *Straight Talk on Manure*
- *Sampling Manure for Nutrient Management*
- *Using the Results of Manure Analysis*
- *Calibrating Manure Spreader Application Rates*
- *Sampling Soils for Nutrient Management*

The publications are available at local extension and conversation district offices and the DENR website at:

<http://www.state.sd.us/denr/DES/Surfacewater/feedloteducate.htm>

The publications are also distributed at manure/nutrient management training sessions conducted by the partners, industry workshops and commodity group conventions and with lab analysis reports sent to producers by SDSU.

Volunteer Water Quality Network

Participation in the Volunteer Water Quality Program offered through the SD I & E Grant to the Discovery Center and the Fecal Coliform Monitoring Pilot Program initiated by the East Dakota Water Development District were promoted. Watershed project sponsors were encouraged to include a volunteer monitoring activity in project workplans. Monitoring equipment is provided and the cost of analysis for samples collected and submitted to the South Dakota Health Lab is paid by the information and education project.

Local Nitrate Testing and Education Outreach for Private Well Owners in Eastern SD

The private well nitrate testing program developed through a partnership with East Dakota Water Development District (EDWDD) was adopted by the DENR Ground Water Program. The program is patterned after a similar program developed by the Minnesota Department of Agriculture during the early 1990s. The Ground Water program set up a booth at county fairs and other events to provide private well owners with an inexpensive method of determining nitrate levels in private wells to the nearest 0.1 mg/L that gives immediate results rather than waiting for results from a lab. Well owners are also provided with information about how they can prevent contamination at the wellhead and health problems if high nitrate levels were detected. The equipment has also been used to support nitrate level investigations of four public drinking water supplies.

Local Watershed Project Coordinator's Workshop

A joint ND –SD Project Coordinators' workshop was held February 12 – 13, 2007. See Training Section this report for details.

Program Website

The Water Resources Assistance Program has maintained a website since 1998. The website provides access to water resources information, reports, and opportunities for involvement; EPA national and Region VIII and state NPS program guidance; and project management programs to include GRTS, STEPL, and the SD Project

Management System (The Tracker Program). The site may be accessed at:

<http://www.state.sd.us/denr/DFTA/WatershedProtection/wpprg.htm>

Displays/Conferences

Displays were set up at one conference and four career fairs during the year. In addition, the program assisted other department programs and project partners with the development of displays for water related conferences and workshops. The SD NPS Coordinator was a member of the steering committee that planned the Eastern SD Water Conference which was held during November 2006. A second conference is planned for October 2007. The 2007 conference will be held jointly with the Midwest Ground Water Conference.

Department staff made arrangements for a Region VIII Joint Integrative Water Quality NPS regional meeting in Rapid City at the request of EPA. The meeting scheduled for mid-October 2007, was to include NPS, assessment and TMDL staff from region and the states. EPA elected to postpone the meeting until a later date.

Congressional Delegation Tours

Program staff participated in project tours organized for Senator Johnson and Congresswoman Herseth Sandlin's Washington staff. The tours were organized by the SD Association of Conservation Districts to provide the staff members information regarding how farm bill, 319 and other state and federal funds are used to install BMPs in South Dakota watershed projects.

Financial and Technical Assistance Provided by Project Partners

While financial and technical assistance received from the Environmental Protection Agency provides the base for the South Dakota NPS Program, the resources available from public and private program partners are integral components of many program activities. Selected partnerships active during the past year are summarized below. For additional information about these and other program partnerships, consult the *South Dakota Watershed Project Funding and Technical Assistance Guide*. An electronic copy of the guide is available by visiting:

<http://www.state.sd.us/denr/document.htm#Watershed%20Protection>

USDA Natural Resources Conservation Service and Farm Service Agency

The USDA Natural Resources Conservation Service (NRCS) and Farm Service Agency (FSA) are active project partners in nearly all phases of the NPS Program:

- NRCS and FSA program funds are included in the budget of nearly all SD watershed projects;
- representatives from the SDDA, SDACDistricts, DENR and the State Conservationist or upper program management meet several times each year to determine joint policy and coordinate efforts;
- Resource Conservation and Development Districts (RC&Ds) assist with project development and serve as the local sponsor of several SD watershed assessment and implementation projects;
- district conservationist work cooperatively with watershed project staff to design and install BMPs;
- program and project staff are offered the opportunity to participate in NRCS staff training sessions; and
- NRCS provided and supervised staff for the SD Animal Waste Management Team which included nutrient management specialists.

During FFY 2007 NRCS recognized the South Dakota Grasslands Coalition for excellence in advancing conservation through sponsorship of the SD Grasslands Planning and Management Project. The agency recognizes only one conservation partner/project each year with the award. The Grasslands Coalition's was also recognized by EPA for its leadership. EPA Region VIII recognized the Coalition's efforts by awarding an Environmental Achievement award for providing producers information and technical assistance that resulted in voluntary adoption of managed grazing practices that control/reduce nonpoint source pollution. Pictures from the awards ceremony for both awards are located in Appendix B.

In addition to providing financial and technical assistance, during FFY 2007 NRCS and NPS program staff worked cooperatively in the:

- revision of the criteria for evaluating and ranking applications for farm program cost share assistance through state technical committee work groups,
- planning and management of managed grazing demonstration sites,
- funding the design and construction of animal nutrient management systems,
- revision of practice standards,
- development and review of applications for Conservation Priorities and Rapid Watershed Assessment grants through the national Cooperative Conservation Partnership Initiative Grant Program and Conservation Innovation grants, and
- Implementation of Rapid Watershed Assessment Grant workplans.

The NPS Program provided information concerning USDA NRCS/FSA programs to the Governor's office for use in drafting the state's position relative to the 2007 Farm Bill.

Financial assistance for NPS related activities provided by NRCS administered programs during FFY 2007 is shown in the Table 11; conservation practices funded primarily by the Environmental Quality Incentive Program (EQIP) program in Table 12.

Table 11. SD NPS Related Activities Funded During FFY 2007 by NRCS Programs.

Program	# Applications Funded	Acres	Funding (\$)
Environmental Quality Incentives (EQIP)	350	NA	16,416,601
Ground and Surface Water Conservation (GSWC)	32	NA	347,813
Wildlife Habitat Incentives Program (WHIP)	21	NA	304,526
Wetland Reserve Program (WRP)	10	1,014	1,389,704
Grasslands Reserve Program (GRP)	7	18,043	2,760,645
Conservation Security Program (CSP)	195	NA	2,478,756
Conservation Reserve Program (CRP) ¹	NA	2,903,210.5	NA

1- Includes Continuous CRP (CCRP); Total CRP Acres = (2,903,210.5 + 1,345,014.5) = 1,558,196

Table 12. Conservation Practices Funded by EQIP During FFY 2007¹.

Conservation Practice	Practice Unit	Extent
Waste Storage Facility (313) ²	Number	35.0
Animal Mortality (316) ²	Number	2.0
Critical Area Planting (342)	Acres	134.6
Sediment Basin (350)	Number	29.0
Well Decommissioning (351)	Number	17.0
Closure of Waste impoundment (360)	Number	1.0
Diversion (362)	Feet	27,235.0
Forest Stand Improvement (666)	Acres	5.0
Pond (378)	Number	49.0
Windbreak/Shelterbelt Establishment (380)	Feet	299,233.0
Fence (382)	Feet	2,155,641.0
Filter Strip (393)	Acres	21.7
Grade Stabilization Structure (410)	Number	1.0
Grassed Waterway (412)	Acres	7.8
Hedgerow Planting (422)	Feet	250.0
IWC High-Pressure, Underground Plastic Pipeline (430DD) ²	Feet	11,200.0
IWC Low-Pressure, Underground Plastic Pipeline (430EE) ²	Feet	10,485.0
Irrigation System, Sprinkler (442) ²	Acres	6,509.2
Irrigation Water Management (449) ²	Acres	14,094.8
Irrigation Land Leveling (464)	acres	18.0
Mulching (484)	Acres	412.2
Obstruction Removal (500)	Acres	7.7
Pasture & Hay Planting (512)	Acres	11,301.5
Pipeline (516)	Feet	4,145,710.0
Prescribed Grazing (528) ³	Acres	21,429.1
Pumping Plant (533)	Number	212.0
Gazing Land Mechanical Treatment (548)	Acres	311.7
Range Planting (550)	Acres	948.6
Heavy Use Protection (561)	Acres	27.0
Spring Development (574)	Number	5.0
Stream Crossing (578)	Number	3.0
Structure for Water Control (587)	Number	1.0
Pest Management (595)	Acres	11,810.7
Terrace (600)	Feet	17,885.0
Tree/Shrub Establishment (612)	Acres	0.3
Watering Facility (614)	Number	1,513.0
Underground Outlet (620)	Feet	400.0
Manure Transfer (634)	Number	6.0
Water spreading (640)	Acres	551.1
Water Well (642)	Number	157.0
Upland Wildlife Habitat Management (645)	Acres	109.3
Wildlife Watering Facility (648)	Number	1.0
Wetland Restoration (657)	Acres	2.0
Windbreak/Shelterbelt Renovation (650)	Feet	31,003.0

1 - Includes practices installed using EQIP and Ground and Water Conservation provision of EQIP.

2 - AFO/CAFO (37 systems funded at a total cost of approximately 2.29 million dollars = nearly 14% of total EQIP allocation)

Bureau of Reclamation

The Bureau of Reclamation (BOR) is an active partner in the Belle Fourche River Watershed and Cheyenne River assessment projects. BOR's involvement includes:

- Belle Fourche River – assessment and implementation project planning,
- Upper Cheyenne River – planning and water quality sample analysis, and
- Lower Cheyenne River – water quality sampling and analysis.

US Geologic Survey

The Geologic Survey provides technical assistance and water quality data to several South Dakota nonpoint source assessment and implementation projects, especially those that include large tracts of federal and tribal lands. The survey is also an active participant in planning and conducting the Eastern South Dakota Water Conference.

US Fish and Wildlife Service

The US Fish and Wildlife Service:

- provides technical and financial assistance to watershed projects for BMPs installation,
- coordinates many of its assistance efforts with the SD Association of Conservation Districts and SD Grassland Management and Planning Project staff, and
- works with local project sponsors, DENR and EPA Region VIII staff to complete threatened and endangered species clearance and related implementation issues.

BMP installation assistance centers primarily on cost share for practices related to managed grazing systems and wetland habitat development. The main USFWS programs providing funds

for BMPs are:

- Partners for Fish and Wildlife Program, and
- North American Waterfowl Conservation Act.

Commonly cost shared BMPs include:

- grass seeding,
- cross fencing,
- multiple purpose ponds, and
- riparian exclusion fencing.

The commitment of the Service to partnering with SD watershed projects is illustrated by the funds the Service is contributing through the Partners for Fish and Wildlife Program to the Upper Snake Creek and Belle Fourche River Watershed Projects. The funds provide for the services of a wildlife biologist to install 319 funded grassland seeding, grazing systems, multiple purpose ponds and riparian fencing in the Upper Snake Creek project area and similar practices in the Belle Fourche. Both projects are multiple TMDL implementation efforts.

US Forest Service

Program staff interacts with and provides technical assistance to the US Forest Service to prevent and control NPS pollution on the forest and grass lands the Service manages. Examples of interactions include:

- review notices of proposed US Forest Service actions, permits, and management plans,
- coordination of NPS TMDL study and control/remediation activities taking place within the forest boundaries,
- requirement to use the BMPs described in the *Forestry Best Management Practices for South Dakota* in timber harvest on lands the agency manages in South Dakota, and
- audits of BMPs installed at timber harvest sites.

The audit sites have included timber harvests on Bureau of Land Management, Forest Service, state land and two private sales.

Reports summarizing the results of the audits are available by accessing:

<http://www.state.sd.us/denr/DFTA/WatershedProtection/WQInfo.htm>

then under Project Reports curser down to “Silviculture Best Management Practices Audit Reports”.

South Dakota Water & Environment Fund

The South Dakota Board of Water and Natural Resources (BWNR) administers the Consolidated Water Facilities Construction program. The program provides state grants and low interest loans for projects on the State Water Facilities Plan. NPS structural and construction BMPs such as dredging, animal waste management systems and shoreline stabilization are eligible for cost share funds through the program. The Water Resources Assistance Program also administers special appropriations from the department’s Environment and Natural Resources Fee Fund. These funds provide state assistance for the completion of TMDL assessments. Projects awarded Consolidated and fee fund grants during the reporting period are listed in Table 13.

Table 13. NPS Projects Awarded Consolidated and Fee Fund Grants During FFY2007.

Project	Funding Source	Grant Award (\$)
Lower Cheyenne TMDL Assessment	Fee Fund	148,042
Kingsbury Lakes Water Quality Implementation	Consolidated	20,000
Total		168,042

South Dakota Clean Water State Revolving Fund

The South Dakota Board of Water and Natural Resources administers the state’s Clean Water State Revolving Loan Fund program. During 2004, the board established a nonpoint source incentive rate for nonpoint source projects at 1.50 percent for loans with a term of 10 years or less and 2.25 percent for loans with a term greater than 10 years. Projects for traditional wastewater or storm water projects that include a nonpoint component are eligible for the nonpoint source rate. The annual principal and interest payments are calculated for a loan at the higher base SRF interest rates of 2.50 percent for loans with a term of 10 years or less and 3.25 percent for loans with a term greater than 10 years. Using the lower interest incentive rate, a loan is sized using the annual payment previously calculated. The difference in the two loan principal amounts is the amount of funding available for the NPS component of the project.

Three NPS project sponsors have used the NPS incentive program rate in partnership with municipalities. The projects and NPS loan amount are shown in Table 14.

Table 14. SRF NPS Incentive Loans.

Project	Municipality	SRF Loan (\$)
FFY 2005		
Brown County Water Quality Improvement Project	City of Aberdeen	1,156,259
Central Big Sioux Watershed Project - Segment I	City of Sioux Falls	4,374,985
FFY 2006		
Upper Big Sioux River Watershed Project –Segment IV	City of Watertown	113,985
FFY 2007		
Upper Big Sioux River Watershed Project – Segment V	City of Watertown	139,952
Total		5,785,181

Aberdeen initially accessed the funding source to reduce sediment and nutrient loading to several waterbodies located between the city and Elm Lake and has recently expanded the area in which funds can be used to include the entire Elm Lake Watershed. The Elm River is the primary source of the city’s drinking water supply. BMPs planned include AWMS, managed grazing and shoreline stabilization.

Sioux Falls obtained the funds to install buffers and stabilize shoreline along the Big Sioux River and major tributaries within the city and north to the Moody County line. The buffers will protect the city’s water supply by reducing fecal coliform and sediment loading.

The city of Watertown was awarded Clean Water SRF financing using the NPS incentive rate terms for 20 years during FFY 2006 and FFY 2007 to provide nonfederal cost share funds for the Upper Big Sioux River Watershed project. Watertown is using the loan funds to reduce sediment and nutrient loading to the Upper Big Sioux River, Lake Kampeska, and Pelican Lake.

Clean Water SRF Administrative fee funds collected by DENR were allocated for the development of engineering designs needed to construct AWMS. While primarily designed for producers and livestock auction markets that are required to obtain NPDES permits, the systems constructed using the design will reduce the overall nutrient and sediment loads entering surface water in NPS project areas. Addressing the systems needing permits is also prompting many producers who are not required to obtain a permit, especially those whose operations are near a waterbody, to install AWMS before they are required to do so and no longer eligible for cost share assistance from the 319 program.

The program was implemented through a partnership with the department’s surface water and pollution prevention programs, the SD Department of Agriculture, conservation districts and NRCS. Conservation districts provided the local contact point for program participants. Since the inception of the program during the latter part of FFY 2004, 106 producers and 15 livestock auction markets received design assistance funds. Financial assistance provided since the inception of the program by source of funds is shown in Table 15.

Table 15. AWMS Design Assistance Funds Awarded.

Assistance/Grant Program	Agency	Amount (\$)
Soil and Water Conservation Grant Program	SD Dept. of Agriculture	329,583
CW SRF Administrative Fee Funds	DENR	522, 783
Pollution Prevention incentives to States (P2)	DENR	167,080
Partnership Contribution	NRCS	105,000
Total		1,124,446

Of the total, producers received \$765,586, auction markets \$187,500, and the districts \$171,360 for coordinating the program at the local level.

Producers and livestock auction markets contributed cash and inkind match in an amount equal to financial assistance awarded.

The program was recognized by EPA when it was awarded a 2006 EPA, Region VIII Environmental Achievement Award.

Because livestock auction markets are not eligible for financial assistance through USDA programs available to producers, the State of South Dakota developed the Livestock Auction Market Water Quality Grant Program. The program is funded with 2.5 million dollars in Clean Water SRF Administrative Fee funds.

The program, developed with input from two consulting engineering firms, provides a 75 percent construction grant with a \$150,000 maximum per auction market and a 75 percent construction engineering oversight grant with a maximum of \$12,500 per market. The construction grant maximum was established to be equivalent to the EQIP assistance available to producers.

Fifteen of the 42 licensed auction markets in SD require a permit. During FFY 2007, the owner of one of the markets awarded a design grant decided not to proceed with installing an AWMS. The decision reduced the total operations participating in the project to 18. The number includes 13 auction markets that require a permit; five that do not. During FFY 2007 two markets were awarded contracts totaling \$273,000 and two markets increased awards bringing the total construction grants to near the \$2.5 million allocated for the program.

South Dakota Department of Agriculture

The South Dakota Department of Agriculture (SDDA):

- provides state funds to:
 1. conservation districts for the installation of BMPs through the South Dakota Resource Conservation Grants Program, and
 2. producers through a low interest value added and beginning farmer loan programs.
- works cooperatively with DENR to address issues of common interest such as:
 1. animal feeding operation nutrient management,
 2. historic preservation, and
 3. financial assistance.

DENR staff coordinates funding of grant requests that could benefit from both the NPS and Resource Conservation Grants programs with SDDA and participates in the grant application reviews. To maintain and build on the partnership with SDDA, program staff meets regularly with SDDA staff and attends the Conservation Commission meetings. The cooperation between the two agencies has resulted in the adoption of a docket that establishes a unified cost share level for BMPs eligible for installation using both Resource Conservation and 319 grant funds.

During this reporting period, the commission awarded grants totaling \$390,587. NPS projects and project related activities included in the total are listed in Table 16.

Table 16. NPS Projects and Related Activities Conservation Grants During FFY 2007.

Project	Grant (\$)
Upper Big Sioux RWA (Codington CD)	3,460
Northeast Glacial Lakes (Day CD)	42,931
Wolf Creek Stream Bank Stabilization (Hutchinson CD)	29,584
Feedlot Reclamation (Kingsbury CD)	22,500
Total	98,475

* CD – Conservation District

South Dakota Department of Game, Fish, and Parks

The South Dakota Department of Game, Fish and Parks (GFP):

- provides financial and technical assistance for the installation of BMPs that provide wildlife benefits and reduce NPS pollution through the Private Lands Program, and
- provides DENR and local project sponsors assistance with identifying and developing strategies to comply with threatened and endangered species issues.

As with USFWS, GFP assistance programs accessed by projects center mainly on managed grazing and wetlands. For a description of the programs and practices cost shared, visit:

<http://www.sdgifp.info/Wildlife/privatelands/PrivatelandsIndex.htm>

Other Partnerships

DENR maintains partnerships with several other agencies and organization in addition to those discussed previously. A comprehensive list of partners is included in the draft revision of the South Dakota NPS Management Plan. Examples of the agencies and organizations are listed below. The nature of the partnership is also provided.

- Northern Prairies Land Trust – Conservation Easement program to include holding the easements
- SD Crop Advisors Association – Preparation of nutrient management plans; NPS Coordinator represents DENR on the Board of Directors
- Project Learning Tree – Environmental Education Programs; NPS Coordinator represents DENR on the Board of Directors
- SD Grasslands Coalition – Lead organization for grassland related BMPs
- SD Historical Society – Meet historic preservation requirements; DENR has a programmatic agreement with the society.

319 Grant Match

Nonfederal match of 40 percent of project expenditures is required for Section 319 grants. South Dakota takes a conservative approach to approving nonfederal match submitted by its project partners. As much of the match comes from the construction and implementation of BMPs, a large proportion of the match requirement for many projects is documented during the later phases of a project. Table 17 contains a summary of nonfederal

match documented for each of the department's 319 grants.

Table 17. 319 MATCHING FUNDS Accrued Through 9/30/07.

Grant By FFY	Grant Award (\$)	Total Match Required (\$)	Expenditures	Match Required Against Expenditures(\$)	Match Documented (\$)
1989	1,594,000	1,062,667	1,594,000	1,062,667	1,315,016
1990	800,137	885,994	800,137	885,994	885,994
1991	655,851	437,234	655,797	437,198	437,199
1992	795,000	530,000	794,836	529,891	535,421
1993	1,090,839	727,227	1,090,839	727,227	779,175
1994	1,415,142	943,508	1,415,142	943,508	1,188,561
1995	1,699,669	1,133,119	1,699,669	1,133,119	1,154,183
1996	1,126,685	751,123	1,126,685	751,123	787,159
1997	1,253,790	835,902	1,253,790	835,902	1,484,877
1998	1,296,790	864,5267	1,296,790	864,531	860,355
1999	2,791,400	1,860,933	2,791,400	1,860,933	1,861,025
2000	3,008,897	2,005,931	3,008,897	2,005,931	2,005,931
2001	3,267,900	2,178,600	3,267,900	2,178,600	2,356,825
2002	3,142,900	2,095,268	2,729,982	1,819,988	2,153,244
2003	3,125,964	2,085,800	1,769,553	1,179,702	1,761,561
2004	3,090,200	2,060,133	2,018,072	1,345,381	1,949,315
2005	2,602,600	1,735,067	1,107,721	738,481	2,936,836
2006	2,583,000	1,722,000	811,425	540,950	261,542
2007	2,470,700	1,647,133	48,159	32,106	9,716
Total	37,811,464	33,342,906	29,280,794	19,873,232	24,723,935

Water Quality Improvements

The South Dakota NPS Program considers quantification of load reductions and resultant water quality improvements essential to evaluating project goal attainment and reaching the TMDLs established for priority waterbodies. The quantification process uses a combination of modeling and water quality sample results. Commonly used models include:

- Revised Universal Soil Loss Equation (RUSLE 2),
- Annualized Agricultural Nonpoint Source (AnnAGNPS), and
- Spreadsheet Tool for the Estimation of Pollutant Load (STEPL).

DENR adopted STEPL as the primary load reduction estimation model for reporting annual and cumulative load reductions in GRTS during FFY 2007.

The availability of load reduction/water quality improvement data is anticipated to increase as the projects progress and program staff and project coordinators become more proficient with data collection.

Annual and cumulative load reduction/water quality improvements documented are entered in GRTS. Load reduction data for waterbodies located in project areas where the project was closed during FFY 2007 are summarized in Table 18.

Table 18. Load Reductions Achieved by Projects Closed During FFY 2007.

Lake/Waterbody	Pollutant	Load Reduction		TMDL (Y/N)
		Target	Cumulative	
Belle Fourche River Watershed Management ¹	Total suspended Solids			Y
	Above Reservoir Below Reservoir	189 mg/L 108 mg/L	Not Provided 27 mg/L	
Cottonwood Lake	Phosphorus	2,593 kg/yr	2,953 kg/yr	Y
Lake Faulkton Watershed Restoration	Phosphorus Inlake Watershed	4,016 Kg/yr	3,231.6 Kg/yr	Y
		977.5 Kg/yr	397.2 Kg/yr	
Lake Louise	Phosphorus	212.9 kg/yr	1,331.7 kg/yr	Y
Lake Poinsett Watershed	Sediment Watershed			N
		110,000 T/yr (=40%)	36,312 T/yr	
	Lakeshore		120,000 T	
	Phosphorus Watershed			Y
		26,914 lb/yr (= 40%)	18,689 lb/yr	
	Lakeshore		4,800 lb/yr	
Little Minnesota River/Big Stone Lake Watershed ²	Sediment	80,213 T/yr (= 56%)	45,836 T/yr (= 32%)	N
	Phosphorus	219,191 lb/yr (= 56%)	125,252 lb/yr (=32%)	N

1. Reduction = Segment 1 + segment 2

2. Reduction = total all project phases 1985 - 2007

Appendix A

Open NPS Projects Funded by Previous Section 319 Grants by River Basin

River Basin	Project
Bad River	Bad River National Watershed Monitoring
Belle Fourche River	Belle Fourche River Watershed Management (Segments II & III)
Big Sioux River	Clear Lake Implementation Central Big Sioux Watershed Implementation (Segment I) Deuel County Lakes Watershed Improvement Enemy Swim Lake Implementation Lake Norden/Lake Albert/Lake St. John Assessment Lake Poinsett Watershed North Central Big Sioux /Oakwood Lake TMDL Upper Big Sioux River Implementation Segment IV
Cheyenne River	Cheyenne River Phase I TMDL Assessment Lower Cheyenne River TMDL Assessment – Phase I
Grand River	None
James River	Amsden Dam Assessment Brown County Water Quality Improvement Elm Lake Implementation Firesteel Creek/Lake Mitchell Implementation Lake Hanson/Pierre Creek Implementation Lakes Cottonwood and Louis Implementation Lake Faulkton Watershed Implementation Lower James River Watershed Assessment Upper Snake Creek Watershed (Segment I)
Minnesota River	Little Minnesota River/Big Stone Lake
Missouri River	Medicine Creek Watershed Implementation South Central Lakes Assessment
Red River	
Vermillion River	Kingsbury Lakes Water Quality Improvement Turkey Ridge Creek Watershed (Segment I) Vermillion River Basin Assessment
White River	None
Statewide / Regional Projects	Animal Nutrient Management Team IV Evaluating Phosphorus Loss on a Watershed Basis Evaluating Vegetated Treatment Areas Grassland Management and Planning Manure Management BMPs Base on Soil Phosphorus – Additional Soils Nonpoint Source Information and Education -1998 Precision Manure Management to Improve Water Quality SD NPS Information & Education Partnership Terry Redlin Institute Wetlands Education Project 303(d) Watershed Planning and Assistance Project

Completed Section 319 Projects by River Basin

River Basin	Project
Bad River	Bad River Water Quality Project (Phase II) Bad River Water Quality Project (Phase III) Hayes and Waggoner Lakes TMDL Upper Bad River Demonstration
Belle Fourche River	Bear Butte Creek Riparian Demonstration Belle Fouché River Assessment ¹ Belle Fourche River Watershed Management Plan (Segments I & II)
Big Sioux River	Bachelor Creek Assessment Bachelor Creek Hydrologic Unit Big Sioux Well Head Protection Blue Dog Lake Assessment Blue dog Lake Watershed Improvement Enemy Swim Lake Implementation Lake Campbell Watershed Restoration Lake Kampeska Watershed Lake Norden/Lake Albert/Lake St. John Assessment Lake Poinsett Watershed Lakes Cochrane/Oliver Watershed Improvement Lakes Herman/Madison/Brant Implementation Pickerel Lake Protection Upper Big Sioux River Watershed Segments I, II, & III Wall Lake Watershed Project Wall Lake Post Project Assessment ¹
Cheyenne River	Cheyenne River Phase I TMDL Assessment Lower Cheyenne River TMDL Assessment – Phase I Foster Creek Riparian Demonstration - Stanley Co. Piedmont Valley Assessment Rapid City Storm Water
Grand River	Shadehill Lake Protection Staffing & Support
James River	Lake Byron Watershed Clear Lake Assessment - Marshall Co. Lakes Cottonwood and Louis Implementation Cottonwood & Louise TMDL Loyalton and Cresbard Lakes TMDL Foster Creek Riparian Demonstration - Beadle Co. Jones Lake/ Rose Hill Lake TMDL Jones Lake/Rose Hill Lake Watershed Implementation Lake Faulkton Watershed Implementation Lake Mitchell Watershed Assessment Lake Redfield Restoration Mina Lake Water Quality Assessment Moccasin Creek TMDL Ravine Lake Watershed Richmond Lake Watershed Richmond Lake Assessment ³ Twin Lakes/Wilmarth Lake Assessment White Lake Dam TMDL ¹
Minnesota River	Big Stone Lake Big Stone Lake Restoration II Cochrane & Oliver TMDL Lakes Cochrane/Oliver Watershed Improvement Lake Cochrane Protection Lake Hendricks Watershed Little Minnesota River/Big Stone Lake

Completed Section 319 Projects by River Basin (Continued)

Missouri River	Burke Lake Assessment Burke Lake Restoration Medicine Creek Assessment Okobojo Creek Watershed Assessment South Central Lakes Watershed Assessment
Red River	Lake Traverse Watershed Assessment
Vermillion River	Swan Lake Restoration Kingsbury County Lakes Assessment
White River	White River Phase I Assessment Little White River TMDL Assessment
Statewide/Regional Projects	Abandoned Well Sealing Animal Waste Management I Animal Waste Management II Animal Nutrient Management III Animal Nutrient Management Team IV Animal Waste Team (Buffer salesmen) Bootstraps Buffer Planning and Assistance Coordinated Resource Management I Coordinated Resource Management II East River Area Riparian Demonstration East River Riparian Demonstration II East River Riparian Grazing I Grassland Management and Planning Ground Water Monitoring Network Manure Management Based on Soil Phosphorus Manure Management Based on Soil Phosphorus – Additional Soils Nitrogen & Pesticides in Ground Water Nonpoint Source Information & Education 1989 Nonpoint Source Information & Education 1994 Nonpoint Source Information & Education 1996 Nonpoint Source Information & Education 1998 ¹ Rainfall Simulator Riparian Grazing Workshop South Dakota Association of Conservation Districts South Dakota Lake Protection Statewide Lake Assessment Wetlands Education Project

Completed 604(b) Projects by River Basin

Bad River Basin	Bad River Phase IA Bad River Phase IB
Belle Fourche River Basin	Belle Fourche River TMDL Project Streambank Erosion Assessment-Upper Whitewood Creek Whitewood Creek Streambank Assessment Project Whitewood Creek Watershed Project Planning Whitewood Creek Bacterial Source Tracking
Big Sioux River Basin	Bacterial Source Tracking and Lower Big Sioux TMDL Big Sioux Aquifer Protection Project Big Sioux Aquifer Study Big Sioux River Bank Stabilization Demonstration Project Big Sioux River Riparian Assessment (Moody/Minnehaha) Covell Lake TMDL (Combined with Sioux Falls Big Sioux River TMDL Project) Pelican Lake Control Structure Feasibility Lake Alvin/Nine Mile Creek TMDL Lakes Herman, Madison, Brandt Project Planning Lake Poinsett Project Planning and Design North Central Big Sioux /Oakwood Lake TMDL Upper Big Sioux Watershed AGNPS
Cheyenne River Basin	Develop NPS BMPs Western Pennington Co. Drainage District Galena Fire Project Rapid Creek and Aquifer Assessment Project Rapid Creek NPS Assessment Project Rapid Creek Stormwater Impact Prioritization Custer State Parks Lakes Assess. Report Preparation Spring Creek Bacterial Source Tracking
Grand River Basin	Grand River Watershed TMDL
James River Basin	Broadland Creek Watershed Study Firesteel Creek/Lake Mitchell WQ Needs Assessment James River TMDL Project* Landowner Survey Lake Faulkton Assessment Project Lake Louise Water Quality Monitoring Mina Lake Water Quality Project Ravine Lake Diagnostic/Feasibility Study Turtle Creek/Lake Redfield Landowner Survey Wylie Pond/ Moccasin Creek Watershed TMDL
Minnesota River Basin	Blue Dog Lake/Enemy Swim Septic Leachate Survey Fish Lake Water Level and Quality Study Lake Cochrane/Oliver TMDL Lake Hendricks Restoration Assessment Lake Traverse/Little Minnesota River Land Inventory
Missouri River Basin	Burke Lake Diagnostic/Feasibility Study Lake Andes Watershed Treatment Project Lake Pocasse/Lake Cambell/Spring Creek TMDL* Lewis and Clark TMDL Project Platte Lake Planning Randall RC&D Implementation Planning
Vermillion River Basin	Turkey Ridge Creek Watershed Assessment Project Vermillion River Basin Watershed Planning West Yankton Sanitary Sewer Survey
White River Basin	White River Preservation Project White River Watershed Data Collection Project

Completed 604(b) Projects by River Basin Continued.

Statewide	Bacterial Source Typing: Sample Preparation and Analysis Assessment Project Black Hills Biological Sampling – 2006 samples Chemical Containment Demonstrate Slash Pile Use Control Erosion on Fragile Soils Detention Cell Demonstration Project Digitize Soils Maps for South Dakota East River Riparian Demonstration Project Forestry BMP Pamphlet Groundwater Protection Project Livestock Waste Management Handbook Local WQ Planning Through Hydrologic Unit Planning North Central RC&D HU Implementation Pesticide and Fertilizer Groundwater Study Pesticide and Nitrogen Program Riparian Area Forestry Project Stockgrowers Speaker Terry Redlin Institute Wetlands Education Project Water Quality Study of SD Glacial Lakes and Wetlands Wetland Assessment for the Nonpoint Source Program
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*moved to another funding source 06)

Appendix B

Little Minnesota River/Big Stone Lake Watershed Project

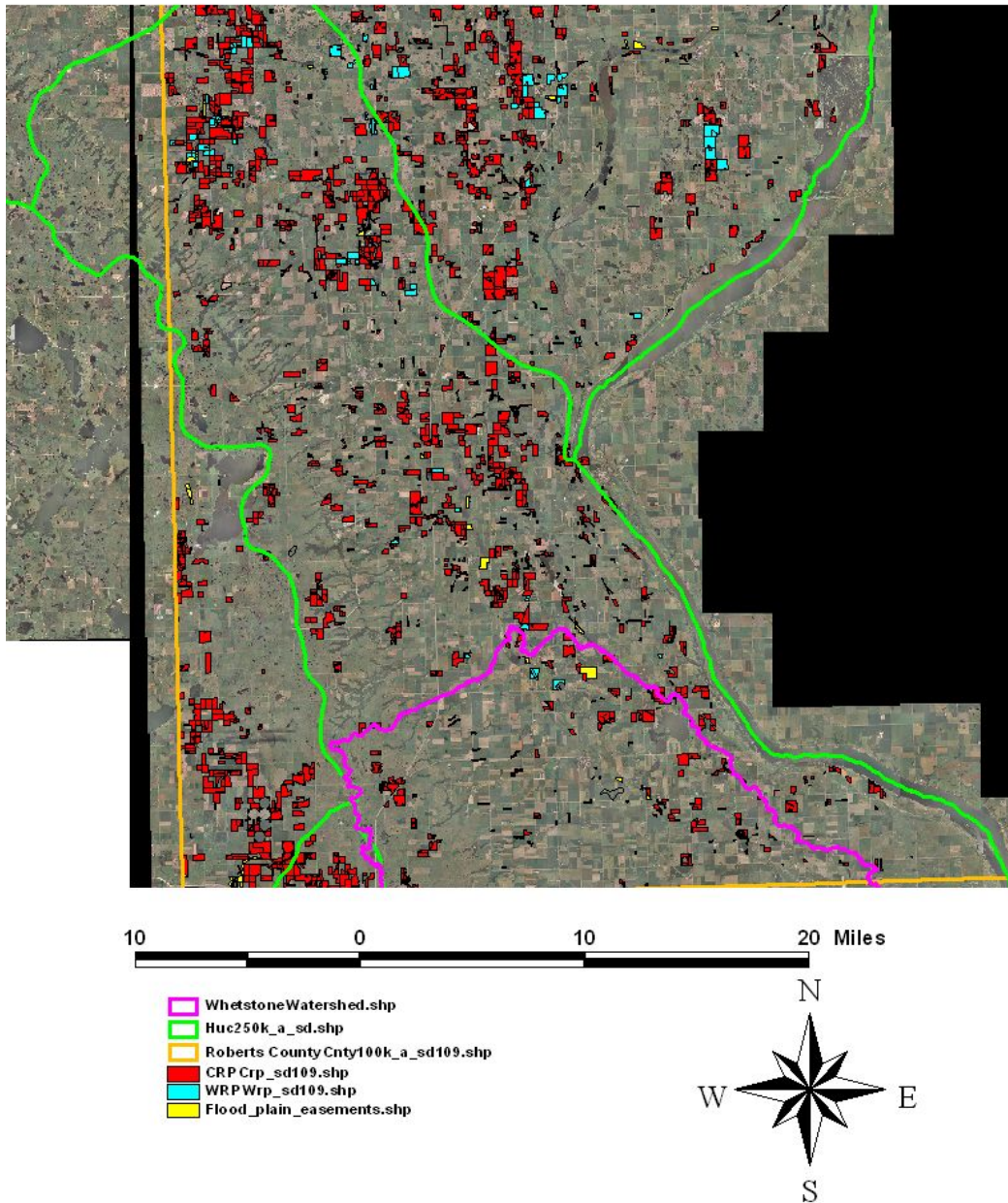


Project Awareness Sign.



AWMS Pond (Left) and Sediment Basin (Right).

WRP, CRP, Flood Plain Easements



Wetland Reserve, Conservation Reserve and Flood Plain Easements.

Elm lake Implementation Project



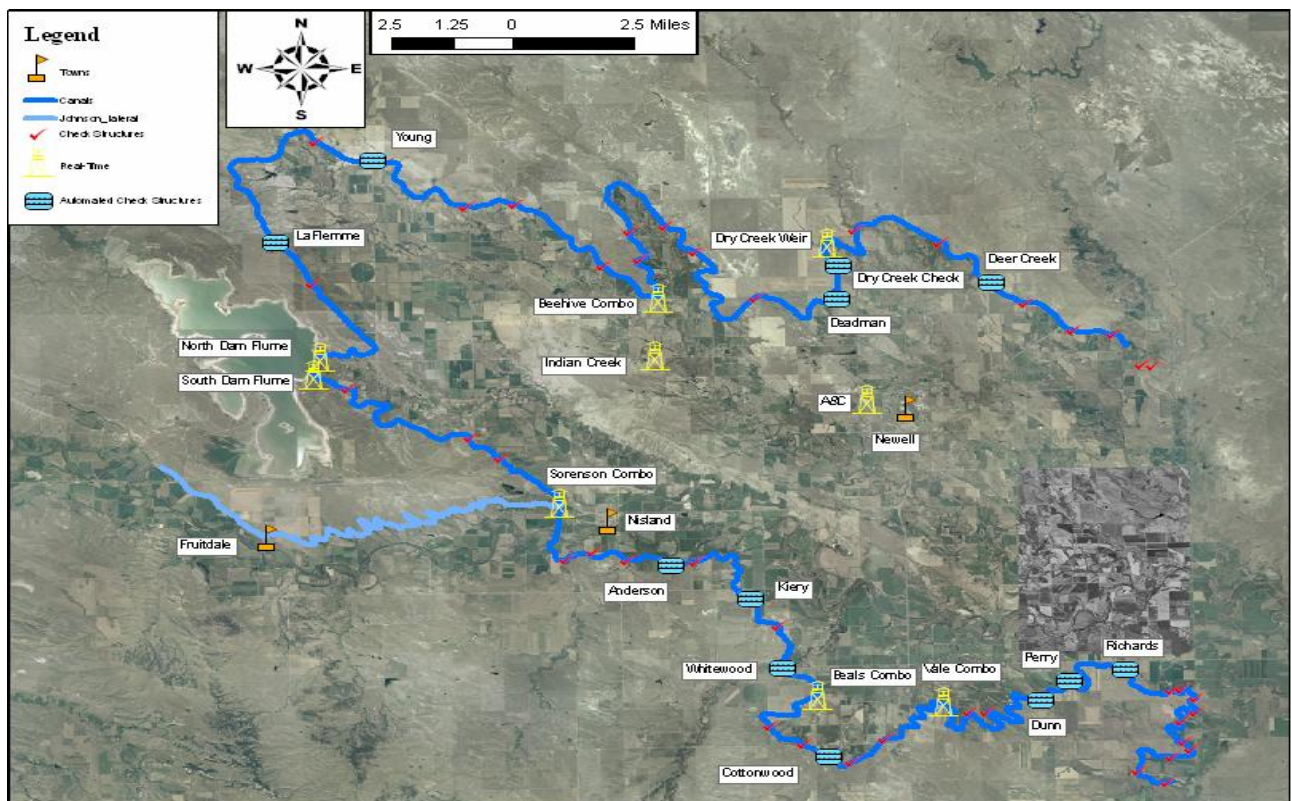
Area Before and After a 5.5-acre wetland was created by Constructing a Dam.

Firesteel Creek/Lake Mitchell Watershed Project



Filter Strip Installed Using Continuous Conservation Reserve Program (CCRP).

Belle Fourche River Watershed Management and Implementation



Location of Automated Flow Control Structures Installed to Reduce Return Flows.

Lake Poinsett Watershed Project



Restored wetlands and oxbow system.

Dakota Farmer - September 2005

38 Livestock Production

Piping in water for cattle delivers multiple benefits

By RICK SMITH



I HAVE used pasture pipe for four years on my ranch. I installed a pasture tap from Sioux Rural Water and rolled out about 4,000 feet of pipe. The pipe supplies recently established pastures that had no water source as well as pastures that had no dugouts.

Aboveground 160-psi, 1-inch pipe costs 35 to 45 cents per foot. To install pasture taps, pipe water to four 40-acre pastures and purchase a tank costs approximately \$1,800.

I paid for the entire water setup myself, without cost share, and would do it all again without hesitation.

Increase weights

The most recent research on the impact clean water can have on cattle is from the "2002 Journal of Range Management." In a report titled, "Effects of water quality on cattle performance," researchers reported that cattle avoided water that was contaminated with 0.005% fresh manure by weight when given a choice of clean water. (That would probably be

Key Points

- Aboveground pasture pipe holds promise for water development.
- Pipe costs 35 to 45 cents per linear foot; not including tank.
- Piped water improves cattle weight gain and improves grass.

about one cow patty in 6,000 gallons of water.) Cattle that had access to clean water spent more time grazing and less time resting than those that were offered pond water. Another study found that feed intake was directly related to water intake.

Calves with cows drinking clean water gained 9% more weight (approximately 0.25 pounds per day) and cow weight or backfat was not affected.

Yearling heifers gained 23% more weight (approximately 1/3 pound per day). A University of Nebraska study found yearling steers can gain an extra 0.3 to 0.4 pounds per day drinking clean water instead of dirty dugout water.

Conservation benefits

The main advantage for a piped water supply is that water doesn't have to be on a lakeshore or stream bank or in a

dugout placed in wetland or in a dam built across a drainage channel.

By piping water to pastures rather than digging ponds or damming up drainage, you can more easily create a short-duration, high-intensity grazing system that reduces erosion. A healthy stand of grass stops runoff and protects the soil from being dislodged as sediment to downstream waters.

More profit

When combined with short-duration, intensive grazing, pasture pipe may also allow you to increase stocking rates. More cattle per acre translates into more calves per acre and more pounds of beef per acre.

Smith, Hayti, S.D., is the Lake Poinsett Watershed coordinator and is a rancher in the Hayti area.

Where to go for more information

FOR more information on above-ground pasture pipe systems, contact Rick Smith at the Hamlin County Conservation District, Box 165 Hayti, SD 57241. Phone: (605) 783-3353.

Managed Grazing Promoted as BMP that Reduces NPS Pollution & Improves Profits.

Grasslands Management and Planning Project



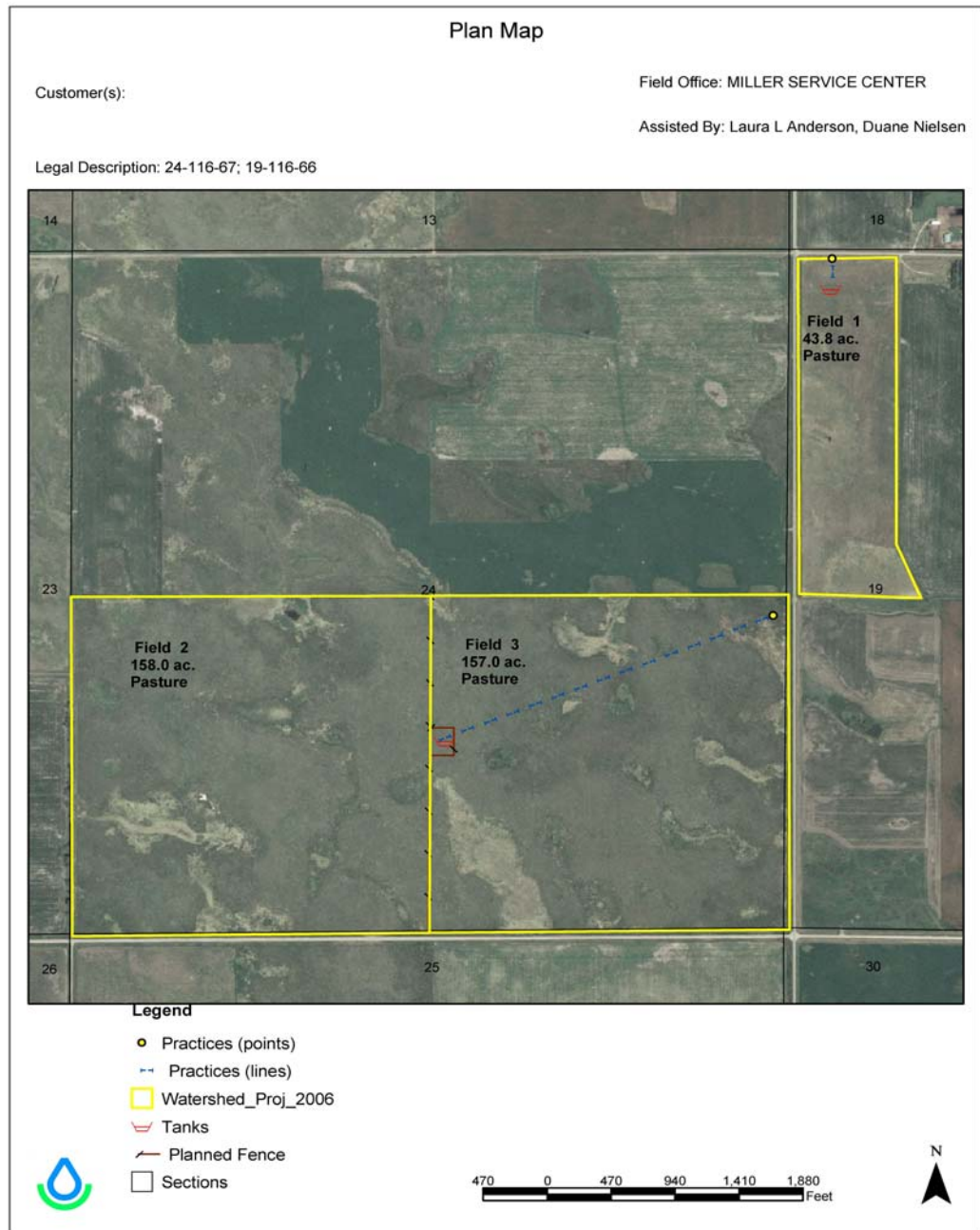
Front Row (l to r): SD Secretary of Ag Bill Even; NRCS State Conservationist Janet Oertly; NRCS Chief Arlen Lancaster; SD Grassland Coalition Chairman LaVern Koch; Board member Dan Rasmussen and Project employee Leroy Ness. *Back Row (l to r):* project coordinator Judge Jessop; Coalition board members Jim Faulstich; Lyle Perman; Larry Wagner, Ellen Reddick, and Mark Kieffer.

USDA NNRCS Chief Arlen Lancaster presenting 2007 Excellence in Conservation Award to the SD Grassland Coalition Board and staff.



EPA Regional Administrator Presenting EPA 2007 Environmental Excellence Award to the Project Coordinator ,Judge Jessop Board Chairman LaVern Kock, and Project Partners Dave Steffen, Consultant and John Deppe, Director Lower James Resource Conservation and Development Association

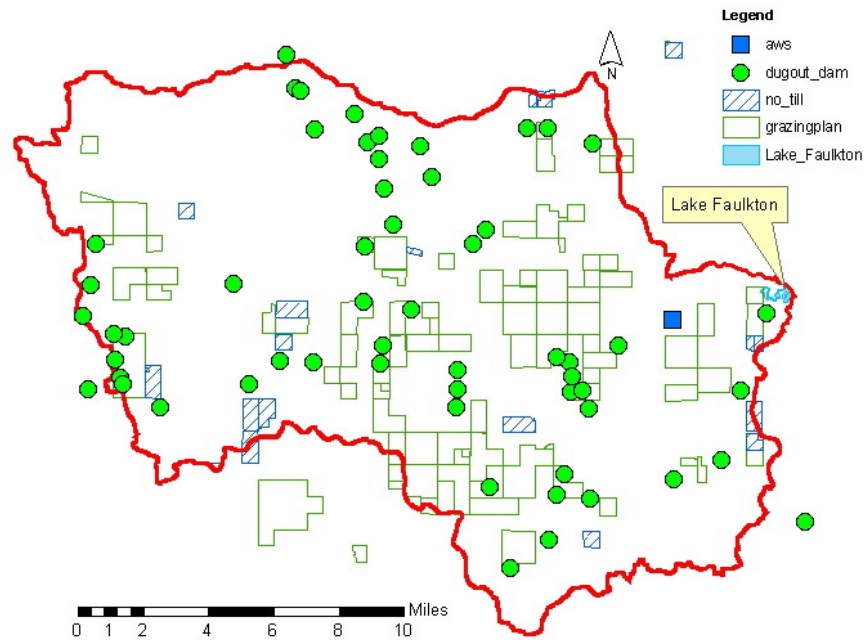
Cottonwood Lake/Lake Louise Implementation Project



Managed Grazing System Plan Map – Pipeline Installed to provide alternative Water Source.

Lake Faulkton Watershed Restoration Project

Lake Faulkton



Location of BMPs Installed.



Dredge On Lake Faulkton.