

**South Dakota**  
**Nonpoint Source Pollution Program Annual Report**  
**Federal Fiscal Year 2004**

**Prepared By The**  
**Water Resources Assistance Program**

**South Dakota**  
**Department of Environment and Natural Resources**

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**January 2004**

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

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**NPS Program History**

The South Dakota Nonpoint Source Pollution (NPS) Program is housed in the South Dakota Department of Environment and Natural Resources' (DENR) Water Resources Assistance Program (WRAP). The NPS Program, along with the Pollution Prevention (P2) Program, makes up the WRAP's Watershed Protection activity. 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 and P2 activities.

A key element in implementing the South Dakota NPS Program is the South Dakota Nonpoint Source Task Force. The task force is a citizen's advisory group composed of approximately sixty agencies, organizations and tribal representatives. The task force:

- provides a forum for the exchange of information about activities which impact nonpoint source pollution control,
- provides guidance and application procedures for funding NPS source control projects,
- reviews project proposals which request Section 319 funds recommendations 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 achievement of NPS source pollution control in the most efficient manner,
- serves as a focal point for information, education, and public awareness regarding NPS pollution control,
- provides oversight of NPS source control activities and prioritizes the activities, and
- serves as the forum for 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 more than 170 nonpoint source projects. Historically, the majority of the projects funded have focused on reducing NPS pollution originating from agricultural operations. More recently, an increased proportion of the funds have been used to support local initiatives that:

- evaluate water quality conditions,
- determine sources and causes of NPS pollution within priority watersheds, and
- develop and implement total maximum daily loads (TMDLs) for impaired waterbodies.

While the size, target audience, and structure of the projects have varied significantly, 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 total maximum daily loads (TMDLs),
- implement TMDLs on a watershed basis, and
- disseminate information about effective solutions to NPS pollution.

The projects funded fit into one of three categories:

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

Although most projects fit into one of these categories, several have included components from each of the three categories. A portion of the Section 319 funds awarded to the state have been used to monitor major aquifers in the state and promote and implement practices that prevent ground water contamination.

The primary purposes of assessment/development projects are:

- 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 water bodies on the 303(d) list of impaired water bodies. The most current list is contained in the state's *2004 Integrated Report for Water Quality Assessment*. A copy of the report is available from DENR or may be accessed electronically 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. Activities completed during a TMDL development project typically include an inventory of existing data

and information and supplemental monitoring, as needed, to allow an accurate assessment of the watershed. Through these efforts, local project sponsors are able 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.

The project period for assessment/development projects generally ranges from one to three years.

Information and education (I & E) projects are designed to provide information about NPS pollution issues and solutions. 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. I & E projects usually range from one to five years in length. Many of the publications are available on the department web site at:

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

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

Watershed projects are the most comprehensive of the projects implemented through the South Dakota NPS Pollution Program. Watershed projects are typically long-term in duration and are designed to implement TMDLs that address NPS pollution sources and beneficial use impairments. Common watershed 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.

South Dakota watershed projects have typically ranged from four to ten years in length with the duration being dependant on the size of the watershed and extent of the NPS pollution impacts that must be addressed. During 2004, the department determined that funding projects for longer than three to four years did not allow efficient use of limited financial resources and the flexibility needed to install practices needed to attain TMDLs for large watersheds. To address the extended time needed to complete some projects, an incremental funding strategy was initiated.

Large projects that will take longer than three to four years to complete are funded in segments as continuation projects. The initial request for funding contains an outline of the practices needed to attain the TMDL/water quality goal identified during an assessment project. Subsequent requests are modified to address progress toward the goal and ongoing re-evaluation(s) of practices needed to attain the goal. An interim final report is required for each project segment.

Implementation of the South Dakota NPS Pollution Management Program is guided by the South Dakota NPS Management Plan.

### **NPS Management Plan**

EPA approved South Dakota's revised NPS Management Plan during March 2000. The revised 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.

The management plan is available upon request or by visiting:

[www.state.sd.us/denr/watershed](http://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.

As indicated previously, the 303(d) and 305(b) reports were combined into an integrated report during 2004. The integrated report was developed using recent monitoring and assessment data. The revised 303(d) list includes 96 streams or stream segments and 68 lakes which need assessments and TMDLs to address impairments resulting from nonpoint source pollution.

To date, EPA has approved forty-six nonpoint source TMDLs developed by DENR. During FY 2004:

- seven TMDLs were approved by EPA,
- an additional six TMDLs were completed and sent for public comment during FY 2004 however they were not returned before the end of the year, and
- twenty stream segments or lakes were de-listed as a result of new data showing full support.

Progress in implementing the management plan is essentially on schedule:

- TMDL assessments have been completed for 38 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, has been suspended to redirect limited staff resources TMDL related priorities,
- task 28, post-project assessments, is also behind schedule because of limited resources and TMDL related priorities, and
- all other tasks are on schedule, have been completed or, in some cases, exceeded planned outputs.

### 319 Grant

The South Dakota Department of Environment and Natural Resources' FY 2004 Section 319 Grant award from EPA consisted of \$2,170,100 in program base funding and \$1,638,600 in incremental funds. The \$3,808,700 total award was allocated as follows:

- Staff & Support - \$680,000 and
- 319 Projects - \$3,128,700 (\$1,638,600 incremental and \$1,490,100 base).

An additional \$255,000 from the department's FY 2003 319 base grant that had not been awarded by the end of FY 2003 was also available for project grants during FY 2004.

Projects selected for and awarded funding during FY 2004 are shown in the table below.

#### FY 2004 Project Awards Using Unobligated FY 2003 and FY 2004 Section 319 Funds

FY Grant /Project	Project Grant (\$)		
	Base	Incremental	Total
<b>FY 2003</b>			
<b>Implementation</b>			
Precision Manure Management to Improve WQ	255,000		255,000
<b>FY 2004</b>			
<b>Assessment</b>			
Vermillion River Basin	338,400		338,400
Upper Snake Creek		12,000	12,000
<b>Implementation</b>			
Upper Snake Creek		738,000	738,000
Lake Herman/Madison/ Brant Watershed <sup>1</sup>		180,744	180,744
Belle Fourche Watershed		189,000	189,000
Animal Nutrient Management Assistance Team	596,632		596,632
SD NPS Information and Education Partnership	200,000		200,000
<b>Total</b>	<b>1,390,032</b>	<b>1,119,744</b>	<b>2,509,776</b>

<sup>1</sup> Project was awarded \$263,256 in FY 2003 Grant Funds during FY 2004.

The following projects were selected for funding during FY 2004 using FY 2004 grant funds but were not under contract with the local sponsor at the end of the federal fiscal year.

**Projects Selected for Funding Using FY 2004 Funds But Not Under Contract September 30**

FY Grant /Project	Project Grant (\$)		
	Base	Incremental	Total
Evaluating Vegetated Treatment Areas	260,300		260,300
Evaluating Phosphorus Loss on a Watershed Scale	56,268	16,332	72,600
Upper Big Sioux Watershed Project <sup>1</sup>		502,524	502,524
<b>Total</b>	<b>316,568</b>	<b>518,856</b>	<b>835,424</b>

<sup>1</sup> Project also will receive reversionary funds totaling \$67,476.00 (FY 96 Grant - \$23,927.09; FY 98 Grant - \$27,700.37; FY 99 Grant - \$2,692.87; FDY 2002 Grant - \$13,155.67).

**Active 319 Projects**

Section 319 projects funded by previous grant awards that were open during the FY 2004 reporting period are listed by river basin in the table that follows.

**Open NPS Projects Funded by Previous Section 319 Grant Awards**

River Basin	Project
<b>Bad River</b>	Bad River National Watershed Monitoring Bad River Phase III
<b>Belle Fourche River</b>	Belle Fourche River Assessment
<b>Big Sioux River</b>	Bachelor Creek Implementation Blue Dog Lake Assessment Clear Lake Implementation Central Big Sioux TMDL Enemy Swim Lake Implementation Lake Norden/Lake Albert Assessment Lake Poinsett Watershed Lakes Cochrane/Oliver Watershed Improvements Lakes Herman/Madison/Brant Implementation North Central Big Sioux /Oakwood Lake TMDL Upper Big Sioux River Implementation Wall Lake Post Assessment
<b>Cheyenne River</b>	Lower Rapid Creek TMDL Rapid City Storm Water
<b>Grand River</b>	None
<b>James River</b>	Amsden Dam Assessment Elm Lake Implementation Firesteel Creek/Lake Mitchell Implementation Lake Hanson/Pierre Creek Implementation Lakes Cottonwood and Louis Implementation Lake Faulkton Implementation Lakes Rosehill and Jones Implementation

	Richmond Lake Assessment Twin Lakes/Wilmarth Lake Assessment
<b>Minnesota River</b>	Big Stone Lake/Little Minnesota Cochrane & Oliver Lakes Implementation
<b>Missouri River</b>	Burke Lake Assessment Okobojo Creek Watershed Assessment South Central Lakes Assessment
<b>Red River</b>	Lake Traverse Watershed Assessment
<b>Vermillion River</b>	Kingsbury County Lakes Assessment
<b>White River</b>	Little White River TMDL White River Phase I
<b>Statewide / Regional Projects</b>	Animal Waste Team IV Buffer Planning & Technical Assistance Grassland Management Technical Assistance Manure Management BMPs Base on Soil Phosphorus Nonpoint Source Information and Education 1998 Terry Redlin Institute Wetlands Education Project 303(d) Watershed Planning and Assistance Project Wetlands Education Project

### Completed 319 Projects

Completed Section 319 funded projects are listed by river basin in the table that follows. Unless otherwise indicated (\*), a final report for each project has been filed with EPA, entered on GRTS, and is available from the South Dakota State Library. Several of the reports are also available by visiting:

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

### Completed Section 319 Funded Projects Listed by River Basin

<b>River Basin</b>	<b>Project</b>
<b>Bad River</b>	Bad River Phase II Hayes and Waggoner Lakes TMDL Upper Bad River Demonstration
<b>Belle Fourche River</b>	Bear Butte Creek Riparian Demonstration
<b>Big Sioux River</b>	Bachelor Creek Assessment Big Sioux Well Head Protection Blue Dog Lake Assessment Lake Campbell Watershed Restoration Lake Kampeska Watershed Pickerel Lake Protection Upper Big Sioux River Watershed I & II Wall Lake
<b>Cheyenne River</b>	Foster Creek Riparian Demonstration - Stanley Co. Piedmont Valley Assessment Rapid City Storm Water
<b>Grand River</b>	Shadehill Lake Protection Staffing & Support

<b>James River</b>	Lake Byron Watershed Clear Lake Assessment - Marshall Co. Cottonwood & Louise TMDL Loyalton and Cresbard Lakes TMDL Foster Creek Riparian Demonstration - Beadle Co. Jones & Rosehill Lakes TMDL Lake Mitchell Watershed Assessment Lake Redfield Restoration Mina Lake Water Quality Assessment Moccasin Creek TMDL* Ravine Lake Watershed Richmond Lake Watershed White Lake Dam TMDL*
<b>Minnesota River</b>	Big Stone Lake Big Stone Lake Restoration II Cochrane & Oliver TMDL Lake Cochrane Protection Lake Hendricks Watershed Medicine Creek Assessment*
<b>Missouri River</b>	Burke Lake Assessment* Burke Lake Restoration South Central Lakes Watershed Assessment
<b>Vermillion River</b>	Swan Lake Restoration
<b>White River</b>	None
<b>Statewide / Regional Projects</b>	Abandoned Well Sealing Animal Waste Management I Animal Waste Management II Animal Nutrient Management III Animal Waste Team (Buffer salesmen)* Bootstraps Coordinated Resource Management I Coordinated Resource Management II East River Area Riparian Demonstration East River Riparian Demonstration II East River Riparian Grazing I Ground Water Monitoring Network Nitrogen & Pesticides in Ground Water Nonpoint Source Information & Education 1989 Nonpoint Source Information & Education 1994 Nonpoint Source Information & Education 1996 Rainfall Simulator Riparian Grazing Workshop South Dakota Association of Conservation Districts South Dakota Lake Protection Statewide Lake Assessment

\*Final Report/TMDL in draft form/review

## 604(b) Grant

Several 604(b) funded projects were completed or terminated during 2004. Projects completed include the:

- Digitize Soils Maps for South Dakota Project
- Wylie Pond/Moccasin Creek Watershed TMDL Project, and
- Turkey Ridge Creek Watershed Assessment Project.

TMDLs have been or are being prepared using data from the Wylie Pond/ Moccasin Creek and the Turkey Ridge Creek projects.

The Custer State Park project was terminated due to inability of the contractor in completing their obligations. DENR will use in-house staff or other consultants to complete the Custer State Park Lakes assessment reports.

Several of the projects funded by the FY2002 604(b) grant are still in progress. Therefore, the remaining grant funds will be rolled over into the FY2005 grant to allow completion of these projects.

## 604(b) Projects Initiated

The FY2005 604 (b) grant was approved placing the \$100,000 FFY2004 allocation under agreement. The workplan includes the Lewis and Clark Watershed Assessment Project and funds to cover personnel costs associated with program administration and assistance with TMDL development. These efforts included developing grant applications, project workplans, and contracts; providing project oversight; attending meetings; and processing vouchers.

### FY 2004 604(b) Grant Award

<b>PROJECT</b>	<b>BUDGET (\$)</b>
Lewis and Clark Watershed Assessment Project	80,000
Program Administration	20,000
Total	100,000

## Active 604(b) Projects

The following 604(b) projects were active during this reporting period:

### Active 604(b) Projects Funded by Previous Grant Awards

<b>PROJECT</b>	<b>GRANT AWARD (\$)</b>
Whitewood Creek Bacterial Source Tracking	31,500
Spring Creek Bacterial Source Tracking	15,000
Bacterial Source Typing: Sample Preparation and Analysis	28,237
Lower Big Sioux TMDL Assessment	160,000
Water Quality Database Management Support	20,000
Program Administration	35,140
Total	289,877

## Closed 604(b) Projects

The following 604(b) projects have been completed and are closed:

### Completed 604(b) Projects

<b>Bad River Basin</b>	Bad River Phase IA Bad River Phase IB
<b>Belle Fourche River Basin</b>	Streambank Erosion Assessment-Upper Whitewood Creek Whitewood Creek Streambank Assessment Project Whitewood Creek Watershed Project Planning
<b>Big Sioux River Basin</b>	Big Sioux Aquifer Protection Project Big Sioux Aquifer Study Big Sioux River Bank Stabilization Demonstration Project Big Sioux River Riparian Assessment (Moody/Minnehaha) Pelican Lake Control Structure Feasibility Lake Alvin/Nine Mile Creek TMDL Lakes Herman, Madison, Brandt Project Planning Lake Poinsett Project Planning and Design Upper Big Sioux Watershed AGNPS
<b>Cheyenne River Basin</b>	Develop NPS BMPs Western Pennington Co. Drainage Dist. 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
<b>Grand River Basin</b>	Grand River Watershed TMDL
<b>James River Basin</b>	Broadland Creek Watershed Study Firesteel Creek/Lake Mitchell WQ Needs Assessment - 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
<b>Minnesota River Basin</b>	Blue Dog Lake/Enemy Swim Septic Leachate Survey Lake Cochrane/Oliver TMDL Fish Lake Water Level and Quality Study Lake Hendricks Restoration Assessment Lake Traverse/Little Minnesota River Land Inventory
<b>Missouri River Basin</b>	Burke Lake Diagnostic/Feasibility Study Lake Andes Watershed Treatment Project Platte Lake Planning Randall RC&D Implementation Planning
<b>Moreau River Basin</b>	None
<b>Niobrara River Basin</b>	None

<b>Red River Basin</b>	None
<b>Vermillion River Basin</b>	Vermillion River Basin Watershed Planning West Yankton Sanitary Sewer Survey Turkey Ridge Creek Watershed Assessment Project
<b>White River Basin</b>	White River Preservation Project White River Watershed Data Collection Project
<b>Statewide</b>	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 Pesticide and Fertilizer Groundwater Study Pesticide and Nitrogen Program Riparian Area Forestry Project Stockgrowers Speaker Water Quality Study of SD Glacial Lakes and Wetlands Wetland Assessment for the Nonpoint Source Program North Central RC&D HU Implementation

## Section 106 Grant

The Water Resources Assistance Program provided financial assistance to 14 projects using FY 2003 Section 106 grant funds. Nine of the projects initiated or increased support for lakes, watershed, and TMDL assessments. Five provided additional tools or information the department and its partners needed to more effectively develop, implement, and evaluate TMDLs. Projects supported totally or in part by 106 Grant funds are listed in the following table.

### 106 Grant Project Awards

<b>Project</b>	<b>Grant Award</b>
2002 – 2004 Statewide Lakes Assessment	\$ 48,160.00
Digital Line Graphs	\$65,000.00
Digitized SD Soils Survey	\$1 50,000.00
Fish Lake/Lake Alice Assessment	\$5,414.23
Gauging Stations	\$334,937.00
Lake Hanson Assessment Project	\$10,848.54
Lewis and Clark Initial Watershed Assessment	\$273,500.00
Remote Sensing	\$ 92,000.00
School/Bullhead Lake Assessment	\$ 82,820.00
Spring Creek Watershed Assessment	\$79,762.23
Statistics Training Course	\$23,500.00
Upper Cheyenne River Watershed Assessment	\$ 262,000.00

Upper Rapid Creek Watershed Assessment	\$5,318.26
Center Lake Report Writing	\$20,000.00
<b>Total</b>	<b>\$866,440.26</b>

## **EPA Consolidated Funding Process Grants Program**

DENR encourages local stakeholders to apply for EPA Consolidated Funding Process grants. The program is promoted at SD NPS Task Force meetings, by personal contact with groups who have inquired about potential sources of financial assistance and on the Watershed Protection web page.

Currently three DENR NPS project partnerships are being partially supported with financial assistance provided through the Region 8 Consolidated Funding Process:

- 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 FY 2001 and \$200,000 FY 2002) to support an assessment of the Lower Big Sioux River watershed in partnership with the State of Iowa. Each state is responsible for funding and completing assessment activities in the segment of the watershed located in their respective state with South Dakota also monitoring the main channel. Iowa received a similar grant from USEPA Region 7 for the project. The project workplan extends through FY2004.

The South Dakota Lakes and Streams Association was awarded \$15,000 from the FY 2003 Regional Geographic Information (RGI) pool to complete a project designed to increase participation in South Dakota Volunteer Monitoring Program related activities. The association was previously awarded a \$10,000 RGI Grant for stream monitoring in the Black Hills region of the state. See the Information and Education Section of this report for information about the volunteer monitoring network.

The Terry Redlin Freshwater Institute was awarded \$25,000 from the FY 2004 Wetlands Funding pool. The grant provides additional funds for activities funded by a \$30,000 319 grant awarded through DENR during FY 2004.

## **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 detailed information about project funding, goals, and tasks. The department entered project evaluations for existing projects and mandated data for new projects funded during the year.

Project evaluation reports are entered twice each year. Mid-year evaluations, covering project activities from October 1 – March 31, are entered during May and June; Annual, year-end reports, during November and December. The reports contain:

- summaries of project activities completed during the reporting period,
- cumulative summaries of accomplishments from the initiation of the project,
- a comparison of accomplishments relative to workplan milestones.

DENR is:

- current with mandated element and evaluation report requirements,
- reviewing entries for completed projects to determine final report entry status, and
- working with EPA to finalize the procedures for nutrient and sediment load reductions such as: delineation of watersheds (based on TMDL and appropriate reduction methodology).

To improve proficiency in meeting reporting requirements, the program staff person assigned responsibility for GRTS:

- received continued support from EPA Region VIII staff,
- presented training to South Dakota project coordinators and department staff at the 2004 “South Dakota NPS Coordinator’s Training Workshop,”
- participated in development of the evaluation, project implementation plan (PIP) mandated elements form revision
- worked with EPA headquarters staff to modify the watershed reach index procedure used to better facilitate entry of load reduction data for North and South Dakota.
- worked with EPA Regional and headquarters staff to modify the BMP practice list used for GRTS reporting to more accurately report the activities being funded through 319 program in South Dakota, and
- continued to work with EPA Region VIII staff on procedures to report the continuation (year-to-year project) money.

## **Staff & Support**

During the reporting period, the Watershed Protection Program was authorized 15.5 full time equivalents. Included in the number were twelve environmental scientists, two natural resources engineer, a secretary and a half time office administrator. One of the natural resources engineer positions was vacant during one-fourth of the year. Visit the Watershed Protection web page for contact information and areas of program responsibility:

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

Program staff has ready 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

Watershed Protection Program 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 sufficient 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 work plan and activities, and 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.

During this reporting period, the program staff maintained close working relationships with several stakeholder groups and agencies. Staff routinely attended 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, SD Nonpoint Source Task Force and local conservation districts that were sponsors of or were considering sponsoring nonpoint source control projects. Staff also met periodically with agency 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 many 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 FY 2004. They also assisted prospective project partners with 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 18 contracts obligating \$3,236,300.66 and processed 300 payment requests totaling \$2,936,680.99 in federal funds from all sources, and
- awarded \$291,180.00 state funds to 7 projects and processed 73 payment requests totaling \$333,396.77 in state funds.

## **Training**

Training was provided for department program staff, local watershed implementation and assessment project staff, stakeholder groups, and volunteer water quality monitors. The training provided for each group is described below.

### Watershed Implementation and Assessment Project Staff

Two types of training are provided for local project personnel:

1. onsite 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,
- 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
- Annualized Agricultural Nonpoint Source Pollution Model (AnnAGNPS) data collection and use.

In depth project management and water quality monitoring training was provide to 29 local project coordinators and technicians from 21 different projects; 5 agency project partner representatives, and 13 DENR program staff members who attended the 2004 SD Project Coordinator's Workshop. The workshop agenda included sessions on the topics listed below:

- Grant/project administration
  1. Financial management – payment requests, match documentation
  2. Reporting requirements – GRTS, MBE/WBE, final reports
  3. Workplan amendments
  4. Bid requirements
  5. Landowner agreements/Form 1099
  6. Threatened and endangered species

- Financial and Technical Assistance
  1. Grassland Planning and Management Project
  2. 303(d) Watershed Planning and Assistance Project
  3. Animal Nutrient Management Team
  4. Buffer Planning and Assistance Project
  5. SD DENR - Consolidated Grants, storm water, 401/404 Permits
  6. SD Department of Ag – Soil and Water Conservation Grants, CAFO Design
  7. SD Department Game Fish and Parks
  8. NRCS
  
- Water Quality Monitoring
  1. Volunteer Monitoring Program
  2. Water quality sampling

Each workshop attendee was provided with a workshop notebook and a copy of the *South Dakota Watershed Project Funding and Technical Assistance Guide*.

Workshop evaluations returned by approximately one-half of the attendees gave the event an overall rating of 7.72 on a 10 point scale with ten being excellent

### Stakeholder Groups

Training opportunities were provided at three workshops/conferences through partnership with stakeholder groups.

#### 1. Forest BMP Workshop

Two one day forest BMP training workshops were sponsored through a partnership with the department’s Pollution Prevention Program, the SD Black Hills Forest Resource Association and timber industry. A combined total of two approximately 150 forestry, logging, road construction, and hydrologists from private industry and governmental agencies attended the workshops. Each workshop included four hours of classroom and four hours of field training in BMP selection and implementation. The materials provided at the workshop included the revised SD Forestry BMP Manual. Following the workshops, seven BMP implementation audits were conducted on recent timber sale sites to evaluate BMP selection, placement and effectiveness. See “Forest Service” in the Financial and Technical Assistance section of this report for additional information about the workshops and audits.

#### 2. Erosion and Sediment Control Conference

A two day conference was held to provide engineers and designers, contractors, and agency Personnel with information about:

- developing erosion and sediment control plans and
- BMPs selection and installation.

The conference was cosponsored with the SD Department of Transportation, SD Division of the Federal Highway Administration, SD Chapter of the Soil and Water Conservation Society, and Associated General Contractors of SD.

The conference was attended by 330 state and federal agency, municipal, county, industry, and tribal erosion and sediment control professionals. The comment sheets returned by attendees gave the conference an overall excellent rating.

### 3. Getting in Step: Developing and Implementing Effective Outreach Campaigns

The one day workshop was cosponsored in partnership with EPA and the SD Association of Conservation Districts to provide the department's project partners with additional public outreach program tools and skills. Trainer for the workshop was Charlie McPherson, Director Watershed Services, Tetra Tech.

The workshop was attended by 85 conservation district, watershed project, environmental organization; county, area, state and federal agency; and tribal employees. Each of the attendees was provided with a Getting in Step notebook and video. Evaluations returned by 52 of the attendees gave the workshop a rating of 4.1 on a five point scale indicating the event met the expectation of those attending.

### Training Opportunities Provided By Watershed Projects

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 are listed below.

#### 1. Volunteer Water Quality Monitors

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 Association of Lakes and Streams with support from DENR. The organization's web site contains additional information about the 2004 volunteer monitoring program.

[http://www.sdlakesandstreams.com/citizen\\_monitoring\\_program.htm](http://www.sdlakesandstreams.com/citizen_monitoring_program.htm)

During FY 2005 responsibility of the program will shift to the East Dakota Water Development District.

#### 2. Managed Grazing Workshop

The South Dakota Grassland Coalition in partnership with South Dakota State University and NRCS sponsored the Second Annual South Dakota Grazing Workshop using funds from the Grassland Management and Planning grant. The two day plus a portion of a third day workshop includes both classroom and field exercises designed to acquaint

ranchers and resource managers with the principles needed to establish and manage 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 a series of instructional 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 web site located at:

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

### 3. Streambank Restoration/Stabilization Workshop

The Lake Poinsett Watershed Project sponsored a one day streambank restoration/stabilization workshop in cooperation with NRCS. During the workshop, local, and agency personnel learned the how to use vegetation to restore/stabilize streambanks.

#### Department Program Staff

Several program staff persons received specialized training during the FY 2004 to provide additional skill for determining load reductions and preparing TMDLs. Training provided included:

- Universal Soil Loss Equation (RUSLE II) training to increase capabilities to determine load reductions achieved from BMPs implemented. The training was provided by NRCS.
- environmental statistics course to provide additional tools for use in preparing TMDLs and development of the integrated report was provided by an environmental consultant team. Costs associated with the training were paid from the 106 Grant. Twenty-six department and agency project partner staff persons attended the training.

## **Project Guidance & Oversight**

DENR staff works closely with project sponsors during all phases of project development, implementation and evaluation. Project management assistance is provided using a combination of onsite visits, verbal and written communications, and publications.

Program project officers are encouraged to complete at least two onsite visits to each assigned project each year. The primary publication used is the notebook provided to each coordinator at the 2004 Project coordinator's workshop described in the training section of this report. A copy of the notebook was provided to department's assigned EPA Region 8 project officer.

The program initiated an annual in-depth review of all implementation projects to determine:

- project status relative to workplan milestones,
- load reduction estimates achieved from BMPs implemented, and
- progress toward attaining the project goal.

Information used in the review is provided by the local project coordinator through the project annual report and the project officer's knowledge of the project based on onsite visits and periodic communications.

The information gained from the review is used by program staff to assist project sponsors with the development of workplan revisions that maybe needed to facilitate attaining the project goal.

The assigned EPA Region 8 program officer and DENR staff visited selected projects jointly during this reporting period. During FY 2004, joint project visits were made to the:

- Lake Herman/Madison/Brant Watershed Project
- Bachelor Creek Implementation Project
- Manure Management BMPs Based on Soil Phosphorus Project
- Precision Manure Management to Improve Water Quality Project

During the project visits, project progress and records were reviewed and sites where BMPs have been implemented visited.

The 319 Program was also included in the EPA-State Water Program Midyear review

To further improve DENR and project management capabilities and track progress toward attaining project goals, development of a project tracking system was initiated during 2004. The program is designed to track both financial and BMP implementation aspects of assessment and implementation projects. It is expected that the data management aspect of the program will:

- provide a better means of tracking project progress and finances both locally and by DENR and
- improve the quality of annual reports submitted by project coordinators.

The program will be introduced to project coordinators at the FY 2005 SD Watershed Project Coordinator's workshop planned for February 2005.

## **Information and Education**

The South Dakota NPS Information and Education (I& E) Program has been operational for nearly 13 years. Until recently, the program was, with minor changes, 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 – EPA Performance Partnership Agreement,
- enjoys broad-based support from agricultural and environmental groups and governmental agencies,
- is holistic,
- is sustainable.

The DENR NPS Information and Education Program is implemented through the department'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 actions being completed by other resource management groups and agencies;
- designed to effectively reach an identified target audience; and
- part of a statewide NPS I & E Strategy adopted by the South Dakota Nonpoint Source Task Force.

The NPS priority areas addressed by the strategy are:

- animal feeding operations (AFO/CAFO),
- nutrient management, and
- TMDLs.

Activities supported through partnerships using funds from the departments Information and Education Grant and direct planning and completion assistance include (also see Training Section, page 15):

#### Erosion and Sediment Control Conference

Assistance was provided for planning and holding what is planned to be an annual Erosion and Sediment Control Conference. The two day conference was held during March 2004 in Pierre, South Dakota. The conference agenda included opportunities for attendees to interact and transfer information about highway construction erosion and sediment control. Project partners included DENR's Surface Water Program, Federal Highway Administration, SD Department of Transportation, SD Association General Contractors, and SD Soil and Water Conservation Society. The conference was attended by 330 transportation, construction industry, and local, state, federal and tribal resource managers. Post conference evaluations returned by attendees rated the conference as excellent.

#### Getting in Step: Developing and Implementing Effective Outreach Campaigns

Outreach program training using the *Getting in Step: Developing and Implementing Effective Outreach Campaigns materials* developed by EPA was held during September 2004 through

a partnership with the SD Association of Conservation Districts and EPA Region VIII. The training was conducted by Tetra Tech. Nearly 90 individuals from watershed projects, conservation districts, environmental organizations, cities, state and federal agencies and Native American tribes attended the workshop. Evaluations returned by 52 of the attendees gave the workshop a 4.1 rating based on a five point scale.

#### Volunteer Water Quality Network

Monitoring equipment was provided through the South Dakota Lakes and Streams Volunteers Activities Program. Lab fees for samples collected and submitted to the South Dakota Health Lab for analysis were paid.

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

A private well nitrate testing outreach/demonstration project was initiated through a partnership with East Dakota Water Development District (EDWDD) during 2004. The project is patterned after a similar program developed by the Minnesota Department of Agriculture during the early 1990s. The project will introduce well owners to 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. Five local clinics will be conducted as a collaborative effort with local conservation districts during the project. At the clinics, well owners will also be provided information about how they can prevent contamination at the wellhead and health problems if high nitrate levels are detected.

#### Local Watershed Project Coordinator's Workshop

Training was provided for the SD project coordinators during spring 2004. Forty-seven individuals from 21 projects and five agencies attended the workshop. Each attendee was provided with a copy of the revised SD 319 Project Coordinator's handbook. The workshop agenda included sessions about financial and technical assistance sources, financial management, reporting, permits, threatened and endangered species, and water quality monitoring. The post workshop evaluations returned by attendees rated the workshop as nearly an 8 on a scale of 1-10 with 10 being the highest rating.

Another workshop is scheduled for spring 2005. This workshop will focus primarily on the new project management and BMP tracking program being developed by the DENR.

#### Forestry BMP Implementation Workshop

Forestry BMP implementation training for the logging industry was provided during summer 2004. The revised SD Silviculture BMP Manual was distributed at the two workshops. The training was followed by field audits of seven logging operations to evaluate BMP use and effectiveness. The training and audits were completed through a partnership with the DENR P2 Program and Black Hills Forest Resource Association with funding from DENR's P2 Grant from EPA. Other project partners included the timber industry, SD Department of Agriculture, SD Cooperative Extension Service and US Forest Service. Nearly 150 loggers and timber industry professionals attended the two workshops.

The Water Resources Assistance Program has maintained a web site since 1998. The web site provides ready access to water resources information, reports, and opportunities for involvement. To access the site visit:

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

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 statewide NPS I & E efforts 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 Discovery Center will use a combination of project staff and a mini-grants program to continue many of the programs assisted previously and expand the target reached. DENR will maintain a close working relationship with the Discovery Center to ensure a smooth transition of the program and that notices of opportunities for participation in the mini-grants program are widely advertised.

### **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 several public and private program partners are also integral components of many program activities. Selected partnerships active during the past year are summarized below. For additional information about these and other South Dakota South Dakota 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 are active project partners in all phases of the NPS Program. Assistance provided includes:

- technical assistance for planning and implementing watershed projects,
- financial assistance for BMP implementation,
- training opportunities for program and project staff, and
- staff for the SD Animal Waste Management Team

In addition to providing financial and technical assistance, during FY 2004 NRCS and NPS program staff worked cooperatively in the:

- development of 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, and
- production of manure management educational materials.

Financial assistance for NPS related activities provided by several NRCS administered programs during FY 2004 is shown in the table that follows.

**NPS Related Activities Funded in SD During FY 2004 by NRCS Administered Programs**

<b>Program</b>	<b># Applications Funded</b>	<b>Acres</b>	<b>Funding (\$)</b>
Environmental Quality Incentives (EQIP)	387	NA <sup>1</sup>	15,612,100
Ground and Surface Water Conservation (GSWC)	30	5517	355,131
Wildlife Habitat Incentives Program (WHIP)	50	6863	580,007
Wetland Reserve Program (WRP)	3	1381	1,099,025
Grasslands Reserve Program (GRP)	7	14,422	3,111,151
Conservation Reserve Program (CRP)	477	31,122	NA

1 - See next table for conservation practices funded.

2 - Current CRP Acres = 1,440,300

**Conservation Practices Funded by EQIP**

<b>Conservation Practice</b>	<b>Extent</b>	<b>Unit</b>	<b>Cost-Share(\$)</b>
Waste Storage Facility (313) <sup>1</sup>	36	Number	3,117,462
Brush Management (314)	1511	Acres	6,284
Conservation Cover (327)	36.5	Acres	3644
Critical Area Planting (342)	133.8	Acres	3,851
Diversion (362)	1600	Feet	2,400
Well Decommissioning (351)	27	Number	3,245
Pond (378)	157	Number	457,836
Windbreak/Shelterbelt Establishment (380)	884,769	Feet	460,241
Fence (382)	2,392,395	Feet	1,150,562
Riparian Forest Buffer (391)	63.5	Acres	1,449
Grassed Waterway (412)	17.1	Acres	11,955
Hedgerow Planting (422)	100	Feet	20
Irrigation Land Leveling (464)	137.9	Acres	287
Irrigation Water Management	2,684	Acres	21,472
IWC High-Pressure, Underground Plastic Pipeline (430DD)	5,302	Feet	15,371
IWC Low-Pressure, Underground Plastic Pipeline (430 DD)	12,457	Feet	31,267
Irrigation System Sprinkler	28	Ea.	319,200
Pasture & Hay Planting (512)	19,828	Acres	1,146,763
Pipeline (516)	4,223,233	Feet	6,320,956
Pumping Plant (533)	153	Number	287,696
Grazing Land Mechanical Treatment (548)	17.1	Acres	46
Range Planting (550)	6404	Acres	654,168
Spring Development (574)	6	Number	16,380
Streambank & Shoreline Protection (580)	3,000	Feet	933
Terrace (600)	8,234	Feet	108,015
Watering Facility (614)	1735	Number	561,467
Underground Outlet (620)	680	Feet	499
Water Well (642)	160	Number	2,369,273
Upland Wildlife Habitat Management (645)	224	Acres	26,592
Windbreak/Shelterbelt Renovation (65)	61,318	Feet	26,120

1 - AFO/CAFO

## **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. Interactions and assistance during the past year included:

- 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, and
- provided financial and technical assistance for two forest BMP training workshops and completion of seven BMP implementation audits.

Financial assistance for the workshops and audits was provided through a partnership with DENR's Pollution Prevention Program, the Black Hills Forest Resource Association and timber industry.

A combined total of nearly 150 loggers and timber industry professionals attended the two workshops. Each workshop included four hours of classroom and four hours of field training in BMP selection and implementation. The materials provided at the workshop included the revised SD Forestry BMP Manual.

The seven BMP implementation audits were conducted on recent timber sale sites to evaluate BMP selection, placement and effectiveness. The audit sites included timber harvests on one Bureau of Land Management, two Forest Service, two state land and two private sales. A report of the audit findings is in preparation.

## **Bureau of Reclamation**

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

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

## **South Dakota Water & Environment Fund**

The Water Resources Assistance Program 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 Environmental 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 were:

### NPS Projects Awarded Consolidated Water Facilities and Fee Fund Grants During FY 2004

Project	Grant Award (\$)	Funding Source
Amsden Dam Assessment	21,000	Fee Fund
Okobojo Creek Watershed Assessment	15,000	Fee Fund
White River Phase I Assessment	32,000	Fee Fund
Vermillion River Basin Assessment	133,000	Fee Fund
Lewis and Clark Watershed Assessment	22,190	Fee Fund
Upper Snake Creek Watershed Project	4,000	Fee Fund
Elm Lake Implementation Project	57,300	Consolidated
Lakes Herman/Madison/Brant Implementation	19,200	Consolidated
Total	303,690	

### South Dakota Clean Water State Revolving Fund

The South Dakota Board of Water and Natural Resources administers the state's Clean Water State Revolving Fund program. During March 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 may receive 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 nonpoint source component of the project.

### SD Conservation Commission

The South Dakota Conservation Commission provides state funded grants to conservation districts for the implementation of conservation best management practices through the South Dakota Coordinated Soil and Water Conservation Grants Program. DENR staff coordinates funding of grant requests that could benefit from both the NPS and Soil and Water Grants programs with the Commission and participates in grant application reviews. To maintain and build on the partnership with the commission, program staff regularly attends the commission meetings.

During this reporting period, the commission awarded \$846,540 in grants. NPS projects and animal feeding operation/nutrient management activities included in the total were:

- Engineering for the design for waste management systems for 26 CAFOs - \$349,440
- Upper Cheyenne River Watershed Assessment Project - \$10,000.
- Clear Lake Watershed Restoration Project - \$5,000.
- Lake Faulkton Watershed Project - \$22,500.
- Upper Snake Creek Watershed Project - \$80,000.
- Lake Hanson/Pierre Creek Restoration - \$10,500

## **319 Grant Match**

Nonfederal match of 40 percent of project expenditures is required for Section 319 grants. South Dakota has a history of over matching 319 grants even though the state takes a very conservative approach to accumulating and approving nonfederal match. As much of the match comes from construction and implementation of BMPs, a large proportion of the match requirement for many projects is accrued/documented during the later phases of workplan completion. See Appendix A for a summary of nonfederal match documented for each of the department's 319 grants.

## **Water Quality Improvements**

The South Dakota NPS Program is initiating activities to better quantify load reductions and water quality improvements achieved through the completion of watershed project implementation plans. The 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 will use a combination of modeling and water quality sample results.

The availability of load reduction/water quality improvement data is anticipated to increase as implementation of BMPs included in project workplans as projects progress and program staff and project coordinators become more proficient in collecting the information.

Load reduction/water quality improvements documented will be entered in GRTS as required. Load reduction/water quality data available for selected projects follows.

### Bad River Watershed Project

The Bad River TMDL calls for a 30 percent reduction in the 3.25 million tons of sediment delivered to Lake Sharpe by the river each year (USGS and Corps of Engineers data). Data released by the Corps of Engineers during 2001 shows that the Bad River currently delivers 1.95 million tons of sediment per year. This equals a 40 percent reduction (based on an average of USGS data from 1972 through 1997). The reduction exceeds the TMDL goal. A linear regression prepared using the same data base for the years 1948 through 2000 shows a 50% reduction in sediment delivery.

### Lake Cochrane/Oliver

According to data prepared for the 2004 SD Integrated Report for Surface Water Quality Assessment, Lake Oliver will meet the mean TSI goal of 65. The phosphorus reduction recommendation is 50 percent. Data indicates that total phosphorus levels were reduced by 34.8 percent following an alum treatment completed during October 2002. The lake was estimated to have had an internal phosphorus load of 281.4 pounds; mean growing season concentration of 0.069mg/L. During 2003, the year following the alum treatment, the internal load was estimated at 139.4 pounds or a nearly 50 percent reduction in total phosphorus.

### Firesteel Creek/Lake Mitchell

The in-lake reduction goal is 90 ppb total phosphorus. An estimated three percent (2.7 ppb) reduction in the in-lake phosphorus was realized from the first alum treatment applied during summer 2003.

The mean Total P concentration before the 2004 alum application was 0.276 mg/L. The mean Total P concentration after the alum application was 0.114 mg/L.

The 58.7% decrease in the TP concentration was temporary due to the fractional application strategy being followed. As in 2003, the TP concentrations gradually rose above pre-application levels as internal P loading occurred over the course of the growing season. It is projected that this trend will continue until enough alum is applied to effectively seal the sediment-bound P.

### Bachelor Creek

An evaluation of sediment and nutrient load reductions achieved in the watershed using AGNPs indicates that, on an annual basis, changes in residue management have resulted in a sediment load reduction of 18.2 percent, nitrogen reduction of 7.86 percent, and phosphorus reduction of 11.92 percent. These reductions accomplish 99 percent of the project goal established for sediment, 63 percent of the goal for nitrogen and 72 percent of the goal for phosphorus.

### Cottonwood Lake/Lake Louise

The TMDL goals (load reductions) for the two lakes are:

- Cottonwood Lake: 44 percent total phosphorus and 11 percent sediment. .
- Lake Louise with Wolfe Creek: 10 percent total phosphorus and 7 percent sediment.

Load reductions for two drainage areas were reported by the project sponsor. Drainage area 1 includes the two lakes, drainage areas 2 Lake Louise and Wolfe Creek.

#### **Cottonwood Lake/Lake Louise Load Reductions by Drainage Area**

Drainage Area	Parameter	2004	Cumulative
1	Sediment	115.6 tons	2,210 tons
	Phosphorus	0.8 lbs	14.6 lbs
2	Sediment	408 tons	481 tons
	Phosphorus	2.7 lbs	3.4 lbs

**APPENDIX A**

**319 MATCHING FUNDS Accrued Through 9/30/04**

<b>Grant</b>	<b>Grant Award</b>	<b>Expenditures thru 9/30/04</b>	<b>Match Required Against Federal Expenditures</b>	<b>Total Match Required</b>	<b>Match Documented</b>
319 Implementation 89	\$1,594,000	\$1,594,000	\$1,062,667	\$1,062,667	\$1,315,016
319 Implementation 90	\$800,137	\$800,137	\$885,994	\$885,994	\$885,994
319 Implementation 91	\$655,851	\$655,797	\$437,198	\$437,234	\$437,199
319 Implementation 92	\$795,000	\$794,836	\$529,891	\$530,000	\$535,421
319 Implementation 93	\$1,090,839	\$1,090,839	\$727,227	\$727,227	\$779,175
319 Implementation 94	\$1,415,142	\$1,415,142	\$943,508	\$943,508	\$1,188,561
319 Implementation 95	\$1,699,669	\$1,699,669	\$1,133,119	\$1,133,119	\$1,154,183
319 Implementation 96	\$1,126,685	\$1,085,707	\$723,804	\$751,161	\$787,159
319 Implementation 97	\$1,253,790	\$1,253,790	\$835,902	\$835,902	\$1,484,877
319 Implementation 98	\$1,296,790	\$1,234,139	\$822,759	\$864,531	\$1,684,393
319 Implementation 99	\$2,791,400	\$1,672,884	\$1,115,256	\$1,861,025	\$1,334,229
319 Implementation 00	\$3,008,897	\$2,266,273	\$1,510,849	\$2,005,931	\$2,163,657
319 Implementation 01	\$3,267,900	\$2,149,322	\$1,432,882	\$2,178,600	\$2,356,825
319 Implementation 02	\$3,142,900	\$1,367,159	\$911,440	\$2,095,268	\$1,143,013
319 Implementation 03	\$3,128,700	\$115,259	\$76,839	\$2,085,800	\$90,336
319 Implementation 04	\$3,090,200	\$25,000	\$16,667	\$2,060,133	\$0
<b>Total</b>	<b>\$30,157,900</b>	<b>\$19,219,953</b>	<b>\$13,166,002</b>	<b>\$20,458,100</b>	<b>\$17,340,038</b>