Quality Assurance Project Plan for External Projects

Revision II

April 2022

South Dakota

Department of Agriculture and Natural Resources

Division of Resource Conservation and Forestry

Water Protection Program

A1: Title and Approval

SOUTH DAKOTA EXTERNAL PARTY QUALITY ASSURANCE PROJECT PLAN
SUBMITTED BY:
SOUTH DAKOTA DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES
DIVISION OF RESOURCE CONSERVATION AND FORESRTY
WATERSHED PROTECTION PROGRAM
Revision II

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APPROVED BY:

South Dakota Watershed Protection Program Administrator — Date: 5/24/2022

South Dakota Watershed Protection Program Environmental Scientist Manager, Assessment Team — Date: 5-24-2022

South Dakota Watershed Protection Program Environmental Scientist Manager, Implementation Team — Date: 5-24-2022

South Dakota Watershed Protection Program Quality Assurance Officer — Date: 5-22-22

South Dakota DANR Quality Assurance Officer Quality Assurance Officer — Date: 5-27-22

A2: Table of Contents

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A3: Distribution List

The External Project QAPP will be distributed by the Local Coordinator (the representative of the external group or party conducting sample collection efforts under this QAPP) to all personnel engaged in sample collection, and all personnel engaged in sample collection must be familiar with sample collection procedures. Compliance with QAPP elements results in data that is valid and suitable for use for:

- Water quality assessments in the South Dakota Integrated Report for Surface Water Assessment
- Inclusion on the South Dakota DANR Water Quality Monitoring Access Portal (WQMAP) website
- Implementation, water quality and (TMDL) Total Maximum Daily Load assessments projects
- Other programs and projects

A4: Project/Task Organization

The Local Coordinator is responsible for training all personnel working on the project in appropriate quality assurance and sampling procedures.

The Local Coordinator will develop a quality control chart for the project data which summarizes the stations, parameters analyzed, analytical methods, appropriate reporting units, precision, accuracy and completeness. These elements will be summarized in an annual Quality Assurance Report that is submitted to the DANR Quality Assurance Officer (QAO).

Table 1. Summary table of responsibilities and actions required by the DANR External Party Quality Assurance Project Plan.

	Responsibilities	**Frequency**
Local Coordinator	Collecting QA/QC samples	5% of all samples must be blanks, 5% of all samples must be replicates
	Distributing QAPP to field staff	Project start
	Distributing SOPs to field staff	
	Field Training	
	Field Audit	By September 30 of odd numbered years (2019, 2021, etc.)
	Annual QA/QC Report	
DANR Project Officer	Data review	Quarterly
Database Coordinator	Data Approval	Quarterly

All personnel working on the project must be trained to use appropriate quality assurance protocols and it is the responsibility of all project personnel to observe all quality assurance activities stipulated by the Local Coordinator.

Project personnel must review the Quality Assurance Project Plan, the appropriate Standard Operating Procedures manuals, Volume I and Volume II.

The DANR QAO can conduct announced and unannounced audits of all project quality assurance activities. Based on these audits, the DANR QAO can mandate corrective actions and develop corrective action plans.

A5: Problem Definition/Background

This portion of the QAPP is discussed in each Project Implementation Plan (PIPs), monitoring plan, or assessment strategy on account of the broad nature of coverage the External QAPP possess.

A6: Project Description and Schedule

This portion of the QAPP is discussed in each Project Implementation Plan (PIPs), monitoring plan, or assessment strategy on account of the broad nature of coverage the External QAPP possess.

A7: Quality Objectives and Criteria

The external group or party operating within the framework of this QAPP will employ only methods and techniques that have been determined to produce measurement data of a known and verifiable quality and which are of quality sufficient to meet the overall objectives of the water quality monitoring investigation. Data quality objectives and criterion include:

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 preferred. If less than 90% data completeness is obtained, the DANR Quality Assurance Officer will decide if the information is usable. Corrective actions may be issued as appropriate.

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 staff and contracted laboratories to use standardized methods, where possible, including test methods listed in 40 CFR Part 136, standard methods, or documented modifications thereof which 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.

South Dakota Surface Water Quality Standards Chapter 74:51:01:22 states: Laboratory procedures for tests. Tests or analytical procedures to determine conformity with criteria shall be made in accordance with methods approved or references listed in 40 C.F.R. Part 136 (July 1, 2014), guidelines for establishing test procedures for the analysis of pollutants, unless other test procedures are required by the secretary.

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 Local Coordinator 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 US EPA established criteria, the limits are either equal to, or more stringent than, the established limit. For matrices without US EPA established criteria, the laboratories have developed control limits following the procedures published in the US EPA Handbook for Analytical Quality Control in Water and Wastewater Laboratories. It is the responsibility of the Local Coordinator to verify that the laboratory quality control conforms to internal laboratory limits.

Precision

The precision and accuracy of data are determined by particular 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

Accuracy may also be measured by analyzing reference material. The acceptable percent deviations and the acceptable percent recoveries are dependent on many factors including the analytical method used, the laboratory used, the media of sample, and the constituent being measured.

Please refer to Sections 7.0 and 8.0 of the SD DANR WPP-SOP Volume I for measurements of precision and accuracy and specific procedures for corrective actions.

A8: Special Training/Certifications

Proper training of field personnel represents a critical aspect of quality control. Field technicians are trained to conduct field activities using standardized procedures to ensure comparability in data collection among crews 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 trips). By the end of the sampling training trip(s), all crew members must demonstrate proficiency in all the required sampling activities.

It is the responsibility of the Local Coordinator to ensure sampler training is satisfactory and documentation of training is maintained and provided annually with the Quality Assurance Report.

In addition to in-field training and documentation of such training, field samplers are evaluated on their field performance during field QA audits conducted by the Local Coordinator. If any deficiencies are noted during the audit, they will be documented and remedied prior to further field sampling. Quality assurance audit results, as well as the correction of any deficiencies, must be documented and included in the annual Quality Assurance Report.

A9: Documentation and Records

Prior to project start-up, the Local Coordinator will provide project specific sampling sites to DANR staff so they can be entered into the GIS Stations Loc geo-database and DANR project database for pre-printing project specific water quality datasheets to be used during the project. Water quality data will be sent directly from the laboratory to the Local Coordinator and Project Officer with the Project Officer receiving an electronic copy of the data in a format acceptable to the QAO. If necessary, the Local Coordinator will enter data into a project specific spreadsheet file. All the data will be entered into a standardized file format which will be provided to the Project Officers by the Database Coordinator. After a project is completed and the Project Officer is certain of the accuracy of the information, the project file will be uploaded to South Dakotas NR92 database and Water Quality Monitoring Access Portal website.

Reporting

Every two years a Quality Assurance Report describing QA/QC activities and results will be submitted by the Local Coordinator to the Project Officer by September 30 of odd-numbered years (2019, 2021, 2023, etc.). The Quality Assurance Report will include the following information:

- Results of QA/QC samples and analysis. The report must include the results of analysis regarding whether blank and replicate samples meet acceptability requirements.
- A description of field training activities.
- Results of field QA audit(s) conducted by the Local Coordinator.
- A description of any problems, difficulties, or concerns regarding the accuracy and precision of sample or measurement data.

B1: Sampling Process Design (Experimental Design)

Sampling Design

Design of assessment cannot be described because this QAPP does not support a singular project. It could support several contracted projects with many different goals and strategies. For specific project designs reference the project's Project Implementation Plan (PIP) or assessment strategy.

Sampling Schedule

Schedules cannot be described because the nature of multiple project coverage under this QAPP. The schedule for any external party project will be available in the current years PIP.

Sample Collection Stations

The collection stations/sites will be included in the external project PIPs.

B2: Sampling Methods

The sampling methods used on any specific project will follow the DANR Standard Operating Procedures (SOPs). Any diversion from the SOP sampling procedures must be approved by the Project Officer. Field sampling personnel have primary responsibility for responding to and reporting failures in sampling or measurement systems.

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 according to 40 C.F.R Part 136 (July 1, 2014). Samples must be immediately cooled to 6 degrees C.

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.

B3: Sample Handling and Custody

SD DANR WPP typically does not use a chain of custody procedures for water quality monitoring.

Custody procedures for field samplers can be found in the SD DANR WPP-SOP Volume I. Custody procedures for laboratories are presented in their respective quality assurance plans (PIPs), monitoring strategies, and assessment strategies.

B4: Analytical Methods

Analytical methods used for specific parameters are listed in the SD DANR WPP-SOP, Volume I. The parameters must be EPA-approved. Methods, detection limits, and measurement units are agreed upon by the State Health Laboratory and the state. If laboratories other than the State Health Lab are used for sample analysis, the methods, detection limits, and measurement units will be addressed in each project's sampling and analysis plan.

Information on how samples bottles should be labeled can be found in Sections 11.0, 13.0, 15.0, 16.0, 17.0, and 18.0 of SD DANR WPP-SOP Volume I.

B5: Quality Control

Calibration and performance evaluations are used to assess the overall performances of field and laboratory procedures. Quality control checks used in the laboratory are addressed in each laboratory quality assurance manual. At a minimum, the following quality control checks will be utilized for all External Projects:

- Field Blanks
- Replicate Samples
- Control Charts

The Local Coordinator conducts 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.

Equipment blanks will be used to verify that the equipment used during sampling does not contaminate the sample; DI water is filtered through the filtration equipment, transferred to a sample bottle, preserved, and analyzed by the laboratory. The equipment blank is collected at 10 percent of sampling locations. Blank samples meet acceptability requirements if the analyte is not detected in the blank samples.

If acceptability criteria for equipment blanks are exceeded in any parameter, the Local Coordinator will report exceedance to the Project Officer. The Project Officer will review data and discuss results with the QAO and Laboratory Manager to identify and develop corrective action plan(s).

Replicate samples will be collected for all parameters at 10 percent of sampling sites. A sample will be gathered and divided into separate containers to be treated as separate samples throughout the remaining sample handling and analytical processes. Replicate sample quality control is an effort to examine total error (precision) associated with sample heterogeneity, sample methodology, and analytical procedures. Field replicates may be especially important when determining precision for critical samples with contamination concentrations near or above the action level (action level refers to the minimum concentration necessary to require some type of remediation or monitoring).

Precision may be expressed as Relative Percent Difference (RPD) where S=sample and R=Replicate. RPD is used to determine precision when only a small amount of data is available. DANR will use a control limit of 80–120 percent RPD for normally distributed sample parameters with original and replicate sample values greater than or equal to five times the analyte detection limit; or a control limit of plus or minus the analyte detection limit if either the sample or replicate value is less than five times the analyte detection limit. The results for two samples should be compared using the relative percent difference between them (20 percent RPD).

$$RPD = \left[\frac{|S - R|}{S + R/2} \right] * 100$$

Sample parameters VTSS, *E. coli*, and fecal coliform bacteria typically do not display normal distribution. The following technique is used to determine control limits. VTSS, fecal coliform, and *E. coli* bacteria duplicate, and original 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 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 calculated: Mean R=(R1+R2+R3+….Rn)/N.
5) The precision criterion is calculated by multiplying the Mean-R by 3.27 and rounding to the tenths place.
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, Local Coordinators will evaluate equipment blank and replicate results to determine if acceptability requirements have been met. DANR 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 equipment blank or duplicate sample do not meet acceptability criteria, the Project Officer will notify the Local Coordinator and the Laboratory Manager to discuss the issue and to identify and correct the source of error.

If results from replicate or blank samples do not meet acceptability criteria, the Project Officer will notify the Local Coordinator and the Laboratory Manager to discuss the issue and to identify and correct the source of error.

B6: Instrument/Equipment Testing, Inspection, and Maintenance

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. Field and laboratory equipment and instrumentation will be cleaned, visually inspected for damage and if applicable powered up to ensure equipment is in good working condition. All equipment will be properly maintained

following manufacturer's recommendations and checked between sampling periods to minimize equipment breakdown.

B7: Instrument/Equipment Calibration and 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 to be 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. Records of calibration and maintenance must be kept by the person performing the calibration and be accessible for verification during a laboratory or field audit.

Calibration will be performed each day before field work begins. Each field instrument must be calibrated prior to use, and operated according to manufacturer specifications. If problems with any field instrument are encountered, the user should consult the manufacturer's manual, the project officer, and/or call the manufacturer help line. Calibrations procedures are provided in WRAP-SOP Volume I Section 6.0, and instrument observations must be recorded on sample data sheets and/or calibration sheets.

Any equipment that does not meet the manufacturer's specifications for proper function must not be used. Equipment that does not calibrate properly must not be used.

B8: Inspection/Acceptance for Supplies and 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/or laboratory function. Upon receipt of materials or equipment, the Project Officer or Local Coordinator receives and signs for the materials. All equipment is serviced to the manufacture's recommendations. All items are reviewed to ensure the shipment is complete, and they are then delivered to the proper storage location. All items are inspected for the quality of the 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.

B9: Non-Direct Measurements

The use of data obtained from sources other than SD DANR (non-direct measurements) is highly encouraged in data assessment/data interpretation activities, provided the data were collected in projects that were supported by approved and documented standard operating procedures. SD DANR WPP staff must use their professional discretion for the use of data obtained from other sources. The data is usually obtained in electronic format and should be inspected in raw form before data reduction and interpretation. Ideally, other entities collecting data should use SD DANR WPP QAPP, field sampling SOPs, or EPA protocols to collect high-quality field data.

B10: Data Management

Information management occurs on several levels. First, the 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 assess the water quality of the waterbody based on beneficial use, monitor waters of the state, monitor TMDLs, permit compliance, and provide general information to other interested organizations and the general public.

Field data results are recorded electronically by the meter and downloaded on a computer, hand recorded in a field book or recorded on task-specific datasheets.

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 are sent electronically and/or by hard copy (per an agreement between SD DANR WPP and the laboratory) to the appropriate Project Officer.

Field data and laboratory sample data are imported into the SD DANR NR92 SQL and WISKI databases. 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 by the Project Officer, discussed, and reviewed by the SD DANR WPP QAO and assessment Team Leader to develop a corrective action plan and corrected accordingly.

The SD DANR NR92 database is backed up nightly by South Dakota's Bureau of Information Telecommunications (BIT). BIT is responsible for all computer hardware and software within South Dakota Department of Agriculture and Natural Resources and SD DANR WPP. Data is easily stored and retrieved through database functions. Upon request, data in the SD DANR NR92 database are available for use by SD DANR WPP, SD DANR, other agencies, and the general public. The SD DANR WPP Team Leaders, the Database Coordinator and BIT are responsible for data maintenance in the SD NR92 database.

The data must also be imported into EPA's Storage and Retrieval Water Quality Portal database. Currently, EPA is using the Water Quality Exchange (WQX) system for uploading the data. The Database Coordinator is responsible for uploading the data into the Water Quality Portal.

Hard copies of data results, project reports, and other assessment reports are filed in the respective SD DANR WPP office as appropriate for three years, archived in a central location for 5-years, and

C1: Assessment and Response Actions

Assessments will be conducted on a project-by-project basis to ensure the QAPP is implemented as prescribed in each project plan. Assessments for projects will include:

Surveillance - Project Officers will keep in constant contact with the local project sponsors to ensure all QA efforts are being taken. Any questions Project Officers have can be directed to the SD DANR WPP QAO.

Peer Review - Peer review may be performed before a project starts and after a project is completed. Before a project is started, staff members may review the proposal to ensure the objectives and tasks are technically, adequately, and competently designed to meet quality requirements.

After the project is completed the Project Officers may submit the report to staff members with equal or greater experience. The staff members will review the report for completeness, accuracy, and proper documentation.

Management Systems Review - Management systems review will be performed between 1/4 to the mid-point of the task being performed. The purpose of this assessment will be to determine if the processes

and procedures are adequate for the type and quality of data needed for the project. The Project Officer will continually analyze the data collected and determine if quality requirements are being met.

Readiness Review - Readiness Review will be conducted before a project is ready to commence. Readiness review will be comprised of acquiring support letters from local sponsors and other supporting entities. Along with the letters of support, the program staff will ensure all project objectives are capable of being met within set milestones.

Technical Systems Audit - A technical systems audit will be the responsibility of the program Equipment Officer, SD DANR WPP QAO, and Project Officer. The previously mention personnel will be responsible for assessing the equipment needed for each project. It is their responsibility to ensure that the equipment is in working order and will perform the tasks required by the PIP work plan. Once the project is started, it will be the responsibility of the Project Officer to maintain equipment and to communicate with the local coordinator on a regular basis about the condition of the equipment.

Audit of Data Quality - The audit of data quality will be performed along with the peer review and the management systems review. These two processes will ensure the quality of the data being collected.

Data Quality Assessment - Data quality assessments will be conducted at the midpoint and conclusion of each project. Statistical tests will be run on the data collected at the midpoint to ensure the procedures and the amount of data collected is sufficient to meet project objectives.

Access to Information by Region VIII Personnel – Region VIII personnel can find QA/QC information in final report documents or contact the South Dakota Department of Agriculture and Natural Resources Watershed Protection Program Project Officer at (605) 773-4254.

QAPP Review – The SD DANR WPP QAO is responsible for reviewing the SD DANR WPP QAPP annually updating personnel and PIPs as needed.

Internal Systematic Audit – Periodically the SD DANR WPP QAO will perform a systems audit covering all aspects outlined below for full systems audit. This type of audit will be performed approximately every three to four years to evaluate how well SD DANR WPP personnel are following QA/QC procedures.

Systems Audit – A full scale systematic, on-site, qualitative review (audit) of facilities, equipment, personnel, training, procedures, record keeping, data validation, data management and reporting aspects of the SD DANR WPP program will be completed by the SD DANR QAO every five-years to evaluate SD DANR WPP QA/QC procedures.

The EPA project manager or a representative of the Regional Quality Assurance Officer may, at any time, conduct an announced or unannounced audit or review of any data collection and analysis activities associated with assessment and implementation projects. This includes any contracts or subcontracts thereof used in the data collection and analysis effort.

C2: Reports to Management

On an annual basis, the SD DANR WPP QAO will submit a quality assurance report to the SD DANR QAO, who in turn reports the information to EPA and the Program Administrator in an annual report covering all SD DANR programs. The report should include the following:

1) Assessment results of measurement data accuracy, precision, and completeness
2) Results of performance and system audits
3) Quality assurance issues
4) Corrective actions and results
5) List of training activities including dates
6) A list of all QA documents, including status, and if the document is for a new or continuing project; (this would be a list of all SOPs, QAPPs, PIPs, SAPs and indicate if they are new, under revision, or approved)

D1: Data Review, Verification, Validation

The objective of data review is to assess whether or not the data collected achieved the quality objectives of the project. All analytical data generated for external projects by a laboratory undergoes reduction and report preparation by the respective laboratory. Laboratory reports are reviewed by the Project Officer and the QAO for reasonableness. The field data recorded in the laboratory (i.e. date, time collected, depth, site number, etc.) are also checked against field reports for accuracy. If an analyte concentration appears out of the normal range, the Project Officer or the QAO will initiate corrective actions. These actions should include but are not limited to:

The Project Officer will check with the Local Coordinator for any abnormalities which may have been noticed in or around the sample site.

QA Officer, Project Officer, and/or Local Coordinator investigating the area upstream to try to identify what possible causes would be responsible for the outlying concentration.

QA discussion and documentation of data review, verification, validation, and acceptability may be found in the project Quality Assurance Report.

Data review, verification, and validation are the responsibility of the Project Officer and are accomplished by following quality assurance guidelines and criteria addressed in the state WRAP-SOPs Volume I and Volume II.

D2: Verification and Validation Methods

Sample verification and validation will follow the following methods. The local samplers will send the samples directly to a laboratory that uses test methods listed in 40 CFR Part 136. The laboratory will use its approved protocols to track the sample as different test are conducted. Once the analysis is completed, the laboratory will send a copy of the results to the Project Officer. If a non-approved laboratory is going to be used, the protocols must be sent to DANR and approved before samples are analyzed.

The Local Coordinator is responsible for the compilation of the data throughout the entire project. On an annual basis, the Local Coordinator will verify and validate data by QA checking at least ten percent of the total samples entered against original data sheets. In the event that data or audits do not conform to

quality standards, the QAO or Project Officer 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. Upon verification and validation, the data is sent to the Database Coordinator to be uploaded in to the NR92 database and the DANR Water Quality Monitoring Access Portal website.

D3: Reconciliation with User Requirements

Ultimately the SD DANR WPP Project Officer, with the help of department staff, will decide if the data collected will answer the questions stated by the specific task or project. The entire QA process will aid in the formulation of the decision. The Project Officer will rely heavily on the process stated in the SD DANR WPP-SOP.

SD DANR WPP staff will also be valuable in the "completeness" of the data collected. Each final report will state how and if the samples collected answered the project objectives. The report will state the statistical analysis or mathematical equation used to reach the decision. If the data quality objectives have not been met, the final report will state what additional information is needed to complete the process.