



**BELLE FOURCHE RIVER
WATERSHED
PARTNERSHIP**

Belle Fourche Office
1837 5th Avenue, South
Belle Fourche, SD 57717-2086
(605) 892-3368 – Ext. 3

September 30, 2005

Mr. Dennis Clarke
Department of Environment and Natural Resources
Division of Financial and Technical Assistance
523 East Capitol
Joe Foss Building
Pierre, SD 57501

Dear Mr. Clarke:

We are pleased to submit the following draft proposal titled *Belle Fourche River Watershed Management and Project Implementation Plan Segment III*. The 2-year project will continue the implementation of Best Management Practices (BMPs) in the Belle Fourche River Watershed.

We are looking forward to continuing the effort started 7 years ago by the Belle Fourche River Watershed Partnership and many of the stakeholders within the watershed. This project will continue the implementation of the BMPs recommended in the Total Maximum Daily Load (TMDL) report for the watershed. The total cost of this 2-year phase of the project is \$4,972,742 with \$1,420,000 coming from EPA 319 funds. The project is scheduled to begin in April of 2006 and will be completed by September of 2008.

We hope this proposal meets your decision requirements. Please call if we can provide any additional information.

Sincerely,

Tim Reich
President
Belle Fourche River Watershed Partnership

TR:llf

Enclosure

cc: Project Central File 1540 — Category A
Project Central File 996-2257 — Category B

**Belle Fourche River
Watershed Management and
Project Implementation Plan
Segment III**

**319 Watershed Project
September 30, 2005**

Sponsored By:

Belle Fourche River Watershed Partnership

Submitted to:

South Dakota Department of
Environment and Natural Resources
Pierre, South Dakota 57501

PROJECT SUMMARY SHEET

PROJECT TITLE: Belle Fourche River Watershed Management and Project Implementation Plan Segment III

NAME AND ADDRESS OF LEAD PROJECT SPONSOR

Belle Fourche River Watershed Partnership
1839 5th Avenue
Belle Fourche, SD 57717

STATE CONTACT PERSON: Jeremy Schelhaas

TITLE: Natural Resources Engineer

EMAIL: Jeremy.Schelhaas@state.sd.us

PHONE: 605.773.4254

FAX: 605.773.4068

STATE: SOUTH DAKOTA

WATERSHED: Belle Fourche River Watershed

HYDROLOGIC UNIT CODE: 101202

HIGH PRIORITY WATERSHED (yes/no) YES

PROJECT TYPES: [] BASE [X] WATERSHED [] GROUNDWATER [] I&E

WATERBODY TYPES

- [X] GROUNDWATER
- [X] LAKES/RESERVOIRS
- [X] RIVERS
- [X] STREAMS
- [X] WETLANDS
- [] OTHER

NPS CATEGORY

- [X] AGRICULTURE
- [] URBAN RUNOFF
- [] SILVICULTURE
- [] CONSTRUCTION
- [] RESOURCE EXTRACTION
- [] HYDRAULIC MODIFICATION
- [] OTHER

Project Location: Latitude: 45 N

Longitude: -101 W

SUMMARIZATION OF GOALS: The overall project goal is to bring Belle Fourche River compliance for TSS by implementing the recommended BMPs by 2014 and implement additional BMP recommendations from other TMDLs for waterbodies within the watershed as they become available. At this time, no TMDLs are complete for fecal coliforms. Therefore there are no proposed BMPs related to fecal coliform load reductions. The goal of this project segment, as set forth in the Belle Fourche River Watershed TMDL study is to continue:

- Implementation of BMPs in the watershed to reduce TSS (30.1 of mg/L reduction of the required 108 mg/L reduction below the Belle Fourche Reservoir, and 33.4 mg/L of the required 189 mg/L reduction above the Belle Fourche River Reservoir.
- Public education and outreach to stakeholders within the Belle Fourche River Watershed.
- Tracking the progress made toward reaching the goals of the TMDL to help ensure that the BMPs are effective and the proper BMPs are being implemented.

PROJECT DESCRIPTION: The Belle Fourche River Watershed Partnership is the project sponsor for this 2-year project. This is the third segment of seven planned project segments. Completion of the activities planned for this segment will advance the BMP implementation for TSS pollutants to 21 percent completed. This project will continue implementation of the BMPs identified in the TMDL report for the Belle Fourche River Watershed. These BMPs include irrigation state control units, canal model, lining canals, replacing irrigation ditches with pipelines, installing irrigation sprinkler systems, implementing grazing management systems and installing riparian vegetation improvements.

| | | |
|--|-------------|---------------------------|
| FY | 2006 | |
| 319 FUNDS: | \$1,420,000 | |
| TOTAL PROJECT COST: | \$4,972,742 | MATCH: \$1,964,458 |
| 319 FUNDED FULL TIME PERSONNEL: | 1 | |

2.0 STATEMENT OF NEED

2.1 The Belle Fourche River Watershed Partnership developed and implemented an assessment project to determine the Total Maximum Daily Load (TMDL) for the Belle Fourche River. The project started during April 2001. The purpose of the assessment was: (1) assess the current physical, chemical, and biological integrity of the Belle Fourche River and its tributaries; (2) determine the sources of total suspended solids in the Belle Fourche River Watershed; and (3) define management prescriptions for identified nonpoint source critical areas in the watershed. The draft TMDL was completed during 2003. The TMDL report includes two waterbodies: the Belle Fourche River and Horse Creek. The TMDL has been approved by Environmental Protection Agency (EPA).

The Belle Fourche River is identified in the 1998, and 2002, South Dakota 303(d) Waterbody Lists and the 2004 Integrated Report for Surface Water Quality Assessment as impaired due to elevated total suspended solids (TSS) concentrations. According to the 2002 South Dakota Report to Congress (the 305(b) Water Quality Assessment), the Belle Fourche River from the Wyoming border to the Cheyenne River, South Dakota, failed to support its assigned uses because of high TSS. In the report, agricultural activities were listed as a likely source of occasional impairment. This report also states that a natural source of TSS may be the erosion of exposed shale beds that lie along the river and its tributaries. Table 2-1 presents a summary of impaired waterbodies within the Belle Fourche River Watershed. The table also lists the impaired beneficial use and water quality data.

Horse Creek was listed in the 1998 impaired Waterbody List for total dissolved solids (TDS), which was later determined to be a listing error. The Horse Creek listing was corrected to conductivity during 2002. During this assessment, approximately 10 percent of the samples collected from Horse Creek exceeded the water quality standard for TSS. The 2004 Waterbody List also includes Horse Creek for conductivity. The TMDL report for Horse Creek includes both TSS and conductivity.

Implementation of the Best Management Practices (BMPs) recommended in the Belle Fourche River TMDL began during 2004. The first year of implementation included funding from local ranchers and farmers, the Belle Fourche River Watershed Partnership, Lawrence County, the Belle Fourche Irrigation District (BFID), Wyoming Department of Environmental Quality, National Resource Conservation Service (NRCS), Corps of Engineers, Bureau of Reclamation, and the U.S. Geological Survey. Two products of the project were the Ten-Year Belle Fourche River Watershed Strategic Implementation Plan and the Five-Year Belle Fourche Irrigation District Water Conservation Plan. These two plans outline the work that will be completed in the watershed during the next several years to meet the TMDLs. Within the reports, the associated total suspended solids and nonused water savings are presented for each BMP planned. BMPs installed during the first segment of the implementation included: one flow automation unit, replacing open irrigation ditch with pipeline, lining open irrigation ditches, installing pipelines to deliver water from the BFID system to the fields, installation of two sprinkler irrigation systems, and 3,000 acres of managed grazing. These BMPs resulted in an estimated 7 mg/L reduction in TSS (2.3 percent of goal). This segment was completed on schedule and within budget. Table 2-2 lists the BMPs that have been installed during the first two project segments. The table also shows the total planned amount of each BMP to be installed. These BMPs will result in an estimated 15.4 mg/L reduction in TSS. This segment of implementation is on schedule, within budget and will be completed by September 30, 2006.

During the current segment some unique outreach activities were completed. A project website was developed. The site can be accessed at <www.bellefourchewatershed.org>. A Congressional Staff and National Association of Conservation Districts (NACD) tour of the project was held during August of 2005. This tour gave people from the watershed and across the country the opportunity to learn about the project and the chance to interact with each other.

The Ten-Year Belle Fourche River Watershed Strategic Implementation Plan includes a TSS reduction schedule. By the end of 2005 the TSS level in the Belle Fourche River is scheduled to be reduced by 19 mg/L. The total estimated reduction of the BMPs implemented thus far is 24.4 mg/L (see Figure 2-1). This translates to the implementation being 28.4 percent ahead of schedule.

Table 2-1. Summary of Belle Fourche River Watershed Exceedance Water Quality Data

| Stream | WQM/ USGS | Beneficial Use | Impairment Parameter | Water Quality Criteria | Number of Samples | Percent of Exceedances | Geometric Mean of Exceedances |
|------------------------------------|--------------|---------------------------------------|--------------------------------|--|-------------------------|---------------------------|-------------------------------------|
| Belle Fourche River ^(a) | 130 | Warm-Water Permanent Fish Life | TSS (mg/L) | 90 ^(b) /158 ^(c) | 31 | 19% | 947 |
| | | Immersion Recreation | Fecal Coliform (per/100mL) | 200 ^(b) /400 ^(c) | 11 | 36% | 831 |
| Belle Fourche River ^(d) | 83 | Warm-Water Permanent Fish Life | TSS (mg/L) | 90 ^(b) /158 ^(c) | 26 | 12% | 534 |
| Belle Fourche River ^(e) | 81 | Warm-Water Permanent Fish Life | TSS (mg/L) | 90 ^(b) /158 ^(c) | 27 | 11% | 427 |
| Belle Fourche River ^(f) | 76 | Warm-Water Permanent Fish Life | TSS (mg/L) | 90 ^(b) /158 ^(c) | 64 | 16% | 626 |
| Belle Fourche River ^(g) | 21 | Warm-Water Permanent Fish Life | TSS (mg/L) | 90 ^(b) /158 ^(c) | 26 | 15% | 989 |
| Horse Creek | 6436760 | Irrigation Waters | Conductivity (mohms/cm @ 25°C) | 2,500 ^(b) /4,375 ^(c) | 60 | 28% | 5,251 |
| Strawberry Creek | 116 | Cold-Water Permanent Fish Life | Zinc (mg/L) | * ^(h) | 76 | 32% | 900 |
| | | Cold-Water Permanent Fish Life | Cadmium (mg/L) | * ⁽ⁱ⁾ | 76 | 25% | 39.2 |
| | | Fish/Wildlife Prop. Rec. Stock Waters | TDS (mg/L) | 2,500 ^(b) /4,375 ^(c) | 75 | 39% | 7,211 |
| | | Irrigation Waters | Conductivity (mohms/cm @ 25°C) | 2,500 ^(b) /4,375 ^(c) | 44 | 25% | 7,192 |
| | | Cold-Water Permanent Fish Life | pH | 6.5 – 8.8 | 74 | 18% | 5.78 |
| | | Cold-Water Permanent Fish Life | Copper (mg/L) | * ^(j) | 76 | 63% | 438 |
| Whitewood Creek ^(k) | 123 | Immersion Recreation | Fecal Coliform (per/100mL) | 200 ^(b) /400 ^(c) | 33 | 45% | 999 |
| Whitewood Creek ^(l) | 85 | Cold-Water Permanent Fish Life | Water Temperature (°F) | <65°F | 29 | 10% | 73.4 |
| | | Immersion Recreation | Fecal Coliform (per/100mL) | 200 ^(b) /400 ^(c) | 6 | 50% | 785 |

(a) Wyoming border to near Fruitdale.

(b) 30-day average.

(c) Daily maximum

(d) Near Fruitdale to Whitewood Creek.

(e) Whitewood Creek to Willow Creek.

(f) Willow Creek to Alkali Creek.

(g) Alkali Creek to mouth.

(h) Zinc Concentration $< 0.978 \times \exp(0.8473 \times (\ln(\text{hardness})) + 0.8604)$.

(i) Cadmium Concentration $< (1.136672 - (\ln(\text{hardness})) \times 0.041838) \times \exp(1.128 \times (\ln(\text{hardness})) - 3.828)$.

(j) Copper Concentration $< 0.960 \times \exp(0.9422 \times (\ln(\text{hardness})) - 1.464)$.

(k) Deadwood Creek to Spruce Gulch.

(l) Spruce Gulch to Sandy Creek.

Table 2-2. Best Management Practices Installed and Schedule

| BMP | Amount Implemented | Amount Scheduled From 10-Year Plan |
|---|---------------------------|---|
| Flow Automation Units | 17 | 42 |
| Upgraded Water Card and Water Order System | Phase I | Three Phases |
| Portable Stage/Flow measuring Devices | 6 | 15 |
| Real-Time Stage Flow measuring Devices | 9 | 15 |
| Canal and lateral operational models | 1 | 5 |
| Line Open Canals and Laterals (feet of lining) | 3,200 | 26,560 |
| Replace Open Canals and Laterals with Pipeline (feet of pipeline) | 4,000 | 25,000 |
| Nonused Water Storage Ponds | 0 | 2 |
| Alternative Irrigation Water System for Johnson Lateral | 0 | 1 |
| Sprinkler Irrigation Systems | 4 | 36 |
| Managed Riparian Grazing | 15,000 | 34,000 |
| Public Meetings | 12 | 40 |
| Project Tours | 2 | 8 |

2.2 The South Dakota portion of the Belle Fourche Watershed is shown in Figure 2-2. The ecoregions within the watershed include: Black Hills Foothills, Black Hills Plateau, Black Hills Core Highlands, River Breaks, Semiarid Pierre Shale Plains, Dense Clay Prairie, and Missouri Plateau.

The Belle Fourche River is a tributary to the Cheyenne River. Within the Belle Fourche River Watershed are nine stream segments on the South Dakota 2004 Integrated Report for Surface Water Quality Assessment list as impairment-related TMDL waters. These include Whitewood Creek (two listings), Strawberry Creek, Horse Creek, and Belle Fourche River (five segments).

The BMPs that will be installed during this project segment are consistent with the schedules contained in the Ten-Year Belle Fourche River Watershed Strategic Implementation Plan and the Five-Year Belle Fourche Irrigation District Water Conservation Plan. The BMPs planned are described in Section 3 of this proposal. The planned BMPs will reduce the TSS in the Belle Fourche River below by approximately 30.1 mg/L and 33.4 mg/L above the Belle Fourche reservoir, respectively. This level of reduction is consistent with what is presented in the Ten-Year Belle Fourche River Watershed Strategic Implementation Plan.

2.3 The surface area of the South Dakota portion of the Belle Fourche River encompasses approximately 2,103,040 acres in size and includes Hydraulic Units 10120201, 10120202, and 10120203. The city of Spearfish (population 8,606) is the largest municipality located in the Belle Fourche River Watershed. Other small communities in the watershed include Deadwood (population 1,380), Lead (population 3,027), Sturgis (population 4,442), Belle Fourche (population 4,565), Fruitdale (population 62), Nisland (population 204), and Newell (population 646).

Land use in the watersheds is primarily livestock grazing with some cropland and a few urban and suburban areas. Wheat, alfalfa, native and tame grasses, and hay are the main crops. Within the BFID some corn is grown. Some winter animal feeding areas are located in the watershed. Gold mining, while reduced in scope from the past, is conducted in some headwater areas of the watershed. Some of the watershed land is used for silviculture.

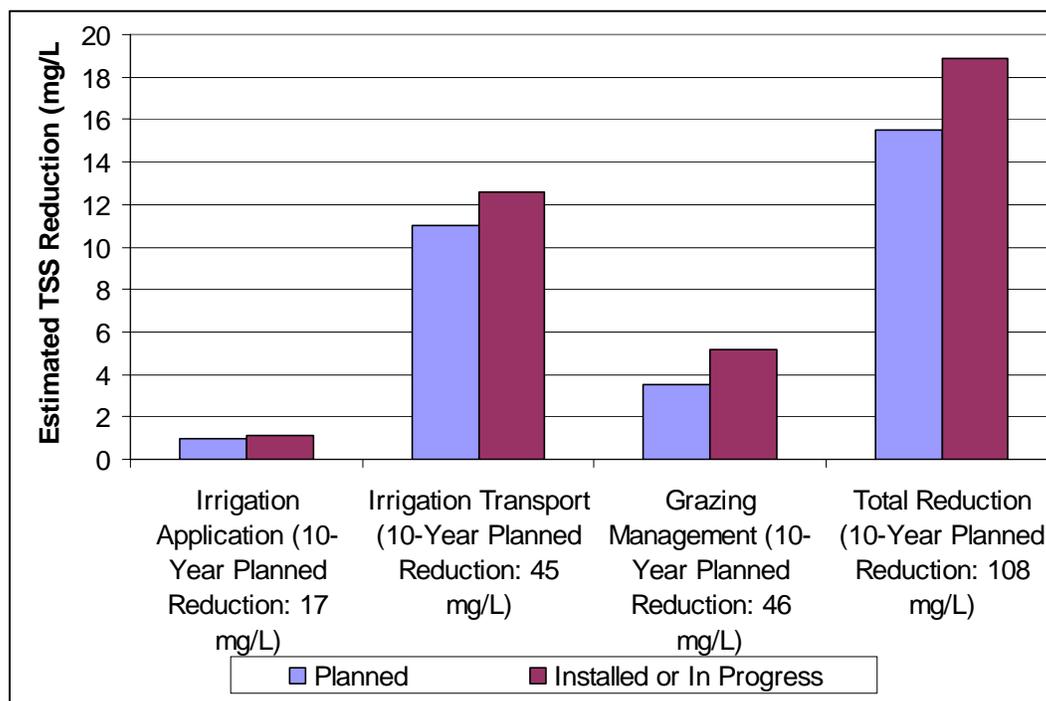


Figure 2-1. Planned Versus Installed or Implement Reductions Below Belle Fourche Reservoir.

- 2.4** Approximately 11 percent of the watershed is U.S. Forest Service land, primarily the Black Hills National Forest, and 4 percent is Bureau of Land Management land.

Major soil associations found in the watershed include Winler-Lismas, Pierre-Kyle, Grummit-Shale, Epsie, Midway-Penrose, Cabbart-Absher, Butche-Colby, Arvada-Stetter, Lohmiller-Glenberg-Haverson, Caputa-Satanta, Delphill-Assinniboine, Nunn-Satanta-Zigweid, Blackpipe-Savo-Manvel, Blackpipe-Assinniboine-Savo, Canyon-Lakoa-Maitland, Tilford-Nevee, St. Onge-Keith, Lohmiller-Glenberg, Winler-Lismas-Swanboy, Kyle-Pierre-Hisle, Samsil-Lismas-Pierre, Nevee-Vale-Tilford, Butche-Satanta-Boneek, Nunn-Kyle-Pierre, Barnum-Swint-St. Onge, Grummit-Snomo-Rock, Paunsaugunt-Rock, Lakoa-Maitland, and Citadel-Vanocker-Grizzly.

The average annual precipitation in the Belle Fourche Watershed ranges from 15 to 29 inches, of which 70 percent usually is received from April through September. Tornadoes and severe thunderstorms strike occasionally. These storms are local, of short duration, and occasionally produce heavy rainfall events. The average seasonal snowfall ranges from 155 inches in the higher elevations in the western part of the watershed to 23 inches per year in the eastern portion of the watershed. The average water allocation to the BFID is approximated 15 inches. The water added to the fields from irrigation nearly doubles the amount of water available for crop protection.

The landscape in the watershed is characterized by prairie land with some mountains in the south and west. Land elevation ranges from about 2,500 feet above mean sea level (MSL) to about 7,071 MSL. The Black Hills are strongly sloping hills. There are somewhat less strongly sloping hills near the Cheyenne River.

- 2.5** The Belle Fourche River Watershed within South Dakota encompasses over 2 million acres. TSS are contributed from natural, urban, agriculture, forest, and mining. The TMDL study identified the primary contributor of TSS to the Belle Fourche River and Horse Creek as the natural bank sloughing, quantity of nonused irrigation water discharged to the natural waterways, and riparian habitat impairment. Stream entrenchment and bank failure are

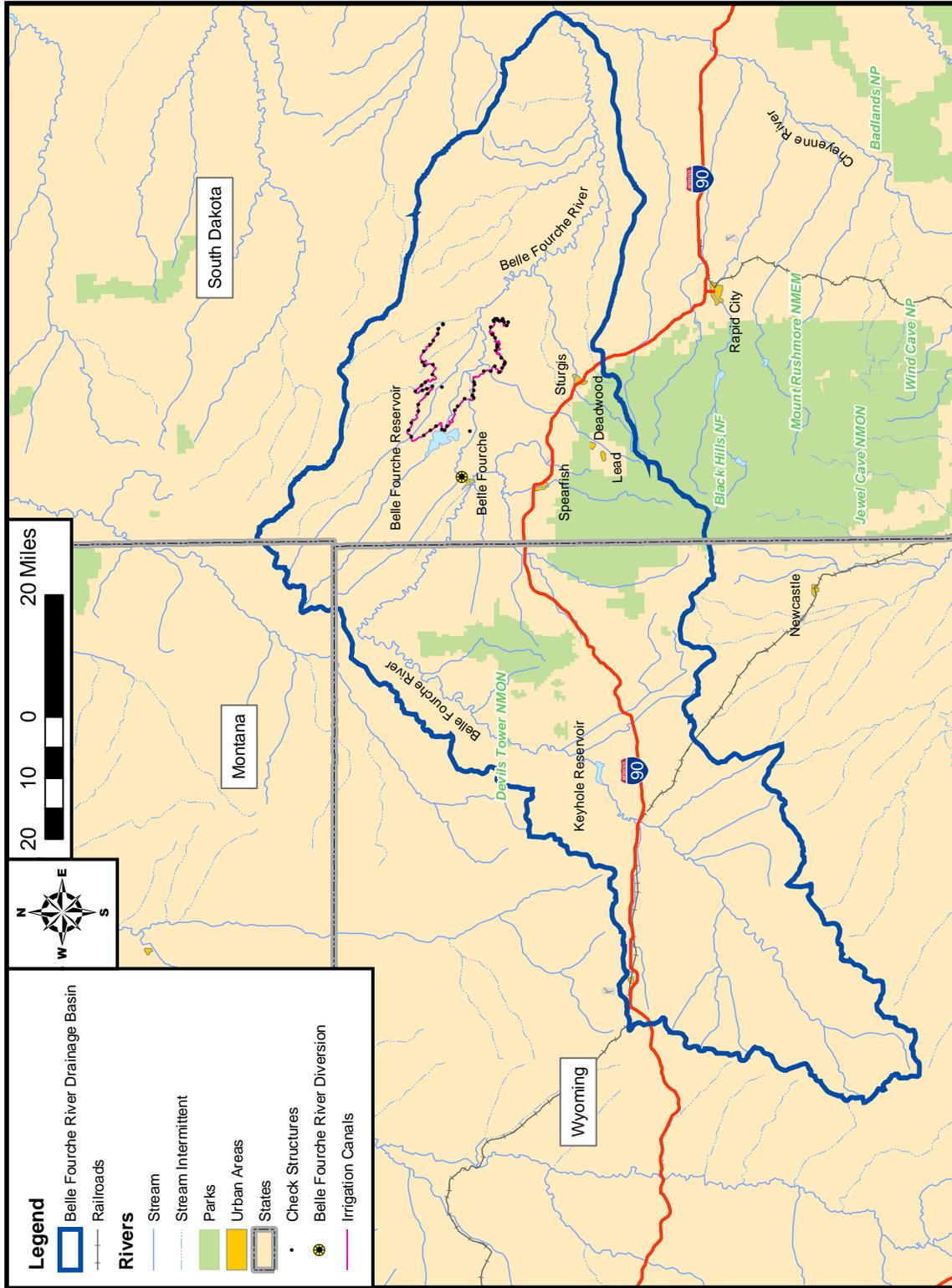


Figure 2-2. Location of the Belle Fourche River Watershed.

responsible for approximately 75 percent of the TSS in the Belle Fourche River system. Stream energy causes natural bank failure, particularly in the eastern portion of the watershed. These areas are dominated by high banks composed of primarily clay soils that supply suspended solids to the channel. Increased quantities of water resulting from the nonused irrigation flows are the major driving cause of the channel incision, and result in additional bank failures and resultant suspended solids.

Irrigation and return flow nonused irrigation water are responsible for approximately 20 percent of the TSS in the Belle Fourche River system. Much of the irrigation in the watershed is flood-irrigation. This type of irrigation results in sediments being mobilized by three processes: (1) tail water/runoff crossing fields, (2) water in the canals and laterals, and (3) in the intermittent streams carrying tail water/runoff to the perennial streams within the watershed. Rangeland erosion contributes the remaining 5 percent of the TSS load.

3.0 PROJECT DESCRIPTION

3.1 GOALS

The overall project goal is to bring Belle Fourche River compliance for TSS by implementing the recommended BMPs by 2014 and implement additional BMP recommendations from other TMDLs for waterbodies within the watershed as they become available. At this time, no TMDLs are complete for fecal coliforms. Therefore there are no proposed BMPs related to fecal coliform load reductions. The goal of this project segment, as set forth in the Belle Fourche River Watershed TMDL study, is to continue:

- Implementation of BMPs in the watershed to reduce TSS (30.1 of mg/L reduction of the required 108 mg/L reduction below the Belle Fourche Reservoir, and 33.4 mg/L of the required 189 mg/L reduction above the Belle Fourche River Reservoir).
- Public education and outreach to stakeholders within the Belle Fourche River Watershed.
- Tracking the progress made toward reaching the goals of the TMDL to help ensure that the BMPs are effective and the proper BMPs are being implemented.

3.2 OBJECTIVES AND TASKS

The strategy of the Belle Fourche River Watershed Implementation Plan is to progressively implement BMPs, such as water management and grazing management systems in the riparian areas, within the Belle Fourche Watershed to reduce total suspended solids in Horse Creek and the Belle Fourche River. This segment of the source reduction strategy will focus on BMPs that reduce the amount of nonused irrigation water discharged to the local waterways from the irrigation water delivery and application as well as riparian vegetation improvement. Baseline and seasonal monitoring will be performed to measure improvement. The strategy will be reviewed annually to measure overall success to determine adjustments and to obtain funding for the following project segment. Government and private funding will be used to fund BMPs. A final report will be produced for each 319 project segment completed.

Specifically, this project segment will fund the third and fourth years of BMP installation in the Belle Fourche Watershed to continue TSS reduction. Additional projects and funding proposals will be submitted during the next 7 years to continue implementing BMPs that reduce TSS and meet the TMDL.

OBJECTIVE 1: Implement BMPs Recommended in the Belle Fourche River Watershed TMDL to Reduce TSS

The Belle Fourche River TMDL recommends BMPs focusing on reducing the amount of nonused irrigation water discharged to the waterway from irrigation and riparian vegetation improvement. Nonused water reduction activities include water delivery as well as water application improvement.

The TMDL states that the amount of nonused water discharged to the local waterways needs to be reduced by 12,000 acre-feet. Implementation of BMPs prior to this project segment has reduced the nonused water discharged to local waterways by 2,200 acre feet or 18 percent of the overall goal.

Task 1

Reduce Nonused Water Discharged to the Local Waterways From the Delivery and Application Systems by 3,400-acre feet (Bringing the Total Reduction to 46 Percent of the Overall Goal which includes 2,200 Acre-Feet of Reduction From Previous Implementation)

riparian vegetation improvement will reduce TSS concentrations by 18 percent. Plans that will be used to install the BMPs include: fencing, stream crossing, alternative water supplies, winter feeding systems, range management, no-till systems, and stream channel bank stabilization.

Products:

2. Grazing/Rangeland/Riparian Management

The Conservation Reserve Program (CRP) will be considered for Grazing/Rangeland/Riparian Management projects and if it does not work, the management projects will be funded with EPA 319 funds. The funding percentages will be the same as NRCS programs. These projects will be in addition to the current EQIP projects. The focus of these projects will be to improve grazing and rangelands as well as improve the riparian corridor along the Belle Fourche River and its tributaries which will in turn reduce the TSS load in the Belle Fourche River.

Additionally a riparian improvement project along the Belle Fourche River will be implemented with EPA 319 funds and funds from the Compensation Plan for Whitewood Creek and the Belle Fourche and Cheyenne River Watersheds, South Dakota. A consultant for the Belle Fourche River Watershed partnership has met with the South Dakota Game Fish and Parks (SDGF&P) about this funding source. SDGF&P has not received any proposals for the Whitewood Creek funds. The Partnership will work closely with SDGF&P to develop a proposal with a high likelihood of being funded. This project will reduce the TSS levels in the Belle Fourche River by rehabilitating and improving riparian habitat along the Belle Fourche River. If this additional funding does not come through, all of the funds will be used as described in the previous paragraph.

- Total Product Cost: \$2,217,332
- 319 Cost: \$590,000
 - \$300,000 Whitewood
 - \$290,000 Riparian
- Lead Group: NRCS
- Other Group: Producers, US Fish and Wildlife Service (USFWS), South Dakota Game Fish and Parks (SDGF&P) Consultants
- Milestone: September 2008, 9,000 acres of managed grazing (Milestone Table, Page 14)

OBJECTIVE 2: Conduct Public Outreach, Complete Essential Water Quality Monitoring, and Write Reports

Informational meetings will be held quarterly to inform the public of project progress. Public participation and involvement will be encouraged. These meetings will provide an avenue for input from the residents in the area. Notification of meetings will be made to local agencies, mailings, and newspapers. In addition, a public Web page will be maintained to provide the public with the latest available data as well as an overview of the project and status of work activities <www.bellefourchewatershed.com>.

Task 3

Conduct Public Outreach Program, Monitor Water Quality, and Write Reports

Products:

3. Public Education and Outreach and Write Reports

Eight public meetings will be held during the project. These meetings will be similar to those held during previous segments of implementation. The function of the meetings will again be to update the status of the project for the producers, landowners, and stakeholders and educate and encourage them to become involved with implementing BMPs. Additionally the Belle Fourche River Watershed Partnership website will be maintained and updated to inform and educate the public <www.bellefourchewatershed.com>.

Grant Reporting and Track System (GRTS) Reports will be completed as required by the DENR. A final report will be submitted to EPA at the conclusion of the project. This report will cover all the work completed during this segment of implementation and the estimated effects the BMPs will

have on the water quality in the Belle Fourche River. Additional grants will be written such as the next EPA 319 grant and the next phase of the Bureau of Reclamation 2025 Grant.

- Total Product Cost: \$100,000
- 319 Cost: \$88,000
 - Public Education and Outreach \$36,000
 - Write Reports \$52,000
- Lead Group: BFRWP
- Other Group: USGS, Conservation Districts, Consultants
- Milestone: September 2008, 8 GRTS Reports, 1 Final Report, 8 Public Meetings, 1 Web site
(Milestone Table, Page 14)

3.3 SCHEDULE

The project milestone schedule is shown in Figure 3-1. The milestone schedule is based on work approval by May 2005 and completion by September 2006.

3.4 PERMITS

Prior to any new construction, required permits will be obtained. An example of permitting that may need to be completed is the National Environmental Policy Act (NEPA) permitting required to perform work on Bureau of Reclamation (BOR) lands. Other required permits may be needed for storm water or construction work. Additionally, the need for 401 and 404 stream permits will be checked for the riparian work. If any historical findings are made, the state historic preservation office will be contacted.

3.5 LEAD PROJECT SPONSOR

The Belle Fourche River Watershed Partnership (BFRWP) is the local sponsor for this implementation project. The partnership is a 501C(3) nonprofit group. The leaders of the Partnership include the conservation districts within the watershed and the Belle Fourche Irrigation District. The BFRWP has been the recipient of past 319 assessment and implementation grants for the Belle Fourche River TMDL.

3.6 OPERATION AND MAINTENANCE QUALITY ASSURANCE

Responsibilities for operation and maintenance of 319 funded BMPs will be provided for through conservation district/landowner contracts. Contracts developed for BMP installation will specify operation and maintenance needs, procedures for BMP failure or abandonment, and the life span BMPs will be maintained for the terms agreed upon in the contract. The Natural Resource Conservation Service or the appropriate conservation district will be responsible for completing operation and maintenance scheduling, on-site evaluations, and follow-up with landowners when actions need to be taken to ensure BMP operation for its designated life span.

The Natural Resource Conservation Service; Farm Service Agency; and the Butte, Meade, and Elk Creek Conservation District, District Supervisors, and the US Bureau of Reclamation will be responsible for ensuring best management practices cost-shared with the Environmental Protection Agency (EPA) 319 and all systems operated and maintained. Compliance for BMPs implemented with 319 funds will follow the same rules and regulations as the Natural Resource Conservation Service's Environmental Quality Incentive Program (EQIP). These rules are found in Section 515.113 of the EQIP Program Manual. Landowners and operators who do not maintain practices funded by this project for the length of the agreed contract will be required to repay all cost-share funds and any liquidated damages incurred. Conservation district personnel supported by the agent acting on behalf of the Belle Fourche River Watershed Partnership (BFRWP) will be responsible for landowner contacts, developing a landowner/producer mailing list, keeping records, submitting vouchers and reports, and recording cash and in-kind match. Where BOR funds are used, the BOR will be responsible for ensuring the BMPs are operated and maintained properly for the life of the contract (see also Section 5.5).

| ID | Task Name | 2006 | | | | 2007 | | | | 2008 | | | | 2009 | | | | | | |
|----|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|--|--|
| | | Qtr 2 | Qtr 3 | Qtr 4 | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 | | | | |
| 1 | Objective 1. Implement BMPs Recommended in the Belle Fourche River Watershed TMDL | | | | | | | | | | | | | | | | | | | |
| 2 | Task 1. Reduce Nonused Water | | | | | | | | | | | | | | | | | | | |
| 3 | Product 1. Improved Irrigation Water Delivery 3,400 Ac-ft Reduction of Nonused Water | | | | | | | | | | | | | | | | | | | |
| 4 | 1a. 14 Real-Time Stage Control Automation Units and 13 Stage Control Automation Units | | | | | | | | | | | | | | | | | | | |
| 7 | 1b. Phase II of Canal Operational Model | | | | | | | | | | | | | | | | | | | |
| 8 | 1b. Line or Pipe Open Canals and Laterals | | | | | | | | | | | | | | | | | | | |
| 11 | 1d. Install Ten Sprinkler Systems | | | | | | | | | | | | | | | | | | | |
| 14 | Task 2. Install Riparian Vegetation Improvements | | | | | | | | | | | | | | | | | | | |
| 15 | Product 2. Grazing/Rangeland/Riparian/CRP Management | | | | | | | | | | | | | | | | | | | |
| 16 | Objective 2. Public Outreach Program, Monitor Water Quality, and Write Reports | | | | | | | | | | | | | | | | | | | |
| 17 | Task 3. Conduct Outreach Program, Monitor Water Quality, and Write Reports | | | | | | | | | | | | | | | | | | | |
| 18 | Product 3. Outreach, Water Quality Monitoring, and Reports | | | | | | | | | | | | | | | | | | | |
| 19 | Public Education and Outreach | | | | | | | | | | | | | | | | | | | |
| 20 | Write Reports | | | | | | | | | | | | | | | | | | | |
| 21 | Monitor Water Quality | | | | | | | | | | | | | | | | | | | |

Figure 3-1. Milestone Table.

4.0 COORDINATION PLAN

4.1 PARTICIPATING GROUPS AND AGENCIES

The BFRWP has been working together for over 6 years. The Partnership has completed monitoring and evaluation work and submitted a TMDL study for approval. Some of the BMPs recommended in the TMDL have been implemented (one flow automation unit, partial completion of replacing open ditches with pipeline, partial completion of pipeline projects from BFID to fields, partial completion of installation of sprinkler systems, partial completion of riparian vegetation improvement projects). The following groups/agencies have been participating and will continue to participate in the Belle Fourche River Watershed implementation project:

- **Butte County Conservation District** – Voting member of the BFRWP, financial support and EQIP funding.
- **Belle Fourche Irrigation District (BFID)** – Voting member of the BFRWP, implements many BMPs, financial support and match funding.
- **Belle Fourche River Watershed Partnership (BFRWP)** – Local project sponsor.
- **Elk Creek Conservation District** – Voting member of the BFRWP, financial support and EQIP funding.
- **Lawrence County** – Local support, funding.
- **Lawrence County Conservation District** – Voting member of the BFRWP, financial support and EQIP funding.
- **South Dakota Association of Conservation Districts** – New active participant of BFRWP, full-time effort under the 319 grant program titled *303 (d) Watershed Planning and Assistance Project*.
- **South Dakota Conservation Commission** – Local support and technical assistance.
- **South Dakota Department of Agriculture** – Technical assistance with Whitewood Creek Compensation Plan.
- **South Dakota Department of Environment and Natural Resources (SD DENR)** – Active participation in BFRWP, GIS services for BFID, technical support and financial support.
- **South Dakota Game Fish and Parks** – Technical assistance with Whitewood Creek Compensation Plan.
- **South Dakota Grassland Coalition** – Grassland management project.
- **South Dakota School of Mines and Technology (SDSM&T)** – Active participant in BFRWP, technical support through Dr. Kenner and graduate students. SDSM&T performed the initial TMDL study.
- **US Army Corps of Engineers (COE)** – Local support.
- **US Bureau of Reclamation (BOR)** – Active participation in BFRWP, provide technical support through drawings and designs as requested by BFID, provides financial support, sponsors South Dakota State University (SDSU) Water Conservation Demonstrations and Bridging the Head gate initiative. The BOR is partially funding a lining project that is not counted as much but it is shown in table 6-6 under “Other Watershed Improvement Projects.”
- **US Environmental Protection Agency (EPA)** – Provide 319 and 106 funding and technical guidance.
- **US Geological Survey (USGS)** – Active participant in BFRWP, field work, and technical and financial support.
- **US Fish and Wildlife Service (USFWS)** – Participant in BFRWP, technical support, and potential financial support.
- **US Natural Resource Conservation Service (NRCS)** – Field work and lead agency for the river basin study to identify critical areas of nonpoint source pollution to the surface waters in the watershed.
- **Wyoming Department of Environmental Quality (WY DEQ)** – Local support and financial support for flow measurements at the South Dakota-Wyoming state line.
- **Lead** – The town is working on a combined sewer separation project. The funding for this project is shown in Table 6-5 under “Other Watershed Improvement Projects.”
- **Nisland** – The town is working on a lagoon project. The funding for this project is shown in Table 6-5 under “Other Watershed Improvement Projects.”

4.2 LETTERS OF SUPPORT

Letters of support have been supplied by local organizations to the DENR supporting the Belle Fourche River Watershed Assessment Project for this project.

4.3 COORDINATION WITH OTHER PROGRAMS

The BFRWP will continue to coordinate activities with state, federal, and local government agencies through frequent personal communication and monthly partnership meetings. South Dakota Game, Fish and Parks; USFWS; NRCS; SD DENR; local organizations; and local government agencies will provide input and involvement in this assessment. Coordination with these agencies will include work related to other grassland improvement projects and other 303(d) assessment work. Extra coordination with local Natural Resources Conservation Service (NRCS) personnel will be necessary for the riparian vegetation improvement project.

4.4 SIMILAR ACTIVITIES IN WATERSHED

All practices within the Belle Fourche River Watershed are included in the funding table. Additional partners and projects may be identified during the coordination segment.

5.0 EVALUATION AND MONITORING PLAN

5.1 QUALITY CONTROL AND ASSURANCE

The collection of field data will be performed in accordance with the SD DENR's Standard Operating Procedures for Field Samplers, Tributary and In-Lake Sampling Techniques. A minimum of 10 percent (1 sample) of all samples collected will be quality assurance/quality control (QA/QC) samples. QA/QC samples will consist of field duplicates or field replicate samples.

5.2 DATA

The data will be provided to SD DENR. The data and analysis for this project will be documented in a final report. The BFRWP will review and submit the final report to SD DENR.

BASINS and **HSPF** were used to model the Belle Fourche Watershed when the TMDL was developed. To develop the TMDL and to determine the necessary load reductions, several BMPs were modeled in these programs to reduce TSS concentrations in the streams within the Belle Fourche Watershed. The sources of TSS identified were range erosion, irrigation and on-farm waste, free cattle access to streams, riparian degradation, natural geologic processes, hydraulic alteration by irrigation, and reduced stream miles. The following activities will be completed to determine the progress made to achieving the goals of the TMDL plan:

1. Monitor Present Progress Against Plan in Mid-Year and Annual Reports (Load Reductions Reported Annually).

Evaluation of project success in reaching the project objectives and goals will be accomplished by measuring:

- The scheduled versus the actual milestone completion dates.
- Comparisons of flow rates and chemistry for irrigation water application, delivery, and riparian BMPs.
- Measurement of reduction in nonused water from BFID discharged into streams.
- Development of a sustainable watershed implementation project measured in part by the participation and approval of additional grants money for BMP implementation.

Project monitoring will be reviewed by the BFRWP in quarterly meetings to report progress toward the goals and objectives.

2. Monitor Water Quality Improvement.

Flow impact on the macrowatershed will be analyzed using the following United State Geological Survey (USGS) stations:

- USGS 06428500 (Belle Fourche River at South Dakota-Wyoming state line)
- USGS 06436000 (Belle Fourche River near Fruitdale, South Dakota)
- USGS 06437000 (Belle Fourche River near Sturgis, South Dakota)
- USGS 06438000 (Belle Fourche River near Elm Springs, South Dakota)
- USGS 06436760 (Horse Creek above Vale, South Dakota)
- USGS 06433000 (Redwater River above Belle Fourche, South Dakota).

The stations are long-term flow measurement sites operated, funded, and maintained by USGS. The practices installed to reduce the amount of nonused water discharging to the waterways within the irrigation district should be detectable at the Belle Fourche River sites near Sturgis and near Elm Springs as well as at the Horse Creek site above Vale. The other sites recommended will allow a water mass balance to be calculated, adding to the precision of the analysis. Turbidity, specific conductance, temperature, and pH will be measured on a continuous basis at Horse Creek above Vail to provide baseline data to measure water quality improvements as a result of the nonused water reduction projects BMPs implemented within the Horse Creek Watershed.

The SD DENR Surface Water Quality Program has 21 monitoring stations within the watershed. Comparisons over time will be performed using applicable sites to measure the large-scale changes in water quality.

3. USGS Collection, Analysis, and Statistical Evaluation of Water Quality Samples Taken From Long-Term Watershed Monitoring Sites. The Following is a Breakdown of Anticipated Activities: Continuous Flow for Sites Identified Above.

- Cost: \$322,780 319 Cost: \$0
- Lead Group: USGS

4. Continuous chemistry at Horse Creek above Vail, South Dakota, to determine the daily and weekly chemical variability, to provide a better understanding of the system, and to compare chemical changes over time (2 years)

- Cost: \$46,830 319 Cost: \$25,200
- Lead Group: USGS

5. Perform statistical analysis of flow and chemistry monitoring sites to evaluate changes from BMPs. These results will be reported to EPA to show the changes made by BMP installation.

- Cost: \$14,800 319 Cost: \$14,800
- Lead Group: Consultant

6. Monitoring progress against plan.

- Total Product Cost: \$384,410 319 Cost: \$40,000
- Lead Group: USGS
- Other Groups: Consultant and SD DENR
- Milestone: September 30, 2008, progress made toward TMDL goal (Milestone Table, Page 14)

5.3 MODELS

Models used for the Belle Fourche Watershed TMDL were **HSPF** and **FLUX**. **FLUX** will be run with the updated information from the sampling program to help detect changes. A hydraulic model of the irrigation district’s delivery system will continue to be developed.

5.4 LONG-TERM OPERATION AND MAINTENANCE (O&M) FUNDING

The long-term O&M funding for irrigation will be funded and maintained by the Belle Fourche Irrigation District. Proper management of stream riparian habitat will be managed and supported financially in part by the NRCS and EQIP funding (see also Section 3.6).

6.0 BUDGET

Table 6-1 identifies the funding sources and cash flow during the project. Table 6-2 defines the acronyms used in Table 6-1. Tables 6-3, 6-4, and 6-5 present the budget for the 319 funds as well as the matching funds for the project. EPA 319 funds represent less than 30 percent of the total project budget. Table 6-6 summarizes the other funds being spent on the project that can not be used as matching funds.

Table 6-1. Cash Flow

| Budget | July '06 - June '07 (\$) | July '07 – Sept. '08 (\$) | Total (\$) |
|----------------------------|-----------------------------|------------------------------|------------------|
| 319 Funds | 726,650 | 693,350 | \$1,420,000 |
| Nonmatching Funds | | | |
| USFWS | 137,500 | – | 137,500 |
| SD GF&P | 50,000 | – | 50,000 |
| CRP | 97,500 | 97,500 | 195,000 |
| WHIP | 52,000 | 52,000 | 104,000 |
| NRCS EQIP | 316,850 | 316,850 | 633,700 |
| COE | 6,958 | 8,697 | 15,655 |
| BOR 2025 | 125,000 | – | 125,000 |
| BOR | 63,480 | 64,348 | 127,828 |
| USGS | 88,711 | 110,890 | 199,601 |
| Subtotal | 938,000 | 650,285 | 1,588,284 |
| Matching Funds | | | |
| Producer | 437,316 | 437,316 | 874,632 |
| BFRWP | 9,000 | 9,000 | 18,000 |
| SD DENR (Water Rights) | 34,789 | 43,486 | 78,275 |
| Lawrence County | 6,958 | 8,697 | 15,655 |
| BFID | 149,218 | 150,523 | 299,741 |
| Whitewood Creek Fund | 150,000 | 150,000 | 300,000 |
| Conservation Commission | 41,250 | 41,250 | 82,500 |
| SRF Loan Lead | 105,000 | 105,000 | 210,000 |
| SRF Loan Nisland | 35,000 | 35,000 | 70,000 |
| WY DEQ | 6,958 | 8,697 | 15,655 |
| Subtotal | 975,489 | 988,969 | 1,964,458 |
| Total Budget | 2,640,137 | 2,332,605 | 4,972,742 |

Table 6-2. Table of Acronyms

| Acronym | Definition |
|----------------|--|
| USFWS | United States Fish and Wildlife Service |
| SD GF&P | South Dakota Game Fish & Parks |
| CRP | Conservation Reserve Program |
| WHIP | Wildlife Habitat Incentives Program |
| NRCS EQIP | Natural Resources Conservation Service Environmental Quality Incentives Programs |
| COE | Corps of Engineers |
| BOR | Bureau of Reclamation |
| USGS | United States Geological Survey |
| BFRWP | Belle Fourche River Watershed Partnership |
| SD DENR | South Dakota Department of Environment and Natural Resources |
| BFID | Belle Fourche Irrigation District |
| SRF | State Revolving Fund |
| WY DEQ | Wyoming Department of Environmental Quality |

Table 6-3. Budget of 319 Funds

| Project Description | Consultants (\$) | BFID (\$) | Producer (\$) | Totals (\$) |
|---|-----------------------------|----------------------|--------------------------|------------------------|
| Objective 1. Implement BMPs Recommended in the Belle Fourche River Watershed TMDL | | | | |
| Task 1. Reduce Nonused Water | | | | |
| Product 1. Improved Irrigation Water Delivery and Application 3,400 Ac-ft Reduction of Nonused Water | | | | |
| 1a. 27 Stage Control Automation Projects | 76,000 | 300,000 | – | 376,000 |
| 1b. Phase II of Canal Operational Model | 209,100 | 16,900 | – | 226,000 |
| 1c. Line and Pipe Open Canals and Laterals | – | – | – | – |
| 1d. Install Ten Sprinkler Systems | – | – | 100,000 | 100,000 |
| Task 2. Install Riparian Vegetation Improvements | | | | |
| Product 2. Grazing/Rangeland/Riparian Management | 211,200 | | 378,800 | 590,000 |
| Objective 2. Conduct Public Outreach, Complete Essential Water Quality Monitoring, and Write Reports | | | | |
| Task 3. Conduct Public Outreach Program, Monitor Water Quality and Write Reports | | | | |
| Product 3. Public Education and Outreach, Monitor Water Quality, Write Reports | 128,000 | – | – | 128,000 |
| Other Watershed Improvement Projects | – | – | – | – |
| Total | 624,300 | 316,900 | 478,800 | 1,420,000 |

Table 6-4. Total Budget

| Total Budget | EPA 319 (\$) | Matching Funds (\$) | Nonmatching Funds (\$) | Line Item Total (\$) |
|---|-------------------------|------------------------------------|---------------------------------------|-------------------------------------|
| Objective 1. Implement BMPs Recommended in the Belle Fourche River Watershed TMDL | | | | |
| Task 1. Reduce Nonused Water | | | | |
| Product 1. Improved Irrigation Water Delivery and Application 3,400 Ac-ft Reduction of Nonused Water | | | | |
| 1a. 27 Stage Control Automation Projects | 376,000 | 48,000 | | 424,000 |
| 1b. Phase II of Canal Operational Model | 226,000 | 126,000 | | 352,000 |
| 1c. Line and Pipe Open Canals and Laterals | | 120,000 | 120,000 | 240,000 |
| 1d. Install Ten Sprinkler Systems | 100,000 | 537,500 | 212,500 | 850,000 |
| Task 2. Install Riparian Vegetation Improvements | | | | |
| Product 2. Grazing/Rangeland/Riparian Management | 590,000 | 719,632 | 907,700 | 2,217,332 |
| Objective 2. Conduct Public Outreach, Complete Essential Water Quality Monitoring, and Write Reports | | | | |
| Task 3. Conduct Public Outreach Program, Monitor Water Quality and Write Reports | | | | |
| Product 3. Public Education and Outreach, Monitor Water Quality, Write Reports | 128,000 | 133,326 | 223,084 | 484,410 |
| Other Watershed Improvement Projects | | 280,000 | 125,000 | 405,000 |
| Total | 1,420,000 | 1,964,458 | 1,588,284 | 4,972,742 |

Table 6-5. EPA 319 and Matching Funds Budget

| EPA 319 and Matching Funds Budget | EPA 319 (\$) | Matching Funds (\$) | | | | | | | | | | Sum of Matching Funds (\$) | | | |
|--|--------------|----------------------------------|---|-------------------------------|----------------------------------|-----------------------------|------------------------------|--------------------|-------------------------------------|---------------------------|------------------------------|----------------------------|---------|--------|-----------|
| | | Producer (Cash and In-kind) (\$) | Whitewood Creek Compensation Fund (Cash) (\$) | BFRWP (Cash and In-kind) (\$) | SD DENR Water Rights (Cash) (\$) | Lawrence County (Cash) (\$) | BFID (Cash and In-kind) (\$) | WY DEQ (Cash) (\$) | Conservation Commission (Cash) (\$) | SRF Loan Lead (Cash) (\$) | SRF Loan Nisland (Cash) (\$) | | | | |
| Objective 1. Implement BMPs Recommended in the Belle Fourche River Watershed TMDL | | | | | | | | | | | | | | | |
| Task 1. Reduce Nonused Water | | | | | | | | | | | | | | | |
| Product 1. Improved Irrigation Water Delivery and Application 3,400 Ac-ft Reduction of Nonused Water | | | | | | | | | | | | | | | |
| 1a. 27 Stage Control Automation Projects | 376,000 | - | - | - | - | - | 48,000 | - | - | - | - | - | - | - | 48,000 |
| 1b. Phase II of Canal Operational Model | 226,000 | - | - | 6,000 | - | - | 120,000 | - | - | - | - | - | - | - | 126,000 |
| 1c. Line and Pipe Open Canals and Laterals | - | - | - | - | - | - | 120,000 | - | - | - | - | - | - | - | 120,000 |
| 1d. Install Ten Sprinkler Systems | 100,000 | 537,500 | - | - | - | - | - | - | - | - | - | - | - | - | 537,500 |
| Task 2. Install Riparian Vegetation Improvements | | | | | | | | | | | | | | | |
| Product 2. Grazing/Rangeland/Riparian Management | 590,000 | 337,132 | 300,000 | - | - | - | - | - | - | - | - | 82,500 | - | - | 719,632 |
| Objective 2. Conduct Public Outreach, Complete Essential Water Quality Monitoring, and Write Reports | | | | | | | | | | | | | | | |
| Task 3. Conduct Public Outreach Program, Monitor Water Quality and Write Reports | | | | | | | | | | | | | | | |
| Product 3. Public Education and Outreach Write Reports | 88,000 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Other Watershed Improvement Projects | - | - | - | - | - | - | - | - | - | - | - | - | 210,000 | 70,000 | 280,000 |
| Monitor Water Quality | 40,000 | - | - | 12,000 | 78,275 | 15,655 | 11,741 | 15,655 | - | 15,655 | - | - | - | - | 133,326 |
| Total | 1,420,000 | 874,632 | 300,000 | 18,000 | 78,275 | 15,655 | 299,741 | 15,655 | 82,500 | 210,000 | 70,000 | - | - | - | 1,964,458 |

Table 6-6. Nonmatching Funds Budget

| Nonmatching Funds Budget | Nonmatching Funds | | | | | | | | Sum of Nonmatching Funds (\$) | |
|---|----------------------|--------------------------|--------------------|---------------------|--------------------------|--------------------|--------------------|-------------------------------|-------------------------------|---------------------|
| | USFWS (Federal) (\$) | SDGF&P (Nonfederal) (\$) | CRP (Federal) (\$) | WHIP (Federal) (\$) | NRCS EQIP (Federal) (\$) | COE (Federal) (\$) | BOR (Federal) (\$) | BOR 2025 Grant (Federal) (\$) | | USGS (Federal) (\$) |
| Objective 1. Implement BMPs Recommended in the Belle Fourche River Watershed TMDL | | | | | | | | | | |
| Task 1. Reduce Nonused Water | | | | | | | | | | |
| Product 1. Improved Irrigation Water Delivery and Application 3,400 Ac-ft Reduction of Nonused Water | | | | | | | | | | |
| 1a. 27 Stage Control Automation Projects | - | - | - | - | - | - | - | - | - | - |
| 1b. Phase II of Canal Operational Model | - | - | - | - | - | - | - | - | - | - |
| 1c. Line and Pipe Open Canals and Laterals | - | - | - | - | - | - | 120,000 | - | - | 120,000 |
| 1d. Install Ten Sprinkler Systems | - | - | - | - | 212,500 | - | - | - | - | 212,500 |
| Task 2. Install Riparian Vegetation Improvements | | | | | | | | | | |
| Product 2. Grazing/Rangeland/Riparian Management | 137,500 | 50,000 | 195,000 | 104,000 | 421,200 | - | - | - | - | 907,700 |
| Objective 2. Conduct Public Outreach, Complete Essential Water Quality Monitoring, and Write Reports | | | | | | | | | | |
| Task 3. Conduct Public Outreach Program, Monitor Water Quality and Write Reports | | | | | | | | | | |
| Product 3. Public Education and Outreach and write reports | - | - | - | - | - | - | - | - | - | 223,084 |
| Other Watershed Improvement Projects | - | - | - | - | - | - | - | 125,000 | - | 125,000 |
| Monitor Water Quality | - | - | - | - | - | 15,655 | 7,828 | - | 199,601 | 223,084 |
| Total | 137,500 | 50,000 | 195,000 | 104,000 | 633,700 | 15,655 | 127,828 | 125,000 | 199,601 | 1,588,284 |

7.0 PUBLIC INVOLVEMENT

Communications with the major stakeholders in this project is critical to success. Public involvement in the project will be continued through public meetings with stakeholders, newsletters sent out by conservation districts, word of mouth, and by the website developed by the partnership <www.bellefourchewatershed.com>.

8.0 THREATENED AND ENDANGERED SPECIES

The following endangered species are identified by the South Dakota Game, Fish and Parks as located within and/or migrating through the Lawrence, Butte, and Meade Counties: bald eagles, whooping crane, least tern, black-tailed prairie dog, and the black-footed ferret. The implementation of this project is not expected to impact any of these species. An Endangered Species Act Compliance Assessment letter dated May 18, 2004, from Mr. Doug Lofstedt, South Dakota Section 319 Project Officer, documents the “no affect” determination for the bald eagle, whooping crane, least tern, black-tailed prairie dog, and black-footed ferret in the project area.

The procedure that will be followed to ensure that threatened and endangered species are not adversely affected by project activities is based on three main premises which are the same ones used for Segment I and II:

- The managed grazing systems, planned and implemented, will promote the restoration or preservation of critical grassland habitat.
- It is anticipated that many of the grazing systems planned and implemented will be within areas with compliance plans in place.
- Involvement of NRCS and the USFWS in planning and construction grazing systems ensures personnel trained with mitigating threatened and endangered species will be involved with the design and implementation of project BMPs.

Species most likely to be encountered during the project and the procedure to be followed relative to each follows.

8.1 BALD EAGLE

The bald eagle is a threatened species with a known certainty of occurrence in all three counties. According to the USFWS, bald eagles are presently known to nest in the flood plain forest along the Missouri River in Yankton, Bon Homme, Union, and Gregory Counties; along the James River in Brown, Spink, Sanborn, and Hutchinson Counties; and in forested areas in Meade, Charles Mix, and Brown Counties of South Dakota.

The 319-funded activities will be very low intensity and widely dispersed over the landscape. The activities will not significantly increase or expand the level of human activity. Activities that disturb possible nesting sites or reduce food sources are not anticipated. Therefore, EPA-funded activities are expected to have no effect on the bald eagle and no consultation with the USFWS is planned.

8.2 WHOOPING CRANE

The whooping crane is an endangered species with a known certainty of occurrence in all three counties. They are often found in South Dakota during spring and fall migrations. Migration through the state occurs from mid- to late-April and mid- to late-October. Although a variety of habitats are used during migration, a wetland is always used for night roosting and frequently for foraging. While migrating, whooping cranes roost in wide, shallow, open water areas, including marshes, flooded crop fields, artificial ponds, reservoirs, and rivers. Roosting sites must also be isolated from human disturbances.

The EPA-funded monitoring activities will be of low intensity, widely dispersed over the landscape, and will not significantly increase or expand the level of human activity. In addition, if any cranes are observed at any project work site, “all mechanical activities at the site will be suspended until the bird(s) leave the site under their own volition” (Section 8.1). Thus the EPA-funded activities are expected to have no effect on the whooping crane and no consultation with the USFWS is planned.

8.3 LEAST TERN

The least tern is listed as an endangered species with a “known” certainty of occurrence in Meade County. This species historically bred in isolated areas along the Missouri, Mississippi, Ohio, Red, and Rio Grande river systems. The least tern is a local summer resident of the Missouri and Cheyenne Rivers in South Dakota. They can be found migrating through virtually all of South Dakota with the exception of the Black Hills. Least terns usually nest on open expanses of sand or small pebble beaches along shorelines, riverbanks, sandbars, and islands. Least terns typically select nesting sites that are well drained and away from the water line, usually near a small ridge or piece of driftwood. Their food source consists almost entirely of small fish, and feeding requires shallow water areas with an abundance of fish near the nesting area.

Major losses and alterations of habitat occur from shoreline, bank, and channel modification from construction of locks, dams, dikes, levees, and reservoirs. Flooding can prevent or destroy nesting and can be a byproduct of habitat alteration. Habitat losses can also result from increased development, recreational uses, natural erosion, human and domestic pet disturbances or harassment, and trampling by cattle. Pollution that effects fish populations can impact terns.

The 319-funded monitoring activities will be of low intensity, widely dispersed over the landscape, confined to a few isolated stream channel areas, and will not significantly increase or expand the level of human activity. Activities that disturb possible nesting sites or reduce food sources are not anticipated. If any least terns are observed near any project work site, “all mechanical activities at the site will be suspended until the bird(s) leave the site under their own volition” (PIP section 8.2). Therefore, EPA-funded activities are expected to have no effect on the least tern and no consultation with the USFWS is planned.

8.4 BLACK-TAILED PRAIRIE DOG

The black-tailed prairie dog is listed as a “Candidate” species with a “known” certainty of occurrence in all three counties. Black-tailed prairie dog colonies are almost exclusively located in grassland habitat because their primary diet consists of vegetation.

The 319-funded activities will be widely dispersed over the landscape and not related to black-tailed prairie dog habitat. The activities will not significantly increase or expand the level of human activity. Activities that disturb or reduce food sources are not anticipated. Therefore, EPA-funded activities are expected to have no effect on the black-tailed prairie dog and no consultation with the USFWS is planned.

8.5 BLACK-FOOTED FERRET

The black-footed ferret is an endangered species with a “possible” certainty of occurrence in all three counties. This species is a member of the weasel family. It feeds primarily on prairie dogs and uses their burrows for denning and shelter. Their historic range included Arizona, Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah, Wyoming, Alberta, and Saskatchewan. The South Dakota population that disappeared in the wild in 1974 was thought to be the last remaining population. However, a captive propagation program was started with individuals from a Meeteetse, Wyoming population that was discovered in 1981. Reintroductions have since occurred in Arizona, Colorado, Montana, South Dakota, Utah, and Wyoming. The South Dakota sites include the Conata Basin, Badlands National Park, and Cheyenne River Sioux tribal land in Dewey and Ziebach Counties.

Primary threats to the black-footed ferret include predation, disease, and loss of habitat. The ferrets can be affected by predators such as coyotes, golden eagles, great-horned owls, prairie falcons, badgers, bobcats, and foxes. Canine distemper will kill ferrets and sylvatic plague can eliminate entire prairie dog towns. In South Dakota, sylvatic plague currently poses the biggest threat to ferret populations. However, poisoning of prairie dogs and converting native prairie to cropland are main threats to ferret habitat.

The existence of black-footed ferrets is directly linked to the presence of prairie dogs. The sponsor will address the black-footed ferrets by complying with the South Dakota Prairie Dog Management Plan. If any actions are planned that may adversely effect the survival of a native or introduced population of black-footed ferrets the sponsor will consult with the US Fish and Wildlife Service.