

Quality Plan for the Watershed Assessment Section

**Watershed Assessment Section
Florida Department of Environmental Protection
March 2020**

**2600 Blairstone Rd.
Tallahassee, FL 32399
www.FloridaDEP.gov**



Signature Page

The undersigned have read and understood this Quality Plan, are charged with managing and improving the quality system and are responsible for ensuring that all staff properly execute the procedures discussed in the plan.

X

Program Administrator

7/15/2020

X

Kevin O'Donnell

Environmental Administrator

Signed by: Kevin O'Donnell

7/15/2020

X

Justin Mostafa

Team Lead

Signed by: 02114176-8090-418b-801a-075328cc2264

7/15/2020

X

Blake Spencer

Quality Assurance Officer

Signed by: blake.spencer@floridadep.gov

Introduction

The DEP Quality Assurance (QA) program involves the implementation of a management system (planning, review, training, and assessment) to ensure that data collection, generation, interpretation, reporting, evaluation and archiving is of sufficient quality to support department decisions. The effectiveness of our QA program is dependent upon the actions of all DEP staff, from “front line” employees to management, meaning QA is a function distributed throughout our organization. One aspect of our program is to ensure that department QA activities are carried out according to commitments made to the Environmental Protection Agency as enumerated in the DEP Quality Management Plan (QMP) (Draft Revision 9/2/08).

The DEP Secretary is committed to implementation of the quality assurance requirements in the QMP and as authorized at 403.0623 F.S. and Chapter 62-160 F.A.C. (the DEP QA Rule). It is the Secretary’s intent to carry out these obligations and requirements as detailed in the department’s QA Directive (Draft Revision January 2008).

In order to execute the components of the DEP QA Directive, our unit has developed a quality system. This document describes the steps we take to ensure the scientific and legal defensibility of environmental data we generate or use. It details the process of planning, training, execution, assessment and corrective action we undertake to ensure that environmental data meets our established quality criteria.

Basic Elements of Our Quality Plan

Our Quality Plan explains both the process and criteria by which the quality system is managed. The plan is utilized as an instrument of internal communication to inform our staff of current and future quality assurance activities. It discusses how specific QA duties are assigned to responsible staff. We will revise our Quality Plan as needed, and pledge to ensure the consistent application of procedures and criteria for the generation or use of our environmental data. The Quality Plan will also be used as a training document for new staff and as a reference for experienced personnel. The plan and its revisions also serve as an archival record of our formal quality system.

The elements of our plan are consistent with the department’s Quality Management Plan, Quality Assurance Directive and Quality Assurance Rule (62-160 F.A.C.). In addition, we ensure that our plan for all sampling activities, including field-meter testing, is consistent with DEP SOP FA 3300. Our plan addresses all activities associated with sampling, field testing, lab analysis and data review of any type, including those activities associated with database construction and management. Our plan also discusses how decisions about data use are made based on data quality assessments.

Where appropriate, we cite existing internal and external documents, including training manuals, guidance documents, SOPs, Rules, tables, etc.

We expect all staff to understand and follow the procedures and criteria as discussed in this plan, and to carry out their assigned responsibilities for effective utilization of our quality system.

Policy Statement

It is our unit's policy to:

- Use scientifically valid and legally defensible data for our decisions affecting protection of the environment.
- Have and implement the quality system described in this document.
- Adaptively manage our quality system to be consistent with provisions of the DEP Quality Assurance Management Plan.
- Ensure that each individual is properly trained to execute their assigned functions.
- Implement procedures to evaluate the quality of the data we use and to implement corrective actions when data do not meet our Data Quality Objectives.
- Periodically audit the performance and record-keeping practices of data generators we have responsibility for.
- Implement quality assurance procedures for the management of our data repositories.
- Perform a yearly systematic assessment of our quality assurance activities, including any corrective actions, with the findings submitted to the Aquatic Ecology and Quality Assurance Section.

Ethics

All employees of the DEP Watershed Assessment Section (WAS) are held to high professional ethical standards in the performance of their duties. All employees are required to read, understand and sign an 'Ethics Statement' attesting to their commitment to honesty and integrity in performance of their duties. In addition, all employees are required to attend an annual ethics training class. Improper, unethical or illegal actions will be dealt with according to the published Administrative Directives of the Florida Department of Environmental Protection.

Organization and Responsibilities

Our unit resides in the Water Quality Assessment Program (WQAP) within the Division of Environmental Assessment and Restoration (DEAR). See the WAS organizational chart in Figure 1 in the Appendix.

The function of our unit involves implementing and reviewing the Identification of Impaired Surface Waters Rule (IWR), 62-303 Florida Administrative Code (F.A.C.). Surface water quality assessments are made for the entire state in accordance with the IWR and the Surface Water Quality Standards, Rule 62-302 F. A. C.

Responsibilities for existing staff are as follows:

The WAS is headed by the Environmental Administrator (EA), who is responsible for both the technical and administrative direction of the section and is committed to the QA program described in this plan. The EA is supported by Environmental Consultants and Environmental Managers, who manage all direct oversight of the implementation of the Impaired Waters Rule (IWR), Chapter 62-303, F.A.C., and coordinate assessment activities in various geographic areas throughout the state. The EA maintains the DEP Position Descriptions for all WAS employees.

A WAS staff member, Blake Spencer, has been designated as the Quality Assurance Officer (QAO), who coordinates and participates in the quality evaluation of program data and provides oversight to ensure that staff performs their QA functions. The QAO may delegate some responsibilities to properly trained and qualified staff, when appropriate. At times the QAO conducts systems audits of internal and external data generators (lab and field) and conducts sampling performance audits. The QAO also ensures that corrective actions are implemented for data non-conformance incidents as determined by evaluation of the data against our program's Data Quality Objectives. Additionally, the QAO assists program managers in the development of the quality system and other logistical aspects of its implementation, such as coordinating associated training needs.

The QAO documents all program QA activities, including training, audits and corrective actions and provides this information to the DEP Aquatic Ecology and Quality Assurance Section on an annual basis. The QAO also reviews all biological data submitted to the WAS (this process is outlined in the Data Review section below) as external data providers that would not be loading data into SBIO2.

All WAS staff participate in an on-going extensive data review process of both geographic and environmental data related tasks. Data review by section staff are facilitated and supported by additional efforts of the Data Management Section, also known as the Watershed Services Program. Additional data management and data storage are performed by the Environmental Consultants. All WAS staff contribute to the review

of data used to support assessment decisions in the area of the state within the scope of their responsibility.

Our program staff routinely carry out the following duties: data collection, data upload into Laboratory Information Management System (LIMS), the State Biological Database (SBIO2), and the Watershed Information Network (WIN) (previously Florida STORET (STORage and RETrieval)), data usability evaluation, data interpretation in the form of water quality assessments, and the generation of DEP work products in a manner that ensures scientific defensibility and adherence to DEP rules and policies. Our products include assessment lists of impaired waters, Impaired Waters Rule databases, and Geographic Information Systems (GIS) layers. Additionally, the WAS staff compiles the sampling results for federal and state reporting requirements and public distribution. WAS submits all samples for analysis to the DEP Laboratory.

Program staff provide feedback to the program QAO for improving the program quality system.

- The WAS is configured in regional areas of the state so that any staff member can act as liaison with other units, data providers, data consumers or other external parties concerning QA matters.
- Each staff member potentially answers public or external technical inquiries about data interpretation, approved procedures, suspected QA problems, site-specific issues, etc.

Our unit's administrator, Kevin O'Donnell, ensures that this quality system is fully operational within our program, designates our QAO, and provides general oversight. He also evaluates the above Data Quality Objectives and Data Quality Indicators to ensure they meet our program's needs, and periodically evaluates the effectiveness of staff's data quality activities, including reviewing audit results. He evaluates corrective action policies and procedures to be implemented when data do not meet program Data Quality Objectives. He discusses data quality issues such as audit results with the QAO and reviews the annual Quality Assurance Report to the Secretary.

An organizational chart is presented in Figure 1 in the Appendix.

Training

All personnel are properly trained to perform their duties. Supervisors periodically assess that our staff performance conforms with the policies and procedures of our unit.

All WAS employees are required to review the Strategic Monitoring Program Sampling Guidance document (available on the network here <\\publicfiles\pubfds\DEAR\WQAPmonitoring\StrategicMonitoring\Guidance>) on an approximate annual basis and all staff (WAS, DEP ROC, and contracted staff) who are responsible for sample collection for Strategic Monitoring sample collection must routinely utilize the Strategic Monitoring Checklist (Figure 2 in Appendix).

Field samplers performing Habitat Assessments (HA) and Stream Condition Index (SCI) sampling are required to have specific training and demonstrate competency due to the expert judgment exercised during field sampling. Individuals conducting an HA must train with qualified DEP staff (via workshops and participating in field sampling) and remain in “pass” status for field performance tests. Training is conducted using the Habitat Assessment Training Checklist (FD 9000-34). Habitat Assessment testing is conducted at select streams/rivers located throughout the state, and sites change every two years or as needed. All field samplers are required to participate in at least one testing event every two years. At all times, a minimum of one sampler from each sampling team must be in pass status in order to perform a Habitat Assessment.

Field samplers conducting SCI sampling must train with qualified DEP staff (via workshops and participating in field sampling) and pass an online SCI knowledge test and field performance audit to demonstrate competence. After passing the initial performance audit, samplers must pass a refresher audit every 5 years to remain in pass status. Training is conducted using the SCI Training Checklist (FD 9000-35). SCI audits are administered by the Water Quality Standards Program. At all times, a minimum of one sampler from each sampling team must be in pass status in order to collect an SCI sample.

Field samplers are also encouraged to obtain training on Global Navigation Satellite System (GNSS) / Global Positioning System (GPS) devices, Class I Watercraft and Trailer Operation (only necessary to act as a boat operator or drive a vehicle towing a boat), and safety training.

A list of all sampling personnel and their respective water quality sampling training is maintained internally within the Section, and their training is consistent with FA 3100. Furthermore, training records are maintained on each WAS employee who is trained in skills that are commensurate with their responsibilities (including non-field related trainings).

Sampling Design and Procedures

To achieve the data sufficiency requirements necessary for basin assessments, the WAS develops Strategic Monitoring Plans (SMP) each fall prior to the year of sampling. By prioritizing monitoring efforts in specific basins, the department can contribute to ongoing sampling efforts and focus on collecting data where there may be shortfalls. These activities are carried out by seven Regional Operation Centers (ROCs) located throughout the state and by staff in the WAS. This extensive monitoring effort is accomplished through coordination with water management districts, city and county governments, and other organizations. The current Strategic Monitoring Plans for each region of the state can be found at <https://floridadep.gov/dear/watershed-assessment-section/content/strategic-monitoring-plans>.

The primary objective of the SMP is to assure that all waters on the Planning List have sufficient data to be assessed using the IWR methodology. This data is used to assess waterbody health and to develop and implement TMDLs. Sampling is based upon specific parameters for each particular waterbody (WBID). For detailed explanation of required sampling regiments, please read *Strategic Monitoring Program Sampling Guidance*. You will find it in the SMP folder. Additionally, the WAS Strategic Monitoring procedures can be found in the Appendix (Strategic Monitoring Checklist).

Successful implementation of our program relies on valid data, which begins with proper sampling. Therefore, our unit performs the following activities concerning sampling:

- Curtis Musson designs sampling plans via the SMP and WAS staff rotate scheduled field work.
- All WAS staff are responsible for reviewing DEP SOPs for compliance with QA plans and requirements.
- Each Environmental Specialist manages or conducts sampling, field-testing and associated support operations. Curtis Musson and other Environmental Consultants have participated in field work when there was a need, but it is a requirement for each Specialist to become Stream Condition Index (SCI) and Habitat Assessment (HA) Certified so that they can lead and collect biological sampling.
- The WAS SMP Data Entry and Quality Control Process is outlined below:

Internal (WAS) Sampling Process

Field samplers (potentially any member of WAS):

- Calibrate the YSI meter every morning and record the calibration into the YSI calibration log before going out into the field.
- After each parameter is calibrated, they make sure to do an initial calibration verification (ICV) and record it in the YSI calibration log.
 - We perform a 3-point calibration for pH with 7.0, 4.0, and 10.0 standard buffers.
- Calibration requirements are consistent with other WQAP Sections. See Table 1 in the Appendix for a summary of the calibration requirements for instruments used to collect field data.
- After returning from the field, they make sure to check the continuing calibration verification (CCV) on the YSI meter to determine if any parameter should be “J” qualified.
- Make sure to note in the YSI calibration log and on the field sheets if any parameters should be “J” qualified because the YSI does not pass the continuing calibration verification (CCV).
- Check over field sheets to ensure that they are filled out completely and accurately.

Blake Spencer

- Enters field parameters into the LIMS Data Merge Tool (DMT).

- Makes sure to note any “J” qualified parameters in the DMT.
- Sets up SBIO station visits if biology is collected (HA, LVS, RPS, SCI, & LVI).
- Records the SBIO ID on all field sheets.
- Enters biology into SBIO2.
- Double checks field sheets to ensure everything is filled out completely and accurately.
- Records initials and date that data was entered on all field sheets.

Avril Wood-McGrath

- QC’s all data entered into the LIMS DMT and SBIO2 (if applicable).
- Checks field sheets to ensure everything is filled out completely and accurately.
- Makes any necessary changes to mistakes that were made in the data entry process.
- Double checks field sheets to ensure everything is filled out completely and accurately.
- Records initials and date that data was QC’d on all field sheets.
- Scans all field sheets and places in the appropriate folders (\\publicfiles\pubfds\DEAR\WQAPmonitoring\StrategicMonitoring) on the network.
- Gives biology field sheets to Curtis to Authorize in SBIO2 to ensure the data was entered and QC’d.

David Tyler

- Uploads data into WIN (previously STORET). He ensures field data remark codes such as “J” and “R” are accurately associated with the WAS (organization code 21FLWQA) data.

Curtis Musson

- When David is finished, he gives the field sheets to Curtis. Curtis checks that everything was loaded into WIN correctly. All field sheets are filed in Curtis’s office for storage.

Equipment and Instruments

All equipment (and associated standards/buffers) used and maintained by the WAS for calibration procedures are based on procedures outlined in the DEP SOPs (DEP-SOP-001/01 FT 1000, FT 1100, FT 1200, FT 1300, FT 1400, FT 1500, and FT 1600) and meet all DEP SOP specifications for accuracy, reproducibility and design.

Calibration and Standards

Field instrument calibration follows the requirements for frequency and acceptance criteria as outlined in FT 1000, and the FT Series of the DEP SOPs.

All standards and buffers used in calibration procedures are documented in a log book and records are maintained in an Excel Spreadsheet by appropriate staff. The acceptability of field supplies and equipment are specified in FC 1001, FC 1002, FD 2000, FT 1000 and the FT series of the DEP SOP. In particular, all records are maintained per FT 1000, the FT Series and FD 1000 of the DEP SOPs. Per FT 1000 and FD 1000, calibration standards and the calibration procedure are traceable to each instrument. The field meter calibration acceptance criteria are available in Table 1 in the Appendix.

Equipment Maintenance

Preventive and corrective maintenance follow FS 1007, FT 1000, and the FT Series of the DEP SOPs. All instruments and equipment used for sample collection and calibration procedures are maintained and cleaned on an as-needed basis and all associated documentation regarding maintenance and cleaning is recorded in log books. All equipment cleaning/decontamination is based on DEP SOPs (DEP-SOP-FS 1001 and FC 1000). WAS uses and maintains one YSI meter. Calibration standards are purchased by the Tallahassee ROC staff. All instrument and equipment maintenance are based on recommendations made in the individual FT series of the DEP SOPs and manufacturer recommendations.

Hazardous Waste Disposal

Waste disposal is consistent with FS 1011 of the DEP SOPs.

Equipment

Any combination (or all) of the equipment listed below may be used by WAS for surface water sample collection:

- Van Dorn sampler (or similar)
- Secchi disk
- Measuring tape
- Compass
- Depth recorder
- YSI multi-probe (or similar) and all associated standards and buffers
- GPS equipment (Trimble, Garmin, data logger)
- Additional non-equipment supplies (cleaning materials, buckets, gloves, filters, syringes, preservatives, brushes, camera, etc.)

Any combination (or all) of the equipment listed below may be used for biological sampling; such as for benthic macroinvertebrates (Stream Condition Index), macrophytes (Linear Vegetation Survey) and periphyton sampling (Rapid Periphyton Survey):

- D-Frame Dipnet with #30 mesh and handle marked in 0.1m increments
- Two 4-Liter wide-mouth plastic jugs
- Buffered formalin

- Brush
- Permanent Marker
- 100 Meter Tape
- Flagging Tape
- Secchi Disk
- Aquatic & wetland plant identification manuals
- Boat, canoe, or gheenoe (if non-wadeable site)
- Plastic bags
- Permanent marker
- Cooler and ice
- Linear Vegetation Survey Field Sheet (FD 9000-32)
- Completed Physical/Chemical Characterization Field Sheet (FD 9000-3)
- Completed Stream/River Habitat Sketch Sheet (FD 9000-4)
- Completed Stream/River Habitat Assessment Field Sheet (FD 9000-5)
- Ruler to measure a 10 cm distance
- Rapid Periphyton Survey Field Sheet (FD 9000-25)
- Spherical Densiometer (concave or convex)
- Personal Floating Devices
- Paddles
- Frotus
- GPS equipment (Trimble, data logger)
- Hand Lens
- Binoculars
- Lake Vegetation Index Field Sheet (FD 9000-27)
- Completed Lake Observation Field Sheet (FD 9000-31)

For sediment sample collection, any combination (or all) of the equipment listed below may be used:

- Stainless steel petite ponar
- Stainless steel Ekman dredge
- Scoops or spoons
- Secchi disk
- Measuring tape
- Compass
- Depth recorder
- Turner Fluorometer
- YSI multi-probe (or similar) and all associated standards and buffers
- GPS equipment (Trimble, data logger)
- Additional non-equipment supplies (cleaning materials, buckets, gloves, filters, syringes, preservatives, brushes, camera, etc.)

Data Review

Our program understands the need to evaluate the quality of environmental data prior to making decisions. We conduct the following review procedures to determine the usability of data for determination of use support for state surface waters. These procedures are based on our established Data Quality Objectives and Data Quality Indicators, and incorporate the concepts and criteria found in DEP's "Process for Assessing Data Usability", DEP-EA-001/07. The WAS reviews and assesses the quality of the data being generated by employing quality control measures for both field and laboratory parameters.

Data Reduction

There is relatively little data reduction required for the metered parameters measured by the WAS. Most parameters (dissolved oxygen, temperature, conductivity, pH, salinity, and water level) are read directly from the instrument and entered onto the field data sheet. Each field sheet includes the name of the sampling team members (not initials) and the role they played in the field (WQ Measurements, Sample Collection, Documentation, Preservation, Preservation Check). Data recorded on field sheets are uploaded to the appropriate database (LIMS or SBIO2) by the QAO and scanned for recordkeeping and to aide verification by a second staff member.

Data Verification

Raw field data are reviewed by the lead sampler and the project manager. Field logs and previously collected field data are reviewed for obvious problems or errors.

Each field sampler and the SMP Coordinator are responsible for determining that the results of each analytical determination have all associated QC measurements and that the acceptance criteria are met and documented according to protocol. The field samplers and SMP Coordinator are responsible for checking calculations, completing sample preparation, calibration, analysis and instrument logs, and completing all internal custody documentation.

The data verification procedures consist of all the QC validations and calculations checks discussed in the DEP Laboratory Quality Manual. Samples that are analyzed by the lab with G, L, O, Q, V (with some exceptions), Y, and ? data qualifiers will need to be resampled.

Data Validation

Once the reconnaissance, field and lab data are received by the WAS, the field and lab data are entered into the LIMS. The data are then reviewed by the data generators and then are uploaded to WIN. Specific data correction requests are submitted to the WIN/STORET Manager or appropriate Coordinator. Any additional problems identified with the data should be documented in the project comments.

Data Use for Impaired Waters Assessment

The function of our unit involves conducting and/or reviewing IWR assessments as part of the state's waterbody restoration program for impaired waters. For a detailed description of how water quality data collected for the identification of impaired surface waters of the state is used in the impaired waters assessment, please see the biennial Integrated Water Quality Assessment for Florida: 305(b) Report and 303(d) List Update available on the section's webpage at:

<https://floridadep.gov/dear/bioassessment/documents/integrated-303d305b-report-2018>

Additional information on the use of water quality data in the impaired waters assessment is described EPA's webpage: <https://www.epa.gov/tmdl/impaired-waters-and-tmdls-southeast-region-4>

Quality Control Measures

WAS uses several quality control measures to ensure high-quality data are collected and analyzed within the section. Quality control samples assess the accuracy and precision of sampling and analytical techniques. The accuracy of field test measurements is reflected in the acceptance criteria for continuing calibrations as specified in the FT series of the DEP SOPs. Additionally, the quality control procedures are consistent with FQ 1000 (blanks, duplicates and other QC samples) and FT 1000 (calibration requirements and acceptance) of the DEP SOPs. These quality control measures apply to data collected by WAS staff, but cannot be validated for all water quality data collected by other sampling entities that may potentially be used in the Impaired Waters assessment. Each of these entities is responsible for adhering to the DEP QA Rule and SOPs as data providers to the agency.

Field Quality Control

Sampling personnel collect and submit three types of blanks to the DEP Laboratory based on the type of equipment used to collect the actual water chemistry samples. All blanks are collected based on the number of samples collected for a specific project over a specific period of time (typically 5%). All blanks are collected using analyte-free (de-ionized) water and are collected in the same manner as actual samples. Equipment blanks are collected each time an intermediary device is used to collect a sample (e.g. horizontal sampler or ponar dredge). Field blanks and duplicate samples are collected 5% of the total samples for the year (1 in 20 samples at least).

Laboratory Quality Control

In addition to the extensive quality control measures the DEP Laboratory uses internally, the WAS is available to participate in evaluating the quality of the data being generated by the laboratory.

Quality Control Criteria

The results for each quality control measure are assessed using specific acceptance criteria.

For all blank samples submitted to the lab, results must meet specifications detailed in the DEP Laboratory Quality Manual available at: <http://publicfiles\PUBFDS\DEAR\Labs\sas\library\qualityplans>. Please refer to the DEP laboratory Quality Manual for laboratory guidelines concerning corrective action.

Specific QC measures that initiate corrective action and the types of action that will be taken are listed in Table 2 in the Appendix. Corrective action procedures are consistent with FA 3000 of the DEP SOPs.

External Biological Data

Biological data are being submitted to the WAS and our process for evaluating its representativeness and usability are outlined below.

External Biology Review Process

- 1) Receive email that a provider will be submitting bioassessment data (biology and floral data).
 - a. Usually the email goes to Kevin O'Donnell via the prompt on the website.
 - b. Person forwards the data to Raymond Stuart for Initial QA/QC.
 - c. Kevin will respond with template email thanking the data provider for submitting data and a statement about the data needing to pass a level of QA/QC before it can be used in the next IWR Run.
- 2) Data is put into **Submitted Data** folder on the network.
 - a. Raymond completes initial QA checks.
 - b. Raymond moves the data to the **To Be QA'd** folder.
 - i. Raymond emails Kevin, Curtis, Blake and Team Leads that there is data ready to be QA'd and provides GIS station list.
 1. Team Leads ensure stations in their respective areas are reviewed for representativeness and that Blake is notified when station columns are populated in the *ExternalBioData* spreadsheet with the results of the review (**STATION QA RESULT, STATION QA'D BY (3 INITIALS), STATION QA DATE, STATION QA COMMENT**).
 2. If station found to be not representative Blake marks station as a QA Fail in the spreadsheet; if it was determined to be representative, he will then begin the final QA Review.
- 3) Blake completes final QA Review by populating the **FINAL QA RESULT (PASS/FAIL), QA'D BY (3 INITIALS), QA DATE, and FINAL QA**

COMMENT columns in *ExternalBioData* spreadsheet and moves the data to the appropriate location within the **QA Complete** folder.

- 4) Kevin will follow up with the data provider with final outcome template email - are we using all of their data? Were there some QA/QC fails?
 - a. We can filter the *ExternalBioData* spreadsheet to attach to the email which includes which samples were not used and why.

Documentation

Sample documentation is a critical data quality objective of the WAS field surveys. Data gathered on these projects is entered into LIMS, WIN, and SBIO2 and must be properly linked to historical data, i.e. updates shall be made to existing station identifications (e.g. historical STORET ID). The WIN database is also a source of public information and is used for a variety of purposes. The data must be accurate to avoid incorrect evaluations and decisions on the state's water resources. All DEP WAS documentation requirements are based on the DEP SOPs cited in the QA Rule Chapter 62-160, available at: <https://www.flrules.org/gateway/ChapterHome.asp?Chapter=62-160>.

Generation, Preservation and Storage of Records

Sample documentation begins in the DEP Laboratory. A label is placed on each container with the request (RQ) number, the major analyte group, a notation if filtration is required, and the preservation method.

All field documentation is recorded on appropriate field sheets, which are supplied by the DEP WAS. Samplers are required to ensure that the most current versions are used by observing the date printed on the forms and comparing that date to the date listed for the form in the current version of the WAS Quality Manual.

All paper documentation records must be recorded in ink or pencil if using waterproof paper. Erasing or obliteration of records is not permitted. Corrections are made by marking a single line through the error so that it is still legible, and the initials of the individual performing the correction are included. All documentation records are required to be legible.

All documentation requirements regarding initial activities performed by the Laboratory (container preparation, supplying sampling kits, RQ information, etc.) are generated, preserved and stored internally by appropriate lab personnel.

All documentation regarding sampling procedures are generated, preserved and stored electronically (and by hard-copy) by the DEP WAS QAO, the WAS EA, or the assigned designee.

All documentation regarding data management and review is generated, preserved and stored by Philip Homann in the appropriate database software programs.

Documentation Control and Maintenance

All documentation generated by the WAS is controlled and maintained in essentially two manners. All documentation includes a revision date or version number to indicate date(s) of use and to ensure the most current version of the documentation form is being used or referenced. Furthermore, all documentation contains documentation control blocks such as page numbers and section headings used to identify completeness. Current documents such as standard operating procedures shall be followed. Ensuring the use of current procedures is consistent with FA 1000, FC 1000 and FD 1000 of the DEP SOPs and Rule 62-160.210 F.A.C.

Types of Documentation/Reports Generated/Record Storage and Archiving

The WAS generates several types of documentation and reports that are listed below. Record keeping practices are consistent with Rules 62-160.240(1) and 62-160.340(1), F.A.C., and FD 1000 of the DEP SOPs.

Documentation related to Field Surveys includes

- field sheets (ground water, surface water, sediment)
- custody sheets
- labels
- digital photos
- permission forms
- log books (calibration, standards and buffers, equipment maintenance and equipment cleaning)
- inventory sheets
- field audit forms

Reports

- Quality Assurance Reports
- 303(d) IWR Lists
- 305(b) Integrated Reports to satisfy section 106 reporting requirements to EPA
- TMDL Report input (specifically Chapter 2 Description of Applicable Water Quality Standards and Pollutants of Concern)
- TMDL Not Needed (for example, 4c Natural Condition Documentation)
- Annual QA Report
- Reasonable Assurance Reports (RA Plan)

Storage and Archiving:

All records shall be retained for at least 5 years after the completion of the project. All data will be maintained in hard copy form and/or electronically. Hard copies are typically kept in the WAS project files (office storage). Data from very large projects will be kept in the project files for at least three years and then archived in the department's archive file system (warehouse).

Equipment

- Temperature Verification Logbook
- Depth Verification Logbook
- Maintenance Logbook

Sample Identification and Data Integrity

Procedures to ensure accurate sample identification begin with proper sample nomenclature. Sample custody is consistent with and follows the DEP SOPs.

Once stations and samples are properly named, accurate sample identification continues with the samples in the LIMS. The sample identification process continues with additional documentation procedures involving the field sheets and custody sheets by including site labels on each form. Accurate sample identification and data integrity remains intact throughout the data review and data analysis process. Refer to the DEP Laboratory Quality Manual for specific details regarding scheduling available at:

<http://publicfiles\PUBFDS\DEAR\Labs\sas\library\qualityplans>

Confidentiality

All records and documents generated by the DEP WAS (except those associated with private property landowners who do not wish to have their personal information disclosed) are public records and may be subject to disclosure according to the guidelines and exceptions published in Chapter 119 of Florida Statutes.

Contract Management

Our program ensures that the DEP contracts that we administer are properly managed to assure appropriate data quality. The WAS does not currently have any contracts; however, there are two purchase orders that the WAS manages for fish sampling by the Fish and Wildlife Conservation (FWC) and four Shellfish Environmental Assessment Section (SEAS) offices (Apalachicola, Cedar Key, Panama City, & Melbourne (Palm Bay)) and four Aquatic Preserve groups (Big Bend, Guana Tolomato Matanzas (NERR), Rookery Bay, & Central Panhandle) that collect data (field parameters and bottle samples) for WAS.

As we receive results from these entities sampling under our purchase order agreements, we audit their submissions with field sheet and records reviews. Data are uploaded under the WAS organization code. We have had to implement corrective actions in the past such as; communicate the correct procedures, qualify data or request a resample, and we have requested a formal QA training for the entity from the Aquatic Ecology and Quality Assurance Section (AEQAS) in the past.

Audits and Corrective Actions

Audits provide objective feedback concerning the effectiveness of our program's quality system and may identify areas in need of improvement. Therefore, our unit performs the following activities as discussed below:

Corrective Actions

The personnel responsible for assessing each quality control measure and initiating corrective action if needed are the designated quality assurance officers for the WAS and the DEP laboratory. All corrective action procedures are consistent with FA 3000 of the DEP SOPs. Specific QC measures that initiate corrective action and the types of action that will be taken are listed in **Table 2** below.

Notification of personnel of problems and corrective action can be on several levels. Generally, oral communication among QA Officers initiates corrective action. In the event a problem fails to be remedied, written communication among the QA Officers will serve official notice of the need for corrective action. Official memoranda between project managers, who are also the contract managers, may be used in the event that corrective action is not being implemented.

Reviews and audits of sampling operations by DEP personnel are welcomed. Corrective action recommended by DEP personnel, depending on its nature, may be implemented immediately or at the beginning of a new year. Please refer to the DEP Laboratory Quality Manual for laboratory guidelines concerning corrective action.

Procedures for Reporting Data Deviations

The reporting of unacceptable results (failure of calibration, holding times, etc.) is consistent with the reporting requirements outlined in the FT 1000 series. Significant deviations from standard policies or practices of the WAS are reported to the data generators and documented with the review reports. Any samples that are prepared or analyzed beyond accepted holding times have a comment and a lab qualifier (remark code) associated with that sample. Similarly, the failures of any quality control checks are noted as comments with the data. All other significant observations that do not conform to accepted practices or policies are documented and reported along with analytical results. Those documents may be in the form of letters, interoffice memorandum, appendices to reports or comments in the WAS database.

Audits and Annual Report to Management

The Annual QA Report will be prepared by the WAS's QAO and submitted to the EA. Reports to management are consistent with the procedures outlined in FA 3250 of the DEP Field SOPs. The WAS QAO will provide information for the report identified in the

list of items below. There are currently no regularly scheduled audits from external sources.

Consumer Relations

Review of Proposed Work

Proposed field sampling is scheduled under the supervision of the EA. An internal field sampling schedule is available to Section personnel on a calendar posted on the network drive. Proposed laboratory work is scheduled through LIMS. Review of work products includes internal agency review for reports written to satisfy requirements not limited to but including Sections 305(b), 106, and section 606 of the Clean Water Act. Further review of reports is provided by regional program administrators at EPA region 4 in Atlanta, Georgia. Other reports, assessment lists, maps, and presentations generated for public distribution are reviewed by immediate supervisors, internal program staff and Administrators.

Report Compilation

To provide the Secretary with information regarding DEP's ongoing QA efforts, our unit describes and compiles the results of all appropriate QA activities, and relays it to the Aquatic Ecology and Quality Assurance Section for an annual report.

Appendix

Figure 1. Watershed Assessment Section Organizational Chart

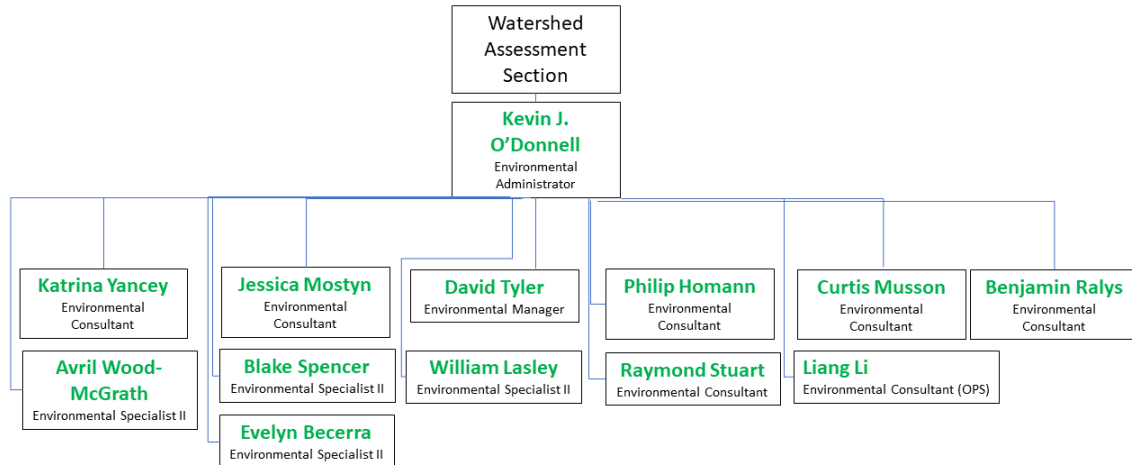


Table 1. Field Meter Calibration Requirements.

Parameter	Number of Decimal Places to Record	Calibration / Verification Frequency	Acceptance Criteria
pH (FT 1100)	All Digits Displayed	<u>Daily</u> : IC, ICV, CCV.	± 0.2 SU
Specific Conductance (FT 1200)	All Digits Displayed	<u>Daily</u> : IC, ICV, CCV.	± 5%
Dissolved Oxygen (mg/L) (FT 1500)	All Digits Displayed	<u>Daily</u> : IC, ICV, CCV.	± 0.3 mg/L
Dissolved Oxygen (% saturation)	All Digits Displayed	N/A	N/A
Temperature (FT 1400)	All Digits Displayed	<u>Quarterly</u> : CCV.	± 0.5 °C

Turbidity (FT 1600)	All Digits Displayed	<u>Daily:</u> CCV. <u>Quarterly:</u> IC, ICV, secondary standard verification.	0.1 – 10 NTU: $\pm 10\%$; 11 – 40 NTU: $\pm 8\%$; 41 – 100 NTU: $\pm 6.5\%$; > 100 NTU: $\pm 5\%$
Depth	<u>Calibrations</u> & <u>Verifications:</u> 2 for electronic devices; 1 for manual devices. <u>Field Measurements:</u> 2 if total depth < 0.6 m; 1 if total depth ≥ 0.6 m	<u>Daily:</u> IC, ICV for Sondes. <u>Quarterly:</u> Verify Sondes & Electronic Devices. <u>Every 6 months:</u> Inspect Manual Devices.	<u>ICV:</u> $\pm 5\%$ or ± 0.05 m, whichever is greater. <u>Electronic Device</u> <u>Verification:</u> $\pm$ 10%. <u>Line Increments:</u> $\pm 10\%$. <u>Total Length of Lines:</u> $\pm 5\%$.

IC = initial calibration; ICV = initial calibration verification; CCV = continuing calibration verification; N/A = not applicable.

For all parameters except depth, report instrument reading to the resolution specified by the manufacturer (report all digits displayed). For depth, follow the rounding rule: if the next decimal place is 0, 1, 2, 3, or 4 the value is rounded down (e.g. 5.14 becomes 5.1), if the next decimal place is 5, 6, 7, 8, or 9 the value is rounded up (e.g. 5.15 becomes 5.2).

Figure 2. Strategic Monitoring Checklist

Before Sampling

- ☐ Create a WIN station
 - ☐ If applicable create a new SBIO station
- ☐ Create a WBID and Station folders in the appropriate year, organization, location in the Strategic Monitoring folder on the FTP.
- ☐ Create LIMS RQ
- ☐ Save RQ in the appropriate year, organization, RQ folder location in the Strategic Monitoring folder on the FTP.
- ☐ Schedule site in the Monitoring Activities Tracker.
- ☐ Print labels and field sheets
- ☐ QC labels. Site name and WIN ID need to match WIN exactly. Use WIN ID for the Field ID.
- ☐ QC field sheets (if using prefilled field sheets) Site name and WIN ID need to match WIN exactly.

During Sampling

- ☐ Fill out the field sheets(s) completely and correctly. Sign completed field sheets. Attach sampling labels to sheet.
- ☐ Fill out Lab Submittal Form completely and correctly. Attach sampling labels to Submittal Form. If there are errors on the label do not use them on the submittal form.

After Sampling

- ☐ Review field sheets. Make sure they are filled out completely, correctly and signed.
- ☐ Update SMP sample tracker
- ☐ Scan and save meter calibration log
 - ☐ Scan/save daily calibration logs shortly after event
 - ☐ Scan/save temperature and depth calibration logs when applicable

- ☐ Enter Date Collected in the Monitoring Activities Tracker.
- ☐ Enter field data into LIMS DMT
 - QC WIN Station ID, Field ID, Date, Time in LIMS DMT
 - Initial and date the field sheet
- ☐ Enter Bioassessment data in to SBIO2
 - Create Station Visit
 - Update field sheet and bioassessment forms with SBIO ID
 - If LVS is less than 2 square meters check the LVS < 2 SQM box.
 - Enter Habitat Assessment, RPS, PhysChem and Macrophyte data
 - Update field sheet and bioassessment forms with HA, RPS and Macrophyte ID
 - Note entered, Initial and date the bioassessment forms.
- ☐ Upload pictures to the appropriate year, organization, location in the Strategic Monitoring folder on the FTP.
- ☐ QC the information in the LIMS DMT, not to be done by the person that entered the data.
 - Field Data, WIN Station, Field ID, Date, Time
 - Initial and date the field sheet
- ☐ QC SBIO data. Not to be done by the person that entered the data
 - Note QC'ed, Initial and date bioassessment form.
- ☐ Scan/save field sheets, Submittal forms, CofC's, bioassessment forms and calibration log to the appropriate year, organization, WBID, Station folder in the Strategic Monitoring folder on the FTP.
 - Initial and date the field sheet
- ☐ Authorize SBIO data
 - Note Authorization, Initial and date bioassessment form.
- ☐ Merge LIMS data in to WIN
 - Initial and date the field sheet
- ☐ Verify data is in WIN
 - Under the correct Station
 - Under the correct WBID
 - Initial and date the field sheet
- ☐ File hard copies of field sheets and calibration logs for long term storage.

Table 2 – Corrective Action

QA/QC MEASURE	CRITERIA FOR CONCERN	CORRECTIVE ACTION
Field Blank	Any value > Method Detection Limit	Analyte-free water source and storage Equipment storage Sample custody
Equipment Blank	Any value > Method Detection Limit	Cleaning procedure Analyte-free water source and storage Equipment storage Sample custody
Performance (laboratory)	Results exceed targets for accuracy in Lab QA Manual	Lab notification