Quality Assurance Project Plan

for the

Water Quality Program

Revision X

January 2024

Department of Agriculture and Natural Resources
Office of Water
Water Quality Program
Pierre, South Dakota

Section A1. Title and Approval

Projects: Ambient Surface Water Quality Monitoring
Waterbody Use Analysis Assessments
Fish Flesh Analysis
Compliance Sampling
Complaint Investigation
Fish Kill Investigation

Organization: South Dakota Department of Agriculture and Natural Resources
Water Quality Program
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Signatures:

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Vacant, Team Leader — Date
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Water Quality Program, Surface Water Discharge Permitting Team

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Water Quality Program, Standards and Monitoring Team

Matt Hicks, Environmental Scientist III — Date 1-17-24
Water Quality Program, Ground Water Standards and Ground Water Discharge

Shannon Minerich

Shannon Minerich, DANR Quality Assurance Officer — Date
Water Quality Standards and Monitoring Team

Aaron Leingang
Aaron Leingang (Jan 26, 2024 15:15 CST)

Aaron Leingang, WQP Quality Assurance Officer — Date
Water Quality Standards and Monitoring Team

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Section A3. Distribution List

An electronic copy of this Quality Assurance Project Plan (QAPP) is available at M:\DANR\Office_of_Water\Surface_Water_Quality\Standards Team\AARON\Quality Assurance. The program administrators and team leads listed below are responsible for distributing the plan to staff.

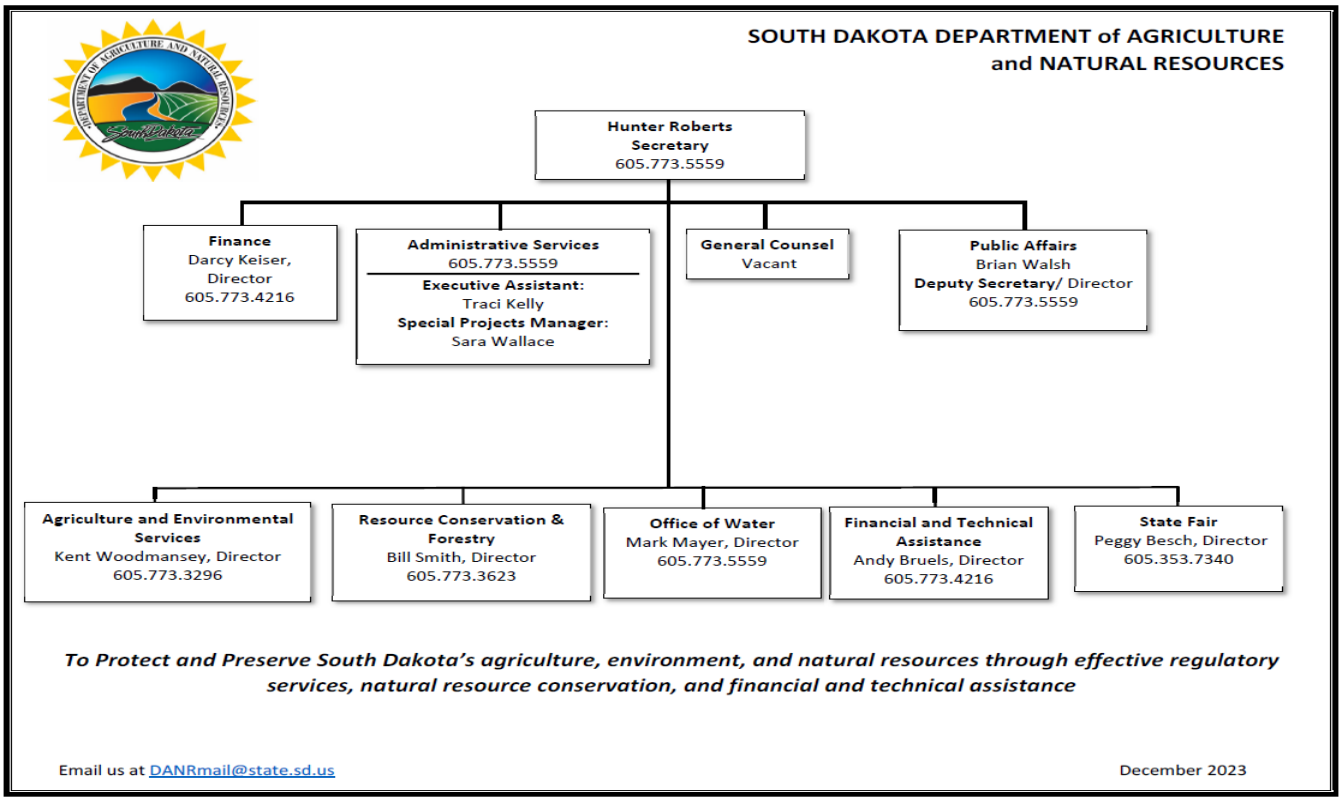
Aaron Ward	Water Quality Program Administrator
Sean Kruger	Team Lead, Water Quality Monitoring and Standards Team
Nick Kelly	Team Lead, General Permit Team
Vacant	Team Lead, Individual Permit Team

All personnel involved with water quality monitoring/sampling activities for the Water Quality Program shall receive a copy of this plan and therefore should be thoroughly familiar with the sampling policy, management structure, and procedures. Compliance with QAPP elements results in data collection and management that is valid and suitable for use in water quality assessments, other programs, and projects.

Section A4. Project/Task Organization

Organization

The South Dakota Department of Agriculture and Natural Resources (DANR) is divided into five divisions: The Division of Agriculture and Environmental Services, the Division of Financial & Technical Assistance, the Office of Water, the Division of Resource Conservation and Forestry, and the Division of the State Fair. The Office of Water consists of three Programs: Drinking Water Program (DWP), Water Rights Program, and Water Quality Program (WQP). This QAPP has been written to address work performed by the WQP: The following is an organizational chart illustrating the department structure.



The Water Quality Standards and Monitoring Team coordinates and performs water quality sampling for ambient surface water quality monitoring, waterbody use analysis assessment, fish flesh analysis, complaint investigation, fish kill investigation, special assessments, and compliance sampling. Regional office staff from the DWP assists the Water Quality Standards and Monitoring Team by collecting ambient water quality monitoring samples from their regions of the state. The Water Quality Standards and Monitoring Team works with staff from the South Dakota of Game, Fish, and Parks (GFP) and the Department of Health (DOH) to collect fish flesh samples and issue fish consumption advisories.

The General Permit Team and Individual Permit Team, including staff in the regional offices, coordinate and perform water quality sampling as it pertains to citizen complaints, routine permitted facility inspections, and inspections conducted in response to a permittee reporting a noncompliance discharge. Team personnel also review compliance monitoring data provided by permitted facilities. Personnel from the General Permit Team and Individual Permit Team occasionally participate and/or performs special assessments.

WQP personnel record visual observations and perform limited field analysis of parameters that may include: dissolved oxygen, flow, pH, specific conductance, oxygen reduction potential (ORP), and temperature. All other analyses are performed by outside laboratories. The WQP primarily uses three laboratories: the South Dakota Department of Health, Mid Continent Testing Labs, and American Engineering Testing.

QAPP Maintenance/Revisions

The WQP Quality Assurance Officer (QOA) is responsible for maintenance of this QAPP. This QAPP is reviewed annually; however, updated revisions of the plan are only required when there are significant changes to program or team procedures and/or goals. The exception shall be sections A3 Distribution List and A4 Project Task/Organization. These sections specifically identify staff involved in data collection and data entry. Revisions to the QAPP are not required in the event of personnel or contractor changes; an addendum will be attached to reflect changes in personnel.

Key Individuals and Responsibilities

Water Quality Program

Name: **Title:** **Organization:** **Responsibilities:**	Aaron Ward Program Administrator DANR - WQP • Supervision, planning, oversight, and setting priorities for the WQP.
Name: **Title:** **Supervisor:** **Organization:** **Responsibilities:**	Wanda Amundson Senior Secretary Aaron Ward DANR – WQP and DWP ▪ Public notice and issue NPDES permits; ▪ Enter data into State and Federal databases; and ▪ Scan and file documents.

Name: **Title:** **Supervisor:** **Organization:** **Responsibilities:**	Matt Hicks Environmental Scientist IV Aaron Ward DANR – WQP ▪ Developing and implementing ground water quality standards; ▪ Writing ground water discharge plans and associated permits; ▪ Reviewing ground water monitoring data; ▪ Environmental reviews; ▪ Provides technical guidance on ground water quality issues; ▪ Planning and conducting field investigations; and ▪ Field data collection and sampling work associated with ground water discharge plans.
Water Quality Standards and Monitoring Team	
Name: **Title:** **Supervisor:** **Organization:** **Responsibilities:**	Sean Kruger Environmental Scientist Manager I Aaron Ward DANR – WQP Water Quality Standards and Monitoring Team ▪ Supervise Water Quality Standards and Monitoring Team staff; ▪ Coordinate statewide monitoring programs; ▪ Plan and schedule field investigations; ▪ Develop and improve lake and stream sampling protocols ▪ Review draft QAPP and SOP documents to make sure they are accurate and appropriate; ▪ Ensure staff are adequately trained and that training meets requirements specified in the QAPP; and ▪ Provide technical guidance to senior management.
Name: **Title:** **Team Leader:** **Organization:** **Responsibilities:**	Shannon Minerich Environmental Scientist IV Sean Kruger DANR – WQP Water Quality Standards and Monitoring Team ▪ Water Enhancement & Restoration Reviews; ▪ Water Quality Standards Coordinator; ▪ Section 404 reviews and Section 401 certification; ▪ Integrated Report for Surface Water Quality Assessment; ▪ DANR Quality Assurance Officer.

Name: **Title:** **Team Leader:** **Organization:** **Responsibilities:**	Aaron Leingang Environmental Scientist III Sean Kruger DANR – WQP Water Quality Standards and Monitoring Team ▪ Environmental Assessments; ▪ Perform field data collection and sampling work associated with waterbody use analysis, ambient surface water quality monitoring, compliance sampling for investigating surface water pollution/ wastewater discharge complaints, and fish kill investigations; ▪ Coordinates ambient surface water quality monitoring by selecting sample sites, selecting analysis parameters, setting schedules; ▪ Write waterbody beneficial use analysis reports; ▪ Maintain fish flesh contaminant program; ▪ WQP Quality Assurance Officer; ▪ Maintain WQP QAPP and SOP.
Name: **Title:** **Team Leader:** **Organization:** **Responsibilities**	Scot Halko Environmental Scientist II Sean Kruger DANR – WQP Water Quality Standards and Monitoring Team ▪ Field data collection and sampling work associated with use analysis reviews; ambient water quality monitoring for stations in the central and western regions of the state; ▪ Investigating surface water pollution/wastewater discharge complaints and fish kill investigations; ▪ Write waterbody beneficial use analysis reports; ▪ Environmental Assessments; ▪ Track the receipt of laboratory analysis data for all South Dakota ambient monitoring stations; and ▪ Performs station data input and data review and verification; maintains WQP WISKI database, and exports data to EPA's WQX; ▪ Maintain WQP vehicles, gear, and laboratory supplies required for field analysis and sample preservation; ▪ Designated Sampler for inspection/calibration of WQP equipment and instruments, and collection of blank and laboratory split samples.
Name: **Title:** **Team Leader:** **Organization:** **Responsibilities:**	Jacob Paulsen Environmental Scientist II Sean Kruger DANR – WQP Water Quality Standards and Monitoring Team – Brookings Regional Office ▪ Perform field data collection and sampling work associated with waterbody use analysis, ambient surface water quality monitoring in the southeast region of the state, compliance sampling for investigating surface water pollution/wastewater discharge complaints, and fish kill investigations; ▪ Sample collection and investigation of citizen pollution complaints for WQP issues in the southeast region of the state; ▪ Perform work in the southeast region of the state (as needed) for other DANR programs and divisions. ▪ ArcGIS Enterprise and Power BI software operator/coordinator ▪ WQP drone operator

Other DANR staff doing work for the Water Quality Program	
Name: **Title:** **Supervisor:** **Organization:** **Responsibilities:**	Will Vogel Environmental Scientist II Mark McIntire DANR – DWP – Rapid City Regional Office ▪ Field data collection and sampling work associated with ambient water quality monitoring for stations in the Black Hills region of the state; and ▪ Sample collection and investigation of citizen pollution complaints for WQP issues in the Black Hills region of the state.
Name: **Title:** **Supervisor:** **Organization:** **Responsibilities:**	Austin DeWitte Environmental Scientist II Mark McIntire DANR – DWP – Watertown Regional Office ▪ Field data collection and sampling work associated with ambient water quality monitoring for stations in the northeast region of the state; and ▪ Sample collection and investigation of citizen pollution complaints for WQP issues in the northeast region of the state.
Name: **Title:** **Supervisor:** **Organization:** **Responsibilities:**	Phil Nesbitt Environmental Engineer I Mike Lees DANR – Minerals and Mining – Rapid City Regional Office ▪ Field data collection and sampling work associated with surface water and ground water in the Black Hills region of the state; and ▪ Sample collection and investigation of citizen pollution complaints for WQP issues in the Black Hills region of the state.
Individual Permit Team	
Name: **Title:** **Supervisor:** **Organization:** **Responsibilities:**	Vacant Engineering Manager I/ Team Leader Aaron Ward DANR – WQP – Individual Permit Team ▪ Supervise Surface Water Discharge Permit Team staff; ▪ Review draft QAPP and SOP documents to make sure they are accurate and appropriate; ▪ Ensure staff are adequately trained and that training meets requirements specified in the QAPP; ▪ Surface Water Discharge Permits; and ▪ Occasionally perform field data collection and sampling work associated with surface water discharge compliance inspections, citizen complaints, and reported non-compliance events.
Name: **Title:** **Team Leader:** **Organization:** **Responsibilities:**	Tim Flor Environmental Scientist IV Vacant/Nick Kelly DANR – WQP – Individual & General Permit Team ▪ WET Testing Coordinator; ▪ DMR QA Coordinator; ▪ DMR database and ICIS Coordinator

Name: **Title:** **Team Leader:** **Organization:** **Responsibilities:**	Kathleen Grigg Engineer III Vacant DANR – WQP – Individual Permit Team ▪ Individual Surface Water Discharge Permits; ▪ Water quality modeling; ▪ NPDES fees, TMDL wasteload allocation calculations, team-leader level draft permit reviews; ▪ Field data collection and sampling work associated with wastewater facility compliance inspections, citizen complaints, and reported non-compliance events.
Name: **Title:** **Team Leader:** **Organization:** **Responsibilities:**	Kyle Doerr Engineer III Vacant DANR – WQP – Individual Permit Team ▪ Pretreatment Coordinator; ▪ Individual Surface Water Discharge Permits; and ▪ Field data collection and sampling work associated with wastewater facility, pretreatment, and storm water compliance inspections citizen complaints, and reported non-compliance events.
Name: **Title:** **Team Leader:** **Organization:** **Responsibilities:**	Tom Anderson Engineer III Vacant DANR – WQP – Individual Permit Team ▪ Wastewater operator assistance; ▪ Individual Surface Water Discharge Permits; and ▪ Field data collection and sampling work associated with wastewater facility compliance inspections, citizen complaints, and reported non-compliance events.
Name: **Title:** **Team Leader:** **Organization:** **Responsibilities:**	Eunice Costanzo Engineer I Vacant DANR – WQP – Individual Permit Team ▪ Individual Surface Water Discharge Permits; ▪ Field data collection and sampling work associated with wastewater facility compliance inspections, citizen complaints, and reported non-compliance events.
Name: **Title:** **Team Leader:** **Organization:** **Responsibilities:**	Jasmine Singh Engineer I Vacant DANR – WQP – Individual Permit Team ▪ Individual Surface Water Discharge Permits; ▪ Field data collection and sampling work associated with wastewater facility compliance inspections, citizen complaints, and reported non-compliance events.

General Permit Team	
Name: **Title:** **Supervisor:** **Organization:** **Responsibilities:**	Nick Kelly Environmental Scientist Manager I Aaron Ward DANR – WQP – General Permit Team ▪ Supervise General Permit Team staff; ▪ Surface water discharge, biosolids, and pretreatment permits; ▪ Municipal stormwater general permit; ▪ Review draft QAPP and SOP documents to make sure they are accurate and appropriate; ▪ Ensure general permit team staff are adequately trained and that training meets requirements specified in the QAPP; ▪ Occasionally perform field data collection and sampling work associated with general permit compliance inspections, citizen complaints, and reported non-compliance events.
Name: **Title:** **Team Leader:** **Organization:** **Responsibilities:**	Katie Adair Program Assistant I Nick Kelly DANR – WQP-General Permit Team ▪ Managing coverage under stormwater general permits; ▪ Primary point of contact for the 1-800-SD-STORM phone number and stormwater@state.sd.us email; ▪ Invoice stormwater permittees.
Name: **Title:** **Team Leader:** **Organization:** **Responsibilities:**	Raul Vasquez Engineer II Nick Kelly DANR – WQP – General Permit Team – Rapid City Regional Office ▪ Industrial Stormwater General Permits; ▪ Industrial stormwater, construction stormwater and wastewater compliance assistance; ▪ Field data collection and sampling work associated with general permit compliance inspections, citizen complaints, and reported non-compliance events in the western part of the state.
Name: **Title:** **Team Leader:** **Organization:** **Responsibilities:**	Jacob Suter Environmental Scientist I Nick Kelly DANR – WQP – General Permit Team – Watertown Regional Office ▪ Construction Stormwater Coordinator; ▪ Temporary Discharge Permits Coordinator; ▪ Stormwater & Surface Water Discharge Permits; ▪ Field data collection and sampling work associated with wastewater facility & stormwater compliance inspections, citizen complaints, and reported non-compliance events.
Name: **Title:** **Team Leader:** **Organization:** **Responsibilities:**	Zach Caughron Engineer I Nick Kelly DANR – WQP – General Permit Team ▪ Temporary discharge, wastewater, water treatment plant, pretreatment and biosolids permits; ▪ Managing coverage under non-stormwater general permits; ▪ Occasional field data collection and sampling work associated with wastewater facility & stormwater compliance inspections, citizen complaints, and reported non-compliance events.

Name: **Title:** **Team Leader:** **Organization:** **Responsibilities:**	Roderick McRae Engineer I Nick Kelly DANR – WQP – General Permit Team ▪ All general permits excluding municipal stormwater; ▪ Field data collection and sampling work associated with general permit compliance inspections, citizen complaints, and reported non-compliance events in the central part of the state.

South Dakota Department of Game, Fish, and Parks

Name: **Title:** **Organization:** **Responsibilities:**	Robert Hanten Wildlife Biologist GFP Region II ▪ Coordinate fish flesh collection activities.
Name: **Title:** **Organization:** **Responsibilities:**	John Lott Administrator/Aquatic Section Chief GFP ▪ GFP decisions regarding fish contaminants program.

South Dakota Department of Health Laboratory

Name: **Title:** **Organization:** **Responsibilities:**	John Osburn Administrator/Office of Health Protection DOH ▪ Issue fish consumption advisories; and ▪ DOH department decisions regarding fish contaminants program.
Name: **Title:** **Organization:** **Responsibilities:**	Rea Riggle Laboratory Deputy Director DOH – Environmental Team ▪ Implement, update, and monitor laboratory QA/QC; ▪ Review laboratory reports; and supervise laboratory personnel.

Mid Continent Testing Laboratories

Name: **Title:** **Organization:** **Responsibilities:**	Greg McDougal Laboratory Manager Mid Continent Testing Laboratories ▪ Implement, update, and monitor laboratory QA/QC; ▪ Review laboratory reports; and ▪ Supervise laboratory personnel.

American Engineering Testing

Name: **Title:** **Organization:** **Responsibilities:**	Virginia VerMulm Laboratory Manager American Engineering Testing ▪ Implement, update, and monitor laboratory QA/QC; ▪ Review laboratory reports; and ▪ Supervise laboratory personnel.

Section A5. Problem Definition/Background

In 1967, the South Dakota Committee on Water Pollution established water quality standards and assigned beneficial use designations to surface waters. By 1972, municipal and industrial wastewater pollution of rivers, streams, and lakes in the United States had become a national concern. To clean up the nation's waters, Congress passed the federal Clean Water Act of 1972. Under the South Dakota Water Pollution Control Act (South Dakota Codified Laws, Chapter 34A-2), pollution of the waters of this state constitutes a menace to public health and welfare; creates public nuisances; harms wildlife, fish, and aquatic life; and impairs domestic, agricultural, industrial, recreational, and other legitimate beneficial uses of water. For this reason, it is the goal of DANR to conserve the waters of the state and to protect, maintain, and improve the quality thereof. Thus, rules and regulations have been established to ensure the goal is achieved.

This QAPP has been written to address all water quality sampling performed or directed by the WQP. This includes but is not limited to sampling conducted in association with ambient surface water quality monitoring, ground water quality monitoring, waterbody use analysis assessment, fish flesh analysis, complaint investigations, special assessments, and compliance sampling.

Ambient Surface Water Quality Monitoring

South Dakota began limited ambient surface water monitoring in 1967. The sampling was initiated in response to the Federal Water Quality Act of 1965 and water quality concerns associated with mining activities. Sampling was conducted at six sites on five waterbodies in western South Dakota. By April of 1968, it was recognized that many other potential pollution sources existed around the state. Baseline and/or background data was desired, so sampling expanded to year-round monitoring at twenty-five locations on nineteen waterbodies statewide. Since that time, monitoring schedules and sample site locations have been altered in response to data collection needs. Today, there are 154 active sampling sites statewide. Sites are selected for the purpose of monitoring potential pollution sources, to determine if a waterbody meets standards for its assigned beneficial use, for the purpose of identifying water quality trends, and when data are needed for calculating total maximum daily loads (TMDLs). Baseline data and trend analysis are also used as a management tool to determine the effectiveness of control programs on existing point and nonpoint sources and directing future control activities.

Ground Water Quality

In 1989, the South Dakota Legislature declared that groundwater is a resource of immeasurable value (South Dakota Codified Law 34A-2-104) to public health and welfare, and that pollution of South Dakota's groundwater constitutes a menace to public health, welfare and the environment. It was also determined that once groundwater is polluted, it is extremely difficult and expensive to clean up, so both enforcement and public education are necessary to minimize releases of pollutants. In order to maintain and improve groundwater quality for present and future beneficial uses, the state implemented a groundwater protection strategy that promotes pollution prevention, the correction of existing groundwater pollution, and close control of limited degradation for necessary economic and social development.

Waterbody Use Analysis Assessment

The assigned beneficial use of a waterbody determines the water quality standards for that body of water. On January 27, 1999, Section 74:51:01:02:01 of the Administrative Rules of South Dakota (ARSD) was adopted. This section requires that a use attainability analysis study be performed in certain situations where a discharge permit is to be issued. When an application is received for a new (or renewal of) Surface Water Discharge Permit, and the waterbody fishery classification is only (9) Fish and wildlife propagation, recreation, and stock watering waters, WQP staff assess the waterbody to determine it is accurately classified. Waterbody use analysis assessments are also done to determine appropriate fishery or recreation uses. Data is evaluated to determine if a particular waterbody is properly classified and/or meets its assigned beneficial use or uses. The data is entered in Survey123 and stored on DANR databases. The data may be used as a basis for recommending changes to the assigned beneficial use designation.

Fish Flesh Contamination Analysis

Beginning in 1994, in response to public and federal government concerns about the presence of various contaminants in fish, South Dakota began a fish tissue sampling program. The program is a cooperative effort among the DOH, GFP, and DANR. The purpose of the program is to collect fish from waterbodies statewide and assess contaminant levels in fish tissue. If a pollutant of concern is found at a concentration that could impact human health, additional fish tissue sampling is conducted and a consumption advisory is issued.

Special Assessments, Compliance Sampling, and Complaint Investigation

In 1993, EPA granted the State of South Dakota National Pollutant Discharge Elimination System (NPDES) authority. The state issues Surface Water Discharge permits to any point source that is discharging pollutants to waters of the state. The permits contain effluent limits that will protect the beneficial uses of our surface waters. The permits also contain the sampling and reporting requirements that each facility must follow.The WQP is responsible for inspecting pollution complaints, investigating fish kills, regulating storm water runoff, and issuing wastewater permits to municipal and industrial facilities. Department personnel occasionally take compliance samples during routine inspections at permitted facilities. Samples are also taken when staff investigates known or suspected releases of wastewater, storm water, or fish kills.

The Water Quality Program is committed to quality assurance in environmentally related measurements. This QAPP complies with U.S. Environmental Protection Agency requirements under the Water Pollution Control Grant, 40 CFR 31.45, and EPA Order 5360.1 A2. Further, this plan will identify procedures to be followed for the purpose of insuring uniformity in methodology and contains sampling methods and data handling procedures adopted and used by Water Quality Program personnel and individuals performing work for this program.

Section A6. Program/Task Description

This Quality Assurance Project Plan was written to address the continuing operation of water quality projects performed/directed by the Water Quality Program. The projects are designed to assess the quality of South Dakota's water resources or to determine a source of water pollution. The data collection objective is to preserve, improve, and protect the waters of the state of South Dakota. DANR WQP does its best to meet these objectives within the constraints of budget, time, personnel, and equipment.

Ambient Water Quality Monitoring

Ambient Water Quality Monitoring (WQM) sites are chosen with the intent of obtaining a sample that is representative for conditions on a large segment of the waterbody. The number of stations on a given waterbody is a function of accessibility, potential pollution sources, assigned beneficial uses, and other factors. The sampling frequency and analysis parameters for a particular site are based upon factors such as available background data, zone of mixing, current and future potential pollution sources, existing pollution, South Dakota Surface Water Quality Standards, budget constraints, and other factors.

Current WQM sites are sampled on a monthly, quarterly, or seasonal basis. The sampling schedule, analysis parameters, location (latitude and longitude), site number, and site description are recorded and loaded into EPA's Water Quality Exchange Network (WQX) and/or WQP databases before sample collection begins. A typical site visit includes field data collection, recording visual observations, and water sample collection for laboratory analysis. WQP personnel are equipped to properly preserve, store, and transport (or mail) samples to the laboratory. The most common parameters sampled include *E coli*, total suspended solids, total dissolved solids, ammonia, nitrates, and phosphorous. Several stations are sampled for sodium, calcium, and magnesium during the irrigation season. Stations located along streams that receive flows from historic Black Hills mining areas are also analyzed for cyanide, cadmium, lead, copper, zinc, chromium, mercury, nickel, silver, and arsenic. Stations located near historic uranium mining or present in-situ exploratory drilling sites are also sampled for arsenic, barium, molybdenum, uranium, radium 226, and radium 228. Field data parameters collected are water temperature, dissolved oxygen concentration, specific conductance, ORP, and pH.

All WQM data is evaluated for the purpose of observing/identifying seasonal and yearly trends, evaluating the effectiveness of pollution control programs, determining the support status for a waterbody assigned beneficial use, identifying any newly emerging pollution source, writing TMDLs and surface water discharge permits, and assuring the health of the waterbody. Ambient surface water quality conditions are reported in the biennial Integrated Report (303(d) and 305(b) reports) to the United States Environmental Protection Agency (US EPA) and the public. All ambient water quality data collected since 1967 is stored in EPA's WQX database and DANR's Kister's and NR92 databases. Data in these databases is maintained by the Water Quality Monitoring and Standards Team of the Water Quality Program. Ambient water quality monitoring station locations, descriptions, schedules, and parameters are available online at:

https://DANR.sd.gov/OfficeOfWater/SurfaceWaterQuality/waterqualitystandards/swqmonitoring.aspx

Beneficial Use Assessment Surveys/Use Attainability Analysis Surveys

Beneficial use assessment surveys/use attainability analysis surveys are performed when a Surface Water Discharge permit for discharge to a waterbody classified as a 9 (see Administrative Rules of South Dakota Chapter 74:51:02 & :03) is requested or is to be renewed. Beneficial use assessment surveys/use attainability analysis surveys may also be done to determine appropriate fishery or recreation uses. Beneficial use assessment surveys are conducted in accordance with DANR SOP Recommended Procedures for Reviewing Beneficial Use Designations, with Special Emphasis on Fishery and Recreational Uses, December 1999.

Sample sites are chosen with the intent of obtaining samples representative of conditions upstream and within five miles downstream of the discharge point (or to the end of the classified stream segment). The purpose of this sampling is to identify the entire segment for which the classification change may be recommended. The total number of sample sites is at the discretion of field personnel and depends upon many factors including accessibility, flow, stream segment distance, and location/number of discharge points. Field personnel select the type of equipment to be used in data collection, based upon conditions encountered. In all cases, photographs are taken to document site conditions. When a waterbody has flow or significant areas of pooled water, water samples are sometimes collected for chemical analysis by a laboratory. In addition, field water quality data is collected, fish collection is attempted, and site conditions are recorded. The fish collected are identified, counted, measured, and photographed before release.

Data collected for beneficial use assessment surveys are maintained in DANR databases. These are used to produce reports and recommendations pertaining to beneficial use assignments. Final reports and copies of original data are located electronically in DANR databases and UAA Stream Survey and WQM folders maintained by the Water Quality Monitoring and Standards Team of the WQP.

Compliance Inspections

Personnel in the Surface Water Discharge Permitting Team, Stormwater Permitting Team, and Ground Water Discharge Permitting staff perform routine permit compliance inspections. A list of inspections is generated from data in the DANR NR34 database for the Surface Water Discharge and Stormwater Permitting Teams. During such inspections, discharged water may be sampled to verify permit compliance or noncompliance. The sample collection point is typically chosen with accessibility being the major component, or from permit designated sampling points. Nevertheless, the primary goal is to obtain a sample that is representative of the water being discharged, or in the case of ground water, representative of the receiving ground water to determine water quality impacts. Field personnel collect either grab or composite samples, as appropriate. Field personnel may take field water quality measurements including, but not limited to, water temperature, dissolved oxygen concentration, specific conductance, ORP, and pH. The field personnel may also send water samples to a laboratory for analysis.

Compliance sampling in water is similar regardless of the facility or unidentified potential pollution source. All data from sampling associated with a permitted facility is maintained in the permit file for the Surface Water Discharge Permitting Team, Stormwater Permitting Team, or Ground Water Discharge Permitting staff. All other sample data is maintained in a file reserved for data associated with complaint investigations and maintained by the appropriate staff in the WQP. Data collected is used in determining compliance with

the requirements of Surface Water Discharge permits (including pretreatment, biosolids, construction stormwater, industrial stormwater), Ground Water Discharge Plans, Federal and/or State regulations, and/or to support legal proceedings.

Surface Water Discharge/Pollution Complaint Investigations/Special Assessments

Potential surface water pollution problems come to the attention of the Water Quality Program in several ways: staff members identify potential surface water pollution problems during routine permit compliance inspections; permittees report non-compliance discharges; citizens file signed complaint forms (see South Dakota Codified Law 34A-2-111); and local government officials, other state agencies, or EPA submit complaints to the department for pollution associated with point sources or report pollution arising from unidentified sources. When pollution is discovered by on-site department personnel, the investigation begins immediately. In situations where the pollution incident is reported through the complaint process, and a site visit is deemed necessary, the investigation is performed as soon as possible. The decision of whether to take samples depends upon conditions encountered and with the individual performing the investigation. The selection of sample site locations and the number of sample sites selected lies with field personnel and depends upon circumstances encountered in the field. When sampling as part of a pollution complaint investigation, obtaining a representative sample of water quality for a large segment of a waterbody is not the only goal. Representative samples, taken upstream and downstream of a pollution discharge point, may be taken to establish background or ambient conditions, determine rate of dilution, and to measure the impact on fish and habitat. However, some sample sites are selected for the purpose of obtaining a sample of water contaminated by pollution. Such a sample may be used to identify the pollutant or to document the fact that a pollution event occurred. Water samples are collected for laboratory analysis and field data results are recorded (including water temperature, dissolved oxygen concentration, specific conductance, and pH). Analysis parameters will vary depending upon the nature of the complaint, and personnel are trained to make that determination. Each investigation is different and for this reason, the selection of sampling sites and analysis parameters is at the discretion of department field personnel.

Information obtained from an investigation is maintained in either a permit file (if the pollution was associated with a discharge from a permitted facility or facility requiring a permit) or in a complaint investigation file. Data collected is used for determining the status of compliance with the requirements of Surface Water Discharge permits, Ground Water Discharge Plans, federal and/or state regulations, and/or to support legal proceedings.

WQP personnel may conduct special assessments or sampling to gain additional information on a waterbody. Special assessments are occasionally conducted to gather additional water quality data and may be used for Surface Water Discharge permit development, determine waterbody compliance with water quality criteria, quality investigations, or provide information regarding local or regional water quality concerns. Sites and parameters are selected based on the specific circumstances and are addressed in the assessment sampling plan.

Fish Kill Investigations

The Water Quality Monitoring and Standards Team investigates fish kills. Fish kills may be the result of natural conditions, diseases, or anthropogenic effects. Fish kills are typically reported to WQP by the public, local officials, or other state agencies. WQP contacts GFP and the local Conservation Officer. The Conservation Officer will typically verify if a fish kill has occurred. As necessary, WQP or GFP personnel will investigate the fish kill as soon as possible, preferably within 24 hours.

WQP personnel follow protocols from the United States Department of the Interior, Fish and Wildlife Service, Resource Publication 117, Field Manual for the Investigation of Fish Kills, 1990, and water quality sampling methods from the State of South Dakota's Surface Water Quality Program Standard Operating Procedures, Field Water Quality Sampling. WQP staff photograph and record site observations in a Survey 123 application including, but not limited to: water color and water odor; species, size, quantity, and physical condition of dead fish; presence and physical condition of live fish or other aquatic species; presence and condition of plants and algae; and any other factors that may be related to the fish kill. Field

personnel collect field water quality data including: dissolved oxygen, pH, specific conductance, temperature, waterbody depth, width, and flow. Water quality samples are collected and may be analyzed for ammonia, nitrates, TKN, total phosphorous, dissolved and suspended solids, BOD, CBOD, and/or other parameters based on results of field observations at the discretion of the field sampler. Fish may also be collected for necropsy at the discretion of the field sampler.

Fish kill sampling sites are selected by assessing the extent of the fish kill along the waterbody. Sites are selected within the fish kill zone and upstream and downstream from the affected area.

Fish kill investigation results are compiled using Survey 123 app and the data collected is maintained by the GFP. GFP has used this system for fish kill data since 2012 and DANR started using it in 2020. Electronic water quality data is stored in DANR's database. On a biennial basis, fish kill report information is incorporated into the Integrated Report (303(d) and 305(b)) to US EPA.

Fish Flesh Contaminants Program

In a collaborative effort among GFP, DOH, and DANR, fish tissue from lakes and rivers are sampled and analyzed for contaminants including mercury, cadmium, selenium, pesticides, and PCBs. The data are used to monitor and assess the levels of these contaminants present in fish flesh.

The river and lake fish flesh sampling locations and schedule are determined in a joint effort by GFP and DANR personnel. The rivers and lakes are typically sampled in conjunction with GFP's survey sampling and occur between early spring and late fall.

The DOH issues fish consumption advisories based on the United States Food and Drug Administration's consumption limit of one (1) part per million mercury (milligram per kilogram, mg/kg). The DOH issues a fish consumption advisory when sampling results indicate the one part per million mercury threshold has been or may be exceeded in edible fish tissue. Results from fish tissue analyses are entered into DANR's Fish Flesh database (MS Access). Other records and documents are located in Fish Tissue Data files maintained by the Water Quality Monitoring and Standards Team of the WQP. Fish tissue contaminant parameters are available in Appendix B. Fish tissue chain of custody forms are available in Appendix D. Fish tissue sampling design and procedures are addressed in the WQP document South Dakota Fish Contaminants Sampling Protocol, January 2013.

The results are also used to assess the South Dakota Water Quality Standard for mercury in fish tissue criterion of 0.3 mg/kg. Waterbodies exceeding the fish tissue criterion based on South Dakota's assessment methodology are reported in the Integrated Report as not supporting the beneficial use.

Section A7. Data Quality Objectives & Acceptability Criteria for Measurement Data

The objective of the WQP quality assurance program is to conduct sufficient activities to assure complete, accurate, representative, and comparable data. These activities are a combination of field and laboratory procedures that will provide measurements that are of known quality, technically sound, statistically accurate, properly documented, and representative of the media being measured.

The WQP characterizes the ambient conditions of the surface waters of South Dakota. In addition, enforcement, regulatory, rulemaking, and policy decisions may be made as a direct result of WQP data and information. WQP data are collected following the requirements of this QAPP, SOP, and Data Quality Objectives (DQO); and are available to other state agencies, federal and local agencies, public organizations and entities, and the general public in order to support and enhance:

* establishment of baseline (ambient) water quality conditions;
* analysis of trends in water quality and comparison to water quality standards;
* continued analysis of sensitive aquatic ecosystems and water bodies of high public use and interest;
* determination of the effectiveness of the implementation of water quality controls;

* alerting WQP personnel to potential water quality violations and, in the case of documented violations, determining the possible causes of water quality degradation;
* water quality assessments in the Integrated Report to the EPA and the public; and
* establishment of stream beneficial use classification(s).

The WQP will employ tests or analytical procedures in accordance with methods approved or references listed in 40 C.F.R. Part 136 (July 1, 2020) unless other test procedures are required by the secretary. These methods and techniques have been determined to produce measurement data of a known and verifiable quality and that are of quality sufficient to meet the overall objectives of the water quality monitoring investigation. Data quality objectives and criterion include:

Representativeness

The representativeness of the data is mainly dependent on the sampling locations and the sampling procedures adequately representing the true condition of the sample site. Sample site, sampling of relevant media (water, sediment, and biota), and use of only approved/documented analytical methods will determine that the measurement data does represent the conditions at the investigation site, to the best extent possible. The goal for meeting total representation of the site will be tempered by the types and number of potential sampling points and media as well as the potential funding required for meeting complete representativeness. Sampling schedules will be designed with respect to frequency, locations, and methodology to maximize representativeness, where possible and applicable.

Comparability

The comparability of data is achieved by the commitment of WQP staff and contracted laboratories to use standardized methods, where possible, including EPA-approved analytical methods, standard methods, or documented modifications thereof that provide equal or better results. Measurements are made according to standard procedure, or documented modifications, using units that are comparable within samples and comparable to South Dakota Surface Water Quality Standards Chapter 74:51:01 or EPA standards as applicable.

Completeness

The completeness of data is a relationship of how much of the data are available for use compared to the total potential data before any conclusion is reached. Ideally, 100% of the data should be available. However, the possibility of data becoming unavailable due to laboratory, sampling or other types or errors may be expected. Also, unexpected situations may arise where field conditions do not allow for 100% data completeness.

- Therefore, 90% data completeness is required by the WQP. If less than 90% data completeness is obtained, the Team Leader or supervisor will decide if the information is usable. Corrective actions may be issued as appropriate.

Precision and Accuracy

The precision and accuracy of data are determined by actions of the analytical laboratory and field staff. The precision of data is a measure of the reproducibility of the measurement when an analysis is repeated. It is reported in Relative Percent Difference (RPD) or Relative Standard Deviation (RSD). The accuracy of an analysis is a measure of how much of the constituent actually present is determined. It is measured, where applicable, by adding a known amount of the constituent to a portion of the sample and determining how much of this spike is then measured and reported as Percent Recovery. Accuracy may also be measured by analyzing a reference material. The acceptable percent deviations and the acceptable percent recoveries are dependent on many factors including: analytical method used, laboratory used, media of sample, and constituent being measured.

Bias

Bias is a systematic or persistent distortion of a measurement process that causes errors in one direction. Bias is acknowledged and corrected by laboratory staff when using reference materials or analyzing spiked matrix samples.

It is the responsibility of the person in charge of a project for a program, Project Manager, to verify that the data are representative and conform to completeness standards; while precision, accuracy, comparability, and bias are the responsibility of the laboratory supervisor. Laboratories performing the analysis of samples for this project have developed precision and accuracy limits for acceptability of data. For parameters and matrices that have EPA established criteria, the limits are either equal to, or more stringent than, the established limit. For matrices without EPA established criteria, the laboratories have developed control limits following the procedures published in the EPA Handbook for Analytical Quality Control in Water and Wastewater Laboratories. It is the responsibility of the Project Manager to verify that the laboratory quality control conforms to internal laboratory limits.

Section A8. Required Training

Required Training for Field Sampling Personnel

Proper training of field personnel represents a critical aspect of quality control. Field personnel are trained to conduct a wide variety of activities using standardized procedures to ensure comparability in data collection among all field personnel and across geographic areas.

All sampling equipment and all pertinent sample collection protocols will be used extensively during "hands-on" training sessions (actual field sample collection). By the end of the sampling training, all field personnel must demonstrate proficiency in all the required sampling activities.

It is the responsibility of the appropriate WQP Team Leader or Supervisor to ensure employee training is satisfactory and documentation of training is maintained in personnel files. Group quality training, such as use of equipment, sampling, quality document reviews, etc., are documented and filed on the DANR Quality System Teams channel and on the M:drive by the WQP QAO.

In addition to in-field training and certification/documentation of such training, field personnel are evaluated on their field performance during field QA audits conducted by the WQP QAO, Project Manager, or Team Leader. If any deficiencies are noted during the audit, they will be documented and remedied prior to further field sampling. Verification of correction of any deficiencies must be documented in writing prior to the continuation of further sample collection activities. Copies of QA audit reports, as well as documentation of any deficiencies and corrective action responses are maintained in the WQP QAO's office for a minimum of three years.

Section A9. Documentation & Records

All field data gathered by WQP personnel are recorded in Survey123 App, field notebooks, and/or project specific forms as appropriate. All this information is located on DANR server, Microsoft Teams, and the M:drive. Laboratory results are reported to WQP in hardcopy and/or in electronic format as available. Laboratory results are mostly in DANR databases or kept on file by the Project Manager.

- Data are retained in accordance with South Dakota Department of Agriculture and Natural Resources Records Retention and Destruction Schedule, December 2022. Data are reported to the appropriate WQP Project Manager in an agreed format.

- All hard copies of data/records are kept on file at the respective WQP project officer conducting the field data collection or in the respective electronic database and may be reviewed by the Project Manager or the WQP QAO during audits.

Proper, complete, and timely documentation of projects is critical to maintaining proper QA protocols. Information is organized into the appropriate data reporting formats consistent with established document control procedures. Updated versions of field and laboratory SOPs are available for reference, providing instructions to all personnel on the proper distribution and filing of data collected during specific

procedures. The WQP QAO has the responsibility of maintaining an updated QAPP, SOPs, and forms in a central database. Read only access will be available to all staff members. Full access will be available only to the WQP QAO. The WQP QAO will notify the persons on the distribution list (Section A3) that an updated version of the document(s) is available and include the site location and/or provide a paper copy. In most instances, information in databases will be considered public and released upon request.

Standard Operating Procedures and the Quality Assurance Project Plan are approved through a process in which the Program Administrators, Team Leaders, and QAO confirm the accuracy and completeness of the document and sign their approval on a signature sheet.

Table A9-1

Quality Assurance/Quality Control Document and Record Types

Categories	Record/Document Types
Management and Organization	Quality Management Plan Quality Assurance Project Plan Organizational Structure Standard Operating Procedures Personnel qualifications and training certifications EPA Directives/Grants Support Contracts Emergency Response Plan Integrated Report (303(d) and 305(b))
Site Information	Site Project File Site Maps/Pictures
Field and Laboratory Environmental Data Operations	QA Project Plans Standard Operating Procedures (SOPs) Field and Laboratory Notebooks Communication/Correspondence Records Sample Handling/Custody Records Inspection/Maintenance Records Calibration Records Lab Sheets
Raw Data	Any original data (routine and QC data) including data entry forms, field data, lab data.
Data Reporting	Data/Summary/Progress Reports Journal Articles/Papers/Presentations
Data Management	Data Management Plans/Flowcharts Data Management Systems
Quality Assurance	Lab QC Data Contract Lab Certification/License Documentation QA/QC Reports Response/Corrective Action Reports QA/QC Audits/Assessments

Table A9-1 describes the documents that may be part of the QA reporting packages for management, field operations, laboratory operations, data management, and quality assurance functions.

Archival & Retrieval of Data Reporting Packages

Each Project Manager will keep accurate, updated versions of documents and data sets listed in Table A9-1 on file and accessible for the duration of the project or a specified lesser time. Information from site files is to remain retrievable for inspection and review during regular business hours. Storage of all field and laboratory data in electronic format is retained in accordance with South Dakota Department of Agriculture and Natural Resources Records Retention and Destruction Schedule, December 2022. Electronic data, documents, and other information is backed up daily.

Section B1. Sampling Process Design

Overview of the Overall Design Approach Used in the Water Quality Program

The sampling process design was established in the South Dakota Department of Environment and Natural Resources Water Quality Monitoring Strategy, November 2007 (in revision). DANR monitors surface waters in the state through an established ambient water quality sampling program, water quality surveys, complaint investigations, fish surveys, TMDL assessments, Surface Water Discharge permits, state non-point source implementation projects, and other projects. Ground waters of the state are monitored under the WQP through complaint investigations, project monitoring plans, and Ground Water Discharge Plans. If for whatever reason a site can't be sampled the reason will be noted on the field sheet or the Project Manager will be contacted to find out how to proceed.

WQP data has been entered into the United States Environmental Protection Agency WQX and/or ICIS-NPDES (Integrated Compliance Information System) computer system, and in DANR's inhouse database and WQP database respectively. Water samples are analyzed for physical, chemical, biological, and bacteriological parameters, as appropriate, to provide baseline data for the determination of potential effects of point and nonpoint sources of pollution. Baseline data are also used as a management tool to determine the effectiveness of control programs on existing point and nonpoint sources and for directing future activities. Water samples can show whether a surface or underground waterbody is or is not meeting its assigned water quality beneficial uses. The water quality standards consist of water quality criteria necessary to protect the assigned beneficial uses of state waters. DANR WQP's SOP for Field Water Quality Sampling 2016 (in revision) details the elements necessary for conducting fieldwork and sample collection for addressing beneficial uses. South Dakota Fish Contaminant Sampling Protocol 2013 (in revision) also addresses sampling necessary to determine if beneficial uses are or aren't being met.

All surface waters in the state are classified for one or more of the following beneficial uses:

(1) Domestic water supply waters;
(2) Coldwater permanent fish life propagation waters;
(3) Coldwater marginal fish life propagation waters;
(4) Warmwater permanent fish life propagation waters;
(5) Warmwater semipermanent fish life propagation waters;
(6) Warmwater marginal fish life propagation waters;
(7) Immersion recreation waters;
(8) Limited contact recreation waters;
(9) Fish and wildlife propagation, recreation, and stock watering waters;
(10) Irrigation waters; and
(11) Commerce and industry waters.

All streams in South Dakota are assigned the beneficial uses (9) and (10) unless otherwise stated in the Administrative Rules of South Dakota (ARSD) Chapter 74:51:03. All lakes in South Dakota are also assigned the beneficial use of (9) unless otherwise stated in the same reference (74:51:02). Lakes listed in ARSD Chapter 74:51:02 are assigned the beneficial uses of (7) and (8) unless otherwise specified. ARSD Chapter 74:51:01 contains the established surface water quality standards including toxic pollutant standards for human health and aquatic life.

Ground waters of the state are classified into one of two beneficial use classifications:

(1) Ground water which has an ambient concentration of 10,000 mg/L or less total dissolved solids (TDS) is classified as having the beneficial use of drinking water supplies, suitable for human consumption.
(2) Ground water which has an ambient TDS concentration greater than 10,000 mg/L is not subject to the numeric ground water quality standards of ARSD Chapter 74:54:01:04.

Section B2. Sampling Methods

Field personnel will adhere to sample collection procedures or approved and documented alternative protocols to ensure the collection of representative, water, sediment, tissue, and biological samples for laboratory analyses. If protocols are revised or altered, the deviations from the standard protocols must be documented.

Sampling methods, procedures, equipment, chain of custody, laboratory sheets, sample preservation, holding times, and other aspects of sampling procedures are detailed within the State of South Dakota's Surface Water Quality Program Standard Operating Procedures, Field Water Quality Sampling; Code of Federal Regulations, Title 40, Part 136; and/or this document's appendices.

Fish flesh sampling procedures are followed using the WQP document South Dakota Fish Contaminants Sampling Protocol, January 2013.

Ground water sampling methods and standard operating procedures are detailed within the DANR document Handbook for Reporting, Investigating, and Remediating Petroleum Releases in South Dakota, January 2022 and the following; Administrative Rule 74:54:01:06 | South Dakota Legislature (sdlegislature.gov).

The key aspects of quality control associated with sample collection for chemical or biological analyses are as follows:

1) Field personnel will be thoroughly trained in the proper use of sample collection gear and will be able to distinguish acceptable versus unacceptable water, sediment, or biological specimen samples in accordance with pre-established criteria;
2) Field personnel will be thoroughly trained to recognize and avoid potential sources of sample contamination;
3) Sample gear or equipment that comes in direct contact with the water sample will be made of non-contaminating materials and will be thoroughly cleaned between sampling events according to appropriate cleaning protocol;
4) Sample containers will be of the recommended type and will be free of contaminants; and
5) Conditions for sample collection, preservation and holding times will be followed.

Corrective Actions for Field Activities

Field sampling personnel have primary responsibility for responding to failures in sampling or measurement systems. Deviations from standard operating procedures and/or this QAPP are documented in the comment section of field notes. If monitoring equipment fails, field personnel will report the problem to their Team Leader or QAO. Equipment issues should also be recorded in the comment section of their field notes, data sheet, and/or calibration app and will not record data values for the variables in question. Actions will be taken to replace or repair broken equipment prior to the next field use. Data will not be used that was known to be collected with any faulty equipment. It is the combined responsibility of all members of the sampling crew to determine if the performance requirements of the specific sampling method have been met, and to collect an additional sample if required.

Section B3. Sample Handling & Custody Requirements

Proper sample handling procedures, containers, preservation for water, sediment, tissue, and biological samples are provided in South Dakota's Surface Water Quality Program Standard Operating Procedures, Field Water Quality Sampling; the Code of Federal Regulations, Title 40, Part 136, and the DANR document Handbook for Reporting, Investigating, and Remediating Petroleum Releases in South Dakota, January 2022.

In the field, all samples will be packed on ice to ensure the sample temperature will be maintained at 6˚C or less. Samples will be shipped in coolers or insulated containers. All caps and lids will be checked for tightness prior to shipping, and the cooler will be taped and sealed. Chain of custody sheets or lab sheets are placed inside plastic bags inside the cooler or taped to the inside lid. All samples will be handled, prepared, transported and stored in a manner to minimize analyte loss, contamination, or biological degradation. Sample containers will be clearly labeled, at a minimum, with date, time, and a station ID. Where appropriate (as in fish tissue), samples may be frozen to prevent biological degradation. Water sample containers will be made of glass or polyethylene bottles (or other material per analytical requirement) and preserved to a temperature of 6˚C or less until analyzed. The receiving laboratory will examine the samples for correct documentation, proper preservation and holding times. Maximum holding times for specific analyses are described in South Dakota's Surface Water Quality Program Standard Operating Procedures, Field Water Quality Sampling; the Code of Federal Regulations, Title 40, Part 136; and the SDDANR document Handbook for Reporting, Investigating, and Remediating Petroleum Releases in South Dakota, January 2022. Examples of labels are available in Appendix C.

Contract laboratories will follow sample custody procedures outlined in their QA plans. Copies of the contract laboratory QA plans are on file in the WQP QAO office.

All samples remaining after successful completion of analyses will be disposed of properly. It is the responsibility of the personnel of each analytical laboratory to ensure that all applicable regulations are followed in the disposal of samples or related chemicals. If the laboratory is unable to properly dispose of the remaining samples after the successful completion of analyses, they may return the sample to DANR for proper disposal.

Chain of custody procedures require that possession of samples be traceable from the time the samples are collected until completion and submittal of analytical results. A complete chain-of-custody form or laboratory data sheet is to accompany the transfer of samples to the analyzing laboratory. An example of chain of custody sheets and the laboratory data sheet is available in Appendix D.

Laboratory Custody Log

Laboratories shall maintain custody logs sufficient to track each sample submitted and to analyze or preserve each sample within specified holding times. A sample is considered under custody if:

- It is in actual possession;
- It is placed in a secure area (accessible by or under the scrutiny of authorized personnel only after in possession).

Field Log

Field personnel are required to keep record of each sampling event. This will be done by using the Survey 123 app, obtaining a copy of the completed lab sheet, or keeping a field log. The following items must be recorded for each sampling event:

- Time of sample collection;
- Sample station ID numbers and ID numbers for any replicate or blank samples;
- The results of any field measurements (temperature, D.O., pH, ORP, specific conductance) and the time that measurements were made;

- Qualitative descriptions of relevant water conditions (e.g. color, flow level, clarity) or weather (e.g. wind, rain) at the time of sample collection;
- A description of any unusual occurrences associated with the sampling event, particularly those that may affect sample or data quality.

Field personnel shall have custody of samples during field sampling. Chain of custody forms or laboratory data sheets will accompany all samples during shipment to contract laboratories. All water quality samples will be transported to the analytical laboratory directly by the field crew or by overnight mail or courier.

Section B4. Analytical Methods

The analytical methods and performance criteria that will be used for the WQP are specified in South Dakota's Surface Water Quality Program & Feedlot Permit Program Standard Operating Procedures, Field Water Quality Sampling; the Code of Federal Regulations, Title 40, Part 136, and ARSD Chapter 74:54:01:06.

The WQP do not have written contracts with laboratories, however, all laboratories that do work for the programs must document the methods, SOPs, and the data acceptability criteria of their analytical capabilities in their QA Manual.

The laboratory supervisor of each laboratory has primary responsibility for responding to a failure of analytical systems. Solutions which are consistent with the measurement objectives will be reached in consultation with the Project Manager. In the event that expedited sample analysis is needed the sampler will request turnaround time on the sample lab sheet (ASAP).

The method numbers used by laboratories for each analytical procedure they perform for WQP is available in each laboratory's respective QA Manual on file in the WQP QOA office.

In the event the WQP requests an analysis that is not specified in the SOP, the laboratory will use approved analytical methods and performance criteria. The use of nonstandard methods by the laboratory will require WQP approval. Sample disposal is the responsibility of the lab completing analysis. The lab must follow local and state regulations on disposal OR contact DANR for sample return and disposal.

Corrective Action for Laboratory Activities

Failures in field and laboratory measurement systems may involve instrument malfunctions, failures in calibration, sample jar breakage, blank contamination, and quality control samples outside of the defined limits. In many cases, the field technician or lab analyst may be able to correct the problem. If the problem can be resolved by the field technician or lab analyst, then they will document the problem in their field notes or laboratory record and complete the analysis. If the problem cannot be resolved, then it is conveyed to the respective supervisor, who will make the determination if the analytical system failure compromised the sample results and should not be reported. The nature and disposition of the problem is documented in the data report that is sent to the WQP Team Leader or Project Manager.

Section B5. Quality Control Requirements

Laboratory Quality Control Requirements

Laboratory quality control requirements are the responsibility of the laboratory and are outlined in the respective laboratory QA Manual. The QA manual for each laboratory used by the WQP is on file in the WQP QAO office. The WQP QAO will periodically review laboratory quality control results. Any deficiencies with laboratory quality control results will be discussed with the laboratory manager and documented. A corrective action may be issued at the discretion of the WQP QAO.

Quality Control Requirements

The WQP conduct quality control activities to ensure that sample collection is representative, sample integrity is maintained through sample preservation and handling, quality criteria is met for the application, and to assess the performance of sampling and laboratory personnel.

Blanks – Each type of sample bottle is filled with polished DI water and preserved and iced accordingly. The purpose of the blank is to verify that contaminants are not introduced during any part of sample collection, transport, or laboratory analysis. The blank may serve as a trip blank, an equipment blank, or a method blank. At a minimum, a complete set (A, B, C, D, M bottles) of blanks will be collected by the designated sampler on a quarterly basis and analyzed by each laboratory conducting routine analyses for the WQP. Blank results will be acceptable if they are less than the reporting limit used by the laboratory. For results greater than the laboratory reporting limit, additional blanks will be submitted for those specific parameters. Data acceptability of additional blanks is determined by evaluating the group. Acceptable results are determined by the following equation where SD=standard deviation and μ=mean:

$$SD<\mu$$

Laboratory Splits – A laboratory split is an environmental sample that is equally split and sent to two (or more) separate laboratories for analysis. The purpose of the laboratory split is to verify that each individual laboratory (analyst, analytical method, equipment) produces equivalent and comparable analytical results. On a quarterly basis, water samples will be collected by the designated sampler and analyzed by each laboratory conducting routine analyses for the WQP. Additional laboratory splits or an investigation will be conducted if the Relative Percent Difference (RPD) between results exceeds a control limit of 70 – 130% RPD. As part of the investigation, the WQP QAO, Project Manager, or Team Leader may select specific analytical parameters and submit a sample of a known concentration. The WQP QAO or Project Manager will compare the laboratory results for the known sample against the certified values.

Field Duplicates - Duplicate samples will be collected by all sampling personnel for all routine parameters at a frequency of five percent. A sample will be gathered, thoroughly homogenized by mixing, and split into the sample and duplicate sample. Duplicate sample quality control is an effort to examine total error because it evaluates sample collection, preservation, and analytical procedures.

Precision may be expressed as RPD where S=sample and D=duplicate. RPD is used to determine precision when only a small amount of data is available. WQP will use a control limit of 80–120% RPD for original and duplicate sample values (except bacteria) and a control limit of 70–130% RPD for laboratory splits. A control limit of plus or minus the analyte reporting limit will be used if either the sample or duplicate value is less than five times the analyte reporting limit.

$$RPD = \frac{|S-D|}{(S+D)/2} * 100$$

E. coli bacteria duplicate results are assessed by calculating precision criteria and determining whether the log ranges are acceptable using the following procedure:

1) The data are arranged in pairs where D1 is the original sample and D2 is the duplicate.
2) The log of each field measurement is determined (L1, L2).
3) The difference (range) of the log values is calculated: R = (L1-L2).
4) Using the absolute value of each range, a mean range (Mean-R) is determined.
5) The precision criterion is calculated by multiplying the Mean-R by 3.27 and rounding to the nearest tenth.
6) The precision criterion is compared to the range of each pair.
7) Acceptable – the log range value is lower than the precision criterion;
   Unacceptable – the log range value is above the precision criterion.

On an annual basis, WQP QAO or Project Officer will evaluate split, blank, and duplicate results to determine if acceptability requirements have been met. WQP understands that there may be occasional

exceedances of acceptability criteria and will allow up to a 10% margin of error. However, if exceedances to acceptability criteria are concentrated around a particular sampler, laboratory, site, or parameter, the 10% margin of error is not applicable. If results from the split, blank, or duplicate sample do not meet acceptability criteria, the Project Manager will notify the Team Leader and the laboratory manager to discuss the issue and to identify and correct the source of error.

Section B6. Equipment Testing, Inspection, & Maintenance Requirements

To ensure accurate and dependable use of equipment and measurement systems, all field sampling and laboratory equipment must be properly maintained and in good working condition. Backup equipment and common spare parts are available from the DANR lab in the Pierre office or at the regional sampler's office so that if any piece of equipment fails during use, repairs or replacement can be made as quickly as possible and the measurement tasks resumed.

All field equipment will receive preventive maintenance according to the manufacturer's manual or as otherwise specified in this QAPP. All equipment and multiprobe meters will be inspected for proper function, cleanliness, battery strength, etc. on a monthly basis by a designated WQP sampler. Replacement of probes or DO membranes will be documented in Survey 123 Probe Calibration Survey. DO membranes will be replaced on a quarterly basis or more often as needed. ORP and pH probes will be replaced on approximately an annual basis or when they go out of range. Prior to taking the equipment into the field, it is the field sampler's responsibility to ensure the equipment is in good working condition. Any issues with the equipment should be reported to the designated WQP sampler. The equipment will be repaired, replaced, or removed from service at the discretion of the designated WQP sampler. An equipment list is available in Appendix A.

For instruments and equipment that are exclusively issued to regional field staff, it is the responsibility of that staff member to keep the equipment properly maintained and inspect prior to use.

Section B7. Equipment Calibration & Frequency

An instrument or device used in obtaining an environmental measurement must be calibrated using a known standard. Every instrument or measuring device has a specific procedure and type of standard used for calibration. The means and frequency of calibration recommended by the manufacturer of the equipment or devices as well as any instruction given in an analytical method will be followed (information regarding equipment calibration can be found in the WQP SOP). Records of calibration must be entered into the Survey 123 Probe Calibration Survey by the person performing the calibration. This is important because this information needs to be accessible for verification during a laboratory/field audit, NOV, contested case hearing, or legal proceedings.

Calibration of the field multi meter is required prior to use. Calibration log is kept by using the Survey 123 Probe Calibration Survey and is used by each sampler who uses and calibrates the equipment. This data is available for inspection during an audit. Calibration information is available in Microsoft Teams: DANR SWQ Field Crew under the YSI Probe Data folder.

Equipment deficiencies observed during calibration or use will be reported to the designated WQP sampler. The designated WQP sampler will take appropriate action to repair, replace, or remove the equipment from service as deemed necessary.

Section B8. Inspection/Acceptance Requirements for Supplies & Consumables

The procurement of supplies, equipment, and services must be controlled to ensure that specifications are met for the high quality and reliability required for each field and laboratory function. Upon receipt of materials or equipment, the designated WQP sampler receives and signs for the materials. The items are

reviewed to ensure the shipment is complete, and they are then delivered to the proper storage location. All items are inspected for quality of product. All chemicals are dated upon receipt. All supplies are stored appropriately and are discarded upon expiration date in accordance with local, state, and federal regulations. It is the responsibility of the designated WQP sampler to discard chemicals, calibration solutions, and other community supplies upon expiration.

Section B9. Non-direct Measurements

The use of data obtained from sources other than DANR (non-direct measurements) is highly encouraged in data assessment/data interpretation activities, provided the data was collected in projects that were supported by approved and documented standard operating procedures, and included quality control measures. Non-direct measurements (published information) from other SD agencies, federal agencies, or scientific literature will be accepted as is. WQP staff must use professional discretion for the use of non-published information obtained from other sources. The data is usually obtained in electronic format and should be inspected in raw form before data reduction and interpretation. However, DANR may also utilize data following data reduction and interpretation in the form of graphs, charts, averages, percentiles, etc.

Section B10. Data Management

Information management occurs on several levels. First, sample collection must be completed in a manner to ensure the quality, compatibility, and timeliness of the data collected. Once collected and organized, it must be available for review, analysis, and interpretation. Ultimately, the data may be used in several aspects: to monitor the quality of water in the state, monitor permit compliance, and provide general information to other interested organizations and the general public.

Field data results are recorded electronically by the meter used and/or recorded into Survey 123. In some situations, these results are only recorded on the lab sheets. The field data on lab sheets will be reported electronically by the laboratory along with laboratory analytical results.

Sample results produced by a laboratory are reduced and validated at the laboratory and are the responsibility of the laboratory manager or designee. The data is sent electronically and/or by hard copy (per agreement between WQP and laboratory) to the appropriate Project Manager.

Field data and laboratory sample data are imported into one or more of the following; DANR NR92 SQL database, DANR NR33 database, Kisters WISKI database, SQL database or another database as appropriate. The data import is compared to the hard copy results to ensure accurate entry and data verification. Quality control sample results are compared to the original samples. Any deficiencies in quality control comparisons will be documented and handled accordingly.

The databases are backed up and software maintained by the respective IT personnel. Data is easily stored and retrieved through database functions. Upon request, data is available for use by WQP, DANR, other agencies, and the general public. The WQP designated sampler is responsible for data maintenance. WQP water quality data is exported to EPA's WQX database on at least an annual basis. WQP water quality monitoring data is available in WQX under the organization identification "SDDENR_WQX".

Data that is reported to WQP in the form of discharge monitoring reports (DMRs) by Surface Water Discharge permitees is entered via NetDMR which flows into EPA's ICIS-NPDES database.

Hard copies of data results, project reports, and other reports related to inspections, investigations and/or other data collection activities are scanned and filed electronically by the respective WQP Team as appropriate.

Section C1. Assessments & Response Actions

On an annual basis or as appropriate, the WQP will undergo a quality assessment. The audit will be conducted by the WQP QAO, Project Manager, or appropriate Team Leader. The persons conducting the assessment shall not audit their own work. The persons conducting the assessment will be familiar with the field sampling requirements of the program and this QAPP. These persons have the authority to issue stop work orders in the event of safety, quality, or other factors are compromised. Activities may include assessments of processes, systems, operators, data, records, etc. A report will be written by the person(s) conducting the assessment and will contain the results of the assessment, parties involved, date location, and other information as necessary. The information will be reported to the individuals involved, the Team Leader, and the Program Administrator. A copy will be stored in the WQP QAO office for a minimum of three years.

In the event the assessment results in deficiency and a corrective action is issued, the corrective action will be given to the Supervisor or Team Leader. Upon completion of the corrective action or at the end of the requested completion date, a written report of the corrected deficiencies will be submitted to the QAO. The WQP QAO will verify the corrective actions are complete and store the report in the WQP QAO office.

Section C2. Reports to Management

On an annual basis the WQP QAO will submit a quality assurance report to the Program Administrators and the DANR QAO, who in turn reports the information to EPA in an annual report. This annual report is due by March 30th. The report is submitted by saving the file in your program folder on the DANR Quality System Teams Channel. Please provide a summary of program QA/QC activities for the previous year (July 1 through June 30) including the following information:

1) Assessment results of measurement data accuracy, precision, and completeness;
2) Results of performance audits, contractor audits, and contractor oversight;
3) Quality assurance issues and resolutions;
4) Corrective actions and results;
5) List/update all documents/forms in the Quality Teams Channel DANR Master Documents List (this includes QAPPs, SAPs, PIPs, SOPs, all forms);
6) Annual QAPP reviews and all revisions need to be accompanied by the EPA QAPP checklist and the DANR QAPP Supplemental Requirements checklist. The checklists are located in the Quality Teams Channel under Files. Completed checklists should be downloaded to your program folder as part of this annual review.
7) Any other requirements listed in individual QAPP's (reviews, training, reports to management);
8) Record all staff training on Quality Teams Channel-DANR QA Training excel spreadsheet; and
9) Revisions to Standard Operating Procedures and Quality Assurance Project Plans.

Section D1. Data Review, Validation, & Verification Requirements

Data validation and usability are steps used to verify that the data or products conform to project objectives and if deviations occur, how this affects the usability of the data and resulting project outcome. Data review, verification, and validation are the responsibility of the appropriate Project Manager.

Section D2. Validation & Verification Methods

Data review is an in-house examination to ensure data has been properly recorded, transmitted, reduced, processed, calculated, etc. Data review may also include review of sample information including, but not limited to: container type, preservation, temperature, holding times, chain of custody, laboratory duplicates, blanks, and splits, and/or missing data.

Data verification is used to evaluate the completeness, correctness, and/or conformance of the data against the contractual procedure or method. This is accomplished by examining and confirming that the specified requirements for the project have been completed.
Data validation is an analyte or sample-specific process that evaluates the quality of data against the project specifications and end-use requirements. This is confirmed by evaluating compliance with analytical methods, SOPs, project plan requirements, and this QAPP. The purpose of validation is to assess and document sampling and analysis performance to determine the quality of the data.

Validation and verification of data is accomplished with a combination of internal and external quality control checks. Conformation with methods, procedures, laboratory QA/QC, and data quality objects will be assessed. Data validation and verification is the responsibility of the appropriate WQP Project Manager.

Performance and systems audits are also an integral component of a quality control program. Performance audits are independent checks, conducted on a planned frequency, on components of the measurement system to arrive at a quantitative measure of the output quality. Systems audits are independent checks completed on a planned frequency on the total measurement system. Announced or unannounced system audits may be performed by the WQP QAO, Team Leader, or Project Manager.

If data or audits do not conform to quality standards, the WQP QAO or Project Manager will take appropriate measures to determine the source of the nonconformance and remediate the situation. Issues are resolved as appropriate on a case-by-case basis.

Section D3. Reconciliation with User Requirements

The laboratory will analyze a minimum of ten percent duplicates and matrix spikes per batch of samples collected (or as outlined in their internal quality manual). These quality assurance samples will be within acceptable limits. If not, samples will be reanalyzed based on internal laboratory procedures. If sample results are not within lab acceptance criteria the result will be “flagged” and the Project Manager will decide if/how results may be used. The WQP also assesses precision and accuracy through the submission of blind field duplicates, laboratory splits and/or blanks.

Precision
Precision is a measure of the reproducibility of test results. A series of measurements on the same sample for the same parameter is compared to the average value. Precision is best expressed in terms of the standard deviation.

Generally, the industrial statistic [$I = |A- B|/(A + B)$] is used.

Precision may also be expressed as Relative Percent Difference (RPD). RPD is used to determine precision when only a small amount of data is available. SWQP will use a control limit of 80-120% RPD for original and duplicate sample values greater than or equal to five times the analyte reporting limit; or a control limit of plus or minus the analyte reporting limit if either the sample or duplicate value is less than five times the analyte reporting limit.

$$RPD = \frac{|S-D|}{(S+D)/2} * 100$$

Accuracy
The degree of agreement of a measurement with an acceptable reference or true value usually expressed as the difference between the two values, the difference as a percentage of the reference value, and sometimes expressed as a ratio or as a percentage of spike recovery. The percent recovery for recovery of spikes into natural water backgrounds is determined by the formula:

$$\% R = \frac{\text{observed} - \text{background}}{\text{spike}} * 100$$

The determination of data acceptability will be the responsibility of each laboratory supervisor and/or Project Manager. The laboratory supervisor and project leader will ensure that data meets QA/QC requirements set forth by the laboratory QA manual, the WQP SOPs, and this QAPP. Any data that are rejected due to poor analytical or sampling technique may result in correction and/or corrective action. This may include:

1) Reviewing data for transcription or math errors;
2) Reviewing method with chemist/technician responsible for generating the data;
3) Finding ways to prevent problems in the future such as training or cross-checking with two analysts;
4) Training on proper sample collection and preservation; or
5) Re-collection or re-analysis of samples.

All correction and/or corrective action taken will be documented and maintained on file in the WQP QAO's office. Corrective actions may also be initiated as a result of other QA activities, including:

1) Performance audits;
2) QA program audits;
3) Laboratory/Field comparison studies; or
4) Assessments of data, records, or documents.

Corrective actions and follow-up from these activities will be the responsibility of the WQP Team Leader or QAO. Ultimately the Project Manager and department staff will decide if the data collected satisfies requirements as stated in the work plan for a specific task or project. If the data quality objectives have not been met, the final report will document deficiencies and state what additional information is needed to complete the process.

APPENDIX A
EQUIPMENT INSPECTION/CALIBRATION SCHEDULE

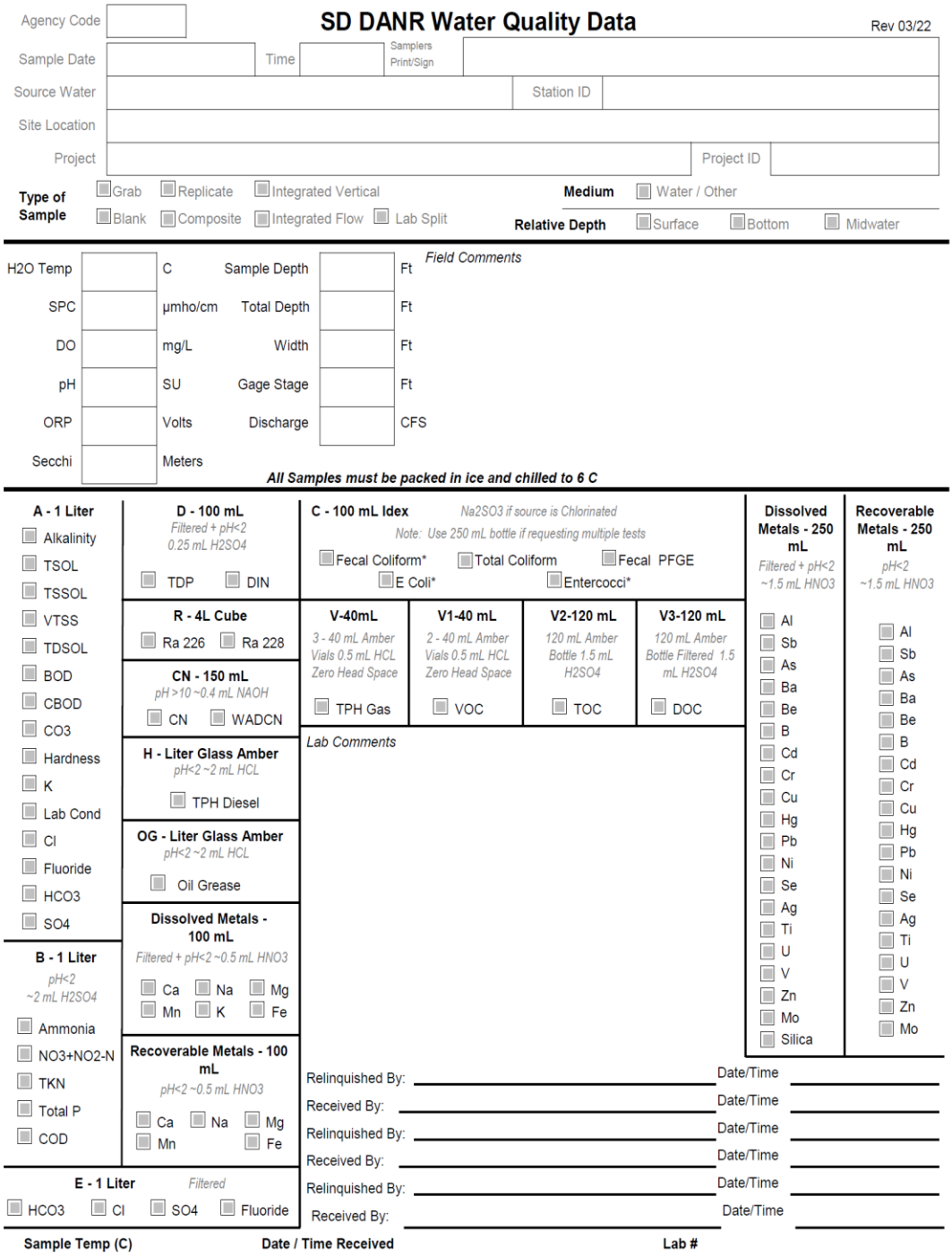
Meters/ Instruments	Calibration/ Inspection Frequency	Parameter	Standards
YSI ProPlus & Quatro Multiprobe Meter	Monthly and Prior to Use	Water Temperature	Verified against mercury thermometer
		DO	Standardized by barometric pressure
		pH	pH 4.00, 7.00, & 10.01 buffer
		ORP	YSI Zobell Solution
		Specific Conductance	1410 µmho/cm Conductivity Solution
Mercury Thermometers	Annual	Temperature	Verified against NIST certified thermometer
Halltech HT2000 Backpack Electroshocker	Biannual	Voltage/Frequency	Biannual Halltech calibration
SonTek Flow Tracker	Annual	Water Velocity	No Calibration
OTT MF Pro	Annual	Water Velocity	No Calibration

APPENDIX B
FISH FLESH CONTAMINANT PARAMETERS

PCBs	Pesticides		
Total PCBs	DDT	Chlordane	Heptachlor
	DDE	Dieldrin	Heptachlor Epoxide
Metals	DDD	Endosulfan I	Hexachlorobenzene
Total Cadmium	BHC-alpha	Endosulfan II	Terbufos
Total Selenium	BHC-beta	Endrin	Toxaphene
Total Mercury	BHC-gamma	Endrin aldehyde	

APPENDIX C
Sample Bottle Labels

APPENDIX D
SD DANR WATER QUALITY DATA SHEETS



SD DANR Water Quality Data Rev 03/22

Agency Code | Sample Date | Time | Samplers Print/Sign | Source Water | Station ID | Site Location | Project | Project ID

Type of Sample: Grab, Replicate, Integrated Vertical, Blank, Composite, Integrated Flow, Lab Split

Medium: Water / Other

Relative Depth: Surface, Bottom, Midwater

H2O Temp		C	Sample Depth		Ft
SPC		µmho/cm	Total Depth		Ft
DO		mg/L	Width		Ft
pH		SU	Gage Stage		Ft
ORP		Volts	Discharge		CFS
Secchi		Meters			

Field Comments

All Samples must be packed in ice and chilled to 6 C

A - 1 Liter
- Alkalinity
- TSOL
- TSSOL
- VTSS
- TDSOL
- BOD
- CBOD
- CO3
- Hardness
- K
- Lab Cond
- Cl
- Fluoride
- HCO3
- SO4

B - 1 Liter
pH<2 ~2 mL H2SO4
- Ammonia
- NO3+NO2-N
- TKN
- Total P
- COD

D - 100 mL
Filtered + pH<2 0.25 mL H2SO4
- TDP
- DIN

R - 4L Cube
- Ra 226
- Ra 228

CN - 150 mL
pH>10 ~0.4 mL NAOH
- CN
- WADCN

H - Liter Glass Amber
pH<2 ~2 mL HCL
- TPH Diesel

OG - Liter Glass Amber
pH<2 ~2 mL HCL
- Oil Grease

Dissolved Metals - 100 mL
Filtered + pH<2 ~0.5 mL HNO3
- Ca, Na, Mg, Mn, K, Fe

Recoverable Metals - 100 mL
pH<2 ~0.5 mL HNO3
- Ca, Na, Mg, Mn, Fe

E - 1 Liter *Filtered*
- HCO3, Cl, SO4, Fluoride

C - 100 mL Idex *Na2SO3 if source is Chlorinated*
Note: Use 250 mL bottle if requesting multiple tests
- Fecal Coliform*, Total Coliform, Fecal PFGE
- E Coli*, Entercocci*

V-40mL	V1-40 mL	V2-120 mL	V3-120 mL
3 - 40 mL Amber Vials 0.5 mL HCL Zero Head Space	*2 - 40 mL Amber Vials 0.5 mL HCL Zero Head Space*	*120 mL Amber Bottle 1.5 mL H2SO4*	*120 mL Amber Bottle Filtered 1.5 mL H2SO4*
TPH Gas	VOC	TOC	DOC

Lab Comments

Dissolved Metals - 250 mL
Filtered + pH<2 ~1.5 mL HNO3
- Al, Sb, As, Ba, Be, B, Cd, Cr, Cu, Hg, Pb, Ni, Se, Ag, Ti, U, V, Zn, Mo, Silica

Recoverable Metals - 250 mL
pH<2 ~1.5 mL HNO3
- Al, Sb, As, Ba, Be, B, Cd, Cr, Cu, Hg, Pb, Ni, Se, Ag, Ti, U, V, Zn, Mo

Relinquished By: _____ Date/Time _____
Received By: _____ Date/Time _____
Relinquished By: _____ Date/Time _____
Received By: _____ Date/Time _____
Relinquished By: _____ Date/Time _____
Received By: _____ Date/Time _____

Sample Temp (C) **Date / Time Received** **Lab #**

FISH TISSUE FIELD DATA COLLECTION / CHAIN OF CUSTODY FORM

Waterbody:_____ **StationID:** _____ **County:**_____

Sampler(s):_____ **Sample Date:** _____ **Sample Time:** _____

Activity Type: _____ **Survey Type:** _____ **Medium:** biological tissue **GF&P Region:**_____

ProjectID: Fish Flesh Contamination Project **Agency Code:** 5210 **Collection Gear:** _____**LakeID:** _____

Sample ID: _____

Species: _____

Fish Number	Length (mm)	Weight (g)	Sex (if known)
1			
2			
3			
4			
5			

Requested Analysis:

Mercury: ☐
Metals, PCB's, and Pesticides: ☐

Other: _____

Sample ID: _____

Species: _____

Fish Number	Length (mm)	Weight (g)	Sex (if known)
1			
2			
3			
4			
5			

Requested Analysis:

Mercury: ☐
Metals, PCB's, and Pesticides: ☐

Other: _____

Sample ID: _____

Species: _____

Fish Number	Length (mm)	Weight (g)	Sex (if known)
1			
2			
3			
4			
5			

Requested Analysis:

Mercury: ☐
Metals, PCB's, and Pesticides: ☐

Other: _____

_____ _____ _____ _____

Relinquished by (signature) **Date/Time** **Received by (signature)** **Date/Time**

White Copy – To the laboratory with the fish samples
Yellow Copy – To DENR, Surface Water Quality Program, 523 East Capitol Avenue, Pierre, SD 57501
Pink Copy – Retain for your records

SD DENR SWQ 10/08

January 2014

Fish Tissue Contamination Field Sheet - Individual Fish - Hg

Waterbody _____ **County** _____ **StationID** _____

Date _____ **Time** _____ **Survey Type** intensive **Activity Type** individual **GFP Region** _____

ProjectID Fish Flesh Contamination **Agency Code** 5210 **Collection Gear** _____ **Page** ____ **of** _____

Samplers _____ **Medium** biological tissue

SampleID	Species	Length (mm)	Weight (g)	Sex	Analysis	Lab Barcode	Comments
					Hg		
					Hg		
					Hg		
					Hg		
					Hg		
					Hg		
					Hg		
					Hg		
					Hg		
					Hg		

Relinquished by Date/Time

Received by Date/Time

Revision History

Revision X–January 2024
Revision X–Staff update November 2025