South Dakota's Vison 2 TMDL Prioritization Framework

Section 303(d) Program

Period: 2022-2032

Watershed Protection Program

Division of Resource Conservation and Forestry

South Dakota Department of Agriculture and Natural Resources

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1.0 Introduction

Since 2016 South Dakota Department of Agriculture and Natural Resources (DANR) has been using the goals outlined in the original Vision (Vision 1) to help coordinate and focus efforts on Clean Water Act (CWA) Section 303(d) program activities. The United States Environmental Protection Agency (EPA) instituted the "Vision" framework to help states develop long-term water quality restoration strategy designed to address their own set of unique waterbodies. The framework identified several action items to help each state with long term planning and navigate through the planning and prioritization process of Section 303(d) assessment, TMDL development, and implementation all within a specific timeframe (2013-2022). Under the Vision, States will develop tailored strategies to implement their CWA 303(d) Program responsibilities in the context of their overall water quality goals and individual State priorities. Figure 1 outlines how the Section 303(d) program responsibilities work in relation to other CWA programs.

Vision 2 is the next iteration building on the experience of the first Vision. Vision 2 goals include planning and prioritization, restoration, protection, data and analysis, and partnerships. Tribal water quality and program development, and program capacity building are also included as focus areas. Although EPA recognizes states are currently working on these areas, they would like to emphasize their continued importance across all of the goals outlined in the new Vision.

2.0 Purpose

This Vision 2 document outlines the framework and strategy DANR will use in administering Section 303(d) program activities (Figure 1) through each integrated reporting cycle for the period of 2022-2032. Included in this strategy is a discussion of the prioritization process of selecting impaired waters targeted specifically for TMDL development. Referred to as "TMDL Commitments", a list of new waters will be selected every two years based on this prioritization schedule presented in the most current Integrated Report (IR). The framework presented in this document will outline South Dakota's approach to implementing Section 303(d) program activities for the period 2022-2032.

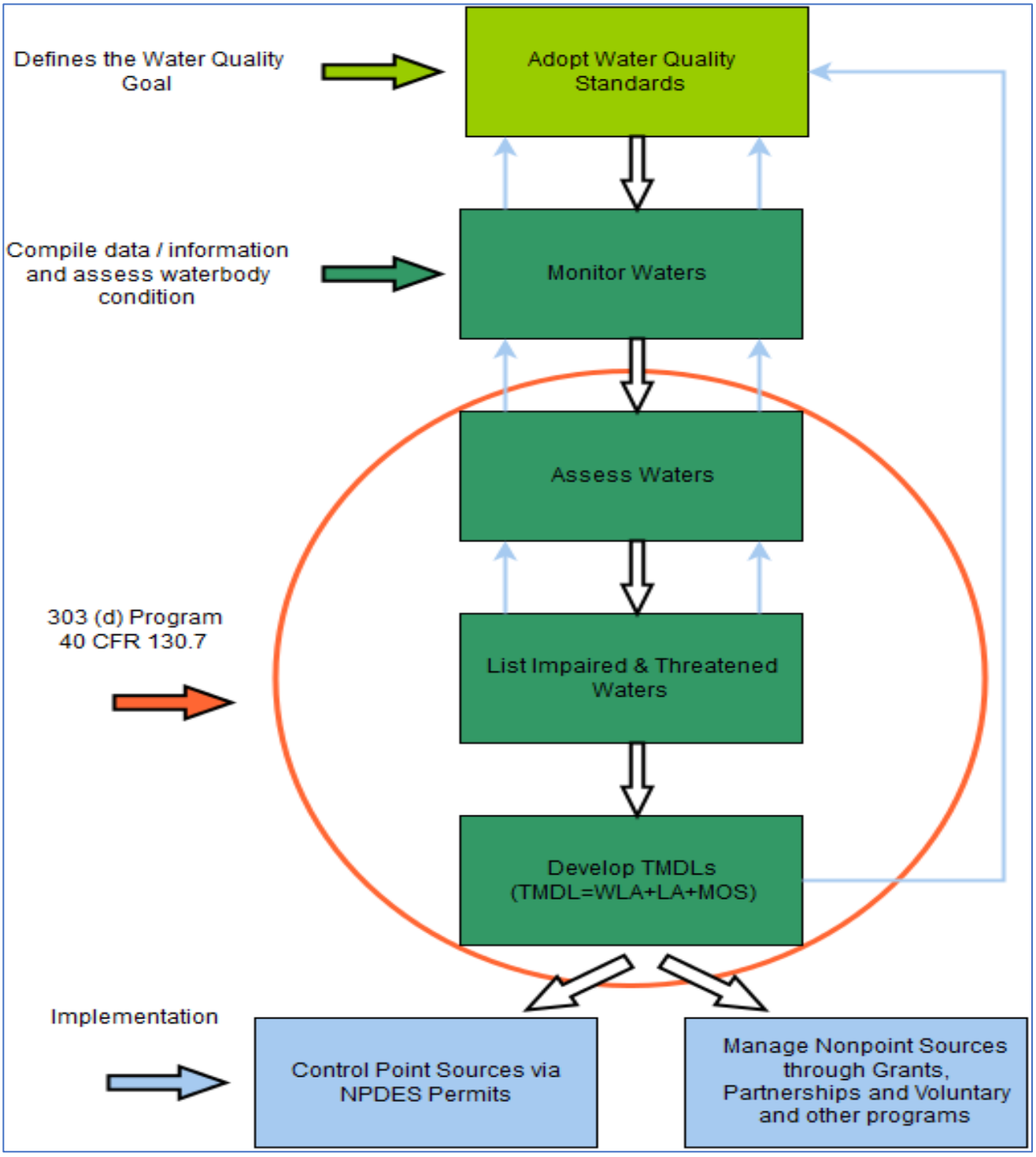

Figure 1.EPA's Overview of Identifying and Restoring Impaired Waters under Section 303(d).

3.0 Section 303(d) Program and Vision 1 Review

In 2013, EPA announced a new collaborative framework for implementing the CWA Section 303(d) Program. Colloquially known as the "Vision," South Dakota implemented this long-term strategy designed to help coordinate efforts regarding CWA Section 303(d) program activities. This included South Dakota's approach to prioritizing TMDL development and implementing alternative approaches and protection activities on South Dakota waters.

South Dakota's initial 303(d) Vision (2013 to 2022) ended September 30, 2022. The priority commitment from Vison 1 included completing 58 TMDLs covering 957 square miles and addressing *E. coli*, total suspended solids, and mercury in fish tissue impairments. The Vision 1 TMDL priority framework for impaired waters was created from a select list of waters identified as "High Priority" in the IR.

Waterbodies designated as impaired in the IR are placed into a High or Low category for TMDL development as per Section 303(d) reporting requirements. This prioritization process was first developed for the Integrated Report in 1998 but has continued to evolve through each IR cycle. The most recent version of the two-tiered priority scheme used in the IR for selecting impaired waters for TMDL prioritization is listed below.

- High Priority Waters for TMDL Development
  - Documented health problems or a threat to human health
  - Waters listed as impaired because of bacteria, TSS, temperature in waters assigned coldwater fisheries, or mercury in fish flesh;
  - Waters where TMDL development is expected during the next two years;
  - Waters with documented local support for water quality improvement;
  - Waters in areas of high economic development;
  - Select lakes impaired for Chlorophyll-*a* being considered for Section 303(d) Vision Priority.
- Low Priority Waters for TMDL Development
  - Water where local support for TMDL development is expected but not documented;
  - Waters having impairments not listed as a High Priority;
  - Waters with no evident local support for water quality improvements; or
  - Waters where impairments are largely due to natural causes.

The causes for the impairments in South Dakota waters remained consistent through the Vision 1 cycle (Table 1). However, the list of waterbodies initially targeted for TMDL development and included in the first Vision 1 commitment list needed significant changes for several reasons including:

- changes in assessment methods;
- impairment status (delistings);
- waterbodies suffering from data deficiencies; and

- those needing additional research on narrative and numerical water quality targets, such as Chlorophyll-*a* threshold development for lakes.

DANR began to implement various long-term planning measures designed to address many of these issues. Those measures have been carried forward to help coordinate Section 303(d) program activities with other CWA programs and develop a more comprehensive framework for planning and prioritization in Vision 2. DANR will still prioritize the same impairments shown in Table 1 but will be diligent in how waterbodies are chosen for each two-year TMDL commitment list throughout Vision 2.

TABLE 1. PERCENT OF LISTING CAUSES THROUGH IR CYCLES 2016-2024.

Listing Causes[1]	IR Cycle				
	2016	2018	2020	2022	2024
Escherichia coli	30%	25%	25%	21%	21%
Oxygen, Dissolved[2]	14%	11%	13%	14%	13%
Total Susp. Solids	14%	16%	14%	14%	13%
Chlorophyll-*a*[2]	7%	7%	7%	9%	13%
pH (high)[2]	9%	10%	9%	10%	10%
Temperature, water[2]	10%	11%	10%	10%	9%
Mercury in Fish Tissue[2]	1%	3%	8%	7%	7%
Salinity (SAR)	8%	8%	7%	6%	6%
Total Dissolved Solids	2%	3%	3%	4%	4%
Specific Conductance	4%	5%	4%	5%	3%
Total	100%	100%	100%	100%	100%

[1] - Percent of listing causes based on total impaired waterbodies.
[2] – Listings for these causes are dominated by lakes vs streams.

Although significant changes were made to the prioritization schedule, DANR achieved 89% of its Vision 1 goals by completing 49 TMDLs (821 square miles) and initiating TMDL development on three additional impairments. This completion rate was well above regional and national averages, according to EPA. In addition, three of DANR's early Vision 1 TMDL commitments were delisted because more recent data indicated the waters were no longer impaired and did not require TMDL development. If these three delisted waters were eligible for inclusion into the completion percentage, DANR would have achieved over 95 percent of its initial Vision 1 goals.

4.0 South Dakota Vision 2 Goals

The following pages present the South Dakota Vision 2 framework within the context of the five goals and two focus areas as shown in Table 2.

Table 2. Vision 2 Goals and Focus Areas.

Goals	Focus Areas
Planning and Prioritization	Tribal Water Quality and Program Development
Restoration	Program Capacity Building
Protection	
Data and Analysis	
Partnerships	

4.1 Planning and Prioritization Goal

The intent of the *Planning and Prioritization Goal* is to encourage coordination between the various CWA activities leading from the application of water quality standards and monitoring into the primary activities of Section 303(d) of assessment, TMDL development, and implementation. Section 303(d) requires planning because of the involvement of many other CWA programs that play a role in the assessment and restoration process of South Dakota waterbodies. Based on the resources currently available a comprehensive strategy is necessary for TMDL development and water quality restoration.

For South Dakota that planning process begins with the prioritization of those waterbody/pollutant combinations that have been an ongoing focus of Section 303(d) throughout Vision 1. Table 3 shows those parameters and the number of lake acres and/or stream miles impaired by those parameters reported in the 2024 IR. These will serve as the basis for planning Vision 2 TMDL development. The prioritization scheme presented in the following pages will concentrate on five main Section 303(d) impaired waterbody listing groups. This scheme is designed to emphasize flexibility allowing for the changing conditions of those waterbodies listed as impaired and the resources available for TMDL development and implementation.

Many other internal and external partners involved with conservation and water quality provide various resources towards TMDL development and implementation. Flexibility within the *Planning and Prioritization Goal* is an essential component as the resource picture can significantly change between reporting cycles. The following TMDL Priority Groups are listed by DANR in order of importance.

TABLE 3. NUMBER OF IMPAIRMENT LISTINGS PER PARAMETER BY WATERBODY TYPE FROM THE 2024 INTEGRATED REPORT AND SECTION 303(D) IMPAIRED WATERBODY LIST.

Listing Causes	Lakes Listings	Lake Acres not Supporting[1]	River Listings	Stream Miles not Supporting[2]	TMDL Priority Group
Escherichia coli	6	2,441	44	3063.6	1
Total Susp. Solids		0	30	2106.4	
Mercury in Fish Tissue	14	103,655	2	554.8	2
Chlorophyll-*a*	31	62,362		0	3
pH (high)	23	15,474	2	18.3	4
Temperature, water	19	2599	3	63.4	
Oxygen, Dissolved	20	8,730	12	434.2	
Salinity (SAR)	1	5160	13	1039.3	5
Total Dissolved Solids		50	10	501.2	
Specific Conductance		50	8	447.6	
Selenium, Total		50	1	0.74	
Total	114		125		

[1] – Taken from Table 14 in the 2024 IR. Reported acreage includes 18 lakes with established TSI related TMDLs (Category 4a) and 31 lakes in Category 5. [2] – Taken from Table 11 in the 2024 IR.

4.1.a. Priority Group 1

Pollutants of Concern	
Escherichia coli	Total Suspended Solids
Beneficial Uses Impaired	
Immersion Recreation	Coldwater Fish Life Propagation
Limited Contact Recreation	Warmwater Fish Life Propagation

Table 3 shows the number of impairment listings caused by the parameters *Escherichia coli* and total suspended solids (TSS). Priority Group 1 listings constitute 33% of the overall impaired listings reported in the 2024 IR. A high priority during Vision 1, both pollutants will continue to be the primary focus in Vision 2.

The impairments caused by these parameters have been a consistent issue since Section 303(d) assessments began with Vision 1 in 2016. Targeting those rivers and streams where the recreational and fishery uses have been impaired will begin to move these segments through Section 303(d) from the TMDL development phase into the restoration phase. DANR also has a process in place for working on these particular pollutant and waterbody combinations. With this refined *E. coli* and TSS TMDL process DANR will continue to target this impaired group over the course of Vision 2. A few of these waterbodies may be found within or near densely populated areas but most are located in rural areas. The goal is to complete as many TMDLs in this group as possible through Vision 2 and include these waterbodies within the existing implementation infrastructure and begin the process of restoration.

In order to determine the lakes or stream segments that will be targeted for TMDL development within Priority Group 1, the factors shown below will be considered prior to selection (DANR Programs Responsible are shown in parenthesis):

- What is the status of the bacteria, TSS, and flow data? Is there enough data to complete the TMDL? (Watershed Protection and Water Quality Programs)
- Is the waterbody located within an area where additional TMDLs for river segments or lakes are needed? (Watershed Protection Program: Assessment and Nonpoint Source Teams)
- Is there local support for TMDL Development and Implementation? (Nonpoint Source Team)
- Status of POTW upgrades and NPDES Renewals (Water Quality Program: NPDES Team)
- What is the social impact? (Watershed Protection Program)

4.1.b. Priority Group 2

Pollutants of Concern
Mercury in Fish Tissue

Beneficial Uses Impaired

Coldwater Fish Life Propagation	Fish and Wildlife Propagation, Recreation, and Stock Watering Waters
Warmwater Fish Life Propagation	

There are 16 waterbodies designated as impaired for mercury in fish tissue this impairment as of the 2024 IR. This listing cause constitutes over 103,655 acres of lake surface areas (or 71% of lake acres assessed for mercury in fish tissue) that do not meet the water quality criterion of 0.3 milligram of methylmercury per kilogram of fish flesh (0.3mg/Kg).

To address this impairment DANR developed a "statewide mercury TMDL" which received final EPA approval in 2016. Seventy-five lakes impaired by mercury in fish flesh were included under this TMDL. Through technical analysis and literature review it was determined that the primary source was from global atmospheric deposition. The high incidence of nonsupport for mercury in fish flesh impaired lakes is not likely to improve until measures to reduce mercury are implemented at a global scale. DANR will continue to focus on the Priority Group 2 as the percentage of lakes acres meeting all uses will decline as more lakes are assessed for mercury in fish tissue. Through an EPA approved addendum process DANR has been able provided addendums to the TMDL to include waterbodies that were not included in the 2016 approval. As new waterbodies are assessed DANR will continue with the established addendum process to include them under the statewide TMDL. For a waterbody to be included in the statewide mercury TMDL it must meet a series of six conditions. In situations where a waterbody may not meet all these conditions it will be evaluated to determine if it should be included on the Vision Priority list.

4.1.c. Priority Group 3

Pollutants of Concern
Chlorophyll-*a*

Beneficial Uses Impaired

Coldwater Fish Life Propagation	Recreation (immersion, limited contact)
Warmwater Fish Life Propagation	Domestic Water Supply

In 2016 ten lakes were placed on the original Vision because of impaired aquatic life and recreational uses. The cause for the impairments was cited as high concentrations of Chlorophyll-*a.* Used as an indicator of algal production, Chlorophyll-*a* is an important predictor of bloom density and blue-green algae dominance resulting from the presence of excess nutrients. In 2018 the lakes were removed from the Vision because the literature-based Chlorophyll-*a* thresholds were deemed to be not protective of the aquatic life and recreational uses. Since then DANR collaborated with the EPA Region 8 nutrient team and Tetra Tech Inc., to develop protective nutrient-related (Chlorophyll-*a*) targets and assessment criteria for lakes in South Dakota. A full description of this listing methodology can be found in each of South Dakota's Integrated Reports beginning with the 2020IR.

DANR plans to scale up nutrient/Chlorophyll-*a* TMDL development for Lakes as part of Vision 2. This is dependent upon finding a suitable technical approach for developing nutrient related TMDLs for these impaired waterbodies. As part of the Vision bridge gap period (Vision 1 → Vision 2), DANR has worked with the EPA Region 8 Watershed Section and Tetra Tech Inc., to implement the use of the LAKE2K model (Chapra et al., 2023) for simulating chlorophyll-*a* and nutrient relationships in South Dakota lakes and reservoirs. Lake Thompson is the beta version of this technical approach. Once the LAKE2K modeling process has been refined DANR will begin prioritizing lakes for chlorophyll-*a* TMDL development.

The prioritization process for determining which lakes will be targeted is dependent upon the data requirements of the LAKE2K model. Some of the other factors used in the prioritization process will include (but not be limited to) data availability from each lake, local support, and recreational use by the general public.

4.1.d. Priority Group 4

Pollutants of Concern
pH, water temperature, and dissolved oxygen

Beneficial Uses Impaired

Coldwater Fish Life Propagation	Recreation (immersion, limited contact)
Warmwater Fish Life Propagation	

This group contains waterbodies listed for pH, water temperature, and dissolved oxygen (Table 3). When a waterbody does not support its assigned beneficial uses because these parameters do not meet their water quality criteria it can usually be attributed to nutrient enrichment (nitrogen and phosphorus). In South Dakota, the harmful algal blooms that typically occur during the warm summer months in lakes are a direct product of nutrient enrichment. Several of the lakes listed for these parameters are also listed for chlorophyll-*a.* The implementation of the LAKE2K model for chlorophyll-*a* TMDL development may provide the necessary technical means for producing both

stand-alone TMDLs associated with pH and dissolved oxygen as well as those associated with chlorophyll-*a*. Both pH, water temperature, and dissolved oxygen are linked with algal productivity and the LAKE2K modeling process may provide the technical approach needed for developing TMDLs for these parameters. However, chlorophyll-*a* will remain a higher priority parameter for TMDL development.

Priority Group 4 also contains several river segments listed for pH, water temperature, and dissolved oxygen impairments. Although these listings are currently low priority, under the right circumstance DANR may target these listings in conjunction with higher priority impairments included in group 1.

4.1.e. Priority Group 5

Pollutants of Concern

Salinity (sodium adsorption ratio), total dissolved solids, specific conductance, total selenium

Beneficial Uses Impaired

Domestic Water Supply
Coldwater Fish Life Propagation
Warmwater Fish Life Propagation
Fish and Wildlife Propagation, Recreation, and Stock Watering Waters
Irrigation Waters

Referring back to the TMDL High/Low priority ranking discussed earlier, each of the 33 listings from this group shown in Table 3 have been designated as low priority. The nonsupporting beneficial uses associated with these waterbodies are limited to (1) domestic water supply waters, (9) Fish, Wildlife, Propagation, Recreation, and Stock Watering, and (10) Irrigation. The pollutant of concern for the domestic water supply waters impairment has consistently been total dissolved solids. The remainder of this group's listings were caused by salinity (sodium adsorption ratio), specific conductivity, and total selenium. Based on the geographic location of these impaired waters each of these impairments can be attributed to natural (geologic) causes. With the limited resources available for TMDL development and restoration and a limited range of restoration alternatives available to bring these waters back into compliance DANR has given this group the lowest priority. However, these waterbodies will continue to be monitored so that the data remains current. Should a viable delisting or restoration alternative present itself DANR will consider addressing these impairments.

Planning and Priority Goal Summary

South Dakota DANR Vision 2 priority will target TMDLs with documented health problems or a threat to human health, along with fish life propagation impairments. Group 1 (highest priority) includes those waterbodies with immersion/limited contact recreation and aquatic life use impairments caused by bacteria and total suspended solids, respectively. Lakes impaired from mercury in fish flesh (aquatic life use impairment) will be addressed in Group 2. Depending on the outcome of the LAKE2K model development, lakes listed for chlorophyll-*a* impairment (recreational and aquatic life uses) will be included in Group 3. Prior to including any of these waterbodies on a 2-year commitment list each will be vetted for data quality, local support, recreational use, and National Pollution Discharge Elimination System (NPDES) impacts.

4.2 Data and Analysis Goal

The primary focus of the *Data and Analysis goal* is to expand and improve the quality of data and information available for CWA Section 303(d) functions. Towards the end of Vision 1 DANR determined the need for a more strategic approach to data acquisition, availability, and analysis for both internal and external partners. Many Vision 1 priority waters exhibited problems with a paucity of accurate and current data. This includes data collection, storage, and dissemination of chemical, biological, and flow data for South Dakota lakes and streams. As part of Vision 2, to mitigate some of these "data" associated problems, DANR has invested resources into existing monitoring programs, establishing new ones, and is in the process of transferring data to a new database. All of these efforts are designed with the goal of supporting the multiple CWA Section 303(d) functions as well as other CWA programs within the context of what the available resources will allow. These measures were categorized into three main areas: data collection, data availability, which will enhance accessibility, and data analysis.

4.2.a. Data Collection

To ensure that an individual waterbody has an accurate and current set of data available for assessment decisions and potential TMDL development, DANR will continue to maintain its current set of core monitoring programs throughout Vision 2. These include:

- Fixed ambient monitoring of rivers and streams. Currently, there are 153 stations located on various rivers and creeks within the state. Many of these have been sampled since the early 1970s. DANR collects these samples monthly, quarterly, or seasonally depending on the beneficial use. Additional sites may be added, or existing locations may be moved depending on circumstance;
- Site specific assessments associated with both point and nonpoint sources (Section 319 Implementation Projects);
- Use Attainability Analysis monitoring to determine if a waterbody is currently assigned the appropriate beneficial uses or if changes need to be made;
- Reference Site Development Projects for both eastern and western ecoregions of South Dakota. The data used from these projects will be used in a variety of water resource management applications including evaluating nutrient-related narrative standards. Future work is focused on expanding the reference site network;
- Fish Contaminants Sampling associated with mercury, cadmium, selenium, pesticides, and PCBs. The data are used to monitor and assess the levels of these contaminants present in fish flesh;
- Statewide Lakes Assessment where approximately 35 lakes with existing Assessment Unit Identifications (AUIDS) are targeted for sampling during the summer growing season.
- Rotating Basin-Region Assessment which is designed to supplement the existing monitoring efforts for the assessment units (AUs) identified in each of the river basins in SD. Over the course of a 10-year cycle an intensive monitoring schedule will be conducted in each of the major river basins and/or geographic areas. This particular monitoring program relies on local partners to help with the significant amount of field work involved;
- South Dakota Stream Gaging Network which is designed to monitor discharge for sites of interest to DANR across the State. Information collected from discharge measurements will provide valuable data for the development or maintenance of discharge curves. These curves developed by DANR staff have been used in the development of TMDLs for lakes

and rivers across the State. The discharge curves and stage data have also been valuable for other DANR programs and other agencies in determining historic site conditions and developing policies for the future.

- The South Dakota Volunteer Water Quality Monitoring Program provides technical assistance and coordination to groups and individuals engaging in volunteer water quality monitoring efforts. The program is jointly operated by South Dakota Department of Agriculture and Natural Resources and the South Dakota Discovery Center. SD DANR provides technical assistance and oversight for sample collection and project design. The SD Discovery Center provides outreach and training support, helps recruit volunteers and provides mini-grant funding opportunities through the Nonpoint Source Information and Education Project. Each group is trained following strict QAQC procedures so the data they collect can be used as part of Section 303(d).

4.2.b. Data Availability

DANR will continue to expand its data accessibility by the general public as well as other agency partners throughout Vision 2. Several initiatives have been put in place working towards that end. They include:

- Implementing a new database for storage of both water quality data and stage discharge information enhancing its utility to both internal and external partners. This includes improving the ability to upload the data to the Water Quality Portal through EPAs WQX;
- Expanding the water quality monitoring portal to increase the public's accessibility to water quality data. This also includes DANR internal and external partners;
- Harmful Algal Blooms (HABS) Program is continuing to expand as the public becomes more educated about the impacts associated with these blooms. A HABs webpage and map is used to help the public and other agencies make informed decisions recreation on specific waterbodies. HABs monitoring will also increase as more volunteer groups become interested in monitoring for these blooms. Additional monitoring will take place through the State Wide Lakes Program. The data will be used to make assessment decisions associated with the immersion and limited contact recreational uses.

4.2.c. Data Analysis

Expanding the data collection and availability efforts will also improve DANR's analytical capabilities. Without the appropriate data waterbody assessments, TMDL prioritization and development were significantly impacted. Implementing the monitoring initiatives outlined above DANR expects to see improvements in all areas of the Section 303(d) program including becoming more efficient with sharing data with the many partners involved with conservation and water quality. These include (but are not limited to):

- Individual Waterbody Assessment decisions for Categories 1-5;
- Supporting development of water quality models for TMDL development (e.g. LAKE2K modeling for chl-a impaired lakes);
- Addressing emerging contaminants (e.g. HABs monitoring);
- Effectiveness monitoring for implementation and protection plans

4.3 Restoration Goal

The intent of the *Restoration Goal* is to encourage the identification, development, and implementation of the most effective approaches for restoring water quality. The framework currently used by the SDDANR for addressing impaired waterbodies evolved through Vision 1 and will continue to change through Vision 2 depending on the rate of TMDL development for each of the priority groups. Administrative and financial resources will impact the rate of restoration efforts as well.

The first step towards restoration begins with the establishment of a TMDL. The *Planning and Prioritization Goal* outlines those impairments prioritized by the SDDANR for TMDL development within the Vision 2 timeframe. Once an actionable TMDL has been created the restoration process can move into an implementation phase. The TMDL emphasis towards the end of Vision 1 was geared towards Priority Group 1, i.e. waterbodies impaired by bacteria or total suspended solids. The resulting implementation architecture is a reflection of the SDDANR focus on these impairments. This will still be the case through most of the Vision 2 timeframe. Although the focus will be on these impairments many of the best management practices (BMPs) used to reduce bacteria or total suspended solids loadings also have the benefit of reducing other pollutants involved with other impairments that may be part of a different priority group.

In South Dakota the *Restoration Goal* begins with an effective Nonpoint Source Pollution Program involving significant engagement and coordination with various stakeholder groups involved with conservation and water quality. Watershed implementation projects are the most comprehensive projects implemented through the South Dakota Nonpoint Source (NPS) Pollution Program. Implementation projects are typically of long-term duration and designed to implement clusters of TMDLs on a 12 digit or larger hydrologic unit code basis. Implementation project objectives include:

- Protect and restore impaired beneficial uses through the promotion and voluntary installation of BMPs that prevent or reduce NPS pollution;
- Disseminate information about NPS pollution and solution alternatives;
- Evaluate project progress toward use attainment or NPS pollutant reduction goals using models and targeted monitoring;
- Work with local producers to address impairment issues in watersheds;
- Coordinate with local, state, and federal agencies to promote conservation activities and practices for improving water quality.

The details of the program are outlined in the Nonpoint Source Program Management Plan. These watershed projects and the TMDLs being addressed within them can be found on the DANR Watershed Protection Implementation Project website. Many of these projects will continue throughout the duration of the Vision 2 timeframe.

To increase the effectiveness of the implementation strategy there is always an emphasis to create new BMPs or design new ways of implementing existing BMPs to ensure a successful outcome for implementation projects. For the most part these efforts were completed through partnerships with the academic community, South Dakota Cooperative Extension Service, United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), and private consultants. This continued effort to increase effectiveness is a reflection of the changing financial conditions for the producers who live out on the landscape along with addition of new data and information that may dictate changes to the restoration strategy.

To ensure these new methods are accepted by both the resource managers who will install the new practices as well as the effected producers, various producer groups are involved with the design process. These efforts are the way South Dakota is using and adjusting to changing circumstances and new data as a way for adaptive management.

The goals outlined in Vision 2 will be included in the management plan as part of the overall strategy for restoring impaired waterbodies to full support of their beneficial uses.

4.4 Protection Goal

The intent of the *Protection Goal* is to encourage a proactive and holistic consideration of management actions to protect healthy waters. South Dakota has a long history of working to improve surface waters quality of lakes and streams. Over the last 30 years the primary focus of these efforts has been on improving conditions of impaired waters. Although priority has been given to waterbodies that are not supporting their assigned beneficial uses one of the goals of the South Dakota NPS management plan is the protection of high-quality waters. The EPA's 2024 Section 319 guidelines has placed a renewed emphasis on the protection of healthy waters. Many SD waterbodies still need TMDLs so most of the available resources have been funneled towards either TMDL development or implementation, but, going forward, protection of high-quality waters and healthy headwaters will be a key component of an overall NPS pollution management effort.

Within the existing implementation framework South Dakota will still prioritize impaired waterbodies and watersheds for the next Vision cycle as outlined in the *Planning and Prioritization Goal*. However, South Dakota will emphasize protection activities as part of Vision 2 with the caveat that specific opportunities for protection and/or antidegradation efforts must fit within the existing available resource pool. Although protection of healthy waters and watersheds is an important goal prospective protection projects will still need to meet the same requirements as other implementation projects with the exception of having an impairment designation. The minimum requirement is submitting a nine-element watershed-based plan to the SD Nonpoint Source Management Program in order to be considered for Section 319 funding. Examples of waters that will be considered for a protection plans include, but are not limited to:

- Outstanding Resource Waters or other specific category of high-quality waters;
- Waters with unique, valuable, or threatened species or their habitats;
- Waters and watersheds that constitute a public drinking water supply;
- Healthy segments in watersheds with impaired segments, including headwaters above downstream waters that are impaired;
- Healthy waters near areas with rapid land use changes;
- At-risk waters that are not yet impaired but showing signs of degradation;
- Other waters facing elevated risks of degradation.

4.5 Partnerships Goal

The Vision 2 framework presents the *Partnerships Goal* as having two distinct but related approaches for encouraging communication and collaboration between governmental entities and non-governmental stakeholder groups. The hope is to promote and facilitate communication between the Section 303(d) TMDL Program and its internal and external partners. These two

approaches include: programmatic coordination, and stakeholder involvement and engagement. Although the *Partnerships Goal* is the last goal presented for this Vision cycle it is one of the most important. Protecting and restoring South Dakota waters requires significant collaboration and coordination between the many governmental agencies and stakeholder groups involved with natural resources management.

Enhancing Programmatic Coordination with External Partners

South Dakota seeks to enhance the coordination between the Section 303(d) program and other CWA programs as well as other agencies that may have similar goals regarding conservation and water quality. One of the ways this can be achieved is through continued participation from DANR on various groups and committees, both at the state and local level, that are centered around conservation and water quality. Participating in these groups provides the opportunity for DANR to maintain existing partnerships while developing new ones. Participating agencies and stakeholder groups can exchange information, provide updates on existing programs, and determine how the many federal and state funded conservation programs similarly align and how they may complement one another. Examples of some of these groups include:

- The Natural Resources Conservation Service State Technical Committee
- SD Association of Conservation Districts
- Riparian Buffer Initiative Executive Committee

A second coordination goal for this Vision cycle is to continue to advance the mission of the SD Nonpoint Task Force. This group is DANRs primary partner for the implementation of the South Dakota NPS Program. Consisting of a membership of approximately twenty agencies, university partners, and organizations, it serves as the coordinating body for the review and direction of federal, state, and local government programs involved with NPS source pollution control. Renewing its role as a forum for the exchange of research and information about activities which impact nonpoint source pollution control will continue to foster the external partnerships and stakeholder engagement needed for a successful statewide TMDL implementation program.

Throughout the Vision significant "on the ground" stakeholder engagement will also occur through DANRs Section 319 Watershed Implementation Projects. These projects encompass a large area targeting a cluster of TMDLs. The Section 319 project coordinators working in these watersheds engage with many local groups, landowners, and producers. Their primary purpose is to work with producers in these impaired watersheds in designing conservation plans that focus on improving water quality. Each one of these coordinators is familiar with the many conservation programs available through federal, state, and nongovernmental organizations. With this knowledge coordinators are able to help producers navigate through the many options available to them and design a conservation plan that works for their individual operation and improves water quality.

Additional stakeholder engagement will occur through the volunteer monitoring network previously described in the *Data and Analysis* Goal. The South Dakota Volunteer Water Quality Monitoring Program provides technical assistance and coordination to groups and individuals engaging in volunteer water quality monitoring efforts. The program is jointly operated by DANR and the South Dakota Discovery Center. DANR provides technical assistance and oversight for sample collection and project design. The SD Discovery Center provides outreach and training support, helps recruit volunteers and provides mini-grant funding opportunities through the Nonpoint Source Information and Education Project.

Enhancing Programmatic Coordination with Internal Partners

Throughout the Vision cycle, a renewed emphasis will be placed on improving the coordination between CWA programs within DANR. These programs have different CWA roles, but each is an essential component of the Section 303(d) Program. These programs, of which some are shown in Figure 1, include:

- Water Quality Standards
- Water Quality Monitoring
- Assessment and TMDL Development
- Section 319 Implementation
- National Pollution Discharge Elimination (NPDES)
- Clean Water State Revolving Fund (SRF)

5.0 Vision 2 Focus Areas

This Vision cycle will include two main themes addressed as part of the overall Section 303(d) prioritization framework. These focus areas include tribal water quality and program development, and program capacity building.

5.1 Tribal Water Quality and Program Development

DANR has provided technical assistance to tribal partners with CWA activities depending upon the request and the circumstance. Several implementation projects work on tribal lands including the Prairie Couteau and South-Central projects. All tribes are invited to attend each Nonpoint Source Task Force Meeting and will be through the next Vision. When TMDL development and implementation projects include a shared jurisdiction for a waterbody tribal partners will be consulted. This also involves some of DANRs ambient monitoring efforts. Although DANR does not have jurisdiction on tribal lands their partnership is important to the ongoing efforts towards restoration and protection efforts.

5.2 Program Capacity Building

DANR is constantly looking for new ways to increase water quality monitoring capacity and build upon the existing TMDL development and implementation efforts all within the confines of the available resources. All of these new initiatives, whether specifically created for monitoring, assessment, or implementation purposes, have been designed to include many of DANRs external partners. Their participation has been crucial to the success of these efforts. Supporting and expanding their technical capabilities will continue to improve the efficiency of many of these monitoring and watershed implementation projects going forward.

A more experienced staff has also allowed both old and new monitoring and implementation efforts to develop while still meeting TMDL obligations and reporting requirements. DANR continues to support training for new and existing staff to expand their technical skill sets and increase their familiarity with other CWA programs.

6.0 Public Input

The Vison 2 document will be made available for public comment through South Dakota's Surface Water Quality Assessment process as part of the 2026 reporting cycle.

7.0 Literature Cited

Chapra, S.C., Martin, J.L., and Flynn, K.F. 2023. LAKE2K: A Modeling Framework for Simulating Lake Water Quality (Version 1.05): Documentation and User's Manual. Civil and Environmental Engineering Dept., Tufts University, Medford, MA.

SD DANR, 2016. The South Dakota Clean Water Act Section 303(d) Program Long-Term Vision Strategy. I South Dakota Department of Agriculture and Natural Resources, Pierre, SD. https://danr.sd.gov/Conservation/WatershedProtection/ReportsPublications.aspx

SD DANR, 2019. The South Dakota Clean Water Act Section 3319 Nonpoint Source Management Plan 2019=2024. South Dakota Department of Agriculture and Natural Resources, Pierre, SD. https://danr.sd.gov/Conservation/WatershedProtection/docs/NPSMgmtPlan19.pdf

SD DANR, 2024. The 2024 South Dakota Integrated Report for Surface Water Quality Assessment. South Dakota Department of Agriculture and Natural Resources, Pierre, SD. https://danr.sd.gov/Conservation/WatershedProtection/ReportsPublications/DANR_2024_IR_final.pdf

USEPA (U.S. Environmental Protection Agency). 2024. *Nonpoint Source Program and Grants Guidelines for States and Territories.* U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA 841-R-24-009, May 2024. https://www.epa.gov/system/files/documents/2024-06/2024_section_319_guidelines_final_1.pdf

8.0 Appendix A – 2024 Section 303(d) Waterbody Summary

AUID	Waterbody Name	Cause	Cycle First Listed	TMDL Schedule	Priority
SD-BA-L-COOKSTOVE_01	Cookstove Lake	MERCURY IN FISH TISSUE	2022	2025	High
SD-BA-L-FREEMAN_01	Freeman Lake	CHLOROPHYLL-A	2014	2035	Low
SD-BA-L-FREEMAN_01	Freeman Lake	DISSOLVED OXYGEN	2010	2035	Low
SD-BA-L-HAYES_01	Hayes Lake	DISSOLVED OXYGEN	2020	2035	Low
SD-BA-L-MURDO_01	Murdo Dam	DISSOLVED OXYGEN	2012	2035	Low
SD-BA-L-WAGGONER_01	Waggoner Lake	CHLOROPHYLL-A	2010	2027	High
SD-BA-R-BAD_01	Bad River	*E. coli*	2016	2030	High
SD-BF-L-BEARBUTTE_01	Bear Butte Lake	PH	2024	2034	Low
SD-BF-L-BEARBUTTE_01	Bear Butte Lake	CHLOROPHYLL-A	2024	2034	Low
SD-BF-L-IRON_CREEK_01	Iron Creek Lake	TEMPERATURE	2010	2035	Low
SD-BF-L-MIRROR_EAST_01	Mirror Lake East	TEMPERATURE	2006	2035	Low
SD-BF-L-MIRROR_WEST_01	Mirror Lake West	TEMPERATURE	2008	2035	Low
SD-BF-L-NEWELL_CITY_01	Newell City Pond	TEMPERATURE	2010	2035	Low
SD-BF-R-BELLE_FOURCHE_01	Belle Fourche River	TEMPERATURE	2024	2036	Low
SD-BF-R-BELLE_FOURCHE_02	Belle Fourche River	*E. coli*	2020	2026	High
SD-BF-R-BELLE_FOURCHE_03	Belle Fourche River	*E. coli*	2016	2026	High
SD-BF-R-BELLE_FOURCHE_04	Belle Fourche River	*E. coli*	2020	2026	High
SD-BF-R-ELM_01	Elm Creek	TOTAL SUSPENDED SOLIDS	2022	2030	High
SD-BF-R-FALSE_BOTTOM_02	False Bottom Creek	SELENIUM, TOTAL	2022	2035	Low
SD-BF-R-HORSE_01_USGS	Horse Creek	*E. coli*	2024	2034	Low
SD-BF-R-WHITEWOOD_05	Whitewood Creek	PH	2006	2035	Low
SD-BF-R-WHITEWOOD_06	Whitewood Creek	PH	2008	2035	Low
SD-BS-L-ALBERT_01	Lake Albert	CHLOROPHYLL-A	2020	2028	High
SD-BS-L-ALVIN_01	Lake Alvin	TEMPERATURE	2022	2035	Low
SD-BS-L-BITTER_01	Bitter Lake	CHLOROPHYLL-A	2022	2035	Low
SD-BS-L-CAMPBELL_01	Lake Campbell	CHLOROPHYLL-A	2022	2030	Low
SD-BS-L-CLEAR_D_01	Clear Lake	*E. coli*	2022	2035	Low
SD-BS-L-COVELL_01	Covell Lake	PH	2022	2035	Low
SD-BS-L-COVELL_01	Covell Lake	CHLOROPHYLL-A	2022	2035	Low

AUID	Waterbody Name	Cause	Cycle First Listed	TMDL Schedule	Priority
SD-BS-L-GOLDSMITH_01	Goldsmith Lake	CHLOROPHYLL-A	2022	2035	Low
SD-BS-L-MINNEWASTA_01	Minnewasta Lake	CHLOROPHYLL-A	2014	2035	Low
SD-BS-L-NORDEN_01	Lake Norden	CHLOROPHYLL-A	2024	2034	Low
SD-BS-L-SCOTT_01	Scott Lake	MERCURY IN FISH TISSUE	2020	2025	High
SD-BS-L-TWIN_01	Twin Lakes/W. Hwy 81	*E. coli*	2022	2035	Low
SD-BS-L-WALL_01	Wall Lake	DISSOLVED OXYGEN	2022	2035	Low
SD-BS-L-WAUBAY_01	Waubay Lake	CHLOROPHYLL-A	2014	2027	Low
SD-BS-R-BACHELOR_01	Bachelor Creek	DISSOLVED OXYGEN	2022	2035	Low
SD-BS-R-BACHELOR_01	Bachelor Creek	*E. coli*	2020	2028	High
SD-BS-R-BEAVER_01	Beaver Creek	*E. coli*	2020	2028	High
SD-BS-R-BIG_SIOUX_01	Big Sioux River	DISSOLVED OXYGEN	2004	2035	Low
SD-BS-R-BIG_SIOUX_02	Big Sioux River	*E. coli*	2024	2036	Low
SD-BS-R-BIG_SIOUX_04	Big Sioux River	TOTAL SUSPENDED SOLIDS	2022	2024	High
SD-BS-R-BIG_SIOUX_05	Big Sioux River	TOTAL SUSPENDED SOLIDS	2004	2024	High
SD-BS-R-BIG_SIOUX_06	Big Sioux River	TOTAL SUSPENDED SOLIDS	2004	2024	High
SD-BS-R-BIG_SIOUX_10	Big Sioux River	TOTAL DISSOLVED SOLIDS	2022	2035	Low
SD-BS-R-BIG_SIOUX_13	Big Sioux River	*E. coli*	2012	2024	High
SD-BS-R-BIG_SIOUX_13	Big Sioux River	TOTAL SUSPENDED SOLIDS	2004	2026	High
SD-BS-R-BIG_SIOUX_14	Big Sioux River	TOTAL SUSPENDED SOLIDS	2004	2026	High
SD-BS-R-EAST_BRULE_01	East Brule Creek	*E. coli*	2020	2028	High
SD-BS-R-EAST_BRULE_01	East Brule Creek	TOTAL SUSPENDED SOLIDS	2008	2028	High
SD-BS-R-FLANDREAU_01	Flandreau Creek	*E. coli*	2014	2028	High
SD-BS-R-HIDEWOOD_01	Hidewood Creek	*E. coli*	2020	2028	High
SD-BS-R-PEG_MUNKY_RUN_01	Peg Munky Run	*E. coli*	2022	2031	High
SD-BS-R-PIPESTONE_01	Pipestone Creek	TOTAL SUSPENDED SOLIDS	2020	2028	High
SD-BS-R-SKUNK_01	Skunk Creek	*E. coli*	2014	2024	High
SD-BS-R-SPLIT_ROCK_01_USGS	Split Rock Creek	*E. coli*	2018	2026	High
SD-BS-R-SPLIT_ROCK_02	Split Rock Creek	*E. coli*	2022	2026	High
SD-BS-R-SPLIT_ROCK_02	Split Rock Creek	TOTAL SUSPENDED SOLIDS	2024	2036	High

AUID	Waterbody Name	Cause	Cycle First Listed	TMDL Schedule	Priority
SD-BS-R-SPRING_01	Spring Creek	*E. coli*	2022	2024	High
SD-BS-R-SPRING_01	Spring Creek	TOTAL SUSPENDED SOLIDS	2022	2030	High
SD-BS-R-UNION_01	Union Creek	*E. coli*	2022	2029	High
SD-BS-R-UNION_01	Union Creek	TOTAL SUSPENDED SOLIDS	2008	2028	High
SD-BS-R-WILLOW_01	Willow Creek	*E. coli*	2018	2024	High
SD-CH-L-BISMARK_01	Bismark Lake	CHLOROPHYLL-A	2024	2034	Low
SD-CH-L-CENTER_01	Center Lake	TEMPERATURE	2008	2035	Low
SD-CH-L-CENTER_01	Center Lake	CHLOROPHYLL-A	2024	2034	Low
SD-CH-L-COLD_BROOK_01	Cold Brook Reservoir	TEMPERATURE	2006	2035	Low
SD-CH-L-DEERFIELD_01	Deerfield Lake	TEMPERATURE	2010	2035	Low
SD-CH-L-DURKEE_01	Durkee Lake	PH	2022	2035	Low
SD-CH-L-DURKEE_01	Durkee Lake	MERCURY IN FISH TISSUE	2020	2026	High
SD-CH-L-HORSETHIEF_01	Horsethief Lake	PH	2022	2035	Low
SD-CH-L-HORSETHIEF_01	Horsethief Lake	TEMPERATURE	2022	2035	Low
SD-CH-L-HORSETHIEF_01	Horsethief Lake	CHLOROPHYLL-A	2024	2034	Low
SD-CH-L-LAKOTA_01	Lakota Lake	CHLOROPHYLL-A	2024	2034	Low
SD-CH-L-LAKOTA_01	Lakota Lake	*E. coli*	2024	2034	High
SD-CH-L-NEW_WALL_01	New Wall Lake	MERCURY IN FISH TISSUE	2018	2024	High
SD-CH-L-NEW_WALL_01	New Wall Lake	DISSOLVED OXYGEN	2022	2035	Low
SD-CH-L-PACTOLA_01	Pactola Reservoir	TEMPERATURE	2020	2035	Low
SD-CH-L-ROUBAIX_01	Roubaix Lake	TEMPERATURE	2024	2034	Low
SD-CH-L-SHERIDAN_01	Sheridan Lake	TEMPERATURE	2006	2035	Low
SD-CH-L-STOCKADE_01	Stockade Lake	CHLOROPHYLL-A	2024	2034	Low
SD-CH-L-STOCKADE_01	Stockade Lake	*E. coli*	2024	2034	High
SD-CH-L-SYLVAN_01	Sylvan Lake	TEMPERATURE	2008	2035	Low
SD-CH-R-BEAVER_01	Beaver Creek	SPECIFIC CONDUCTIVITY	2004	2035	Low
SD-CH-R-BEAVER_01	Beaver Creek	*E. coli*	2024	2036	High
SD-CH-R-BEAVER_01	Beaver Creek	TOTAL SUSPENDED SOLIDS	2024	2036	High
SD-CH-R-BOX_ELDER_01	Box Elder Creek	*E. coli*	2024	2036	High

AUID	Waterbody Name	Cause	Cycle First Listed	TMDL Schedule	Priority
SD-CH-R-CHERRY_01	Cherry Creek	SPECIFIC CONDUCTIVITY	2024	2036	Low
SD-CH-R-CHERRY_01	Cherry Creek	TOTAL DISSOLVED SOLIDS	2024	2036	Low
SD-CH-R-CHEYENNE_01	Cheyenne River	TOTAL DISSOLVED SOLIDS	2004	2035	Low
SD-CH-R-CHEYENNE_01	Cheyenne River	SALINITY/SAR	2018	2035	Low
SD-CH-R-CHEYENNE_01	Cheyenne River	SPECIFIC CONDUCTIVITY	2004	2035	Low
SD-CH-R-CHEYENNE_01	Cheyenne River	TOTAL SUSPENDED SOLIDS	2012	2028	High
SD-CH-R-CHEYENNE_02	Cheyenne River	SPECIFIC CONDUCTIVITY	2004	2035	Low
SD-CH-R-CHEYENNE_02	Cheyenne River	*E. coli*	2014	2028	High
SD-CH-R-CHEYENNE_02	Cheyenne River	TOTAL SUSPENDED SOLIDS	2004	2028	High
SD-CH-R-CHEYENNE_02B	Cheyenne River	*E. coli*	2024	2036	High
SD-CH-R-CHEYENNE_02B	Cheyenne River	TOTAL SUSPENDED SOLIDS	2018	2028	High
SD-CH-R-CHEYENNE_03	Cheyenne River	TOTAL SUSPENDED SOLIDS	2004	2028	High
SD-CH-R-CHEYENNE_04	Cheyenne River	TOTAL SUSPENDED SOLIDS	2004	2028	High
SD-CH-R-CHEYENNE_05	Cheyenne River	TOTAL SUSPENDED SOLIDS	2004	2028	High
SD-CH-R-CHEYENNE_06	Cheyenne River	TOTAL SUSPENDED SOLIDS	2004	2028	High
SD-CH-R-ELK_01_USGS	Elk Creek	*E. coli*	2018	2028	High
SD-CH-R-RAPID_03	Rapid Creek	*E. coli*	2018	2024	High
SD-CH-R-VICTORIA_01_USGS	Victoria Creek	TEMPERATURE	2016	2035	Low
SD-GR-L-EAST_LEMMON_01	East Lemmon Lake	MERCURY IN FISH TISSUE	2018	2026	High
SD-GR-L-ISABEL_01	Lake Isabel	MERCURY IN FISH TISSUE	2016	2030	High
SD-GR-L-ISABEL_01	Lake Isabel	CHLOROPHYLL-A	2022	2032	Low
SD-GR-L-PUDWELL_01	Pudwell Dam	MERCURY IN FISH TISSUE	2016	2030	High
SD-GR-L-SHADEHILL_01	Shadehill Reservoir	SALINITY/SAR	2004	2035	Low
SD-GR-R-BULL_01	Bull Creek	SALINITY/SAR	2012	2035	Low
SD-GR-R-BULL_01	Bull Creek	*E. coli*	2024	2036	High
SD-GR-R-BULL_01	Bull Creek	TOTAL SUSPENDED SOLIDS	2024	2036	High
SD-GR-R-CROOKED_01	Crooked Creek	SPECIFIC CONDUCTIVITY	2014	2035	Low
SD-GR-R-CROOKED_01	Crooked Creek	TOTAL DISSOLVED SOLIDS	2022	2035	Low
SD-GR-R-CROOKED_01	Crooked Creek	SALINITY/SAR	2012	2035	Low

AUID	Waterbody Name	Cause	Cycle First Listed	TMDL Schedule	Priority
SD-GR-R-GRAND_01	Grand River	SALINITY/SAR	2016	2035	Low
SD-GR-R-GRAND_02	Grand River	SALINITY/SAR	2004	2035	Low
SD-GR-R-GRAND_02	Grand River	*E. coli*	2024	2036	High
SD-GR-R-GRAND_02	Grand River	TOTAL SUSPENDED SOLIDS	2004	2035	High
SD-GR-R-GRAND_N_FORK_01	Grand River, North Fork	*E. coli*	2022	2030	High
SD-GR-R-GRAND_N_FORK_01	Grand River, North Fork	SALINITY/SAR	2004	2035	Low
SD-GR-R-GRAND_S_FORK_01	Grand River, South Fork	SALINITY/SAR	2006	2035	Low
SD-GR-R-GRAND_S_FORK_01	Grand River, South Fork	*E. coli*	2016	2030	High
SD-GR-R-GRAND_S_FORK_01	Grand River, South Fork	TOTAL SUSPENDED SOLIDS	2004	2030	High
SD-GR-R-GRAND_S_FORK_02	Grand River, South Fork	*E. coli*	2016	2030	High
SD-GR-R-GRAND_S_FORK_02	Grand River, South Fork	SALINITY/SAR	2004	2035	Low
SD-GR-R-GRAND_S_FORK_02	Grand River, South Fork	TOTAL SUSPENDED SOLIDS	2004	2030	High
SD-JA-L-BEAVER_01	Beaver Lake	CHLOROPHYLL-A	2024	2034	Low
SD-JA-L-BIERMAN_01	Bierman Dam	CHLOROPHYLL-A	2010	2028	Low
SD-JA-L-CARTHAGE_01	Lake Carthage	CHLOROPHYLL-A	2010	2035	Low
SD-JA-L-CLEAR_M_01	Clear Lake	MERCURY IN FISH TISSUE	2020	2026	High
SD-JA-L-COTTONWOOD_M_01	Cottonwood Lake	PH	2020	2035	Low
SD-JA-L-CRESBARD_01	Cresbard Lake	PH	2010	2035	Low
SD-JA-L-ELM_01	Elm Lake	DISSOLVED OXYGEN	2022	2035	Low
SD-JA-L-FAULKTON_01	Lake Faulkton	PH	2022	2035	Low
SD-JA-L-FAULKTON_01	Lake Faulkton	DISSOLVED OXYGEN	2018	2035	Low
SD-JA-L-HENRY_01	Henry Reservoir	DISSOLVED OXYGEN	2020	2035	Low
SD-JA-L-JONES_01	Jones Lake	PH	2006	2035	Low
SD-JA-L-LATHAM_01	Latham	DISSOLVED OXYGEN	2012	2035	Low
SD-JA-L-LOUISE_01	Lake Louise	CHLOROPHYLL-A	2024	2034	Low
SD-JA-L-LOUISE_01	Lake Louise	DISSOLVED OXYGEN	2014	2035	Low
SD-JA-L-N_BUFFALO_01	North Buffalo Lake	MERCURY IN FISH TISSUE	2020	2026	High
SD-JA-L-NINE_MILE_01	Nine Mile Lake	PH	2010	2035	Low
SD-JA-L-PIERPONT_01	Pierpont Lake	TEMPERATURE	2012	2035	Low

AUID	Waterbody Name	Cause	Cycle First Listed	TMDL Schedule	Priority
SD-JA-L-PIYAS_01	Piyas Lake	MERCURY IN FISH TISSUE	2020	2026	High
SD-JA-L-RAVINE_01	Ravine Lake	PH	2022	2035	Low
SD-JA-L-RAVINE_01	Ravine Lake	CHLOROPHYLL-A	2022	2035	Low
SD-JA-L-RAVINE_01	Ravine Lake	DISSOLVED OXYGEN	2012	2035	Low
SD-JA-L-REDFIELD_01	Lake Redfield	DISSOLVED OXYGEN	2010	2035	Low
SD-JA-L-ROSETTE_01	Rosette Lake	CHLOROPHYLL-A	2014	2028	Low
SD-JA-L-STINK_01	Stink Lake	MERCURY IN FISH TISSUE	2020	2024	High
SD-JA-L-TWIN_01	Twin Lakes	CHLOROPHYLL-A	2010	2030	High
SD-JA-L-TWIN_01	Twin Lakes	DISSOLVED OXYGEN	2016	2035	Low
SD-JA-L-WILMARTH_01	Wilmarth Lake	PH	2012	2035	Low
SD-JA-R-ELM_01	Elm River	TOTAL DISSOLVED SOLIDS	2022	2035	Low
SD-JA-R-FIRESTEEL_01	Firesteel Creek	TOTAL DISSOLVED SOLIDS	2004	2035	Low
SD-JA-R-FIRESTEEL_01	Firesteel Creek	*E. coli*	2010	2024	High
SD-JA-R-FIRESTEEL_01	Firesteel Creek	TEMPERATURE	2004	2035	Low
SD-JA-R-FOOT_01_USGS	Foot Creek	DISSOLVED OXYGEN	2012	2035	Low
SD-JA-R-JAMES_01	James River	DISSOLVED OXYGEN	2024	2036	Low
SD-JA-R-JAMES_04	James River	DISSOLVED OXYGEN	2012	2035	Low
SD-JA-R-JAMES_05	James River	DISSOLVED OXYGEN	2020	2035	Low
SD-JA-R-JAMES_06	James River	DISSOLVED OXYGEN	2024	2036	Low
SD-JA-R-JAMES_07	James River	TOTAL DISSOLVED SOLIDS	2022	2035	Low
SD-JA-R-JAMES_07	James River	DISSOLVED OXYGEN	2024	2036	Low
SD-JA-R-JAMES_09	James River	TOTAL SUSPENDED SOLIDS	2022	2030	High
SD-JA-R-JAMES_10	James River	MERCURY IN FISH TISSUE	2020	2028	High
SD-JA-R-JAMES_11	James River	MERCURY IN FISH TISSUE	2020	2028	High
SD-JA-R-MAPLE_01	Maple River	TOTAL DISSOLVED SOLIDS	2020	2035	Low
SD-JA-R-MOCCASIN_02	Moccasin Creek	DISSOLVED OXYGEN	2024	2036	Low
SD-JA-R-MUD_01	Mud Creek	DISSOLVED OXYGEN	2006	2035	Low
SD-JA-R-PIERRE_01	Pierre Creek	TOTAL SUSPENDED SOLIDS	2022	2030	High
SD-JA-R-SNAKE_01	Snake Creek	DISSOLVED OXYGEN	2024	2036	Low

AUID	Waterbody Name	Cause	Cycle First Listed	TMDL Schedule	Priority
SD-JA-R-WOLF_01	Wolf Creek	SPECIFIC CONDUCTIVITY	2022	2035	Low
SD-LM-R-LITTLE_MISSOURI_01	Little Missouri River	TOTAL SUSPENDED SOLIDS	2010	2028	High
SD-MI-L-ANDES_01	Lake Andes	PH	2018	2035	Low
SD-MI-L-ANDES_01	Lake Andes	DISSOLVED OXYGEN	2006	2035	Low
SD-MI-L-BRAKKE_01	Brakke Dam	DISSOLVED OXYGEN	2022	2035	Low
SD-MI-L-BYRE_01	Byre Lake	TEMPERATURE	2022	2035	Low
SD-MI-L-CAMPBELL_01	Lake Campbell	PH	2010	2035	Low
SD-MI-L-CAMPBELL_01	Lake Campbell	DISSOLVED OXYGEN	2020	2035	Low
SD-MI-L-CORSICA_01	Corsica Lake	PH	2008	2035	Low
SD-MI-L-DANTE_01	Dante Lake	TEMPERATURE	2014	2035	Low
SD-MI-L-KIESZ_01	Kiesz Lake	MERCURY IN FISH TISSUE	2022	2028	High
SD-MI-L-MCCOOK_01	McCook Lake	TEMPERATURE	2010	2035	Low
SD-MI-L-POCASSE_01	Lake Pocasse	CHLOROPHYLL-A	2010	2030	High
SD-MI-L-POTTS_01	Potts Dam	MERCURY IN FISH TISSUE	2020	2028	High
SD-MI-L-ROOSEVELT_01	Roosevelt Lake	DISSOLVED OXYGEN	2018	2035	Low
SD-MI-L-SULLY_01	Sully Lake	CHLOROPHYLL-A	2020	2030	High
SD-MI-L-YANKTON_01	Lake Yankton	TEMPERATURE	2022	2035	Low
SD-MI-R-CROW_01	Crow Creek	*E. coli*	2016	2028	High
SD-MI-R-MEDICINE_01	Medicine Creek	SPECIFIC CONDUCTIVITY	2004	2035	Low
SD-MI-R-MEDICINE_01	Medicine Creek	TOTAL DISSOLVED SOLIDS	2018	2035	Low
SD-MI-R-PLATTE_01_USGS	Platte Creek	*E. coli*	2020	2026	High
SD-MI-R-PONCA_01	Ponca Creek	*E. coli*	2016	2026	High
SD-MN-L-ALICE_01	Lake Alice	PH	2024	2034	Low
SD-MN-L-FISH_01	Fish Lake	PH	2022	2035	Low
SD-MN-L-FISH_01	Fish Lake	*E. coli*	2022	2035	Low
SD-MN-L-OAK_01	Oak Lake	CHLOROPHYLL-A	2022	2035	Low
SD-MN-L-OAK_01	Oak Lake	*E. coli*	2022	2035	Low
SD-MN-L-SUMMIT_01	Summit Lake	PH	2024	2034	Low

AUID	Waterbody Name	Cause	Cycle First Listed	TMDL Schedule	Priority
SD-MN-R-LAC_QUI_PARLE_W_BR_01	Lac Qui Parle River, West Branch	*E. coli*	2022	2030	High
SD-MN-R-LITTLE_MINNESOTA_02	Little Minnesota River	DISSOLVED OXYGEN	2020	2035	Low
SD-MN-R-MUD_01	Mud Creek	*E. coli*	2020	2028	High
SD-MU-L-COAL_SPRINGS_01	Coal Springs Reservoir	PH	2012	2035	Low
SD-MU-L-LITTLE_MOREAU_NO1_01	Little Moreau No. 1	PH	2020	2035	Low
SD-MU-R-MOREAU_01	Moreau River	SALINITY/SAR	2016	2035	Low
SD-MU-R-MOREAU_01	Moreau River	TOTAL SUSPENDED SOLIDS	2006	2035	Low
SD-MU-R-MOREAU_02&03	Moreau River	SALINITY/SAR	2024	2036	Low
SD-MU-R-MOREAU_02&03	Moreau River	*E. coli*	2024	2034	High
SD-MU-R-MOREAU_02&03	Moreau River	TOTAL SUSPENDED SOLIDS	2024	2034	High
SD-MU-R-MOREAU_S_FORK_01	South Fork Moreau River	SPECIFIC CONDUCTIVITY	2016	2035	Low
SD-MU-R-MOREAU_S_FORK_01	South Fork Moreau River	TOTAL DISSOLVED SOLIDS	2004	2035	Low
SD-MU-R-MOREAU_S_FORK_01	South Fork Moreau River	SALINITY/SAR	2018	2035	Low
SD-MU-R-RABBIT_01	Rabbit Creek	*E. coli*	2020	2030	High
SD-MU-R-RABBIT_01	Rabbit Creek	TOTAL SUSPENDED SOLIDS	2020	2030	High
SD-NI-L-RAHN_01	Rahn Lake	CHLOROPHYLL-A	2010	2035	Low
SD-NI-L-RAHN_01	Rahn Lake	DISSOLVED OXYGEN	2020	2035	Low
SD-VM-L-E_VERMILLION_01	East Vermillion Lake	CHLOROPHYLL-A	2010	2030	High
SD-VM-L-HENRY_01	Lake Henry	PH, HIGH	2018	2035	Low
SD-VM-L-MARINDAHL_01	Marindahl Lake	DISSOLVED OXYGEN	2022	2035	Low
SD-VM-L-MARINDAHL_01	Marindahl Lake	CHLOROPHYLL-A	2024	2034	Low
SD-VM-L-MARINDAHL_01	Marindahl Lake	TEMPERATURE	2022	2035	Low
SD-VM-L-SILVER_01	Silver Lake	PH	2010	2035	Low
SD-VM-L-SPIRIT_01	Spirit Lake	MERCURY IN FISH TISSUE	2022	2028	High
SD-VM-L-SPIRIT_01	Spirit Lake	DISSOLVED OXYGEN	2024	2034	Low
SD-VM-L-THOMPSON_01	Lake Thompson	CHLOROPHYLL-A	2014	2026	High
SD-VM-L-WHITEWOOD_01	Whitewood Lake	PH	2024	2034	Low

AUID	Waterbody Name	Cause	Cycle First Listed	TMDL Schedule	Priority
SD-VM-R-VERMILLION_01	Vermillion River	*E. coli*	2020	2024	High
SD-VM-R-VERMILLION_01	Vermillion River	TOTAL SUSPENDED SOLIDS	2020	2028	High
SD-VM-R-VERMILLION_02	Vermillion River	*E. coli*	2020	2024	High
SD-WH-L-ALLAN_DAM_01	Allan Dam	PH	2014	2035	Low
SD-WH-R-LITTLE_WHITE_01	Little White River	*E. coli*	2012	2028	High
SD-WH-R-WHITE_02	White River	SALINITY/SAR	2024	2036	Low
SD-WH-R-WHITE_02	White River	*E. coli*	2010	2028	High
SD-WH-R-WHITE_03	White River	SALINITY/SAR	2024	2036	Low
SD-WH-R-WHITE_03	White River	*E. coli*	2012	2028	High
SD-WH-R-WHITE_04	White River	*E. coli*	2010	2028	High