Quality Plan for the
Water Quality Standards Program
Division of Environmental Assessment and Restoration
Florida Department of Environmental Protection

Revised November 2025

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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.

Program Administrator
Nijole Wellendorf

Signature: Nijole Wellendorf Digitally signed by Nijole Wellendorf Date: 2025.12.12 16:10:21 -05'00'

Environmental Administrator
Kaitlyn Sutton

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Environmental Administrator
Jessica Patronis

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Quality Assurance Officer
Jessica Patronis

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List of Acronyms and Abbreviations

AEQAS	Aquatic Ecology and Quality Assurance Section
AGP	Algal Growth Potential
BMAP	Basin Management Action Plan
BMP	Best Management Practices
BOD	Biochemical Oxygen Demand
CFU	Colony-Forming Unit
DEAR/Division	Division of Environmental Assessment and Restoration
DMS	Division of Management Services
DMT	Data Merge Tool
DO	Dissolved Oxygen
DOH	Department Of Health
DQI	Data Quality Indicators
DQO	Data Quality Objectives
DSL	Division of State Lands
EA	Environmental Administrator
ELCP	Environmental Laboratory Certification Program
EPA	Environmental Protection Agency
ERC	Environmental Regulation Commission
FAR	Florida Administrative Register
FCCM	Florida Certified Contract Manager
DEP/department	Florida Department of Environmental Protection
GIS	Geographic Information Systems
HA	Habitat Assessment
ICP	Inductively Coupled Plasma
IWR	Impaired Waters Rule
LCS	Laboratory Control Spike
LFB	Laboratory Fortified Blank
LIMS	Laboratory Information Management System
LMS	People First Learning Management System
LVI	Lake Vegetation Index
LVS	Linear Vegetation Survey
MDD	Minimum Detectable Difference
MDL	Method Detection Limit
MFMP	MyFloridaMarketPlace
MS	Matrix Spike
NELAC/TNI	National Environmental Laboratories Accreditation Conference / The NELAC Institute
NNC	Numeric Nutrient Criteria
NTU	Nephelometric Turbidity Unit
OFW	Outstanding Florida Waters

OGC	Office of General Counsel
ONECT	Online New Employee Compliance Training
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PCU	Platinum-Cobalt Units
PFD	Personal Floatation Devices
PO	Purchase Order
PQL	Practical Quantitation Limit
QA	Quality Assurance
QAO	Quality Assurance Officer
QAPP/QA Plan	Quality Assurance Project Plan
QC	Quality Control
QMP	Quality Management Plan
qPCR	Quantitative Polymerase Chain Reaction
ROC	Regional Operations Centers
RPS	Rapid Periphyton Survey
RQ	Requisition number
SCI	Stream Condition Index
SDS	Standards Development Section
SERC	Statement of Estimated Regulatory Cost
QoSN	Quality of Science Newsletter
SOP	Standard Operating Procedure
SSAC	Site Specific Alternative Criteria
STORET	Florida data Storage and Retrieval System
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TP	Total Phosphorus
TREEO	University of Florida's Center for Training, Research and Education for Environmental Occupations
TS	Total Solids
TSS	Total Suspended Solids
UAA	Use Attainability Analyses
WBID	Waterbody ID
WIN	Watershed Information Network
WMD	Water Management District
WQBEL	Water Quality Based Effluent Limit
WQSP/Program	Water Quality Standards Program
WWTP	Wastewater Treatment Plant
YSI	Yellow Springs Instruments

1. Introduction

The Water Quality Standards Program (WQSP or Program) has developed this quality plan to ensure the implementation of a quality system when conducting WQSP activities, including carrying out the WQSP's role in quality assurance oversight for the department. The WQSP includes the Aquatic Ecology and Quality Assurance Section (AEQAS) and the Standards Development Section (SDS), and this document pertains to both sections. This document describes the steps WQSP staff take to ensure the scientific and legal defensibility of environmental data generated or used by the Program. It details the processes that Program staff use to ensure that environmental data meet established quality criteria.

AEQAS is responsible for coordinating the Quality Assurance (QA) program for the Regulatory, Ecosystem Restoration, and Land and Recreation program areas of the Florida Department of Environmental Protection (department or DEP). AEQAS QA staff oversee the implementation of a management system (planning, review, training, and assessment) to ensure that data collection, generation, interpretation, reporting, evaluation and management are of sufficient quality to support department decisions. The effectiveness of the department's QA program is dependent upon the actions of all department staff, from "front line" employees to management, meaning QA is a distributed function throughout our organization. AEQAS QA staff ensure that department QA activities are carried out according to commitments made to the Environmental Protection Agency (EPA) as described in the department's Quality Management Plan (QMP), Revision 9 (4/21/20). AEQAS establishes and revises QA requirements for the department, as established in Chapter 62-160 (Quality Assurance Rule), Florida Administrative Code (F.A.C.), including maintaining the incorporated DEP Standard Operating Procedures (SOP). AEQAS is also responsible for the bioassessment functions of the Division. The section maintains the bioassessment SOPs, coordinates training for DEP staff and outside agencies, coordinates proficiency demonstrations for bioassessment methods, and conducts studies to improve the bioassessment tools.

The SDS is responsible for reviewing, establishing, and revising state surface water quality standards as established in the following Rule references:

- Chapter 62-302, F.A.C. (Surface Water Quality Standards),
- Chapter 62-4, F.A.C.:
    - Rule 62-4.242, F.A.C.- Antidegradation Permitting Requirements; Outstanding Florida Waters; Outstanding National Resource Waters,
    - Rule 62-4.243, F.A.C.- Exemptions from Water Quality Criteria,
    - Rule 62-4.244, F.A.C.- Mixing Zones: Surface Waters,
    - Rule 62-4.246, F.A.C.- Sampling, Testing Methods, and Method Detection Limits for Water Pollution Sources,
- Chapter 62-303, F.A.C. (Impaired Waters Rule), and
- Chapter 62-304, F.A.C. (Total Maximum Daily Loads).

The components of Florida's water quality standards include: classifications and uses, criteria, the antidegradation policy, moderating provisions, and special protection of certain waters (Outstanding Florida Waters, OFWs). The section also reviews petitions for waterbody use

classification changes via Use Attainability Analyses (UAA), petitions for OFW designation and Site-Specific Alternative Criteria (SSAC), and proposals for Level I and Level II Water Quality Based Effluent Limits (WQBELs), stream numeric nutrient criteria (NNC) exclusions, and mixing zones.

The department Secretary is committed to implementation of the QA requirements in the QMP and as authorized at Section 403.0623, Florida Statutes (F.S.), and Chapter 62-160, F.A.C. It is the Secretary's intent to carry out these obligations and requirements as described in the department's Quality Assurance Policy, formerly the Quality Assurance Directive (Policy DEAR 972, July 2020).

All WQSP staff are expected to read, understand, and follow the procedures and criteria described in this plan, and to carry out their assigned responsibilities for effective utilization of our quality system.

2. Basic Elements of the WQSP Quality Plan

This Quality Plan explains both the processes and criteria by which WQSP's quality system is managed and identifies current staff and their QA responsibilities. The plan is used to inform our staff of current and future QA activities and discusses how specific QA duties are assigned. The Quality Plan is also used as a training document for new staff and as a reference for experienced personnel. WQSP staff will review our Quality Plan annually and revise as needed and will ensure the consistent application of procedures and criteria for the generation or use of our environmental data. The Quality Plan addresses all WQSP activities associated with environmental sampling, field testing, and data review, including those activities associated with database construction and management, as well as those responsibilities assigned to the program via the DEP Quality Assurance Policy for implementation of the department's quality system. The WQSP plan also addresses how decisions about data use are made based on data quality assessments. 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 QMP, Quality Assurance Policy, and QA Rule (Chapter 62-160, F.A.C.). In addition, we affirm that our quality system for all sampling activities, including field-meter testing, is consistent with DEP SOP FA 3300 (which discusses required topics for quality manuals for field organizations).

2.1 Policy Statement

It is the Water Quality Standards Program's policy to:

2.1.1 Use scientifically valid and legally defensible data for our decisions affecting protection of the environment, especially relating to water quality criteria development and assessing Florida's water resources;

2.1.2 Develop and implement the quality system described in this document;

2.1.3 Adaptively manage our quality system to be consistent with provisions of the

department Quality Management Plan and Quality Assurance Policy;

2.1.4 Ensure that all Program staff are properly trained to execute their assigned functions;

2.1.5 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 (DQO);

2.1.6 Periodically audit the performance and record-keeping practices of data generators that provide data to the department;

2.1.7 Make sound data use recommendations based on the DQOs of a department program and the results of a data audit or inquiry;

2.1.8 Implement QA procedures for the management of our data repositories;

2.1.9 Carry out assigned duties for the implementation and active oversight of the department's quality system per the Quality Assurance Policy; and

2.1.10 Perform a yearly systematic assessment of our QA activities, including any needed corrective actions, with the findings submitted to our quality assurance officer and reviewed by our program administrator, who is responsible for ensuring that corrective action policies and procedures are implemented when data do not meet our program DQOs. This yearly review also involves reviewing the program's quality plan and an internal field performance audit of sampling activities.

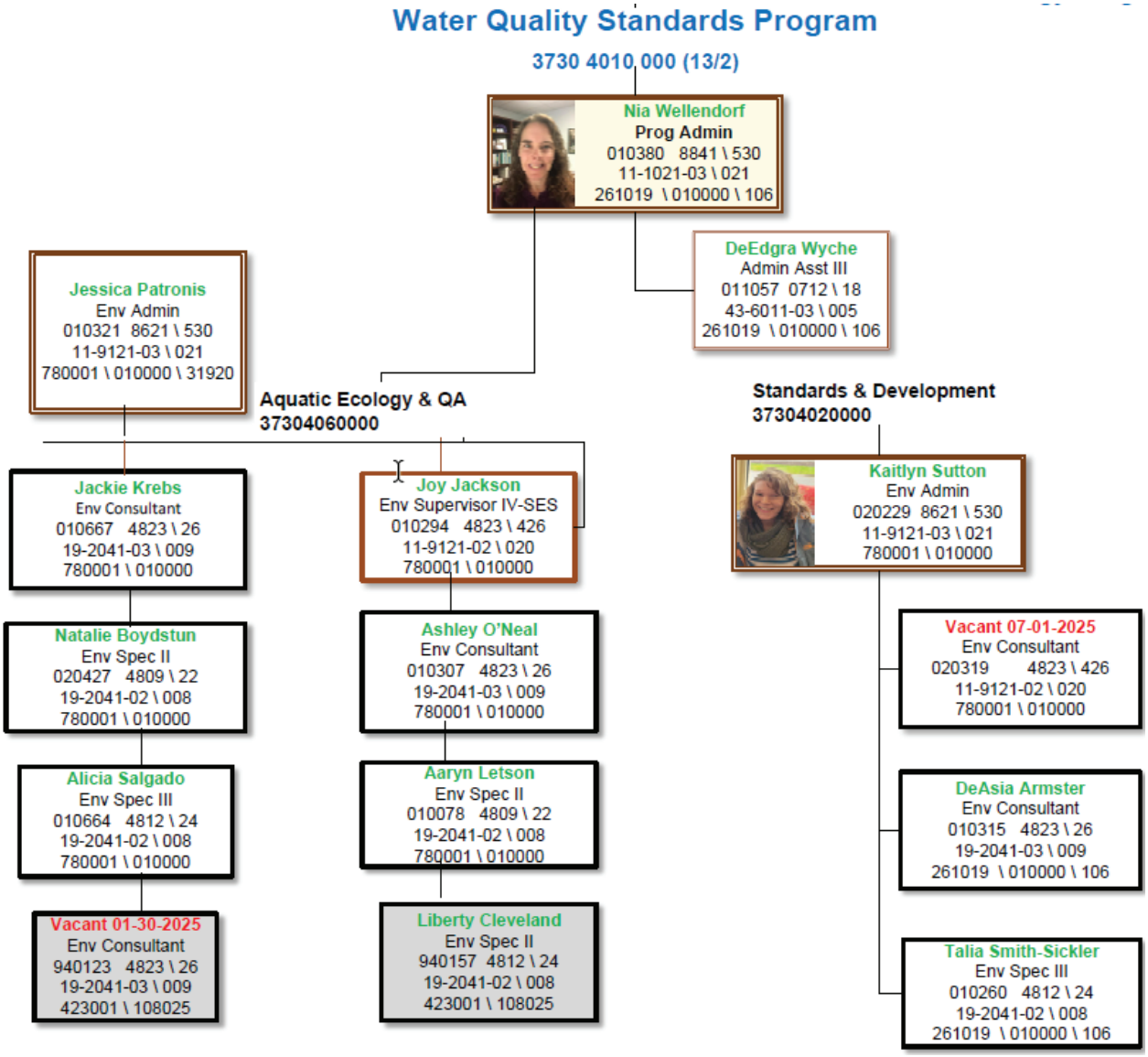
3. Ethics

All employees of the WQSP are held to high professional ethical standards in the performance of their duties. Employees are bound by state law to observe, in their official acts, the highest standards of ethics consistent with the State Code of Ethics for Public Officers and Employees. In addition, all employees are required to take an annual ethics training class. Improper, unethical or illegal actions will be dealt with per the published department administrative directives.

4. Organization and Responsibilities

The WQSP resides within the Division of Environmental Assessment and Restoration (DEAR). Nijole (Nia) Wellendorf is the program administrator of the WQSP, and the administrative assistant is DeEdgra Wyche. Nia oversees both the AEQAS and the SDS. Jessica Patronis is the environmental administrator for AEQAS, and Kaitlyn Sutton is the environmental administrator for SDS. Individual staff are shown in the organization chart (Figure 1), and their responsibilities are listed below. Contact information for individual staff is available on the WQSP website.

Figure 1: Organizational Chart



The WQSP functions in several capacities to assist with department priorities, including the development and maintenance of surface water quality standards (Chapters 62-302, 62-303, 62-304, and 62-4, F.A.C.), overseeing the department's QA Program (including maintenance of QA Rules, Chapter 62-160, F.A.C.), directing the department's biological assessment program, and providing a wide variety of technical support such as conducting focused environmental studies, auditing field and laboratory records, and training and auditing department and external staff for performance of field activities. Responsibilities for existing staff are as follows.

4.1 Standards Development Section Activities

Kaitlyn Sutton, DeAsia Armster, Talia Smith-Sickler, and vacant SDS staff members (all SDS staff) perform the following duties:

- Develop, coordinate, maintain, and revise Florida's surface water quality standards. Standards include designated uses and surface water classifications; numeric and narrative criteria for protection of aquatic life, recreation, and human health; the antidegradation policy; and certain moderating provisions such as variances;
- Conduct the Triennial Review of surface water quality standards;
- Provide technical assistance regarding surface water quality standards, uses, criteria, antidegradation, OFWs, water quality standards implementation, and SSACs to department programs, other federal, state, and local agencies, and to the public;
- Coordinate the review and approval or disapproval of study plans and petitions in support of reclassifications, SSACs, Level I and II WQBELs, and mixing zones;
- Respond to petitions received for changes to Florida's surface water quality standards. Responses include coordination and communication with departmental staff, other agencies, and the public; gathering appropriate data and documentation; development of special studies if further data are needed; analysis and evaluation of the proposal; development of a departmental recommendation and alternatives; compiling reports of the proposal and activities; conducting public workshops; following appropriate rulemaking procedures and developing needed rulemaking documents, including Statements of Estimated Regulatory Costs (SERCs); submission of proposed rule changes to the Environmental Regulation Commission (ERC) or department Secretary, as appropriate; and submission of final rule packages to the United States Environmental Protection Agency (EPA);
- Analyze environmental data for development of statewide or site-specific criteria;
- Develop, maintain, and revise the GIS data layers for surface water classifications, OFWs, NNC, and SSACs. The NNC layer includes NNC stream exclusions, Estuary Nutrient Regions, Stream Nutrient Regions, and Site-Specific Interpretations of the narrative nutrient criterion (Total Maximum Daily Loads [TMDLs], SSACs, and Level II WQBELs);
- Provide technical assistance on water quality standards-related questions to the public, department staff, and other agencies;
- Present DEP water quality standards updates/revisions at conferences and meetings, when appropriate;
- Design, manage, coordinate, and implement environmental studies for the development of water quality criteria and assessment of surface water uses and classifications. Management of studies includes the organization of data in relevant databases, including WIN or STORET, and statistical analysis, interpretation, criteria development, and report preparation;
- Coordinate with other department staff and programs on site specific interpretations of the narrative nutrient criterion, listing decisions, and permitting;
- Coordinate with other programs on stream NNC exclusion proposals. Maintains a stream exclusion proposal process document for multi-program internal use.

- Coordinate with U.S. EPA, U.S. Fish and Wildlife Service, and NOAA National Marine Fisheries Service on potential endangered species issues related to water quality standards changes;
- Provide technical support on Everglades issues, or other water quality standards-related issues when requested;
- Assist with special studies, WQSP contract management, and water quality standards development through support of QA components;
- Maintain information and load documents to the department's Water Quality Standards webpage;
- Create and maintain WQSP ArcGIS StoryMaps and interactive maps for the website and bioassessment program support and;
- Publish water quality standards related announcements through GovDelivery as needed to disseminate important updates to the general scientific community.

4.2 Aquatic Ecology and Quality Assurance Section Activities

AEQAS staff (Jessica Patronis, Joy Jackson, Ashley O'Neal, Aaryn Letson, and Liberty Cleveland) perform the following aquatic ecology duties:

- Implement the department's bioassessment program;
- Coordinate and assist in the development, review, and revision of biological assessment methods and SOPs (e.g., Stream Condition Index (SCI), Lake Vegetation Index (LVI), and algal assessment methods such as the Rapid Periphyton Survey (RPS));
- Train and audit department and external staff, focusing on biological assessment SOPs and issues;
- Establish Habitat Assessment benchmark sites for QA purposes;
- Coordinate LVI Proficiency Testing;
- Conduct lab records audits of macroinvertebrate taxonomy data produced by DEP and external labs that submit data to the department;
- Coordinate, evaluate, and report on other bioassessment QA activities;
- Assist in the development and review of water quality standards;
- Coordinate, perform sampling, and produce reports for directed studies (e.g., SSAC studies, reference site projects, stressor identification studies, and bioassessment development or refinement studies);
- Conduct scientific reviews for department programs (e.g., Minimum Flows and Levels program, Aquatic Preserves, Resource Conservation and Recovery Act program) when requested;
- Review bioassessment technical reports or study plans involving the use of bioassessments to determine numeric nutrient criteria compliance or to justify alternative criteria (e.g., Level 1 WQBELs and SSACs) and review permit compliance data for biological assessments upon request;

- Assist with Data Interpretation and Usability analyses for department programs and external programs and projects;
- Conduct SCI Stressor Identification evaluations upon request;
- Present DEP bioassessment updates at conferences, when appropriate;
- Maintain information and upload documents to the department's Bioassessment Program webpage; and
- Publish the Quality of Science e-Newsletter as needed to disseminate important updates to the general scientific community regarding bioassessment information.

AEQAS staff (Jessica Patronis, Jackie Krebs, vacant OPS EC, Alicia Cedeño Salgado, and Natalie Boydstun) perform the following quality assurance duties:

- Maintain and update as needed the QA Rules (Chapter 62-160, F.A.C.) and the collections of department Standard Operating Procedures (DEP-SOP-001/01, DEP-SOP-002/01, and DEP-SOP-003/11);
- Evaluate new technologies and methodologies proposed for incorporation into department rules and procedures, including alternative method approval requests;
- Develop data quality planning and assessment criteria, Data Quality Objectives (DQOs), and Data Quality Indicators (DQIs) for regulatory and contractual data use;
- Conduct and assist other department staff with reviews of QA documents for contracts and grants;
- Maintain templates for grant and contract QA attachments and provide QA training to grant and contract staff;
- Conduct reviews of Quality Assurance Project Plans upon request.
- Conduct QA review and approvals of MyFloridaMarketPlace (MFMP) purchase requests;
- Conduct field and laboratory audits, provide audit findings to affected DEP programs, and enter audit results into WIN, if applicable;
- Coordinate implementation of the Quality Assurance Policy through QA training and development of information materials;
- Coordinate with and assist department QA Officers in the development of quality systems for department programs and organizational work units;
- Provide Quality of Science Reviews of the department's programs as necessary or requested.
- Provide technical training on a variety of topics, such as sampling SOPs and data review procedures;
- Assist with special studies, WQSP contract management, and water quality standards development through support of QA components;
- Administer the department-wide QA program for the water, waste, and land &

recreation programs (see duties of the department Quality Assurance Coordinator);

- Provide technical assistance to department Programs concerning miscellaneous topics, when requested;
- Present DEP QA updates at conferences, when appropriate;
- Maintain information and upload documents to the department's Quality Assurance webpage; and
- Publish the Quality of Science e-Newsletter as needed to disseminate important updates on quality assurance information to the general scientific community.

4.3 Duties of the department QA Coordinator

Jackie Krebs is the designated Quality Assurance Coordinator for the Regulatory, Lands and Recreation, and Ecosystem Restoration programs, as described in the department's QMP, and is the QA liaison for all associated organizational units covered in the QMP. The QA Coordinator works with other AEQAS staff to carry out the following responsibilities:

- Prepare and distribute the QMP. Ensure that the department quality systems documented in the QMP meet all relevant requirements prescribed in Florida statutes, department contracts and grants, and all delegation and performance partnership agreements for work funded and mandated by EPA;
- Update the QA rule and incorporated documents and DEP SOPs as needed;
- Develop, implement and oversee the continued execution of the department's QA policies;
- Provide leadership and work with the QA team to address data quality issues and answer questions submitted to the QA mailbox;
- Ensure that each agency program has a program-specific quality plan;
- Coordinate the efforts of all program Quality Assurance Officers (QAOs) by holding meetings and providing specific guidance and training to the program QAOs;
- Independently evaluate the effectiveness of the department's quality system and initiate corrective actions when warranted;
- Coordinate the preparation of the Annual QA Report to the DEP Secretary on all QA activities, including recommendations for improving the department's quality system;
- Perform a periodic Quality of Science Review of the Water Quality Standards Program, with a goal of one every 5 years.
- Interact with data generators and providers, data consumers, and external organizations concerning department QA matters, including providing training and technical assistance.

4.4 Duties of the Water Quality Standards Program Quality Assurance Officer

Responsibilities of the WQSP's QAO, Jessica Patronis, include:

- Conduct and/or coordinate evaluation of the quality of data used by the program;
- Oversee staff performance of assigned QA functions;
- Conduct and/or coordinate system audits of internal and external data generators (lab and field) and sampling performance audits;
- Ensure that corrective actions are implemented for data non-conformance incidents as determined by evaluation of the data used by the program against established DQOs;
- Assist program managers in the development of program-specific quality systems and the logistical aspects of implementation, such as coordinating associated training needs;
- Coordinate data reviews and the documentation of all program QA activities, including training, audits and corrective actions; and
- Update the Quality Plan as needed.

4.5 Support Activities for Sampling

WQSP staff perform many activities in support of sampling efforts for department projects and programs (staff responsibilities are as indicated):

- Design sampling plans to meet project- and program-specific needs: (Joy Jackson, vacant SDS staff member, Jackie Krebs, Jessica Patronis, Alicia Cedeño Salgado, Aaryn Letson, Liberty Cleveland, and Ashley O'Neal);
- Prepare QA plans and SOPs: (All AEQAS staff);
- Review procedures and methods for compliance with QA plans and requirements: (Jessica Patronis, Joy Jackson, Ashley O'Neal, Alicia Cedeño Salgado, Jackie Krebs, Liberty Cleveland, and Aaryn Letson);
- Provide guidance for and process requests for use of alternative or modified sampling procedures according to requirements in Chapter 62-160.220, F.A.C.: (Jessica Patronis, Alicia Cedeño Salgado, vacant OPS EC, Natalie Boydstun, and Jackie Krebs);
- Answer public or external technical inquiries about data interpretation, approved procedures, suspected QA problems, site-specific issues, etc.: (Jessica Patronis, Jackie Krebs, Alicia Cedeño Salgado, Joy Jackson, Ashley O'Neal, vacant OPS EC, Natalie Boydstun, Liberty Cleveland and Aaryn Letson);
- Manage WQSP field sampling, field-testing and associated support operations: (Joy Jackson, Ashley O'Neal, Aaryn Letson, Jackie Krebs, Liberty Cleveland, and Jessica Patronis);
- Conduct field sampling, field-testing and associated support operations: (Nia Wellendorf, Joy Jackson, Ashley O'Neal, Jackie Krebs, Alicia Cedeño Salgado, Aaryn Letson, Natalie Boydstun, Liberty Cleveland and Jessica Patronis);

- Review Ecosummary reports written by department Regional Operations Centers (ROC) samplers: (Joy Jackson, Jessica Patronis, Aaryn Letson, and Ashley O'Neal);
- Conduct aquatic and wetland plant identifications and verifications for other DEAR staff: (Ashley O'Neal, Jessica Patronis, and Nia Wellendorf).

4.6 Support Activities for Laboratory Analysis

WQSP staff perform many activities in support of laboratory analysis efforts for department projects and programs (staff responsibilities are as indicated):

- Provide guidance and process requests for use of alternative or modified lab methods according to requirements in Rule 62-160.330, F.A.C.: (Jessica Patronis, Jackie Krebs, vacant OPS EC, Natalie Boydstun, and Alicia Cedeño Salgado);
- Routinely review laboratory data at the request of other departments and outside agencies. Data are reviewed for adherence to the provisions of the QA rule and the Data Usability document, DEP-EA 001/07, to determine the usability for specific purposes, or to give an overview of the quality and defensibility of the data: (all AEQAS staff);
- Answer public or external technical inquiries about data interpretation, approved procedures, suspected QA problems, site-specific issues, etc.: (all WQSP staff).

4.7 Support Activities for Geographic Information System (GIS)

Ashley O'Neal, Joy Jackson, Jessica Patronis, Aaryn Letson and Jackie Krebs in AEQAS, and Kaitlyn Sutton, vacant SDS staff member, DeAsia Armster, and Talia Smith-Sickler in SDS currently hold software licenses for the GIS software ArcPro. The software is used for various purposes in WQSP, such as:

- Setting up or updating a lake site map for the LVI in which an aerial map is created following the directions in DEP SOP LVI 1000 (WQSP has how-to documents for making LVI maps in ArcPro)
- Stressor ID analysis
- Creating maps for sampling plans and special projects
- Maintaining and updating the NNC layer, surface water class boundaries layers, and OFW layer as necessary.
- Answering public inquiries regarding applicable water quality criteria, surface water classifications, and OFW designation status for waterbodies of interest.
- Pinpointing areas for additional sampling for potential water quality criteria development and/or revision.
- SSAC and WQBEL proposal reviews
- Story map development
- SERC and cost estimate development

4.8 Duties of the Water Quality Standard Program Management

Our program management, Nia Wellendorf, Jessica Patronis, and Kaitlyn Sutton ensure that the WQSP quality system is fully operational for all activities within our program. Management staff review final audit reports, alternative method approvals, comments on alternative water quality standards proposals, and other documents before they are transmitted outside of the program. Jessica Patronis has been designated as our Quality Assurance Officer. These individuals also evaluate the Data Quality Objectives and Data Quality Indicators found in Appendix A to ensure they meet our program's needs and periodically evaluate the effectiveness of staff's data quality assurance activities, including reviewing internal audit results. They evaluate corrective action policies and procedures to be implemented when data do not meet our established program DQOs. Our managers discuss internal audit results with the QAO and review the Annual QA Report to the Secretary. Annually, the QAO and WQSP management will review the program's quality system and any changes to the quality plan will be discussed with WQSP staff as a whole.

5. Training and Communication

WQSP personnel shall be properly trained to perform their duties. Supervisors periodically assess whether our staff performance conforms with the policies and procedures of our work unit. WQSP staff maintain communication with other programs throughout the agency and outside entities by providing a variety of trainings, website communications and GovDelivery Listserv announcements.

5.1 Internal Training Procedures

Ensuring all new WQSP field staff are familiar with the QA Rule requirements and the details of the DEP SOPs includes the following tasks:

5.1.1 Staff must complete the appropriate environmental sampling training program for their assigned job duties before independently collecting samples or data in the field (see sampling roles in section 6.1). AEQAS staff use the AEQAS Training Checklist to learn specifics about their job duties.

5.1.1.1 For general and water sampling and field testing, AEQAS staff must attend a DEP SOP training (offered at University of Florida's Center for Training, Research and Education for Environmental Occupations [TREEO] or internal course offering for DEP staff) and complete the DEAR Water Quality Sampling Training. Staff must complete the checklists applicable to their sampling duties and pass a performance audit for each activity. Additionally, staff must take and pass the SOP tests pertinent to their sampling, training and QA review duties, initially and once every 3 years as a refresher.
DEP SOP Sampling Tests for DEAR Employees:

- General Water Sampling Training Activities (SOP Test: General Knowledge Module)
- Surface Water Sampling Training Activities (SOP Test: Surface Water Sampling Module)
- Ground Water Sampling Training Activities (SOP Test: Groundwater Sampling Module)

- Sediment Sampling Training Activities (SOP Test: Sediment Sampling Module)
- Wastewater Sampling Training Activities (SOP Test: Wastewater Sampling Module)
- Flow Sampling Training Activities (No SOP test available)

5.1.1.2 Sampling staff must read and follow the DEAR Tick Bite Prevention Plan and the Field Safety Manual annually. Staff must take and pass the Field Safety Manual quiz located on the People First Learning Management System (LMS) initially and once every three years. In addition to this requirement, new staff must watch the four-part Field Safety Training Series videos (located on SharePoint) or register in LMS and attend the live course offering given annually in the spring by DEAR staff.

5.1.1.3 Staff expected to operate canoes and/or boats and vehicles with trailers must read and follow DEP Administrative Procedure for Policy ADM 270 "Administrative Procedures for Watercraft Assignment and Utilization" and the June 5, 2023 "Boating Safety Certified Staff Responsibility Memo." Operators of Class A-2, Class 1 and Class 2 trailered watercraft must take the DEP Boating and Trailering course and pass the written and performance evaluation initially and a refresher training as needed. The DEP Boating course includes the Florida Boating Safety Course available through Boat U.S., which earns staff a course completion certificate/card, which does not expire. For new employees, the BoatUS course must be successfully completed before starting on-the-job training for trailering and operation of Class A-2, Class 1 and Class 2 watercraft. Operators of Class A-1 (watercraft less than 12 feet, canoes and kayaks) must successfully complete the DEP Canoe and Kayak Operation Practical Exam.

5.1.1.4 For bioassessments, requirements consist of attending a DEP biological assessment training class/event on HA, SCI, Linear Vegetation Survey (LVS), and RPS, and completion of the Stream Condition Index and Habitat Assessment (SCI/HA) apprenticeship program, as detailed in DEP SOPs BRN 1000, SCI 1000 and FA 1000 (Part FA 5720, HA training). See Table 1, below.

5.1.1.5 For the Lake Vegetation Index, training includes attending plant identification workshops, participating in field training and team proficiency testing, participating in the annual plant QC exercise, and passing the online plant test (for applicable staff) as detailed in LVI 1000. See Table 1, below. WQSP has developed internal guidance for becoming proficient in plant identification. Staff wishing to become proficient in plant identification should follow The Plant ID Curriculum and Learning Milestones for LVI Sampling. This process is recommended, but not required.

5.1.2 Staff will be trained for specific QA functions, including performing audits and data verification and validation projects. This is done for appropriate staff via meetings and hands-on training.

5.1.2.1 Staff responsible for supporting the program's QA functions must read materials posted on the QA Resources page and review training videos on the QA website and become familiar with those topics applicable to their assigned duties.

5.1.2.2 As part of initial training, all WQSP staff must complete the online course "Intro to QA Training" through the People First LMS.

5.1.3 All WQSP staff must initially complete the DEP Online New Employee Compliance Training (ONECT), which includes ethics training, and then the DEP Annual Compliance Training annually. This training is assigned to individual employees on a yearly basis through the People First LMS.

5.1.4 All WQSP staff must read and follow the Bob Martinez Center Emergency Action Plan annually.

5.2 Proficiency Evaluation

5.2.1 Sampling staff are evaluated by review of their performance to determine the effectiveness of training. For example, field staff must be trained in biological assessment and habitat assessment procedures, and subsequently pass audits for those assessment procedures prior to independent collection of samples or field data (see section 5.1). Similarly, as part of the DEAR training program, new staff are audited by experienced staff during collection of water chemistry samples, field measurements, and use of other SOPs prior to collecting samples and performing field tests as lead samplers. Senior staff review raw field data sheets to determine that all staff are consistently conducting the sampling and documenting information as required by the DEP SOPs.

5.2.2 Staff training metrics are included in the WQSP reporting templates submitted for the annual QA report to the Secretary. Individual staff must maintain training logs for water sampling, SCI, and HA training, which are found on the bioassessment training website.

5.2.3 For selected department biological assessment tools, staff must maintain proficiency to conduct the sampling (see section 5.1). AEQAS maintains an internet-based Searchable Registry for Bioassessment Method Proficiency listing proficient samplers statewide, and WQSP staff are included on that registry if they pass the appropriate QA measures as described in SOPs associated with the biological tools, as listed in Table 1.

5.2.4 Staff who conduct audits, perform data evaluations, or generate reports are periodically evaluated by senior staff. This evaluation is informal and usually in the form of editing or reviewing work products such as audit reports, data summaries, or project reports.

Table 1: Training, proficiency, and testing requirements for the DEP biological measurement tools.

Biological Measurement Tool	*SOPs containing Training & Proficiency Requirements*	*Testing Procedure*
Stream Condition Index (SCI)	SCI 1200, SCI 1300	Online test of concepts and field demonstration (benchmark site SCI score within acceptance criteria) every 5 years
Stream Habitat Assessment (HA)	FA 5720	Consistency demonstration of independent field assessment of benchmark sites and online test (initially and every 5 years)
Lake Vegetation Index (LVI)	LVI 1200	Online plant identification test annually (for applicable LVI team members), annual team plant QC exercise, online method test and LVI team consistency demonstration of independent field assessment of benchmark sites (initially and every 2 years)
Biological Reconnaissance (BioRecon)	BRN 1200, BRN 1300	Online test of SCI concepts and field audit every 5 years
Rapid Periphyton Survey (RPS)	FS 7230	Online test of RPS method concepts initially and every 5 years.
Linear Vegetation Survey (LVS)	FS 7320	Online test of LVS method concepts initially and every 5 years.

5.2.5 Staff who perform data review are trained by senior staff based on the specific project or need. See sections 6.3 and 8 for data review procedures.

5.3 External Training

5.3.1 AEQAS staff hold semi-annual training sessions for DEP stream bioassessment SOPs (SCI, Habitat Assessment, RPS, and LVS) at locations throughout the state (e.g., Bear Creek Environmental Center, Jay B. Starkey Wilderness Park).

5.3.2 AEQAS staff hold semi-annual training sessions on DEP SOPs at the TREEO center. The training sessions cover the SOPs necessary for surface water, groundwater, drinking water, and wastewater sampling. Other DEAR or department staff assist with groundwater expertise.

5.3.3 AEQAS staff hold semi-annual training sessions on DEP SOPs in Tallahassee and/or districts.

5.3.4 AEQAS staff participate in oversight of the DEAR training and apprenticeship program. AEQAS staff write and maintain training checklists and coordinate with other programs within DEAR to determine training needs and ensure consistency.

5.3.5 AEQAS staff train other DEP staff and outside agencies upon request on the use of DEP SOPs, Quality Assurance practices, bioassessment topics, and auditing procedures.

5.3.6 AEQAS staff maintain training resources on its website, such as SOP training videos, training presentations, and recorded training webinars.

5.3.7 SDS staff offer training as needed for NNC and General Water Quality Standards, including standards implementation.

5.4 GovDelivery Listserv Correspondence

WQSP uses the GovDelivery platform to distribute information to interested stakeholders.

5.4.1 AEQAS uses GovDelivery to distribute its Quality of Science Newsletter (QoSN). Information typically distributed via QoSNs include training and audit opportunities held by AEQAS that are available for the public, Alternative Method Approvals, and changes to the DEP SOPs and Rule 62-160, F.A.C. Joy Jackson, Jessica Patronis and Jackie Krebs are the staff members in AEQAS with access to GovDelivery; they work with supervisors and staff members that need to distribute the information to draft the QoSN.

5.4.2 The SDS uses GovDelivery to announce rulemaking public workshops and let subscribers know when public workshop materials are available. Kaitlyn Sutton and DeAsia Armster are the staff members in SDS with access to GovDelivery.

5.4.3 Before GovDelivery announcements can be sent to subscribers, a test of the bulletin must be sent to the DEAR Communications Liaison, currently Lisa VanHoudt, in the DEAR division office for transmission to the Office of Communications which grants ultimate approval to distribute the announcement to the subscriber list.

5.5 Website Maintenance and Outreach

WQSP manages content of several pages on the DEAR directory of the floridadep.gov website, including the Water Quality Standards, Bioassessment Program and Quality Assurance webpages.

5.5.1 Aaryn Letson is responsible for periodically updating the language and uploading documents to the Bioassessment and Quality Assurance webpages. Talia Smith-Sickler maintains the Water Quality Standards webpages. They work with the staff member proposing the changes with approval from their supervisors within WQSP.

5.5.2 Aaryn and Talia send any proposed changes or uploads to their program administrator through the website, who then approves and sends the updated

webpages to the DEAR Communications Liaison, Lisa VanHoudt. Lisa reviews the updated content for 508 compliance before publishing the changes to the program's webpages.

5.5.3 WQSP has an internal 508 compliance video for instruction on common 508 compliance document errors and how to correct them.

6. Sampling Design and Procedures

Successful implementation of the WQSP relies on having valid data, which begins with proper study design and sampling. Studies are designed to answer a wide variety of environmental questions, and therefore, each study should contain specific elements or objectives best suited for answering the question at hand. Studies could involve judgment sampling (sampling sites upstream and downstream of a suspected pollutant source or a Before-After-Control-Impact design), probabilistic sampling (selecting sites randomly along a stratified-random gradient), or other methods. Extensive discussion of various study objectives/study design are found in the following documents produced by the WQSP:

- Sampling and Use of the Stream Condition Index for Assessing Flowing Waters: A Primer;
- Sampling and Use of the Lake Vegetation Index (LVI) for Assessing Lake Plant Communities in Florida: A Primer;
- Development of Aquatic Life Use Support Attainment Thresholds for Florida's Stream Condition Index and Lake Vegetation Index;
- Process for Reclassifying the Designated Uses of Florida Surface Waters;
- Implementation of Florida's Numeric Nutrient Standards; and
- Everglades Data Quality Screening Protocol.

The following are water quality parameters commonly collected by the WQSP, depending upon the needs of the study.

- Preserved Nutrients (TKN, TP, NOx, NH_3, TOC)
- Filtered Nutrients (Orthophosphate)
- Unpreserved Nutrients (NO_2, NO_3)
- Sulfate (SO_4), Fluoride (F), Chloride (CL)
- Physical/Aggregate Properties (TDS, TSS, TS, Turbidity, Alkalinity, Color)
- Chlorophyll (Suite)
- BOD
- Microbiology (*E. coli*, fecal coliform, enterococci)
- Macroinvertebrates
- Phytoplankton (algal blooms or research)
- Periphyton

- Metals
  - Filtered Metals
  - Base Neutral/Acid Extractable organics

- Pesticides
- Genetic markers, such as HF183, DG3, Gull2, GFD, and BacR analyzed by qPCR (quantitative polymerase chain reaction)
- Chemical tracers, such as acetaminophen, acesulfame K, ibuprofen, carbamazepine, hydrocodone, naproxen, primidone, and sucralose
- Field measurements (dissolved oxygen, pH, temperature, specific conductance)

Most often, a direct grab with the sample container is performed; however, extension pole samplers, dippers, peristaltic pumps, and Alpha bottles may also be used as needed. Multi-probed units (Yellow Springs Instruments, [YSI]) are most often used to collect field measurements of DO, pH, specific conductance, and temperature. The instruments are verified and calibrated per DEP SOPs FT 1000, FT 1100, FT 1200, FT 1300, FT 1400, and FT 1500. AEQAS maintains a YSI unit (Meter ID: 154185) for WQSP use. Additional YSI units are maintained by the Florida DEP Tallahassee Regional Operations Center (ROC). Calibration and verification records are kept with each sampling project and maintained within the Tallahassee ROC's common drive field sheet documentation folders for the associated project.

Field documentation and quality control for field sampling activities follow DEP SOP FD 1000 and DEP SOP FQ 1000. The DEP lab maintains SOPs for sample handling, log in and custody, lab procedures, data entry, analytical methods and quality control.

If WQSP were to contract an external entity to perform field activities, DQOs for the generated data would be project-specific and included in the individual project plan for the specific work.

6.1 Sample Scheduling and Trip Planning

When planning a sampling trip, staff are assigned to the following field sampling roles:

Designate staff for a given sampling event to represent the roles of team lead/quality assurance lead, field safety officer, and sampling coordinator. At least one member of the sampling team in the field must be in pass status for their proficiency evaluation pertaining to the specific sampling method performed and/or equipment used (see section 5 for training and proficiency requirements). Responsibilities may be delegated for training purposes or split between staff on the sampling team. Roles are outlined below.

> Team Lead/Quality Assurance: Prior to the sampling event, the responsibilities of the team lead are to obtain site information and directions, contact homeowners for site access (if necessary), request travel approval for the team, reserve trucks and boats and check with the field safety officer and sampling coordinator to ensure necessary supplies are prepared for the sampling event. This includes picking up sampling kits, checking to make sure information on the sampling bottles and submittal forms is correct, packing equipment and supplies, and preparing field forms. The team lead should also ensure that the field meter is in working order, properly verified and/or calibrated before and after the sampling event. It is the team lead's responsibility to submit samples to the lab and ensure the lab submittal form is completed appropriately. The team lead must ensure all paperwork is completed and scanned, upload any photos taken, update the sampling tracker, and load data into SBIO2 upon completion of the sampling event.

Field Safety Officer: The field safety officer is responsible for ensuring safety measures are considered before and during a sampling event. For trips requiring the use of watercraft, at least one staff member on the sampling trip should be Canoe/Kayak certified and/or Boat and Trailer certified, as applicable (see section 5.1.1.3). Field sampling teams are encouraged to have at least one person on the trip certified in CPR/First Aid. There is not a specific requirement for individual staff to be certified, however. Prior to and during the sampling event, the responsibilities of the field safety officer are to track weather and water levels and make the decision to call off the event if necessary, ensure a First Aid Kit and any necessary safety items (personal floatation devices [PFD], whistle, etc.) are current and packed, make sure trailer lights are in working order, and complete, sign and file a Float Plan (canoe or motorized) and Boating Safety Checklist (motorized only) if a boat is being used for the sampling event (see section 6.1.2). The Field Safety Officer on the sampling trip must notify the Float Plan contact once the team is off the water.

Sampling Coordinator (Aaryn Letson): The primary responsibility of the sampling coordinator is to work with the team lead and field safety officer to ensure everything required for the sampling event is available and that all documentation is complete upon return from the sampling event. The sampling coordinator maintains a shared Outlook calendar by adding potential dates for sampling events that WQSP samplers can assign themselves to trips. In addition, it is the sampling coordinator's responsibility to schedule the sampling events in LIMS (see below), which includes ordering sampling kits (at least two weeks prior to the event) and load data into WIN quarterly. Finally, the sampling coordinator will periodically check PFDs to ensure they are in serviceable condition (no leaks, tears, significant wearing or discoloration) and inflation CO_2 cylinders are not spent or expired and will notify the AEQAS environmental administrator (EA) of any problems. A PFD with an expired CO_2 cylinder will be taken out of service until a new cylinder is installed. PFDs that are not in serviceable condition or are malfunctioning must be discarded and replaced. Once a PFD has been inflated, the CO_2 cylinder must be discarded and replaced.

The Laboratory Information Management System (LIMS) is a tool used for scheduling sampling events and entering, searching and viewing data. LIMS also can be used to create electronic or hard copy reports. WQSP staff use LIMS to schedule samples with the DEP lab, print submittal forms, and retrieve data. For WQSP sampling, the customer in LIMS is "BSSP," which includes active projects listed in table 2.

Table 2: LIMS projects and associated SBIO Survey names currently used by WQSP for routine projects. Note: Not all LIMS Projects have an associated SBIO Survey as there is no associated biological data with the project.

Project Description	LIMS Project Name	Associated SBIO Survey Names
Additional LVI Lake Site (not Reference)	ADDLAKES	AMBIENT STATUS MONTR
Additional monitoring for alternative water quality	ALTCRITEVA	

criteria and evaluations		
Dam removal monitoring on selected streams	CRKDCRKDAM	CRKD CRK DAM STUDY
Evaluation of Designated Uses	DESIG_USES	
LVI Lake Reference Site	LAKESREF	REFERENCE LAKES
LVI Proficiency Testing	N/A	LVI PROFICIENCY
Comparability Study	LKWTCH-DEP	N/A
Microbial Source Tracking Sampling – Color and Turbidity	MST-SAMPLG	
Quality Assurance Investigations	QA-INVSGTN	
Assess potential revisions to the surface water classifications	RECLASS	
Benchmark for SCI Sites for Re-auditing Purposes	SCI-BNCHMK	SCI PROFICIENCY
SCI Stream Reference Site – Not to be used for TMDL projects	SCIREF	ECOREG REF STREAMS
Strategic Monitoring for TMDL	SMP	TMDL STUDIES
Water Quality and Biological Monitoring in Springs	SPG-PILOT	SPRINGS_PILOT
Site Specific Alternative Criteria Petition	SSAC-PETTN	SSAC EVALUATION
Stressor ID Project	SCI-STRESS	SCI_STRESS
SCI Specific Conductivity SSAC project	SPCONDSSAC	SSAC EVALUATION

Additional LIMS projects and SBIO Surveys are used as appropriate and as determined by managers.

Additional SBIO Surveys include:
AG LAND USE BSMNT
ALGAL EXPLORATORY
BIOCRITERIA TRAINING
BIORECON DEVELOPMENT
FENHOLSTDY
FIFTH YEAR BSMNTS
FLORIDA AMBIENT
FORESTRY BMP STUDY
GUM SLOUGH DIVERSION
LAKE BIOASSESSMENTS
LAKE METHOD DVELPMNT
LK WEIR ORG REMOVAL
LOW WATER STUDY
MACPHYTE EXPERIMENT
MITIGATION STUDIES
NUTRIENT LVI STUDY

SOUTH FL CANALS
ST. MARKS BASIN
WETLANDS DEVELOPMENT

Inactive, historical LIMS projects include:
ALG-GR-STY: Algal Gradient Study
CLAM_BAYOU: Clam Bayou Antidegradation Study
DIS-OXYGEN: Dissolved oxygen project
EPA-NWCA: EPA National Wetland Conditions Assessment
LANDG-GOMA: Gulf of Mexico Mercury and Nutrient sampling
LOWWATER: Effect of drought and low water on SCI
MCKAY-BAY: McKay Bay Contaminants Project - Multi Agency project
NNC-STUDY: Coastal numeric nutrient criteria (NNC) project with NOAA
NT-ESTUARY: Estuary Nutrient Criteria Development Project
NT-GRA-STY: Nutrient Gradient Study
NT-LON-STY: Nutrient Longitudinal Study
NT-LVI-STY: Nutrients and LVIs in Lakes
NT-REF-SIT: Nutrient Criteria Reference Sites
SCI-DUPS: Evaluation of variability for SCI_2007
WETLAND-DO: DO monitoring in wetlands
WW-NUT-EFF: WWTP Effects Study

WQSP staff are instructed to take the following steps to schedule and prepare for sampling trips:

6.1.1 Be sure to schedule sampling trips in LIMS at least two weeks prior to the event to allow laboratory staff ample time to prepare the sampling kit. Schedule a sampling trip in LIMS by selecting the "Scheduler" module found under the "General" tab. From the drop-down menu, select "Schedule New Request" and navigate to the next page. (If available, select "Load Template" to load a previously saved sampling kit template). Select the appropriate date for the week of the scheduled sample(s). A table will populate with the laboratory capacity (in percent) for the week selected, be sure to check the lab is not over capacity (>100%) for analytes included in sampling kit. If the lab is near or over capacity for an analyte(s) in the sampling kit, contact the lab before completing the order. Fill out all the prompted information on the next page. From the drop-down menu for "Customer," select "BSSP," then select the appropriate "Project ID." Priority will be set at "3" for all routine sampling projects. Checkmark the boxes appropriate to sampling project (Criminal Investigation, Sampling Kit Require, Sampling Kit for Pickup, and/or Preservatives Needed) and provide a brief sampling event description in the box provided. Include any additional comments or pertinent information in the "Comments" section. Click on the date under the "Return Date" heading and select the date samples will be returned to the laboratory. Fill out all information in the "Send Coolers To" and "Send Final Report To" sections. If the "Next" button at the bottom of the page remains "greyed" and the page cannot advance, check that all information has been provided. On the next page, select the button with the blue arrow and "+" sign to add a new bottle group. Select the appropriate Matrix – Soil/Sediment/Waste, Tissue, Water, Biological, or Air. Select the number of

samples needed. Then, select the analytes to be included in the sampling kit from the "Available Analyses" box and click "Add." The analytes selected will appear in the "Selected Analyses" box. Some analyses contain multiple analytes. Click "Select Analytes" to choose which analytes should be included in the sampling kit and click "Add." Repeat this process for additional bottle groups as needed. If desired, select "Save Template" to save the analyte list for use for future sampling events. Select "Finish" and record the requisition number (RQ).

6.1.2 Once the sampling kit has been received from the lab, check that the information is correct on the sample bottles. The lab adheres waterproof labels to the bottles which are pre-printed with the RQ number, project ID, analytes, and required preservation. Sampling staff use a black permanent marker to write the site name, date, collection time and sampler initials on the space provided on the sample label on each sample bottle in the kit. If there is more than one bottle collected for a given analyte in the same bottle suite, label them sequentially (for example, "1 of 3", "2 of 3," 3 of 3"). Use a checklist to collect all the equipment you will need for sampling. Check the expiration dates on any acids needed for preservation of samples. If acids are expired, request new acids from the laboratory. Check the weather and recent water level readings to determine if it is an appropriate and safe time to sample. Before taking field testing measurements, perform necessary verifications, calibrations, and maintenance to the field meter. Document these procedures in the calibration log and/or maintenance log. When taking a boat, fill out and file a float plan and Boating Safety Checklist (Class A-2 watercraft and above) in the appropriate common drive folder. Attain supervisor approval for each sampling trip and notify a designated staff member who is not going on the trip of departure and return for safety purposes.

6.2 Sampling Procedures

WQSP staff are instructed to follow these sampling procedures:

6.2.1 When you reach the sampling site, verify that conditions are appropriate for sampling and the site is representative.

6.2.2 Follow the procedures in the DEP SOPs for the applicable type of sampling. Use the appropriate equipment for the sampling conditions. Collect your samples and preserve according to the codes on the bottles. Preserve and filter (as needed) within 15 minutes of collection.

6.2.3 Collect any field meter readings or physical measurements required by the sampling plan.

6.2.4 Before leaving the site, check to be sure that all the needed procedures were completed, complete the required documentation for the sampling activities, and ensure no equipment or trash was left behind.

6.2.5 Bring any samples requiring analysis back to the laboratory and follow procedures for transferring custody.

6.2.6 Perform a continuing calibration verification on the field meter, document the results in the calibration log and appropriately qualify any field-testing data that were not quantitatively or chronologically bracketed by successful verifications.

6.3 Data Review and Upload to WIN

6.3.1 Field data sheets are generated in hard copy or electronic formats in the field for all water quality samples and biological monitoring activities. After returning from the field, samplers must review documentation from the field trip and ensure that records are complete and accurate. All records are retained in accordance with the department's Records Retention Schedule (Administrative directive 375). Hard copy files are stored in project folders in Room 238A. Scanned copies of all additional field records are stored in the WQSP common electronic folder. Electronic records for reference stream and reference lake sampling (including a copy the calibration log for that event) are stored in individual electronic folders in the DEAR common electronic folders, locally for section use (3 Sampling Projects) and common for the WBID history database (DEAR Sampling File Storage). There is a hierarchy document for file naming and organization. These files are used to pull data for the WBID History database. Laboratory reports are received in an electronic format from the Florida DEP Laboratory in Tallahassee, DOH ID E31780. These records are stored electronically in the appropriate site folder containing the associated field sheets. Erasing or obliterating records is not permitted. Corrections are made by marking a single line through the error so that it is still legible and recording the initials of the individual performing the correction. All documentation records are required to be legible. Unless otherwise specified by statutes or directives, all hard copies of records shall be retained for a minimum of five years after the date of generation or completion of the project unless otherwise specified in a department contract, order, permit or Title 62 rules, in accordance with Rules 62-160.240, 62-160.340, F.A.C., and DEP SOP FD 1000. After five years, hard copies of records shall be maintained per the official DEP records retention schedule. Electronic copies of records will be stored indefinitely.

6.3.2 Staff enter HA, Phys/Chem, LVI, LVS, and RPS data into the department's data repository for biological data, SBIO2. A second staff member QA/QCs the data per DEP internal lab SOP BG-01, and indicates that the data have been reviewed on the physical data sheet and in the sampling tracker. Data entries are then authorized in SBIO2 to ensure completeness and that proper QA/QC measures were conducted. Nia Wellendorf, Jessica Patronis, Joy Jackson, and Ashley O'Neal have permission to authorize SBIO2 data entries.

6.3.3 Once laboratory analyses are completed, data are entered in LIMS via the Data Merge Tool (DMT). A second staff member QA/QCs the data in the LIMS DMT prior to upload and migration to the Watershed Information Network (WIN), the department's data repository. WIN user manuals are available on the Watershed

Services Program's website.

6.3.4 Staff loading samples to WIN assign a field or equipment batch ID to link a group of samples collected on the same day by the same sampling team when field and equipment blank samples are collected. The Sample_Field_ID for field or equipment blanks shall be "FB" or "EB" followed by the sample collection date (e.g., FB_mmddyyyy). The field or equipment batch ID shall be named with the Project, sample collection date, and either "FB" or "EB" (e.g., SCIREF09222023_FB). The "G" qualifier will be applied to any sample result when the blank result of the same field batch is detected greater than or equal to 10% of the sample result.

6.3.5 Previously, data collected by WQSP staff were uploaded semi-annually or as needed to the Florida data Storage and Retrieval System (STORET) under the organization (Org) code "21FLWQSP." STORET is no longer used for data upload as of July 2017, but the data already in the database will be stored indefinitely and can be retrieved from DEARSPA any time.

6.3.6 Data collected by WQSP staff are uploaded quarterly, or as needed, to WIN under the organization (Org) code "21FLWQSP." If a sampling station has not yet been established in WIN, the station is named using the following convention: [first three letters of county name][last two digits of year of project initiation][first three letters of waterbody name][ordinal indicating which site for that waterbody]. For example, if two sites on Beaver Creek in Leon County were sampled for a project starting in 2013, the WIN site names would be LEO13BEA1 and LEO13BEA2. The site location and coordinates are visually verified in WIN.

6.3.7 WIN includes many Quality Assurance checks, and the system will prompt the data loader to evaluate the results to be uploaded if it detects errors. New data will generally be entered in WIN as it is received by the department, or within 3 months. WQSP WIN data loaders refer to the LIMS Data Merge Tool (DMT) User Guide and program specific user guides when uploading and migrating data to WIN. These guides are stored electronically in a WQSP common folder. The WQSP QAO oversees review of 21FLWQSP data entered into WIN. This check is performed upon completion of each data uploading event.

6.3.8 Use the WQSP WIN data upload review checklist to document this review. Query the date range for the most recent upload of data from WIN. Randomly select 5% of the total number of sampling events (as determined by Activity ID and Activity Start Date Time). Complete the "Checklist" tab by reviewing field testing data including Secchi, dissolved oxygen, pH, specific conductance, and temperature for each selected sampling event. Some sampling events may not include all listed parameters. Checklist items include verifying retention and completion of all field sheets and associated documentation, transcription and data entry errors, and appropriateness of necessary qualifier codes. Discuss errors and discrepancies

among appropriate staff including the QAO, EA, data uploader and the samplers. Determine and document corrective actions and implementation dates. Store the completed data review checklist in the WQSP WIN Data Review folder. Share corrective actions with all program staff to continuously improve the quality of data collected and entered by WQSP.

6.4 Long-Term Sampling Projects

WQSP staff perform field sampling at a network of stream and lake reference sites, which are used to establish natural background conditions. Stream reference sites currently sampled include 21 sites from the following counties: Bay, Calhoun, Liberty, Gadsden, Leon, Wakulla, Jefferson, Taylor, Madison and Lafayette. WQSP also samples ten reference lakes. The current list of analytes for reference streams is listed in this document and the list for lakes is listed here. At reference sites that are currently listed as impaired for fecal coliforms per Chapter 62-303, F.A.C., WQSP staff also collect samples for analysis of *E. coli*, fecal coliforms and microbial source tracking. Descriptions of these projects are in the common sampling folder.

Beginning in 2022, WQSP staff began collecting duplicate samples analyzed for total nitrogen (TN), total phosphorus (TP), corrected chlorophyll *a,* and color, at select sampling sites using both DEP and Florida LAKEWATCH sampling protocols (Florida LAKEWATCH SOP, June 2020). The plan of study for the LAKEWATCH comparison study project is stored on the common drive. When ordering DEP sample kits in LIMS for the LAKEWATCH project, set the priority to "5." Samples collected using LAKEWATCH protocols will be delivered to the nearest LAKEWATCH sample collection center (UF/IFAS Leon County Extension, 615 Paul Russell Road, Tallahassee) to be retrieved by LAKEWATCH staff for lab analysis, and samples collected using DEP SOPs will be delivered to the DEP laboratory for analysis. The purpose of this duplicate sampling is to maintain an ongoing comparison between DEP and LAKEWATCH-generated data.

Occasionally, data are needed to support applications for Site Specific Alternative Criteria (SSAC) or Water Quality Based Effluent Limitations (WQBEL). When additional data are needed and the department is responsible for data collection, WQSP staff will either collect the required data or arrange for another department program to collect it.

7. Quality Assurance Program Procedures

7.1 Development of the QA Rules and the Department Standard Operating Procedures

AEQAS staff periodically update the QA Rules, Chapter 62-160, F.A.C., and DEP SOPs (DEP-SOP-001/01, DEP-SOP-002/01 and DEP-SOP-003/11) to ensure that they accurately reflect ongoing technical and scientific advancements and are practical and suitable for carrying out the department's mission. WQSP staff routinely accept technical input on QA Rule and DEP SOPs, and if rule revisions are needed, hold public workshops at the time of rule development to solicit public comment on any proposed revisions. Revised versions of the documents are posted on the

WQSP website and finalized when the rulemaking process is complete. Current revisions to Chapter 62-160, F.A.C., and the incorporated DEP SOPs, published as the collections numbered DEP-SOP-001/01, DEP-SOP-002/01 and DEP-SOP-003/11, were effective as of 4/16/18. Summaries of all adopted revisions are available on the AEQAS common drive (62-160).

7.2 Evaluation and Approval of Alternative or Modified Methods

AEQAS staff review and either deny or approve applications from external parties for alternative or modified field or laboratory procedures, per Rules 62-160.220 and 62-160.330, F.A.C. Staff check whether applicants have provided the information required in the QA Rule and DEP SOP FA 2200 and, for laboratory methods, the document "Alternative and Modified Analytical Laboratory Methods (DEP-QA-001/01, current revision January 2017)." Checklists have been created to ensure that the review of each request is consistent. General checklists are found in this folder. For the evaluation of Method FL-PRO for Determination of Petroleum-Range Organics, AEQAS developed a unique set of checklists that were specifically written to perform a detailed comparison of the approved DEP FL-PRO method and the alternative or modified method submitted.

To determine equivalence for a proposed alternative or modified field or lab procedure, staff may conduct and/or require specific statistical tests from the requester to evaluate whether a dataset of sample results using the requested method is statistically significantly similar to a dataset of results using the DEP-approved standard or reference method. Per recommendations in, "Statistical Comparison of Two Paired Samples (Niu et. al., 2014)," the following statistical tests are used: Student t-test, Wilcoxon signed rank test or Fisher Sign test, and Bland and Altman's limits of agreement. When evaluating statistical differences, staff consider whether those differences are relevant to the scale for the proposed application of the method. For example, if the difference between two types of meters is statistically significant, but that difference is less than the allowed margin of error for the statistical test applied, the alternative meter could be approved.
If a proposed alternative or modified method is approved, that approval is communicated in a letter to the applicant. The letter must be signed by the Deputy Division Director or the Division Director, and then certified by a department Clerk. The letter may be transmitted via e-mail. All approvals or disapprovals of new methods are announced in the Quality of Science e-Newsletter, and approvals for statewide use (as defined in the relevant rules of Chapter 62-160, F.A.C.) are also published in the Florida Administrative Register (FAR). Both alternative and modified method approvals are posted on the department website.

7.2.1 General Procedure for Review of Alternative and Modified Method Requests

7.2.1.1 The AEQAS staff member receiving the request or approval inquiry will first inform the AEQAS section administrator, QA officer, and program administrator about the approval requested. The section administrator will assign the review to a designated staff member. The staff member will determine whether submitted information is for a field or laboratory method (or both) and whether the submitted information is complete according to the requirements by filling out the appropriate AEQAS checklist. This may require consultation with the requestor prior to the submission of any information or validation data. The reviewer must

clearly determine the scope of the requested approval and whether Department approval is required according to Rule 62-160.220, F.A.C., (field) or Rule 62-160.330, F.A.C. (lab), as some method modifications are preapproved, and are described in these two rule sections. The requester will be apprised of submission requirements by the AEQAS member, according to the appropriate rule section and AEQAS checklists. The relevant checklists may be provided to the requester to facilitate this process.

7.2.2.2 The reviewer will list the alternative method request into the appropriate QA Activities Tracker. Once the data and supporting information for the request are received at AEQAS, the reviewer will examine all information for conformance with the submission requirements. As necessary, the reviewer will enlist the expertise of other section members or expert staff from other programs, usually the DEP Chemistry and Biology lab programs, to assist with issues and questions concerning the submission. If it is likely that DEP regulatory program staff should be apprised of the approval request, the appropriate program(s) should be contacted early in the review process to ensure that data quality objectives for regulatory data use will be met. The full description of the proposed method steps and the validation of submitted data must be verified by the reviewer before proceeding with any approval (or disapproval).

7.2.2.3 During this process, it is often necessary to solicit additional clarification and documentation from the requester to verify all information submitted. This may be accomplished with phone calls and emails, including emailed support documents and document revisions submitted by the requester to provide the additional information. In some cases, a resubmission of validation data from a new study may be required. Staff should request such resubmissions informally, rather than incur the delay of a formal disapproval letter. Requesters are often amenable to performing new validation studies to help expedite timely approval. However, the reviewer will in all cases ensure that any approval is based on the written documentation, not verbal communications.

7.2.2.4 Once the review of the submitted information is completed, the AEQAS reviewer will determine whether the alternative or modified method has been validated for the scope of approval requested, including, when required, whether equivalency with the DEP-approved, standard or reference method has been demonstrated, according to the requirements in this section. The reviewer will then route the review package to the AEQAS section administrator for final review, who will authorize the completed review and request approval of the package from the WQSP program administrator and the DEAR deputy division director.

7.2.2.5 The reviewer will prepare an approval letter on DEP stationery. The approval letter will provide a detailed list of the significant method modifications, or a complete description of the alternative method that is approved. In all cases, the scope of approval will be limited to that requested by the submitter and validated by the reviewed data. In no instance will an approval be granted without the Department's receipt of a complete SOP or published method that includes the stepwise details of the method and/or method modifications. Current templates for approval letters consist of previous approval letters retained in the AEQAS subfolder. The reviewer will use a recent approval letter as the example to edit for

the current approval request. In the rare situation where a request is formally disapproved, the approval letter will be modified to indicate the technical reason(s) for denying approval.

7.2.2.6 Once the official approval has been signed by the Deputy Director and Clerk, the reviewer must transmit the approval letter to the requester (email transmittal is acceptable and most common). The reviewer will inform the requester that the approved SOP or method will be posted on the Department website along with the letter (unless SOP or method confidentiality or copyright is claimed, which must be indicated with the original submittal of the SOP or method to DEP). If statewide-use approval is given to a request, the reviewer will work with WQSP staff (Kaitlyn Sutton) and the Program attorney (Kenneth Hayman) to publish the approval in the FAR. Field procedures approved for statewide use are incorporated into the collection of DEP SOPs. The reviewer will list the statewide-use method in the current DEP SOP revision tracker maintained by the section.

7.3 Quality Assurance Mailbox

AEQAS staff maintain a group email address, Quality_Assurance@FloridaDEP.gov, which serves as an additional avenue for individuals or entities to ask quality assurance questions. The staff who monitor the mailbox are Jessica Patronis, vacant OPS EC, Jackie Krebs, Natalie Boydstun, and Alicia Cedeño Salgado. Nia Wellendorf also has access to the mailbox. Staff receive, read, and respond to questions in the mailbox on an ongoing basis, with the goal to answer questions within one week of receipt. Some questions may require discussion amongst QA staff or outside experts and take more time to answer. In these cases, QA staff will acknowledge receipt of the question to the sender and notify the sender that a response will be available soon as possible (or that it is under consideration). Status of questions in the QA mailbox are tracked using an Excel spreadsheet, and answers to those questions are stored in the spreadsheet for future reference by QA staff. vacant OPS EC manages the tracker. The status of the QA mailbox is discussed during the QA staff's weekly QA Check-In Meeting.

7.4 Plant ID Mailbox

AEQAS staff, Ashley O'Neal, Nia Wellendorf, and Jessica Patronis, maintain and monitor a group email address, DEAR_PlantID@FloridaDEP.gov. The purpose of this mailbox is for DEAR sampling groups who submit LVI data to DEP to send in notifications of their plant specimens submitted in their sample coolers, and/or their pictures for an ongoing plant QC exercise initiated in 2023. Plant ID verifications submitted to the mailbox are tracked using an internal Plant Verification Tracking Sheet.

8. Data Review Procedures

WQSP staff understand the need to evaluate the quality and usefulness of environmental data prior to making decisions. Data used by WQSP are reviewed by staff to determine its usability for determination of compliance with permits or rules and as input for water quality standards development. Upon request, WQSP may review data for other programs and agencies. These

procedures are based on established DQOs and DQIs, and incorporate the concepts and criteria found in the department's "Process for Assessing Data Usability", DEP-EA-001/07." See Appendix A for a list of routine DQOs and DQIs that are reviewed via the procedures in DEP-EA-001/07. Staff evaluate data using the WQSP DQOs and DQIs and implement corrective actions as directed by the QAO. Corrective actions for data not meeting established DQOs are specific to the use of the data and are determined as appropriate to the data use for the specific task.

8.1 Biological Data Quality Review

Determining if biological data are usable by the department for a certain purpose is a complex process requiring an objective evaluation of many factors. There are factors specific to each type of biological assessment tool, and specific data usability considerations for the SCI and LVI are included in the SCI Primer and LVI Primer documents. AEQAS staff use data review checklists for specific tools (LVI, LVS, RPS, SCI, Hester-Dendys, and macroinvertebrate dredge sampling) to assess data usability for specific purposes (e.g., Impaired Waters listing per Chapter 62-303, F.A.C., wastewater permit compliance). The Stressor ID process is used to determine the cause of an SCI failure when a causative pollutant cannot be identified. The process involves critically reviewing available information, forming possible stressor scenarios, testing the scenarios in the Stressor Identification Statewide Model, and producing conclusions based on the model output. In some cases, additional data collection may be necessary to accurately confirm the stressor(s). The conclusions can be translated into management actions, and the effectiveness of those management actions can be monitored. The overall process involves a series of steps that are described in detail in the SCI Stressor Identification Process document.

In general, the following are considered when making decisions about using biological data:

- The user must understand the purpose for the sampling, and extent to which the biological data meet the objectives of the program data use.
- The user must determine if the samplers were proficient in the bioassessment method. Bioassessment proficiency information is maintained on the department's website (see section 5.2).
- The user must evaluate field and lab quality control measures and supporting data (water quality data, other biological tools, companion tools [HA], other entities' [DEP, WMDs, and local governments] data for the same waterbody) to determine if appropriate SOPs were followed and if results were within expected levels.
- The user must determine the pattern, frequency, and magnitude of any quality control (QC) issues associated with results.
- The user must determine the relationship between the bioassessment result (SCI, LVI, LVS, or RPS score), the associated action level (listing decision, etc.), and the MDD (minimum detectable difference—a measure of uncertainty) associated with the method.
- The user must determine, to the extent possible, a reasonable cause for a failing or anomalous bioassessment score.

8.2 Data Quality Review for Water Quality Criteria Development

Water quality criteria are the ultimate threshold against which monitoring data will be assessed for Clean Water Act purposes. Therefore, water quality standards and criteria derivation require particularly stringent quality assurance. Data used to develop water quality criteria for the protection of aquatic life from acute or chronic toxicity endpoints are reviewed based on the requirements and procedures in Stephan et al., 1985, or other scientifically defensible methods applicable to the criteria under development. Water quality data used to assess or derive numeric criteria for other parameters are reviewed to ensure the data used accurately represent ambient conditions following the procedures in DEP-EA-001/07. Additionally, data and associated qualifiers are reviewed, and data are handled as follows:

- On a case-by-case basis, reject results with 'Fatal' Qualifier codes (H, J, N, O, Q, V {except as noted below}, Y, or ?), as defined in Table 1 of Rule 62-160.700, F.A.C., or per equivalent laboratory comments.
- Results reported as below the detection limit and flagged for blank contamination (e.g., V qualifier code) will not be rejected.
- Results reported as less than the method detection limit (e.g., U qualifier code) are replaced with either half of the reported detection limit or half the applicable criterion or addressed in another scientifically valid method, depending on data use. Zeros are not used to represent values below the method detection limit (MDL).
- Qualifiers are reviewed to ensure appropriate use (e.g., T was used when U was more appropriate).

8.3 Audits

Pursuant to the QA Rule, Chapter 62-160, F.A.C., the department has the authority to conduct audits in support of program-specific use of data (see Rule 62-160.650, F.A.C., Field and Laboratory Audits). Department staff may audit sampler performance at the time of sample collection and visit laboratories to assess analytical operations. For both on-site audits and off-site records audits, documentation is inspected for conformance with requirements found in the QA Rule, the DEP SOPs, and the National Environmental Laboratories Accreditation Conference / The NELAC Institute (NELAC/TNI) standards. Regulated parties and contractors, as well as consultants, local governments and department work units, are all subject to audits, and must provide all information necessary to reconstruct sampling events and laboratory analyses. The department may require corrective action responses for specific findings reported as the result of audits. The general procedures for conducting audits are described in section 9 of this document.

8.4 Data Validation

The rule authorizing the department to verify and validate data used by its programs for specific usability assessments is Rule 62-160.670, F.A.C. (Data Validation by the Department). This assessment includes evaluation of sample collection, preservation and handling; laboratory certification, analysis methodology, analytical sensitivity, instrument calibration and quality control; and attainment of any specific data quality objectives identified for the project or

program, and may include the additional activities listed in this section. Data records are evaluated for completeness and internal linkage by tracking specific samples through the process from sample collection to data use, to reconstruct the sampling and/or analytical process that produced the sample results. Further detail about the usability assessment process is provided in the document, "Process for Assessing Data Usability", DEP-EA-001/07, which is incorporated into the QA Rule. The validation process is similar to that used for records audits and includes many of the same verification and validation criteria and may also include criteria more specific to the project or program data use. Often, DEP program staff in DEAR or the regulatory divisions request that AEQAS perform abbreviated QA reviews of project or sampling event data packages and make recommendations about specific usability questions. The general process for conducting data validations and data verifications of all types includes:

8.4.1 The AEQAS staff member receiving the data review or validation request will coordinate with the program requesting the review to gather the relevant facts of data use and quality assurance/quality control (QA/QC) questions pertaining to the review and, with the concurrence of the section administrator regarding any review assignments, engage the help of subject matter experts within AEQAS and other programs (often the DEP Laboratory programs) to assist with the review or answer specific validation questions. The AEQAS reviewer will attempt to reach a consensus evaluation of the data with the experts.

8.4.2 Once completed, the evaluation of the data is shared with the requesting program staff, and AEQAS makes a recommendation for data usability, based on the specific data use indicated. Communications with requesting program staff are often informal, and are facilitated with emails, phone calls and meetings. AEQAS staff will retain all correspondence and documentation concerning the review and usability recommendation. Emails and records of meetings and phone calls are kept for the project file by the reviewer. Documentation submitted for review is also retained by the AEQAS reviewer, and a copy of the documentation may be placed in a project specific folder on the AEQAS common drive. The requesting program staff are responsible for initiating any department action regarding the use of the data.

8.4.3 If a formal record of data validation is necessary, AEQAS will prepare a department memo that summarizes the categorical review items that were validated according to rule 62-160.670, F.A.C., in addition to the additional criteria specific to the project. The summary will contain sufficient technical details for defensibility of the AEQAS data usability recommendation and department action taken.

8.5 GIS Layer Updates and Maintenance

8.5.1 Geographic Information Systems (GIS) is the use of geospatial data files and internet-based mapping to allow the display and analysis of a wide array of environmental data. Department staff and the public can view spatial information relevant to department programs. This information can be used to assist with making environmental decisions, such as selecting sites for water quality or biological sampling or monitoring, permitting and compliance considerations, or

303(d) assessments. GIS is an important tool and helps WQSP staff work more efficiently and accurately, resulting in better decisions and responses.

8.5.2 Surface water quality standards are fundamental to many department programs and decisions. In addition to the maintenance and revision of these water quality standards rules, SDS is responsible for the development, maintenance, and revision of four attendant GIS data layer categories. These data layers are fundamental to several department programs, including permitting, assessment, and monitoring, because the layers provide information on the applicable standards for waterbodies throughout the state. The water quality standards data layers include the Surface Water Class Boundaries (areas) and (lines), OFWs, NNC layers, and SSACs (areas) and (lines).

8.5.3 The bases for these data layers are generally the geographic descriptions and/or maps adopted by reference in the standards rule (Chapter 62-302, F.A.C.) or in Final Orders. Regardless of the adoption procedure (Rule or final order), the description in the documentation that was approved by the department and EPA is used to update the GIS layer with new data or to create new data layers as the need arises.

8.5.4 Though each data layer has its own unique requirements, the general revision or addition to the data layer follow the steps outlined below:

- Compare the adopted rule language and spatial descriptions to the supporting documentation and to features on land (e.g., cities, roads, waterbodies, latitude and longitude);
- Resolve any questions;
- Create a shapefile of the change; including changes to the attribute table or to the feature geometry;
- Create a static (e.g., .pdf, .jpeg) image of the shapefile showing the change in relation to features that would aid viewers in locating the area (only as needed);
- Review the revisions to the layer and update the metadata as requested by the GIS section, including updating the GIS data checklist;
- Distribute the static image, attribute table, and metadata drafts to staff knowledgeable about the change for consistency and accuracy review;
- Once the changes are verified and approved as accurate, include a final static image in the file for the WQS change as additional documentation; and,
- Submit the shapefile and updated attributes to staff in the GIS section for modification of the appropriate data layer. Only a limited number of individuals (currently one) are approved to make changes or additions to the WQS data layers. WQSP staff are notified when the data layer has been updated and is available for use.

8.5.5 The overall GIS layer revision process is similar for all WQS layers but can involve

additional program areas depending on the specific need and data layer. Questions regarding OFWs can involve additional research into the history and ownership of an area prior to validating the extent or responding to the question. These questions are received both by SDS and other programs; for example, DEP Districts, GIS Section, Division of State Lands (DSL), and Office of General Counsel (OGC). Responses to these questions need to be coordinated among the program areas to maintain effective internal communication and consistency of departmental response. The coordinated response process is as follows:

- The question is forwarded to SDS staff if received by the GIS section, DSL, DEP District Office, or any other program within the Agency that needs assistance with addressing an inquiry,
- SDS staff research the records, documentation, and history from previous investigations,
- Additionally, program staff from GIS, DSL, OGC, and/or other relevant department staff assist with the record and documentation review as needed.
- Once the response or decision is made, those involved are informed and the documentation is retained in SDS files.
- Any modifications to the data layer(s) that are necessary are made in the same manner as above. The OFW data layer may only be modified if the change represents a more accurate interpretation of current rule language.

9. Procedures for Conducting Audits and Managing Corrective Actions Resulting from Audits

Audits provide objective feedback concerning the effectiveness of a program's quality system and may identify areas in need of improvement. The WQSP performs both internal and external audits and follow-up activities, as discussed below (also see section 8.3 above). Audits are entered and tracked using the appropriate AEQAS tracking spreadsheet. Training for new auditing staff consists of pairing junior staff with senior staff to learn auditing procedures discussed in this section.

9.1 Internal WQSP Program Auditing

9.1.1 Internal audits typically involve a field evaluation to determine each person's skill and knowledge of sampling and field-testing techniques, and evaluation of the documentation produced during the field sampling event. These audits are conducted by AEQAS staff using audit checklists designed for each of the applicable DEP SOPs. The current version of these checklists is in Excel format and is stored in the program's common server directory under QA\Audits\Cklsts. Generic versions of these checklists are found in the appendix to DEP SOP FA 1000 and are also available to staff and the public via links on the Data Review and Audits webpage. Auditors complete the checklist while conducting the audit, describe any deficiencies, and provide a preliminary audit report to audited staff and supervisors within the section. Audited staff provide responses to the audit findings,

and then both parties agree on corrective actions. Corrective actions often consist of additional training and revision of field sheets to improve documentation. Once corrective actions have been agreed upon and approved, a final report with a summary of the actions and dates of implementation is issued. WQSP has an internal goal of conducting one internal field performance audit per year.

9.1.2 WQSP personnel are also audited to determine initial (see section 5.1) and continuing proficiency per time frames outlined in DEP SOPs to be qualified to conduct sampling and field assessment activities for the SCI, BioRecon and LVI. Proficiency requirements for those methods are in SOP sections SCI 1300, BRN 1300, and LVI 1200, respectively. In addition, after receiving training per DEP SOP FA 5720, staff are required to participate in periodic benchmark evaluations of their ability to perform Habitat Assessments (HA; DEP SOP FT 3000).

9.1.3 The results of audits for individuals evaluated for SCI and BioRecon sampling are scored per DEP SOPs SCI 1300 and BRN 1300, and hard copies are retained in AEQAS archives. The results for sampling teams evaluated for the LVI procedures are scored per DEP SOP LVI 1200 and retained in electronic files. Audits of water quality sampling and field testing are also retained. Habitat Assessment (FT 3000) evaluations are periodically conducted on a peer group basis and are based upon the central tendency of the established expert group. These results are also scored and retained. Electronic records for bioassessment audits are stored in their respective folders in the AEQAS common drive Bioassessment folder.

9.1.4 When deficiencies are identified with respect to the SCI, LVI, HA, water quality sampling, field-meter testing, or documentation, the root cause of the issue is identified and corrective action, such as additional training and/or testing, is implemented.

9.2 External Audits and Audits Internal to DEP

The WQSP conducts sampling-performance, field-testing, and data records audits, and reviews quality systems at the request of department programs and provides recommendations for data use and improvements for those programs, as appropriate. When necessary, the WQSP can jointly conduct laboratory audits with the Florida Department of Health (DOH) Environmental Laboratory Certification Program (ELCP) to investigate QA issues identified with a specific laboratory. Reports containing audit findings are posted on the department's Audit Reports Webpage. The WQSP also conducts routine audits to evaluate proficiency of individuals performing biological assessment procedures (see 9.2.4 below). The prioritization and scheduling of all audits is based on the availability of WQSP staff auditors and auditor-trainees.

9.2.1 Quality of Science Reviews

Dependent upon requests, need and utility, WQSP performs Quality of Science Reviews of department programs, per its responsibilities under the Quality Assurance Policy. WQSP conducts these reviews by evaluating the effectiveness of a program's quality system, including its implementation and documentation, while providing suggestions for and assisting with improvement of the program's quality system. The following steps are

followed for Quality of Science Reviews:

9.2.1.1 Identify the program, section or district to be reviewed, and identify key staff members within the unit. This should include the program/section administrator and the quality assurance officer. Details about the review, including interview date and time, are determined via email.

9.2.1.2 Any documents used for quality assurance purposes that are not incorporated in the QA Rule, including program-specific SOPs and the program's quality plan, are provided to WQSP staff by the audited program. AEQAS staff then review the documents and develop questions regarding the quality system.

9.2.1.3 At least one meeting is scheduled with AEQAS staff and the program being reviewed to discuss any questions left unanswered by the QA documents. Procedures in use by the unit are covered through the meeting interview. If any gaps in procedures exist, AEQAS staff discuss how to best resolve them.

9.2.1.4 Findings from review of the quality system documents and interview meeting(s) are compiled in a draft report, which includes recommendations for quality system improvement, as well as suggested revisions for the program's Quality Plan. The reviewed party is asked to respond to the draft report with an acknowledgment and implementation timeline for each quality system improvement recommendation. AEQAS staff and appropriate program staff may hold a second meeting to review the draft report if necessary.

9.2.1.5 The report is finalized and issued. This report is transmitted via email to the staff involved in the Quality of Science Review, including the program administrator. This report may be distributed among interested staff or staff within the reviewed program. AEQAS stores Quality of Science Reviews in this common drive folder.

9.2.2 Water Quality and Macroinvertebrate Laboratory Records Audits

9.2.2.1 After an initial request and subsequent discussions, WQSP staff typically obtain pertinent information about sampling sites, sample lists, sampling dates, and the identities of the organizations involved in the audit. Jessica Patronis and Joy Jackson are the lead auditors and organize these audit preparations or delegate this task to other WQSP staff, with the concurrence of the AEQAS section administrator (and the WQSP program administrator, when appropriate), and includes the following steps:

9.2.2.1.1 Identify the set of records to be audited. This set is defined by the sites, sampling entity, and/or timeframe for which data are to be used by the program requesting the audit. For each analyte or test to be audited, QA Program staff (within AEQAS) select a set of sample results to audit based on the purpose of the audit and the number of results available. For example, records from a single sampling event, using a single laboratory, and for only a few analytes may be selected as the scope of the audit. Alternatively, multiple sampling events, sampling projects, or laboratories with a larger number of analytes may be represented by the scope of the requested audit, with a corresponding increase in the number of results selected.

9.2.2.1.2 Determine the appropriate evaluation criteria for the audit. Audit criteria are derived from the QA Rules, relevant program rules and requirements, DEP SOP requirements, NELAC/TNI requirements for lab certification, DEP data usability criteria (DEP-EA-001/07), or analytical method requirements. Checklists to be used for these audits are located on the program's common drive.

9.2.2.1.3 Arrange to perform the audit. The designated lead auditor will be responsible for ensuring that all preparations are completed timely before the start of the audit. Any auditor training must be completed prior to the audit, and may include a review of standard AEQAS checklists, review of example documentation, conducting a mock audit, etc. Any new checklists required for the specific audit scope will be prepared by experienced AEQAS QA staff, with the assistance of subject matter experts, as needed. When possible, audit checklists will be pre-filled with information about the selected audit samples and reported sample results, based on records submitted by the audited organization and obtained from the appropriate department database. Develop and send the field and/or lab organization(s) a list of records that will be evaluated (representing sample result data that have been reported to DEP), indicating that all field and/or lab records related to the chosen audit samples must be provided for inspection. For audits that comprise an evaluation of both field and lab components, records must be sufficient to reconstruct how the sample was collected, received in the lab, processed and analyzed, results evaluated, and results reported. For separate field or lab audits, only the relevant records are examined. If the audit will be conducted on-site at the office or lab location for the audited organization, schedule a date and time to meet at the location, indicate the expected duration of the audit (typically, one or more business days), specify the number of auditors attending, and ensure that there is sufficient office space for audit staff to review documents. If AEQAS will conduct a desk audit, arrange for all documents to be provided to DEP digitally, either by email or ftp download. All communications with the audited organizations should facilitate a smooth and cooperative exchange of information and documentation. AEQAS auditors will provide enough details to the organization about the audit to clearly indicate the scope of the audit and the records to be exhibited.

9.2.2.1.4 During the audit, review assembled records and complete the audit checklists. Obtain additional information from the audited lab if needed to resolve questions that may influence the findings. The designated lead auditor will ensure that all auditors are correctly completing checklists and interpreting information in relevant organization records. The audit team will request copies of any documentation needed to complete the audit and audit reports, both at the time of the audit onsite at the organization location, and after the audit, as needed. Often, such

documentation requests are necessary to resolve details of specific audit findings.

9.2.2.1.5 Compile findings and discuss them among QA staff. Write a preliminary audit report that contains a summary of the audit event, a table of deficiencies, and a timeframe within which the audited party must provide responses and proposed corrective actions for deficiencies. For AEQAS audits, the preliminary report must be sent to the audited party within 90 days of the audit, as specified in Rule 62-160.650, F.A.C., but other deadlines may apply if AEQAS is assisting a regulatory program with an audit and preparing a report according to different established schedules. Some findings, especially related to data reporting, may be directed to the sampling entity rather than the lab; in this case, clearly indicate the intended party for the finding, and it may be useful to split the findings into two tables within the report. The preliminary report will be sent to the audited party within 90 days of the audit date. Preliminary and final audit report templates are located on the AEQAS common directory.

9.2.2.1.6 Per Rule 62-160.650, F.A.C., the audited party must send responses and corrective actions within 45 days from receipt of the preliminary audit report. QA staff shall determine if the responses and corrective actions adequately address the deficiencies. QA staff will amend the preliminary audit report to create the final report by adding comments of acceptance or conditional acceptance of the proposed corrective action within the table and include a data usability recommendation for the Program that requested the audit (if applicable). A draft of amendments to the preliminary report should be sent to the audited party for review and discussion before the report is finalized. This step reduces any misinterpretations by the auditors or the audited party. The data usability recommendation and any associated cautionary statements will be determined based on the severity and frequency of the noted deficiencies. If QA staff recommend that some or all data generated by the audited party should not be used, this recommendation should also contain a date range for usability, or some other appropriate constraint.

9.2.2.1.7 Issue the final audit report. The final report may be transmitted with a cover letter to external organizations or as a memo to an internal DEP program. It may be directed at the audited lab, sampling entity, the program requesting the audit, or some combination thereof, and it may be transmitted via email, which is the typical method of routing. For audited parties external to DEP, the final audit report will be signed by the Division Director or Deputy Director and be certified by a department Clerk as a final order. It will then be posted on the department Audit Reports Webpage. For audited parties internal to DEP, the final report will be transmitted as an internal memo and posted to the Audit Reports Webpage. The lead auditor will ensure that each step of the final report processing is completed timely and accurately.

9.2.2.1.8 If it is determined that data usability is affected as an outcome of an audit, staff will enter information about the audit into WIN, including the audit type, audit purpose, audited party, audit date, and analyte groups. Check with programs to see if they want any data sensors applied to the audited data based on findings. Specific analytes and date ranges can be flagged with specific data use limitations, including:

- Data are not usable for IWR verified listing
- Data are not usable for any IWR assessment
- Data are not usable for TMDL development
- Data are not usable for BMAP development or analysis
- Data are not usable for Standards development

An internal training video is available for learning this process.

9.2.3 Field Performance Audits Conducted by WQSP

The WQSP conducts field performance audits upon the request of department programs. Sampling teams to be audited are identified through contacts with the team leader or other managers. The following steps are followed for field performance audits, and it will be the responsibility of the designated lead auditor to ensure that all steps are completed:

9.2.3.1 Identify the sampling team and site(s) to be audited. The team and site(s) should be representative of typical sampling operations conducted by the audited organization and specific to the project for which the audit was requested (when applicable). Details about the planned audit date, meet-up logistics and audit scope are typically arranged via email and phone calls. As with other types of audits, the lead auditor will organize strategy meetings and auditor training as necessary to prepare for audits. Since field-performance checklists have been standardized to the DEP SOPs, there is typically little, if any, revising of audit checklists needed, but the lead auditor will oversee any revision of checklists required as part of audit preparations.

9.2.3.2 WQSP auditors will observe as much of the sampling process as possible, including pre-event field meter calibration/verification, field mobilization, sampling, sample submittal to the lab, and post-event field meter verification. Auditors will use audit checklists based on department SOPs to evaluate sampling performance (checklists are located on the program common file directory). Auditors will obtain copies of all field sampling, sample submittal, and field meter calibration/verification documentation on the audit day, if possible, or from the sampling team shortly after the audit date. The records from the audit will be scanned and electronically stored with the audit report.

9.2.3.3 Compile findings observed during the sampling performance audit and findings from the review of field documentation prepared with the sampling event(s) audited and discuss them among QA staff. Write a preliminary audit report that contains a summary of the audit event, a table of deficiencies, and a timeframe within which the audited party must provide responses and proposed corrective action for deficiencies. The preliminary report shall be sent to the audited party within 90 days of the audit date, per Rule 62-160.650, F.A.C.; note that other deadlines may apply if AEQAS is assisting a regulatory program with an audit

and preparing a report according to different established schedules. Preliminary and final audit report templates for field performance audits are located on the AEQAS common directory.

9.2.3.4 Per Rule 62-160.650, F.A.C., the audited party must send responses and corrective actions within 45 days from receipt of the preliminary audit report, unless a different schedule applies. QA staff shall determine if the responses and corrective actions adequately address the deficiencies. QA staff will amend the preliminary audit report to create the final report by adding comments of acceptance or conditional acceptance of the proposed corrective action within the table and including a data usability recommendation for the Program that requested the audit. The data usability recommendation and any associated cautionary statements will be determined based on the severity and frequency of the noted deficiencies. If QA staff recommend that some or all data generated by the audited party should not be used, this recommendation should also contain a date range for usability, or some other appropriate constraint. As with lab audit reports, the lead auditor should share a draft of the final report with the audited party to clarify and concerns or misinterpretations before finalizing the report.

9.2.3.5 Issue the final audit report. The final report may be transmitted with a cover letter to external organizations or as a memo to an internal DEP program. It may be directed at the audited lab, sampling entity, the program requesting the audit, or some combination thereof, and it may be transmitted via email, which is the typical method of routing. For audited parties external to DEP, the final audit report will be signed by the Division Director or Deputy Director and be certified by a department Clerk as a final order. Post the final audit report on the department Audit Reports Webpage. For audited parties internal to DEP, the final report will be transmitted as an internal memo and posted to the Audit Reports Webpage. The lead auditor will ensure that each step of the final report processing is completed timely and accurately.

9.2.3.6 Enter audit results into WIN per instructions in 9.2.2.9.

9.2.4 Bioassessment Audits Conducted by WQSP for External Parties

AEQAS schedules field audits with individuals wishing to become proficient in performing the SCI and BioRecon, coordinates refresher audits for those intending to maintain their SCI and BioRecon proficiency status, coordinates comparability testing for the LVI and stream HA, and provides web links to allow people to take the SCI online test of concepts, LVI online plant identification and method tests, and RPS and LVS online tests of concepts (currently optional). Results of these QA evaluations are maintained by Ashley O'Neal, Joy Jackson, and Jessica Patronis in an online registry. Joy Jackson maintains the HA results, Jessica Patronis maintains the RPS results, and Ashley O'Neal maintains the SCI (first time audits and refresher audits), LVI, and LVS.

AEQAS staff conduct the SCI (Joy Jackson, Ashley O'Neal, Jessica Patronis and Nia Wellendorf) and BioRecon (Joy Jackson) audits and evaluate results from the LVI and HA comparability testing. Ashley O'Neal is responsible for coordination of SCI first time and refresher audits. SCI and BioRecon audits are conducted and evaluated per SOPs SCI 1300 and BRN 1300, respectively. LVI and HA testing results are evaluated per SOPs

LVI 1200 and FA 5720. For biennial LVI testing, AEQAS issues a report of the results, including discussion of differences among teams and indication of which teams were within the acceptable range of scores. Ashley O'Neal is responsible for the LVI proficiency testing and evaluation, and Joy Jackson is responsible for the HA evaluations.

9.2.4.1 Lake Vegetation Index Proficiency test evaluation

Testing:

- Establish 3 test lakes, with one in the Panhandle, one in the northern Peninsula, and one in the southern Peninsula, per SOP LVI 1200. Each lake should have good public access, a good boat ramp, and accommodate moderately sized boats.
- Announce the test and test window on the website and Quality of Science e-Newsletter at least 15 days prior to the test window. The test window should be 30 days in length. Give teams 2 weeks after the testing window to send results to AEQAS.
- Provide a sampling map for each testing lake, with sections numbered and labeled with lat/longs.
- If a team misses the testing window but wants to test, allow them to do so within the LVI index period but do not include their score in the expert median, even if they passed during the previous most recent proficiency exercise. Ask the team to not view the LVI report, which would be an unfair advantage.

Summarizing and Reporting:

- Calculate the median score from the teams that were in pass status after the most recent proficiency exercise. LVI scores that are within ± 12 points of this expert median will be considered passing.
- Notify participants of pass or fail status as soon as all scores are in. This is done before the finalized report so that participants are aware of their proficiency status as soon as possible, for the LVI sampling season that is underway.
- Create plots and tables of LVI scores, metric scores, dominant taxa chosen, plant taxa lists, and participating teams and their members (see previous years' reports for formats).
- Summarize results into a report, including a discussion of variability in LVI and metric scores, tips for plant identification for any taxa that were commonly misidentified or confused.
- Send draft report to participants for review, finalize report, post final report on website and send to participants.
- Ashley O'Neal is responsible for coordination of the LVI team proficiency testing and online testing.

9.2.4.2 Habitat Assessment proficiency test evaluation

- For HA testing purposes, five stream sites are typically established in three regions across the state. Scores are compared to the total "consensus score" agreed upon by a group of Habitat Assessment testers in "Pass" status at the time the scores are established.
- A "consensus score" is established by a minimum of seven HA analysts in "Pass" status at the same site on the same day. Testers must achieve a score that is within 10 points of the established consensus score at a minimum of three sites every other year to be in "Pass" status.

- Joy Jackson is responsible for coordination of the HA proficiency evaluation.

Please refer to the document titled "Guidelines for the Habitat Assessment Testing Process_07092024" located in the Habitat Assessment Evaluation folder.
Revisions of the documents are currently pending final approval of the proficiency criteria and will be updated once the SOPs have been finalized.

9.2.4.3 Plant ID QC Exercise (for DEAR sampling staff only)

- For every 10th LVI survey for a given ROC or other work unit that routinely does LVI sampling, the team collects or photographs 1 plant out of every 10 identified in the survey. If teams conduct less than 10 LVI surveys in one season, they shall conduct the QC protocol for at least one LVI sampling event.
- Teams take photographs for common taxa easily identified in the field. Photographs should include the plant in its habitat, a shot of the entire plant, and a close up with any flowers or fruits present, or other key features that are needed to make the ID. The photographs are submitted to the plant QC mailbox: DEAR_PlantID@FloridaDEP.gov.
- Teams collect specimens for any taxon that is listed in section 4.2.3 of the LVI Primer "Genera to Identify with Magnification" or other taxa they would take back to the lab for ID. Specimens should be shipped in the sample cooler, in a sealed plastic bag with the water drained out, and labeled with the following:
    - AEQAS – Ashley O'Neal or Jessica Patronis
    - Team
    - Date
    - Lake Name
    - Number assigned to plant
    - ID of plant
- Teams send an email to the plant QC mailbox, letting AEQAS know that a plant QC sample is in route: DEAR_PlantID@FloridaDEP.gov.
- AEQAS staff ID the specimens/photos and respond to the collector with a verification or correction of the IDs, and feedback on the identification, within 2 weeks of submittal. Ashley O'Neal is responsible for the coordination of the Plant ID QC Exercise.

9.2.4.4 Stream Condition Index Refresher Audit Evaluation

- Five years after successfully completing an SCI initial audit, a sampler maintains their proficiency status with a refresher audit, by sampling at a DEP Benchmark stream site. The sample is processed by a laboratory that is typically used by the sampler's organization. The score is submitted to AEQAS.
- The criterion for passing is that the refresher sample score must be not more than 20 points below the median SCI score for the site.
- AEQAS evaluates the refresher audit sample as follows:
    - AEQAS calculates the median SCI score for the site by retrieving all SCI 2012 data for the WBID from SBIO. If there is significant heterogeneity in the WBID, only the stations appropriate for comparison with the proficiency sample station are used. If any SCI data are flagged or appear

to be inappropriate for comparison because they are experimental or otherwise not representative of ambient conditions in the waterbody, they are removed.
- All scores are whole numbers, or rounded to whole numbers.
- If the refresher sample is less than 20 points below the median SCI score for the site, the sample is a "pass" and the sampler maintains their SCI proficiency status for five more years.
- If the sample meets the refresher criterion and the laboratory that processes the refresher sample has been audited recently (within 5 years), AEQAS does not follow up with a detailed review of the laboratory documentation.
- If the sample meets the refresher criterion and the laboratory has NOT been audited recently, AEQAS will follow up with a laboratory records audit.
- If the refresher sample does not meet the criterion, AEQAS will evaluate the metric and taxonomic details of the sample, to determine why the sample score was low, and then, as best can be determined, if the low score was more likely attributable to sampler technique or decision making, or other factors (e.g. laboratory processing errors, major storm events or other larger scale impacts to the waterbody, invasive taxa, etc.)
- Depending on the results of the detailed evaluation of the sample, AEQAS may direct the sampler to resample at the original site, or to resample at another DEP benchmark site. AEQAS may also follow up with sampling at the original site by experienced DEP staff.

10. Contract Management

10.1 Contracts Managed by the Water Quality Standards Program

The WQSP ensures that the contracts managed by program staff are properly developed and managed to assure appropriate data quality. Contract managers ensure that the work is properly planned and executed, relevant to department environmental decisions, and consistent with the department QA Rule and department SOPs. Ashley O'Neal, Kaitlyn Sutton, and vacant SDS staff member are trained Florida Certified Contract Managers (FCCM). WQSP staff ensure that contract development and review include the provisions of the QA rule and the appropriate instruction document. There are separate instruction documents on the QA Process for Contracts, Grants, and MyFloridaMarketPlace (MFMP) Purchase Orders, all of which are available on the QA for DEP Contracts, Grants and Purchase Orders webpage. Standard templates are maintained by AEQAS and provided to contract managers as attachments to the above documents. These templates may be edited to customize requirements to the scope of contract work.

10.2 Support Activities for Contracts Managed by Other Department Programs

The WQSP provides education and "stock" QA language in the QA Process for Contracts and

Grants documents to contract (and grant) managers from other department programs to assist them with data quality issues for all contracts and grants that include field or laboratory analytical work. However, all department contract and grant managers bear the obligation of assuring that the work is properly planned and executed, relevant to department environmental decisions, and consistent with the department QA Rule and department SOPs.

The QA process documents include guidance for contract/grant managers whether to attach a Standard or Research QA Attachment to their agreements. Supporting documents include standard and research versions of QA Requirements Attachments (Exhibit D), QA Deliverables Template Language and QA Plan (or Quality Assurance Project Plan [QAPP]) templates. The templates are to be used for standard and research projects contracted by the department and for Nonpoint Source Best Management Practices (BMP) projects funded by EPA via 319(h) grants and managed by the department. Those documents are found on the QA for DEP Contracts, Grants and Purchase Orders webpage.

10.2.1 Contract/grant managers are trained by AEQAS staff on an as needed basis. The training consists of Quality Assurance concepts, the use of the templates for contracts and grants, and how to review a QAPP. AEQAS will also provide training upon request from contract managers and department procurement staff.

10.2.2 When a contract/grant or Purchase Order (PO) is initiated (i.e., a department contract "agreement"), the contract managers should review the QA process documents including the template attachments. If the Scope of Services includes field, lab, or statistical work with environmental data the appropriate QA Requirements Exhibit must be attached to the agreement. The agreement manager should review the QA requirements with the contractor/grantee and ensure they can meet the requirements with the proposed Scope of Services. If a QA Plan is required as part of the agreement, the appropriate template for the QA Plan is provided to the contractor or grantee. Both the exhibits and QA Plan templates can be modified, with assistance from AEQAS staff, to fit the scope of the project. If the contractor/grantee chooses to not use QA Plan templates, AEQAS can provide guidance contained in EPA Quality Assurance Project Plan Standard (CIO 2105-S-02.1) or DEP Requirements for Field and Analytical Work (DEP-QA-002/02), and may also provide the manager with a copy of the review checklist used by AEQAS QA plan reviewers. This worksheet outlines the review topics against which the QA plan contents are evaluated, and incorporates the criteria contained in the EPA and DEP documents cited above.

10.2.3 Once the contractor or grantee has submitted a QA Plan, the contract/grant manager will review and approve or request further edits, as appropriate. If the project is non-standard, such as a research QA Plan, or the contract/grant manager has questions, AEQAS staff are available to help with review. AEQAS reviewers use the QAPP Review Tracker to manage reviews. The internal turnaround time for a QAPP review is one month. Sometimes it is necessary to expedite a QAPP review to meet a program's deadline, and those dates are also tracked.

10.2.4 It is up to the contract/grant manager to ensure that the contractor or grantee has an

approved QA Plan in place prior to any work being done.

10.3 Quality Assurance Review for Ariba Spend Management MyFloridaMarketPlace (MFMP) Purchase Orders

10.3.1 Staff within AEQAS (Jackie Krebs, vacant OPS EC, Alicia Cedeño Salgado, Natalie Boydstun, and Jessica Patronis) are responsible for reviewing and approving any purchase orders (PO) that include field or laboratory analytical work, using the Ariba Spend Management MFMP online review and approval procedures. The Division of Management Services (DMS) offers online training courses including an MFMP System Overview covering how to use the MFMP system for staff who use MFMP for their job duties. For AEQAS staff to evaluate the PO, it must include the lab conducting the analysis and the analytes to be tested, with proof of Department of Health (DOH) NELAC/TNI, if applicable. A decision tree with links to common requirements is available as a resource for reviewing POs. Other internal resources for reviewing POs are located in the MFMP common drive folder. Staff perform the following steps in reviewing and approving or denying the POs:

10.3.2 Typical POs: A common type of PO is for surface water and/or drinking water testing at State Parks for one or more of the following: fecal coliforms, total coliforms, nitrate/nitrite, and lead. AEQAS staff must ensure that the purchased sampling and analysis complies with the QA Rule. AEQAS staff check the DOH lab certification page to verify that the lab is certified in the appropriate matrix (drinking water if from drinking water source, or non-potable water if from swimming area) for the analytes to be tested. If the lab is certified for the analyte, appropriate method, and appropriate matrix, then staff approve the PO by attaching the document "Purchase Order QA Standard," located on the QA for DEP Contracts, Grants, and Purchase Orders webpage. Staff then click "Approve," and add the comment, "Approved per requirements in Purchase Order QA Standard (attached)."

10.3.3 If the PO information does not clearly indicate which lab will conduct the analyses, or the lab is not listed on the DOH website as certified for the analyte(s), staff should first contact the requestor and ask them to provide clarification. Include any additional information gathered from the requestor in the comment box. If necessary, deny the request and, in the comment box, request that the vendor specify which certified lab will conduct the work. Once the lab information is received via a resubmitted requisition, the AEQAS MFMP QA Approver will then verify the certification status of the laboratory and approve the item.

10.3.4 Non-standard research or monitoring POs: If department programs are contracting with samplers or labs to conduct monitoring or analyses for non-standard procedures or methods not explicitly covered by the DEP SOPs or the lab DOH certification program, AEQAS staff must verify that there are published methods and procedures that will be followed to conduct the work within the PO. The contracted entity should provide a project plan, SOPs, or other documentation

describing the QC, calibration and data evaluation elements of the sampling and analysis or other experimental procedures, as required in the Purchase Order Research QA template, which is located on the QA for DEP Contracts, Grants, and Purchase Orders webpage. If sufficient documentation is not provided, the MFMP QA Approver will ask the requestor to provide the missing information, and the requestor will attach that information to the PO request. AEQAS staff should review the plan or SOP to ensure that expected QC measures will be taken.

10.3.5 When reviewing the research documentation, the AEQAS QA Approver must rely on the presumed expertise of the researcher to describe appropriate experimental procedures and quality control measures but should ensure that these types of activities (and measurement acceptance criteria) are adequately discussed or summarized in the documentation. Research QA requirements are listed in Rule 62-160.600, F.A.C. These reviews are often discussed among AEQAS staff to ensure that the work being purchased will be of sufficient quality for the intended use. If necessary, the AEQAS Approver will consult with other DEP subject matter experts for assistance with the review. After the review for sufficiency is complete and satisfactory, AEQAS MFMP staff will attach the Purchase Order Research QA template, approve the PO requisition, and record a comment that approval is per adherence to the attached project plan or SOPs and the QA requirements template.

10.3.6 No field or lab work: Sometimes POs are routed through for QA approval because of a commodity code used in MFMP, but there is not actually any sampling or lab work involved. In these cases, AEQAS staff approve the PO and comment that QA approval was not needed. POs involving air sampling only: Occasionally, POs for air quality sampling are mistakenly routed to QA for review. In these cases, AEQAS staff will contact the entity who submitted the PO and request that the requisition be rerouted through the appropriate channels.

10.3.7 Second round approval: Occasionally minor administrative changes in a PO can cause a PO to be routed back through all approvers, including the QA approval. If the PO has already been approved by AEQAS staff, the PO can be approved again without further review after verification of the initial QA approval. With the subsequent approval, include the comment “approved per previous QA review.”

11. Compilation of the Annual Quality Assurance Report to the Secretary

To provide the Secretary with information regarding the department’s ongoing QA efforts, the WQSP QAO prepares a WQSP-specific QA report that is compiled with the department-wide annual QA report. The combined QA reports describe the types and outcomes of QA activities conducted each year. AEQAS solicits annual QA reports from all department programs (except Air) during December, meets with QA officers in January and February, and summarizes those reports into a single annual QA report in March-April. Jackie Krebs coordinates this report compilation. Once the draft report is compiled, it is sent to QA Officers for their review, then to the AEQAS and WQSP administrators for review. Then the report is sent to DEAR’s deputy division director and division director, with a delivery goal of the end of May. Once the DEAR division director approves the report, s/he sends it to other directors for their review before

subsequent routing to the Secretary through the Deputy Secretaries, with a delivery goal by end of July of each year. Once the report is approved by the Secretary's office to be posted on the webpage, AEQAS staff ensure 508-compliance and post the report to its main Quality Assurance page.

Appendix A

Default Data Quality Objectives and Data Quality Indicators for the Water Quality Standards Program. DQOs and DQIs are adjusted as necessary to meet the requirements and objectives of the department Projects and Programs we are assisting.

Data Quality Indicator	Analyte, Parameter or Assessment Test	Data Quality Objective
Laboratory Control Spike (LCS) or Laboratory Fortified Blank (LFB) Concentration	Ammonium	≤ 160 µg/L
LCS or LFB	Calcium (Ca)	≤ 0.4 mg/L
LCS or LFB	Hardness (Ca + Mg calculation method)	Note 8
LCS or LFB	Hardness (titration method)	≤ 50 mg/L
LCS or LFB	Magnesium (Mg)	≤ 0.16 mg/L
LCS or LFB	Metals	See Note 2
LCS or LFB	Other Nutrients, including Nitrate, Nitrite, Nitrate + Nitrite, Orthophosphate, Total Phosphorus (TP)	≤ 80 µg/L
LCS or LFB Percent Recovery (%R)	Hardness (Ca + Mg calculation method)	See Note 8
LCS or LFB Percent Recovery (%R)	Hardness (titration method)	See Note 1
LCS or LFB Percent Recovery (%R)	Metals, including Ca, Mg	85% -115%
LCS or LFB Percent Recovery (%R)	Nutrients, including Ammonium, Nitrate, Nitrite, Nitrate+Nitrite, Orthophosphate, TKN, TP; and TOC	80% - 120%
LCS or LFB Percent Recovery (%R)	Semi-volatile (Extractable) Organic Compounds, including Pesticides, Herbicides, Phenolic Compounds, Chlorinated Phenols, Chlorinated Cresols, Polycyclic Aromatic Hydrocarbons (PAHs), Phthalate Esters, Polychlorinated Biphenyls (PCBs), Oils & Greases	See Note 4
Matrix Spike (MS) %R	Hardness (Ca + Mg calculation method)	See Note 8
Matrix Spike (MS) %R	Hardness (titration method)	See Note 1

Data Quality Indicator	Analyte, Parameter or Assessment Test	Data Quality Objective
Precision (Relative Percent Difference, Percent Relative Standard Deviation or Other) for Duplicate or Replicate (LCS, LFB, MS, Quality Control Check Sample or Sample Analyses)	Ammonium, BOD (Biochemical Oxygen Demand), Chlorophyll, Color, Hardness (titration method), Metals (including Ca, Mg), Nitrate, Nitrite, Nitrate+Nitrite, Orthophosphate, TDS (Total Dissolved Solids), TKN, TP, TSS (Total Suspended Solids), TOC, Turbidity	≤ 20%
Precision for Duplicate or Replicate	Bacteriological Quality (Fecal Coliform Bacteria)	See Note 5
Precision for Duplicate or Replicate	Hardness (Ca + Mg calculation method)	See Note 8
Precision for Duplicate or Replicate	Semi-volatile (Extractable) Organic Compounds, including Pesticides, Herbicides, Phenolic Compounds, Chlorinated Phenols, Chlorinated Cresols, PAHs, Phthalate Esters, PCBs, Oils & Greases	See Note 4
Surrogate Spike Percent Recovery	Semi-volatile (Extractable) Organic Compounds, including Pesticides, Herbicides, Phenolic Compounds, Chlorinated Phenols, Chlorinated Cresols, PAHs, Phthalate Esters, PCBs, Oils & Greases	See Note 4
Calibration Curve Linearity Evaluation	Ammonium, Metals (including Ca, Mg), Nitrate, Nitrite, Nitrate+Nitrite, Orthophosphate, TKN, TP, TOC	See Note 6
Calibration Curve Linearity Evaluation	Hardness (Ca + Mg calculation method)	Note 8
Calibration Curve Linearity Evaluation	Semi-volatile (Extractable) Organic Compounds, including Pesticides, Herbicides, Phenolic Compounds, Chlorinated Phenols, Chlorinated Cresols, PAHs, Phthalate Esters, PCBs, Oils &	Note 14

Data Quality Indicator	Analyte, Parameter or Assessment Test	Data Quality Objective
	Greases	
Minimum Number of Calibration Standards for Calibration Curve or Calibration Verification	Ammonium, Nitrate, Nitrite, Nitrate+Nitrite, Orthophosphate, TKN, TP, TOC	≥ 3
Minimum Number of Calibration Standards for Calibration Curve or Calibration Verification	Metals (including Ca, Mg)	Note 13
Minimum Number of Calibration Standards for Calibration Curve or Calibration Verification	Color	See Note 7
Minimum Number of Calibration Standards for Calibration Curve or Calibration Verification	pH, Specific Conductance, Turbidity	See Note 15
Minimum Number of Calibration Standards for Calibration Curve or Calibration Verification	Hardness (Ca + Mg calculation method)	Note 8
Minimum Number of Calibration Standards for Calibration Curve or Calibration Verification	Semi-volatile (Extractable) Organic Compounds, including Pesticides, Herbicides, Phenolic Compounds, Chlorinated Phenols, Chlorinated Cresols, PAHs, Phthalate Esters, PCBs	Note 14
For the following analytes, at least one calibration verification standard is from a second source as indicated in the applicable NELAC/TNI Quality Systems standard for continuing calibration verification	Ammonium, Hardness by Ca + Mg calculation method (see Note 8), Metals (including Ca, Mg), Nitrate, Nitrite, Nitrate+Nitrite, Orthophosphate, TKN, TP, TOC, Semi-volatile or Extractable Organic Compounds (including Pesticides, Herbicides, Phenolic Compounds, Chlorinated Phenols,	N/A

Data Quality Indicator	Analyte, Parameter or Assessment Test	Data Quality Objective
	Chlorinated Cresols, PAHs, Phthalate Esters, PCBs)	
Calibration Verification Standard Recovery or Other Verification Acceptance Criteria	Ammonium, Nitrate, Nitrite, Nitrate+Nitrite, Oils & Greases, Orthophosphate, TKN, TP, TOC	90% - 110%
Calibration Verification Standard Recovery or Other Verification Acceptance Criteria	Metals (including Ca, Mg)	Note 10
Calibration Verification Standard Recovery or Other Verification Acceptance Criteria	Conductance, Specific	95% - 105%
Calibration Verification Standard Recovery or Other Verification Acceptance Criteria	Dissolved Oxygen	See Note 9
Calibration Verification Standard Recovery or Other Verification Acceptance Criteria	Hardness (Ca + Mg calculation method)	See Note 8
Calibration Verification Standard Recovery or Other Verification Acceptance Criteria	pH	See Note 11
Calibration Verification Standard Recovery or Other Verification Acceptance Criteria	Turbidity	See Note 12
Calibration Verification Standard Recovery or Other Verification Acceptance Criteria	Semi-volatile (Extractable) Organic Compounds, including Pesticides, Herbicides, Phenolic Compounds, Chlorinated Phenols, Chlorinated Cresols, PAHs,	See Note 14

Data Quality Indicator	Analyte, Parameter or Assessment Test	Data Quality Objective
	Phthalate Esters, PCBs	
Laboratory Method Blank or Other Analytical Blank Results shall be < 10% of the associated sample results in the preparation batch or analytical sequence	Ammonium, Chlorophyll, Color, Hardness by Ca + Mg calculation method (see Note 8), Hardness (titration method), Metals (including Ca, Mg), Nitrate, Nitrite, Nitrate+Nitrite, Orthophosphate, TDS (Total Dissolved Solids), TKN, TP, TOC, Semi-volatile or Extractable Organic Compounds (including Pesticides, Herbicides, Phenolic Compounds, Chlorinated Phenols, Chlorinated Cresols, PAHs, Phthalate Esters, PCBs), Oils & Greases, TSS (Total Suspended Solids)	N/A
Field Quality Control Blank (Field Blank, Equipment Blank or Trip Blank) Results shall be < 10% of the associated sample results associated with the sample set or sampling event	Ammonium, Chlorophyll, Hardness by Ca + Mg calculation method (see Note 8), Metals (including Ca, Mg), Nitrate, Nitrite, Nitrate+Nitrite, Orthophosphate, TKN, TP, TOC, Semi-volatile or Extractable Organic Compounds (including Pesticides, Herbicides, Phenolic Compounds, Chlorinated Phenols, Chlorinated Cresols, PAHs, Phthalate Esters, PCBs), Oils & Greases	N/A
Target for Maximum Reported PQL	Ammonium	≤ 80 µg/L
Target for Maximum Reported PQL	Bacteriological Quality (Fecal Coliform Bacteria)	≤ 2 CFU/100 mL
Target for Maximum Reported PQL	BOD (Biochemical Oxygen Demand)	≤ 2 mg/L

Data Quality Indicator	Analyte, Parameter or Assessment Test	Data Quality Objective
Target for Maximum Reported PQL	Calcium	≤ 0.2 mg/L
Target for Maximum Reported PQL	Chlorophyll	≤ 3 µg/L
Target for Maximum Reported PQL	Conductance, Specific	1 µS/cm
Target for Maximum Reported PQL	Dissolved Oxygen	0.1 mg/L
Target for Maximum Reported PQL	Hardness (titration method)	≤ 50 mg/L
Target for Maximum Reported PQL	Hardness (Ca + Mg calculation method)	≤ 50 mg/L
Target for Maximum Reported PQL	Magnesium	≤ 0.08 mg/L
Target for Maximum Reported PQL	Metals	Note 16
Target for Maximum Reported PQL	Other Nutrients, including Nitrate, Nitrite, Nitrate + Nitrite, Orthophosphate, Total Phosphorus (TP)	≤40 µg/L
Target for Maximum Reported PQL	pH	0.1 Std pH Unit
Target for Maximum Reported PQL	TKN (Total Kjeldahl Nitrogen)	≤ 400 µg/L
Target for Maximum Reported PQL	Turbidity	1 NTU
Target for Maximum Reported PQL	Semi-volatile (Extractable) Organic Compounds, including Pesticides, Herbicides, Phenolic Compounds, Chlorinated Phenols, Chlorinated Cresols, Polycyclic Aromatic Hydrocarbons (PAHs), Phthalate Esters, Polychlorinated Biphenyls (PCBs), Oils & Greases, Color, Total Organic Carbon (TOC), TSS (Total Suspended Solids), TDS (Total Dissolved Solids)	See Note 17

Data Quality Indicator	Analyte, Parameter or Assessment Test	Data Quality Objective
Biological Analyses	Stream Condition Index, Lake Vegetation Index, Stream Periphyton sampling, Habitat Assessment, Biological Integrity Assessment, Lake Condition Index, Rapid Periphyton Survey and all other biologically related assessments.	See Note 18

Notes for Appendix A.

Note 1 – Laboratory-generated control limits apply.

Note 2 – The usability of the LCS or LFB concentration for fresh water metals shall be evaluated based on the relevant hardness value and applicable water quality standard in 62-302.530, or for marine waters, the LCS or LFB concentration shall be evaluated based on the applicable water quality standard in 62-302.530, except that the provisions for an alternative PQL per 62-4.246(4) shall be used as the basis of evaluation in considering the lowest achievable concentration factor for the LCS or LFB, if necessary because of analytical technology limitations, or where a numerical water quality standard does not apply. In any case, the LCS or LFB target concentration shall be ≤ 2X the relevant concentration derived from the above criteria.

Note 3 - The usability of the LCS or LFB concentration for this analyte shall be evaluated based on the applicable water quality standard in 62-302.530, except that the provisions for an alternative PQL per 62-4.246(4) shall be used as the basis of evaluation in considering the lowest achievable concentration factor for the LCS or LFB, if necessary, because of analytical technology limitations, or where a numerical water quality standard does not apply. In any case, the LCS or LFB target concentration shall be ≤ 2X the relevant concentration derived from the above criteria.

Note 4 - Laboratory-generated or method-specified control limits shall be used to evaluate the Data Quality Indicator, as applicable per any method instructions.

Note 5 – The control limits generated by the laboratory using the procedure in Standard Methods, Method 9020B, shall be used to evaluate method precision.

Note 6 - The correlation coefficient for the linear regression of the calibration curve data must be ≥ 0.995. Non-linear regressions must have a coefficient of determination of ≥ 0.99, using the appropriate number of standards for the curve.

Note 7 - The approved method requires a series of 12 standards. Fewer standards may be acceptable if the sample results fall within the PCU range of the standards used for the visual comparison analysis.

Note 8 - The DQIs and DQOs for the individual measurements of Ca and Mg apply.

Note 9 - Calibration verifications for dissolved oxygen must be within ± 0.3 mg/L of the standard saturation value for the measured temperature, as prescribed in DEP SOP FT 1500.

Note 10 - Calibration verifications for ICP analyses must be with 95% - 105%. Analyses by other techniques must be within 90% - 110%.

Note 11 – Calibration verifications for pH must be within ± 0.2 standard pH units of the measured buffer value.

Note 12 - Calibration verifications for turbidity must be within the limits for the applicable NTU ranges as prescribed in DEP SOP FT 1600.

Note 13 - Flame or furnace: 4 standards; ICP-ES or ICP-MS: calibration blank and high standard; Cold vapor AA or Fluorescence (Hg): 5 standards and blank.

Note 14 - Method requirements and options for evaluation of the calibration curve shall apply. The number of standards used for the curve shall be as specified in the approved method. If the method does not specify the number of standards to use to construct the calibration curve, a minimum of 2 calibration standards and a calibration blank shall be used. The method requirements and options shall be used for all calibration verifications.

Note 15 - A minimum of 2 calibration standards shall be used to calibrate or verify the instrument per the applicable DEP SOP for the test, such that the associated sample results are quantitatively bracketed by the concentrations of the calibration standards.

Note 16 - The usability of the reported PQL concentration for fresh water metals shall be evaluated based on the relevant hardness value and applicable water quality standard in 62-302.530, or for marine waters, the reported PQL concentration shall be evaluated based on the applicable water quality standard in 62-302.530, except that the provisions for an alternative PQL per 62-4.246(4) shall be used as the basis of evaluation in considering the lowest achievable PQL, if necessary because of analytical technology limitations, or where a numerical water quality standard does not apply.

Note 17 - The usability of the reported PQL concentration shall be evaluated based on the applicable water quality standard in 62-302.530, except that the provisions for an alternative PQL per 62-4.246(4) shall be used as the basis of evaluation in considering the lowest achievable PQL, if necessary, because of analytical technology limitations, or where a numerical water quality standard does not apply.

Note 18 - All biology lab and field procedures, including quality assurance requirements, are found in DEP SOPs FA 1000, FS 7000, FT 3000, LQ 1000, and LT 7000, BRN 1000, SCI 1000, and LVI 1000. https://floridadep.gov/dear/quality-assurance/content/dep-sops