Quality Assurance Project Plan (QAPP)

for the

Division of Environmental Assessment and Restoration Strategic Monitoring Plan (SMP)

EPA/DEP Performance Partnership Grant Agreement

2025-2030

Version 1.0

Florida Department of Environmental Protection

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GROUP A ELEMENTS: PROJECT MANAGEMENT AND INFORMATION/DATA QUALITY OBJECTIVES

A4 Project Purpose, Problem Definition, and Background

This QAPP describes the monitoring activities, sample analysis, and data review and processing activities of the Strategic Monitoring Plan (SMP), a monitoring plan within the Florida Department of Environmental Protection's (DEP or Department) Division of Environmental Assessment and Restoration (DEAR). DEAR is responsible for monitoring and assessing Florida's surface water and groundwater quality; identifying, verifying, and prioritizing pollution problems; developing strategies to resolve pollution problems; and partnering with local stakeholders to implement comprehensive restoration strategies. The Department's laboratory is housed in DEAR and is integral to fulfilling the division's responsibilities and supporting other department programs and objectives. The Department's Watershed Assessment Section (WAS), also in DEAR, is responsible for assessing the state's surface waters pursuant to the Identification of Impaired Surface Waters Rule (IWR, Chapter 62-303, Florida Administrative Code [F.A.C.]), as part of the state's watershed management program. To conform to the expectations of Section 303(d) of the Clean Water Act and Title 40, Code of Federal Regulations (C.F.R.), 130.7(b), a 303(d) List of waterbodies and associated parameters that do not meet state water quality standards, which are identified on the Verified or Study List, are submitted to EPA every two years as water quality limited segments. The SMP includes the targeted water quality monitoring needed to meet requirements for waterbody assessment under Section 303(d) of the Clean Water Act. These activities are conducted via Section 106 grants from EPA within the Performance Partnership Agreement between EPA and the State of Florida. This QAPP operates under DEP's Quality Management Plan (QMP) Revision 9.

Beginning in 2020, DEP changed its approach for assessing waters under the Impaired Waters Rule (Chapter 62-303, F.A.C.). With the new process, termed the Biennial Assessment, all basins in Florida are assessed every two years. All assessments have the same assessment period and use consistent application of water quality criteria. The impairment analysis is done based on all available data, and an updated impaired waters list for the entire state is published every two years. The WAS develops the SMP annually to ensure sufficient data is available for the next assessment cycle for the waterbody or water segment assessment units that have been determined to be a state priority. These waterbody or water segment units are associated with a unique waterbody identification unit referred to as a **W**ater**B**ody **ID**entification (WBID). The waterbody types targeted in a WBID can be a stream (includes blackwater and spring runs), springs, lakes, or estuaries (includes coastal areas and beaches).

The SMP is developed, coordinated and managed by the WAS with the overarching goal of collecting chemical, physical, or biological samples to meet data sufficiency requirements to complete biannual assessments. The SMP ensures parameter specific data sufficiency and assessment requirements are met as defined by Chapter 62-303, F.A.C. Additionally, all data used for the SMP must follow DEP quality assurance requirements outlined in the QA Rule, Chapter 62-160, F.A.C. It is developed in the fall prior to the year of sampling, relying on data extracted from the Watershed Information Network (WIN), Florida STORET, the United States Geological Survey (USGS) database, AQUARIUS, external biological data provided to the department, and biological data from the Statewide Biological Database (SBIO). Often, a waterbody will remain on the SMP annual plan for several years before said waterbody has sufficient data to determine attainment of water quality standards. While some DEAR specific objectives vary slightly annually, the determination of WBIDs to include on the SMP are often consistent. Some annual objectives are noted below:

- Ensure that all waters identified on the previous assessment's Planning, Study, or Verified lists will maintain data sufficiency requirements as data ages and can no longer be used for assessment purposes.
- Include WBIDs that are trending impaired or have a high number of exceedances or high magnitude result for a parameter, but do not have sufficient data.
- Include WBIDs where public or environmental health concerns have been raised by citizens, stakeholders, or local governments.

Following the sample collection objectives for the SMP listed above, waterbodies may be removed from the Planning or Study Lists, and thus removed from the SMP annual plan, once sufficient data to determine attainment of water quality standards has been collected. These waterbodies may then be assessed as not impaired or impaired and placed on the Verified List of impaired waters. For impaired waterbodies on the SMP, these waterbodies may be removed from the SMP once sufficient data has been collected to determine the waterbody is still impaired and sufficient data has been collected for a TMDL. However, if new SMP data is collected for an impaired waterbody and suggests the waterbody is no longer impaired, said waterbody will remain on the SMP until it meets delisting requirements as defined by Chapter 62-303, F.A.C. For WBIDs placed on the SMP annual plan due to public or environmental health concerns or are trending impaired but have insufficient data, said waterbodies will remain on the SMP annual plan until sufficient data is collected to confirm attainment of the designated use or place on the Verified List of impaired waters.

Sampling and quality assurance procedures for the SMP follow the guidance developed by WAS in the SMP sampling manual. Each program or section within DEAR has a quality manual to address program/section specific quality assurance requirements. Table 1 below identifies the QA planning documents that have relevant requirements to this QAPP.

TABLE 1. QA PLANNING DOCUMENTS, INCLUDING THE DOCUMENT'S LOCATION AND EFFECTIVE DATE, THAT HAVE RELEVANT REQUIREMENTS TO THIS QAPP.

Document Name	Effective Date	Document Location
SMP Sampling Manual	In Development	TBD
Quality Management Plan	April 21, 2020	DEP's Quality Assurance Website
QA Rule, Chapter 62-160, F.A.C.	May 20, 2026	Florida Department of State Website
Watershed Assessment Section Quality Plan	February 2025	DEP's Quality Assurance Resources Website
Watershed Services Program, WIN Section Quality Plan	February 2026	DEP's Quality Assurance Resources Website
DEP Laboratory Quality Plan	January 2026	DEP's Quality Assurance Resources Website

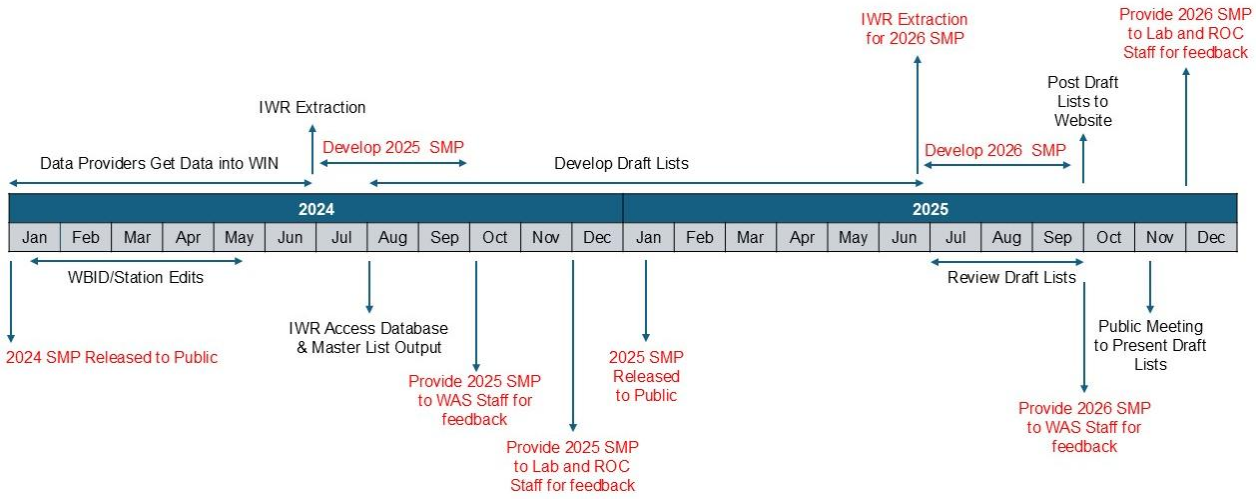
A5 Project Task Description

The primary purpose of the SMP is to target water quality monitoring needed to meet requirements for waterbody assessment under Section 303(d) of the Clean Water Act. Below is an example timeline for the Biennial Assessment 2024-2026 and how the SMP is incorporated. The SMP coordinator begins developing the SMP annually in the summer using the Biennial Assessment Master list, which is an

excel spreadsheet used internally by the WAS containing analysis results for parameters with state standards needed to conduct assessments. Data providers are encouraged to upload their data by June 15th annually to be incorporated into the assessments analysis, and used to determine the need for additional data collection through the SMP. The list below identifies some analysis results retrieved from the Master list.

- Calculation of Annual Geometric Means (AGMs) for Nutrients.
- Identification of waters with a statistically significant increasing trend for chlorophyll *a*, total nitrogen, total phosphorus, and nitrate-nitrite (Mann-Kendall Trend Test), or a statistically significant decreasing trend in dissolved oxygen levels or an increasing trend in the range of daily DO fluctuations over the assessment period at the 98 percent confidence level (one-sided Seasonal Kendall Trend Test).
- Creates binomially assessed analytes (bacteria, metals, pesticides, field measurements) exceedance ratios, where the threshold values are defined in Chapter 62-302, Florida Administrative Code (F.A.C) with methodology defined in Chapter 62-303, F.A.C.
- Calculation of the two most recent scores of the Stream Condition Index (SCI) and Lake Vegetative Index (LVI), as applicable.

FIGURE 1. EXAMPLE TIMELINE FOR THE BIENNIAL ASSESSMENT 2024-2026, BEGINNING JANUARY 2024 AND ENDING DECEMBER 2025, AND HOW THE SMP IS INCORPORATED. SMP RELATED ITEMS ARE MARKED IN RED.



As noted above, the SMPs primary purpose of data collection is to secure data for the upcoming Biennial Assessment cycle so a conclusive listing decision can be made for parameters included on the Planning or Study Lists. The specific scenarios that add a parameter to the Planning List and thus, include a WBID-parameter on the SMP are listed below:

- For total nitrogen (TN), nitrate-nitrite (NOx), total phosphorus (TP), and chlorophyll-a, the parameter is added to the Planning List if there is only 1 or 2 AGMs in a consecutive 3-year period and 1 AGM exceeds the criterion. For stream waterbody types, if florals (RPS, LVS, chlorophyll-a) are not impaired, TN and TP will not be added to the Planning List, as applicable.
- For binomially assessed parameters, an analyte is added to the Planning List if the number of samples that do not meet an applicable water quality criterion is greater than or equal to the

number listed in Table 1 of Chapter 62-303, F.A.C. for the given sample size with 80% confidence.

- The SCI may be added to Planning List via the following scenarios:
    - One sample in the dataset and it has a failing score (< 35).
    - Two samples in the dataset where the difference between them is greater than 20 points and
        - one passes (≥ 40) and the other score is between 35 and 40, indicating the results are inconclusive.
        - two passing samples (≥ 40) and the most recent is the lower of the two scores
    - During the planning period evaluation, the average of all SCI samples is below 40.
- The LVI may be added to the Planning List via the following scenarios:
    - One sample in the dataset and it has a failing score (< 30).
    - Two samples in the dataset where the difference between them is greater than 20 points and
        - one passes (≥ 43) and one fails (<43) and the average is ≥ 43, indicating the results are inconclusive.
        - two passing samples (≥ 43) and the most recent is the lower of the two scores
    - During the planning period evaluation, the average score of all LVI samples is below 43.

The specific scenarios that add a parameter to the Study List and thus, include a WBID-parameter on the SMP are listed below:

- For stream waterbody types
    - TN and TP are included on the Study List when the standard is exceeded but there is insufficient floral (RPS, LVS, or chlorophyll *a*) data to determine attainment.
    - Chlorophyll *a* is included on the Study List when AGMs are > 3.2 to ≤ 20 µg/L more than once in a three-year period. A site-specific interpretation is required before being able to impair the waterbody for this parameter.
- Biology (LVI, SCI) and Dissolved Oxygen (% Saturation) are included on the Study List if they do not attain water quality standards, but the causative pollutant has yet to be been identified. Typically, this scenario may be addressed with additional LVI, SCI, or DO data, but TN or TP data may need to be collected as well.
- Waters are added to the Study List for bacteria when the water quality standard is not met, but we are not yet able to link bacteria exceedances to anthropogenic sources. Typically, this scenario may be addressed with genetic marker, chemical tracer, or additional bacteria data.

An additional target for WBID-parameter combinations added to the SMP is to support the creation of TMDLs, which is done by continued sampling until minimum data sufficiency is met.

- Minimum data sufficiency for nutrient TMDLs is 5 years of AGMs in the assessment period, where binomially assessed analytes should have at least 30 samples.
- For impaired waters where the minimum data requirements were initially met, but the data aged out of the assessment period before the TMDL was created, new data are collected so the listing can continue to be evaluated along with its magnitude of exceedance (if still applicable).
- If the WBID is no longer exceeding that specific parameter, it can be targeted for additional sampling to meet delisting requirements. Nutrient impaired parameters can be delisted if the AGMs do not exceed for the most recent 3 consecutive years. Binomially assessed parameters can be delisted if they meet the applicable exceedance ratio as defined in Table 4 of Chapter 62-303, F.A.C., where the minimum sample number is thirty.

Because of resource constraints, Division priorities further determine which WBID-parameter combinations are included on the SMP. Some high priorities for inclusion of the specific WBID-parameter combination on the SMP are:

- More data is needed for TMDL development, or data for an impaired waterbody has aged out and is a TMDL priority.
- Recent data for an impaired parameter indicates it is lower than the exceedance threshold and can be targeted for delisting.
- WBIDs that are on the Study List for nutrients and need bioassessments.
- WBIDs that were on the previous year's SMP that require more data before an assessment decision is made.
- WBIDs identified by the EPA as deferrals and require more data collection to confirm impairment status.
- Stream WBIDs that have inconclusive or insufficient SCI data.
- WBIDs requested during the previous year where the public, municipalities, or partnering agencies have indicated data collection is needed.
- Updating WBIDs with impairments for retired parameters with the current parameter. This priority specifically pertains to replacing fecal coliform with *Escherichia coli* and Enterococci as applicable.

Some additional priorities are listed below:

- WBIDs on the Study list for bacteria that require a Microbial Source Tracking (MST) Study.
- WBIDs where it has been previously identified that the trend for nutrients is significantly increasing, but the nutrient threshold is not exceeding, and the data causing that increasing trend has aged out of the assessment period.
- Study Listings where data is aging out.
- WBIDs listed on the Planning List.

The SMP is released internally in the Fall of the same year. It is released in phases to ensure the final product incorporates workload feedback, stations adjustments (as needed), and sampling requests within DEAR. Another task conducted during this period is to ensure sampling is coordinated within DEP and between DEP and external data providers. This is initiated with a public notification (through GovDelivery subscriptions) and posting the plan and shapefiles to our DEP website. Sample coordination helps to reduce sampling overlaps, reduce DEP Central Laboratory (DEP Lab) workload, maximize the data in WIN and build relationships with other sampling organizations. The plan is released to:

- WAS staff in October to gather feedback that target WBIDs are on the plan and the stations selected are adequate for assessment needs.
- Regional Operating Center (ROC) staff and the laboratory in November. The ROCs provide feedback on the appropriateness, accessibility, and safety of the selected stations. Sampling coordination among ROC offices also occurs at this time. The laboratory confirms the projected workload is not over capacity of laboratory capability for the upcoming year.
- The public and stakeholders in January of each year.

After coordination efforts have been completed, samplers can begin project preparation. Project preparation includes:

1. Review requested WBIDs and stations on the initial SMP. Conduct field reconnaissance as necessary for water quality and bioassessment stations. Field staff will provide feedback to the

SMP Coordinator's initial station selections. Agreed upon changes to station selections are finalized. If a new station must be created, field staff will create that station in WIN.

2. In some cases where the only available access is on private land, field staff should attempt to contact the landowner for access and, if granted permission, retain records of the conversation. Records of the conversation should include first and last name of the person, relation of person to the property, time and date of conversation, contact phone number, comments, approximate date for sampling, and mailing or email address if results were requested by the landowner. Field staff organize the WBIDs into sampling days or "runs". Seasonally distributed water quality data creates a representative dataset for the waterbody and is required to calculate nutrient AGMs, where at least one sample should be collected from May 1st – September 30th and another is collected at another time during that calendar year. Field staff base their scheduling for their runs to be evenly distributed throughout the year. This is accomplished by sampling water quality stations 5 times each year (approximately every 2.5 months). Five samples at each station with water quality parameters are requested because a minimum of four temporally independent samples with at least one sample collected in each season are required to calculate the AGMs for nutrients. Sampling one additional time throughout the year accounts for shipment or QAQC issues that can occur throughout the year. WBIDs with just bioassessments (SCI, LVS, RPS) requested can be scheduled anytime throughout the year, but the preference is usually to collect them during May 1 – September 30th, when sufficient water levels and flow are expected for perennial waterbodies. In lake type WBIDs where the LVI is requested, the time the bioassessment is scheduled should be based on the region the lake is in (North: May 1 – October 31st or South: April 1 – November 30th) to be assessed under the IWR.
3. Samplers create barcode labels that get attached to the bottles. This barcode can be scanned with the electronic Survey123 form that adds the station information (latitude/longitude coordinates, station name, WIN station ID) to the field sheet. Survey123 is the ArcGIS product that field staff use to enter quantitative and qualitative data that ultimately creates documentation for the sampling event.
4. Sampling kits are ordered from the DEP laboratory. The lab ships the kits to the samplers which include bottles, coolers, FedEx shipping labels, and a temperature control bottle. Sample kits need to be requested a minimum of two weeks prior to the scheduled sampling week, so the DEP laboratory has time to review, approve, pack, and ship the sample kits. Upon receipt, the coolers and sample kits should be inventoried against the sampling schedule and the container inventory list on the back side of the lab submittal form, to ensure that there are enough kits for samples, field duplicate samples, and quality control blanks.
5. Ongoing inventory is conducted throughout the year to ensure they have enough preservatives, filters, conductivity standards, pH buffers, and other miscellaneous supplies (pH test paper, plastic bags, cleaning brushes, etc.).

Samples are collected following DEP SOPs and submitted to the DEP lab or overflow labs as needed. Once samples have been analyzed, ROC staff upload data to WIN. As noted previously, WIN staff encourage sampling staff to upload water quality data to WIN by June 15th of the following year.

The following are produced using data collected as part of the SMP:

- Water Quality Standard Development
- Water quality and biological data (select) available in WIN and WQX
- IWR database and 303(d) assessments
- Integrated report - 305(b) and 303(d)
- Total Maximum Daily Loads (TMDLs)

- Basin Management Action Plans (BMAPs)

A6 Information/Data Quality Objectives and Performance/Acceptance Criteria

The Aquatic Ecology and Quality Assurance Section (AEQAS) within DEAR maintains a Data Usability Document (DEP-EA-001/07) which provides guidance for determining the usability of data for FDEP purposes. The principles characterized in the document draw an "overall conclusion" concerning the usability of the data with respect to the project objectives and dataset evaluated. However, each program within DEAR is responsible for defining program-specific data quality objectives and indicators.

Generally, Data Quality Objectives (DQOs) for the SMP include adherence to Chapter 62-160, the QA Rule, which contains mandatory, minimum field and laboratory QA requirements for all persons and organizations generating environmental data for use by the Department's Water and Waste programs, including waterbody assessment under the IWR. Additionally, another DQO is that all sampling and analysis activities must follow the requirements in the DEP SOPs, which include requirements for sample collection equipment and bottles, quality control blanks, holding times, meter calibration and verification, and documentation requirements. If entities audited by FDEP do not follow the QA Rule and DEP SOPs, their data may be excluded from assessment. Furthermore, the SMP ensures DQOs for parameter specific data sufficiency and assessment requirements are met as defined by Chapter 62-303, F.A.C. These are summarized below based on microbiological, non-nutrient (field parameters, metals, pesticides), and nutrients analytes.

- Data sufficiency requires at least twenty samples with a minimum of five temporally independent sampling events during the assessment period for microbiological (E. coli, enterococci, fecal coliforms) analytes. The total number of samples required to assess a WBID for microbiological analytes can be reduced from the 20 required pursuant 62.303, F.A.C. in cases where there are at least 5 temporally independent exceedances in the data set. Water quality samples should be collected at least a week apart when collected at the same sampling station to be considered temporally independent. To be considered as separate station within the waterbody reach, the monitoring stations must be at least 200 meters apart. When 10 percent or more of microbiological samples do not meet the applicable criteria with a minimum of an 80 percent confidence level using a binomial distribution, as described in Chapter 62-303.320, F.A.C., data indicate potential impairment hence waters are placed on a "Planning List" in the assessment category 3c, and are targeted for additional sampling. When 10 percent or more of non-nutrient sample do not meet the applicable criteria with a minimum of a 90 percent confidence level using a binomial distribution, as described in Chapter 62-303.420, F.A.C., data indicate impairment and waters are placed on Florida's "Verified List" in the assessment category 5. However, prior to assessing a WBID as impaired, anthropogenic sources are investigated to confirm exceedances are not due to natural conditions. Human-induced sources can be confirmed by anthropogenic land use (example: presence of high density of Onsite Sewage and Disposal Systems (OSTDS)), the Land Density Index (LDI) score of ≥ 2, or by the presence of specific tracers (i.e., Acetaminophen, Hydrocodone, Ibuprofen, Naproxen), especially when supported by qPCR marker data (i.e., HF183). Waterbodies without sufficient data to confirm anthropogenic sources are placed on a "Study List" in category 4d and are targeted for additional monitoring through the SMP.
- Data sufficiency requires at least twenty samples with a minimum of five temporally independent sampling events during the assessment period for non-nutrient (field parameters, metals, pesticides) analytes. The total number of samples required to assess a WBID for non-nutrient analytes can be reduced from the 20 required pursuant 62.303, F.A.C. in cases where there are at least 5 temporally independent exceedances in the data set. Water quality samples should

be collected at least a week apart when collected at the same sampling station to be considered temporally independent. To be considered as separate station within the waterbody reach, the monitoring stations must be at least 200 meters apart. When 10 percent or more of non-nutrient samples do not meet the applicable criteria with a minimum of an 80 percent confidence level using a binomial distribution, as described in Chapter 62-303.320, F.A.C., data indicate potential impairment hence waters are placed on a "Planning List" in the assessment category 3c, and are targeted for additional sampling. When 10 percent or more of non-nutrient sample do not meet the applicable criteria with a minimum of a 90 percent confidence level using a binomial distribution, as described in Chapter 62-303.420, F.A.C., data indicate impairment and waters are placed on Florida's "Verified List" in the assessment category 5.

- Numeric nutrient criteria (NNC) data sufficiency requires at least two years AGMs or annual arithmetic means (AAMs) in a three consecutive calendar year period. To calculate AGMs or AAMs for TN, TP, NO3-NO2, or corrected chlorophyll *a*, there shall be at least four temporally independent samples per year with at least one sample collected between May 1 and September 30 and at least one sample during the other months of the calendar year. To be treated as temporally independent, samples must be collected at least one week apart, as described in Chapter 62-303.350, F.A.C. If there is one NNC exceedance and there is not three consecutive years of data, the data indicate potential impairment, are placed on a "Planning List" in the assessment category 3c and are targeted for additional sampling.
    - For stream nutrient assessment bioassessment information is also needed to fully ascertain attainment. At least two SCI, LVS, and RPS samples are needed if the results match (both a pass or both a fail). If the results are inconclusive, an additional sample will need to be collected to assess nutrients (TN and TP).
    - LVS and RPS are individually assessed as Nutrients (Macrophytes) and Nutrients (Algal Mats), respectively and require at least two temporally independent samples to assess. To qualify as temporally independent each floral sample shall be conducted at least three months apart.
    - When TN or TP AGMs exceed the applicable threshold more than once in a three-year period and there are no bioassessment information available, the waters are placed on a "Study List" in the assessment category 4d and are targeted for additional monitoring through the SMP.
    - For most estuarine WBIDs if there are two or more AGMs that exceed the applicable threshold in a three consecutive year period, data indicate impairment, and waters are placed on Florida's "Verified List" in the assessment category 5.
- For Biological Health Assessments (lake and stream) two temporally independent samples are the minimal data sufficiency requirement. To qualify as temporally independent each Biological Health Assessment shall be conducted at least three months apart.

Standard Data Quality Indicators (DQIs), precision, accuracy, representativeness, comparability, completeness, and sensitivity, are followed for the SMP.

- The only DQIs for precision for the SMP project is at the laboratory level. Precision is determined by %RPD which can be found per analyte in the DEP Laboratory Quality Plan Table 5.1.
- DQIs for accuracy include routine tablet checks and data qualifiers associated with meter calibrations and verifications and collection of blanks. Field measurement data must follow DEP SOPs FT 1000, FT 1100, FT 1200, FT 1400, and FT 1500 for calibration and verification requirements for pH, specific conductance, dissolved oxygen, and temperature. Any data that does not meet the requirements as outlined in the DEP SOPs for field testing must be qualified with a J qualifier remark code with an associated comment. Blanks are collected per DEP SOP

FQ 1000. Any samples with detections in the associated method, field, or equipment blanks will be qualified with a V or G qualifier remark code. Additional accuracy DQIs are any samples associated with the qualifiers N, Q, Y, K, or ? as they would indicate inaccurate results. Samples with V, G, N, Q, Y, K, or ? qualifiers, as defined in Rule 62-160.700, F.A.C., are not used for assessment purposes. Additional accuracy DQIs are tablet checks for temperature, pH, dissolved oxygen, and specific conductance that ensure data entered into the tablet make sense for the environmental conditions. For example, if temperature is <5 C or >40 degrees C, an alert message occurs which states the value is either very low or high and requests samplers to check their YSI. Another tablet check for accuracy is using a dissolved oxygen mg/L and % saturation correlation calculation to ensure the data input for dissolved oxygen is accurate.

- Representativeness is ensured as all samplers submitting surface water data for assessment follow DEP SOP FS 2100. This SOP presents procedures to follow to consistently collect representative surface water samples. A DQI for representativeness is data uploaded to WIN are marked as representative. Any data not representative of the ambient water quality conditions are marked as not representative when uploaded to WIN.
- Comparability is ensured for all data used for assessment because all sampling procedures follow DEP SOPs and all labs are required to be NELAC certified for the analyte tests they are contracted to perform. An H qualifier may be used as a DQI for field samples that are based on unapproved field-testing procedures and thus do not follow DEP SOPs. DQIs for non-NELAC samples are data in WIN that do not have an associated NELAC certification provided with the data upload.
- Documentation requirements must follow DEP SOP FD 1000, which includes completeness of data submitted to the department. Completeness DQIs are programmed into Survey123 to ensure samples collected for the SMP by ROC staff are submitted with all required documentation. No survey can be submitted without populating all the required fields determined by FD 1000. For example, if field comments is left blank the survey reminds samplers to provide a comment per FD 1000 Section 2.3. Refer to Appendix C for an example Chain of Custody form generated by the Survey123 template.
- DQIs for sensitivity include MDLs, PQLs, Laboratory Control Spike (LCS) or Laboratory Fortified Blank (LFB), and Matrix Spikes (MS). Table 5.1 within the DEP Laboratory Quality Plan includes MDLs and PQLs per analyte. The U qualifier is associated with any non-detect samples submitted to the department. U-qualified results for assessment purposes, is set at ½ the MDL, or half the criterion, whichever is lower. However, if the MDL is greater than 2x the criterion for Alkalinity, Arsenic, Iron, Mercury, Nickel, Selenium, or Thallium in fresh or marine waters, the data is excluded for assessment. If the MDL is greater than 2x the criterion for Cadmium, Lead, or Silver for Marine waters, the data is excluded for assessment. If the MDL is not available or the MDL is greater than the criterion for non-metal parameters, then data are removed and excluded for assessment. Additional DQIs can be found in Appendix C of this QAPP.

Once water quality data are loaded into WIN, WSP WIN staff review and evaluate incoming data regularly in accordance with Section 6 of the WSP WIN Section Quality Plan and assist with quality control during data migration to WIN and upload to the U.S. EPA WQX. Documentation of workflow and quality assurance activities, including data back-up, are kept in accordance with Section 7 of the WSP WIN Section Quality Plan. DQOs and DQIs, listed in Table 1 of the Quality Plan for the WSP WIN Section, are used and/or modified as necessary to meet the requirements and objectives for the FDEP Programs and projects for which we manage data and to meet federal reporting requirements. Management of the data in WIN includes training data providers (e.g., on data maintenance, quality

assurance and migration), and monitoring data quality. Staff evaluate data using the WSP WIN DQOs and DQIs and implement corrective actions as directed by the QAO.

A7 Distribution List

This document will be provided to EPA Region 4 operations manager Chris McArthur and quality assurance officer Stepanie McCarthy. It will be posted to the DEP QA webpage at: https://floridadep.gov/dear/quality-assurance. Additionally, it will be distributed to the following personnel within DEAR:

- Division Office: Lawrence Glenn, David Whiting, Kenneth Weaver
- Operations Manager – Jessica Mostyn (WAS)
- SMP Quality Assurance Manager – Jennifer Piacente (WAS)
- Program Administrators: Devan Cobb (SSSP), Denise Miller (WSP), Sarah Noble (WQMP), Kevin O'Donnell (WQETP), Cheryl Swanson (Lab-Biology), Nia Wellendorf (WQSP), Colin Wright (Lab-Chemistry)
- Key QA Officers involved with SMP: Christopher Slade (WQMP), Sarah Meyer (WQMP), Justin Nelson (WSP-WIN), Chandra Chandrasekhar (DEP Lab)
- DEP Quality Assurance Manager – Jackie Krebs (WQSP)

A8 Project Organization

Revision and review of this QAPP is organized by AEQAS, the SMP Coordinator, the WAS administrator, and the WAS QA Officer (QAM for this project). Typically, program-level management and technical staff review relevant QAPP text and provide comments and information concerning appropriate revisions to the QAPP. Further management review may occur at the Division level. The DEAR Division Director is the senior manager with executive leadership authority for DEAR. The Project QAM has oversight authority over this QAPP and may discuss quality related issues regarding the project directly with senior management. The QAM ensures the effectiveness of the QAPP by tracking audit results, reviewing audits completed by AEQAS and providing recommendations for excluding data as appropriate, ensuring IWR programming excludes the appropriate data, and ensures internal audits are performed as needed. The QAM will work with the SMP coordinator to ensure the quality assurance procedures described in this QAPP are followed in each stage of the project. If changes to the QAPP requirements or procedures change, these changes will be documented by the QAM to be revised in the next iteration of this QAPP. DEP contracts out lab analysis to regional overflow labs for bacteria samples when sample locations prevent delivery to the DEP Lab within holding time deadlines. Contract labs are chosen based on location to ROC offices, methods available, and quality of data produced by the lab. Contracts are reviewed annually and thus contract labs used may change annually as well. Although the SMP is developed to ensure the WAS has sufficient data to assess the health of surface waters in the state on a biennial schedule, data gathered for the SMP and uploaded into WIN is publicly available to both internal DEP and external entities.

- Division Office: Lawrence Glenn, David Whiting, Kenneth Weaver
- Operations Manager – Jessica Mostyn (WAS)
- SMP Quality Assurance Manager - Jennifer Piacente (WAS)
- Program administrators: Devan Cobb (SSSP), Denise Miller (WSP), Sarah Noble (WQMP), Kevin O'Donnell (WQETP), Cheryl Swanson (Lab-Biology), Nia Wellendorf (WQSP), Colin Wright (Lab-Chemistry)

- Program QA Officers: Christopher Slade (WQMP), Sarah Meyer (WQMP), Jennifer Piacente (WAS), Justin Nelson (WSP-WIN), Chandra Chandrasekhar (DEP Lab)
- DEP Quality Assurance Manager – Jackie Krebs (WQSP)

A9 Project QAM Independence

The QAM is not directly involved in SMP data collection, analysis, or management operations. These operations are managed by the SMP coordinator and carried out by ROC, laboratory, and WIN staff. However, the QAM is available to consult on any QA issues that may arise. The Operations Manager or designee will not have authority to sign QAPPs for the QAM or designee, nor will the QAM or designee have authority to sign QAPPs for the Operations Manager or designee.

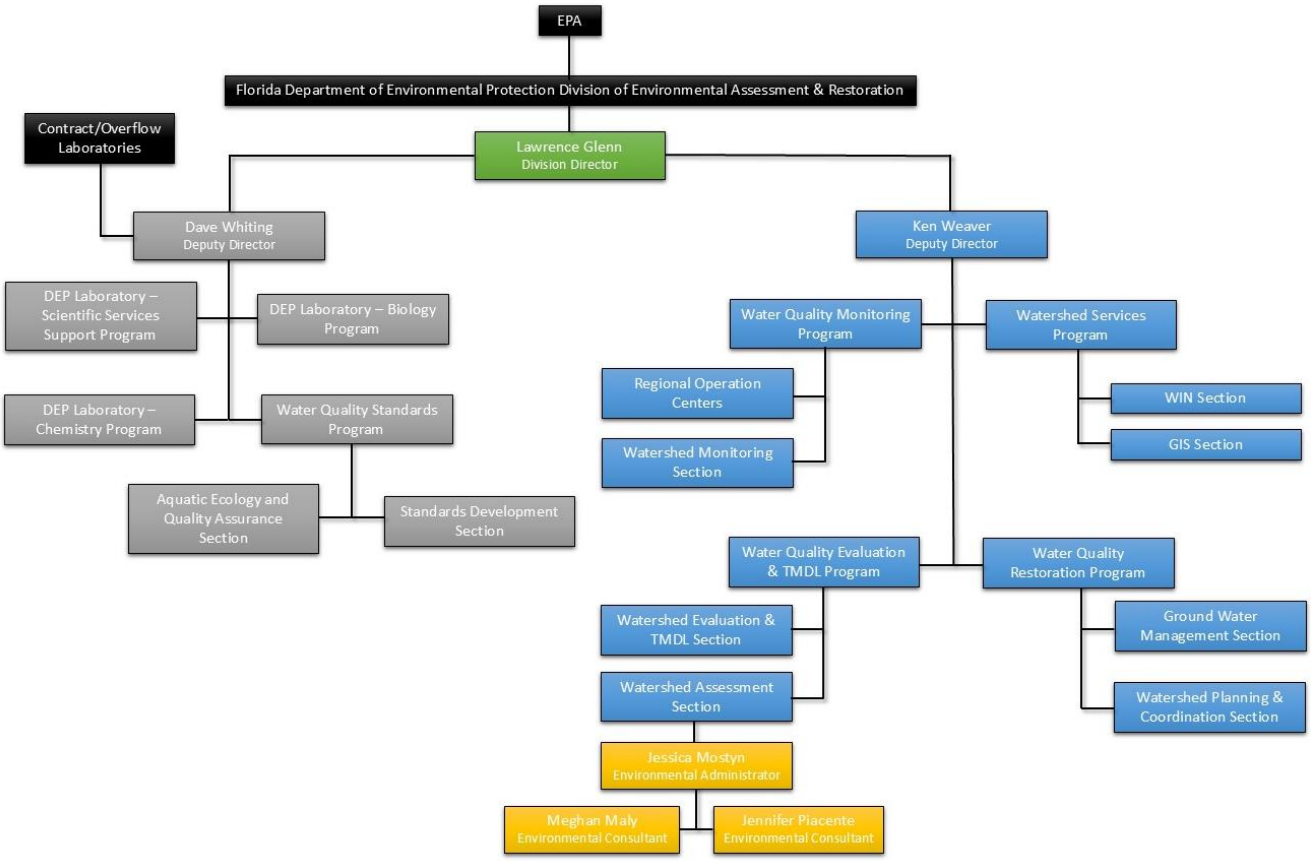
A10 Project Organizational Chart and Communications

Several programs within DEAR work in concert to ensure SMP data are scientifically sound and legally defensible. The DEAR Org Chart is provided below (Figure 2), with Lawrence Glenn as the Director of Environmental Assessment and Restoration, and the senior manager of this QAPP, shown in green. Within the WAS are the staff that have the designated QAPP roles; Operations Manager, QAM, and SMP coordinator, shown in yellow in the organizational chart. The Operations Manager (Jessica Mostyn) is the Environmental Administrator for WAS and is responsible for coordinating the overall planning, design and implementation of all section activities. The SMP coordinator (Meghan Maly) is an Environmental Consultant in WAS and is responsible for the development of Strategic Monitoring Plans for statewide monitoring activities. The QAM (Jennifer Piacente) is an Environmental Consultant in WAS and as the QAO for the section consults on all quality assurance activities. For a more specific WAS organizational chart, refer to the WAS Quality Manual Appendix Figure 1.

The WAS coordinates sampling needs between DEP headquarters and the ROCs. ROC staff alert the SMP coordinator via email or phone when sampling or lab issues occur. The SMP coordinator works with ROC staff and other DEAR staff as needed to resolve any issues that arise in a timely manner, usually within a few days of the original alert. Staff are responsible for developing and tracking the annual SMP with the ROCs and ensuring that the data collected are loaded into WIN and / or SBIO and are assessed applying the IWR methodology. This is an ongoing, year-round process that requires constant communication between DEAR programs.

Contract laboratories are hired by the DEP laboratory for analyses that DEP laboratory cannot perform due to limited laboratory allocations or hold time limitations. DEP contracts out lab analysis to overflow labs for bacteria samples due to short hold times. Contract labs are chosen based on location to ROC offices, methods available, and quality of data produced by the lab. Contracts are reviewed annually and thus contract labs used may change annually as well. Details regarding subcontracting of environmental tests may be found in the DEP Laboratory Quality Plan Sections 4.5 and 5.10. If discrepancies or non-conformances to this QAPP occur during any part of the SMP project, the SMP coordinator will alert the QAM and Operations Manager to come up with a solution and will then alert upper management to the issue and resolution. Additionally, discrepancies and non-conformance issues that are discovered during the SMP project or assessment process are documented and shared with EPA in the Submittal Package for the corresponding Biennial Assessment. Additionally, data quality issues are shared with EPA and the public via Public Meeting Webinars provided by the Department following the completion of the draft assessment lists.

FIGURE 2. OVERVIEW OF FDEP ORGANIZATIONAL CHART. THE SENIOR MANAGER OF THIS QAPP IS SHOWN IN GREEN SHOWN IN YELLOW ARE THE WATERSHED ASSESSMENT SECTION STAFF THAT HAVE DESIGNATED QAPP ROLES; OPERATIONS MANAGER (JESSICA MOSTYN), QAM (JENNIFER PIACENTE), AND SMP COORDINATOR (MEGHAN MALY).



A11 Personnel Training/Certification

Training is required for all aspects of sample collection, analysis and reporting. For field sample collection, new staff must undergo the DEAR field sampling apprenticeship program, in which a seasoned sampler will train a new sampler at three or more sites for the water quality sample collection and field-testing duties of their job. After initial training, new staff undergo an informal audit to make sure they are prepared to collect samples. New staff may also attend department-led DEP SOP trainings. Staff that may collect samples via boat must undergo training for Class I Watercraft and Trailering operation, and safety. First, they must take the BOATUS online training course and submit the certificate of completion to the Operations Manager. Then they must pass a DEAR-led field practical for trailering and driving a boat. Program or section QA officers track training and proficiency status for all employees. Managers are responsible for ensuring that their staff are trained appropriately and take any required trainings for their job duties. All staff are expected to review their program quality documents annually. Data entry and analysis training is typically done on the job in small groups or one-on-one, with the aid of how-to videos and instruction manuals. Some sampling projects require additional specific training, as described below.

For selected DEP biological assessment tools, staff must become proficient and maintain proficiency to conduct biological sampling. The WQSP maintains an internet-based list of proficient samplers statewide. Staff are included on that list if they pass the appropriate QA measures as described in SOPs associated with biological tools, as follows:

1. The SCI proficiency requirements are contained in SCI 1200 and SCI 1300 and consist of an online test of concepts and a field audit every five years.
2. The Stream Habitat Assessment (HA) proficiency and training requirements are in FA 5720. Samplers must demonstrate consistency in scoring with the expert group every two years to remain in "pass" status.
3. The LVI requirements are in LVI 1200 and consist of a team consistency demonstration every two years and passing of an online plant test by one team member annually.
4. To sample the RPS and LVS, staff must pass an online test of method concepts before conducting those observational methods and again every five years.

Laboratory personnel do not perform tests unsupervised without passing minimum training requirements. Personnel training is conducted according to DEP Laboratory SOP LB-011, *Laboratory Training System and Records Management*. All analysts and technicians engaged in analytical work are required to complete training in the methodological requirements for assigned analyses on an annual basis. Supervisors ensure that all personnel have received adequate training on the use of laboratory equipment and that manufacturer's instruction manuals are easily accessible.

A summary of WIN staff training procedures can be found in Section 5 of the Quality Plan for the WSP WIN Section.

A12 Documents and Records

Various products and reports document the data collected and analyses conducted for the SMP. These documents and records include field sampling and analysis documentation, the SMP, Biennial Assessment lists and 303(d) list, and the Integrated Report. Additionally, this QAPP will be retained and maintained by WAS staff. The types of documentation and reports generated by WAS are listed below. Record keeping practices are consistent with Rules 62-160.240(1) and 62-160.340(1), F.A.C., and FD 1000 of the DEP SOPs, and are described in the Field Scheduling and Documentation and Laboratory Analysis sections below.

Assessment Related Reports:

- 303(d) Assessment Lists (Retained on WAS webpage, network folders, submitted to EPA)
    - Identify waterbodies not meeting water quality standards.
- 303(d)/305(b) Integrated Reports (Retained on Water Quality Assessment Program webpage)
    - Provides overview of the quality of surface and groundwater resources in Florida
- Annual QA Report to the Secretary (DEAR QA Report is retained on the Quality Assurance Resources webpage)
    - Provides a condensed update on QA activities, training, and audits.
- Reasonable Assurance Plans (RAP) (Retained on WAS webpage, network folders, and submitted to EPA)
    - Provides restoration goals, funding sources, and specific targets to assure attainment of water quality standards for impaired waterbodies.
- Alternative Restoration Plans, also known as 4e Plans are retained on network folders and submitted to EPA)
    - Provides restoration goals, funding sources, and watershed management actions

that will be or are being implemented for impaired waterbodies, so that attain water quality standards in the future.

As part of a submittal package sent to EPA with updates on the 303(d) list, the WAS sends all relevant documentation needed to support the current assessment decisions. This is typically sent each year following the completion by Secretarial adoption of the assessment for a particular Group-Basin and includes public comments received from stakeholders and the responses from WAS staff.

Field Sampling Scheduling and Documentation:
A sampling event is scheduled in the Laboratory Information Management System (LIMS) scheduler. LIMS generates an "RQ" number (Request ID) for the sampling event, which is linked to each sample bottle requested for the event. Sample submittal forms are generated by LIMS using this information. Field and laboratory data that are stored in LIMS are linked to that sampling event's RQ number. Data are recorded and stored by unique location/date identifiers. Prior to sample collection, sample bottles will be identified with information pertaining to the location, date, time, name of samplers, type of sample (duplicate, field blank, equipment blank, effluent sample), and station and replicate number (when applicable).

FDEP ROC's utilize ArcGIS's Survey123 to enter qualitative and quantitative field data and record sample collection. Once the form is submitted, Microsoft's Powerautomate is used to transfer electronically collected data into a PDF format, creating the field sheets, chain of custody, and electronic data deliverable (EDD) file, as well as place the documents, and field collected photos, in a temporary storage location on the FDEP's SharePoint. After field staff review documents for completion and accuracy, all field documents (photos, chain of custody, field sheets) are then saved to a shared network drive for permanent storage. Sample custody is consistent with and follows FD 5000 and FD 7000 of the DEP SOPs.

All Strategic Monitoring Program documentation is stored for a minimum of 5 years after the date of generation or completion, consistent with Rules 62-160.240(1) and 62-160.340(1), F.A.C., and FD 1000 of the DEP SOPs, on a Division accessible network folder. A list of documentation that is retained with an associated sampling event includes:

- field sheets
- chain of custody sheets
- labels
- digital photos
- permission forms
- logbooks (calibration, standards and buffers, equipment maintenance and equipment cleaning)
- inventory sheets
- field audit forms
- float plans
- Temperature Verification Logbook
- Depth Verification Logbook
- Maintenance Logbook

Laboratory Analysis:
The DEP Laboratory analyzes and produces lab reports for most samples collected by DEAR. Documentation control requirements include protocols for preparing Standard Operating Procedures and the archiving and retrieval of documents. SOP LB-001, describes how SOPs and

forms are created, revised, approved and archived. Record archiving procedures are found in SOP LB-013,. Archived records include raw laboratory data, laboratory notebooks, final reports, administrative files, personnel records, purchase requisitions and purchase orders. All lab records are archived for a minimum of five years.

A small portion of samples for analytes with short hold times, such as Escherichia coli and enterococci, are sent to contract laboratories to ensure samples are analyzed within the required holding times. These reports are made available to customers within DEAR and saved in electronic project files. Samples that need to be sent out to an overflow contract laboratory will show transfer to an overflow lab in the LIMS custody record unless they are sent directly from the field to the contract laboratory. For all overflow analyses except microbiology and chlorophyll, there is a task assignment number (e.g. SA034) documented on a task assignment form. The task assignment form includes the DEP Contract Manager's signature authorizing the work, a list of sample IDs and requested analyses with turnaround time, the date/time the samples were sent out, cost information, and the identity of the custodian responsible. Samples, along with copies of the field information and the task assignment form, are delivered to the contract laboratory. The task assignment form becomes part of the custody record.

Data gathered on these projects are entered into the WIN (water quality data) or SBIO (bioassessment data) and must be properly linked to historical data. The database is also a source of public information and is used for a variety of purposes. The data must be accurate to avoid incorrect evaluations and decisions on the State's water resources. All documentation requirements are based on the DEP SOPs cited in the Quality Assurance Rule Chapter 62-160, F.A.C. As accurate documentation is an important factor for determining the success of QA activities, WSP WIN provides internal record-keeping procedures through the WIN system to ensure appropriate documentation of QA activities. The WIN system conducts record-keeping procedures for Standard Values Requests, Dataset History, Data Audits, Data Anomalies, and Quality Control Reports in accordance with Section 7 of the Quality Plan for WSP WIN Section.

GROUP B ELEMENTS: IMPLEMENTING ENVIRONMENTAL INFORMATION OPERATIONS

This QAPP was developed using the EPA QAPP standard, WAS Quality Plan, WSP-WIN Quality Plan, DEP Laboratory Quality Plan, WQSP Quality Plan, SMP Sampling Manual, and Region 4 QAPP crosswalk.

B1 Identification of Project Environmental Information Operations

The SMP uses a judgment-based sampling design, relying on professional judgement and staff's prior knowledge of previous water quality results, hydrology, and local conditions to determine appropriate sampling locations. When data providers adhere to station definitions, hypotheses regarding pollutant sources can be developed, which can be verified by follow up testing through the SMP. While it is known that judgement-based sampling designs are subject to bias, some of this impact is diminished in state assessments where all readily available data, including results from external data providers, are included in the assessment results.

Selection of representative monitoring stations within the WBID is an important decision in determining a conclusive assessment result. Pursuant, 62-303.320(3)(e), F.A.C., samples collected within 200 meters of each other will be considered the same station, unless there is a tributary, an outfall, or significant change in the hydrography of the water. Stations selections should be representative of the WBID's waterbody type based primarily on professional judgement, but also incorporate past data by returning to areas that have exceeded the water quality standards. SMP stations are initially selected and approved by WAS staff using available layers on ArcPro and given to the ROCs to conduct reconnaissance. If the WBID falls within an ENR, it will be specified on the monitoring plan for samplers to target. Included below are the waterbody types sampled by the SMP with a brief description of an ideal sampling location for each waterbody type.

- Coastal: Coastal WBID sites should be in open water, where stations must be greater than 100 m offshore. It is not necessary to sample the center of the WBID to find an area that is representative. To be safe, land should be visible from coastal WBID sites. Coastal WBIDs can have a Coastal Nutrient Region criterion (using remote sensing Chlorophyll-a data, which we do not collect), regular marine Chlorophyll-a criteria (11 ug/L), or may be included in a Nutrient Region (ENR) coverage.
- Estuary: Follow the Coastal WBIDs guidelines above for open water Estuary WBIDs in the Gulf of America or Atlantic Ocean. Sites in tidal areas that resemble streams or rivers, "tidal creeks", should be in the middle of the WBID, not at the bottom of the catchment. The water in the middle of these systems will be most representative because, in theory, there is a 50/50 mix of the upstream and downstream WBID waters as they mix with the rise and fall of the tides. For WBIDs in protected marine waters, like bays and sounds, the site should be offshore and only accessible by boat. Samples collected outside the target ENR will need to be resampled. For target ENR monitoring, sites need to be selected with the original ENR criteria development stations in mind. WAS maintains a layer of the sites named ENR_Criteria_Development_Stations.
- Lake: Lake WBID sites should be in the deepest part of the lake or if applicable, over the sink. If the lake depth is uniform and there is no outlet, the site should be at the geographic center. Sites in lakes with uniform depth and an outlet should be in the lower or downstream third of the WBID. Emergent and floating vegetation need to be considered when setting up sites in lake WBIDs because the ideal lake site is clear of emergent and floating vegetation. If there are no accessible areas clear of vegetation, a site can be established in an area clear of

emergent vegetation but not clear of floating vegetation (ex. Nuphar sp.). If vegetation prevents access to a lake or there are no areas free of emergent vegetation the SMP coordinator is contacted. Additional sites may need to be established in lakes with lobes that resemble individual lakes. For lake type WBIDs, it is not necessary to consider the ability to complete a LVI prior to collecting water quality samples, however, if that metric is requested the site should be a freshwater lake that is sampleable by boat (motorized, or kayak, canoe, etc.).

- Spring: When a “Spring” waterbody type is on the SMP, the sampling location needs to be at surface depth (roughly 0.3 meters) and over the spring vent or boil. If the spring WBID has a single vent, the site must be directly over the vent. Springs with multiple vents of different magnitudes should have stations over the vent with the greatest magnitude. If the spring has multiple vents of equal magnitude and some have sufficient discharge to make surface boils any vent may be chosen for the sampling location. If the spring has multiple vents of equal magnitude and insufficient discharge to make a surface boil the site should be near the center of the spring pool over one of the vents. Whichever vent is chosen it should be replicated, such that the collection point doesn’t change over time. The spring sites should not be along the edge of the pool or run near the shore.
- Stream: Stations at stream type WBIDs should be downstream in the WBID, ideally within the lower third of the WBID, to sample locations that incorporate multiple tributaries and capture most of the land use within the WBID. Moving sampling locations upstream in the WBID may be necessary to avoid tidal influence, access issues, safety, or to sample a station where bioassessment metrics are appropriate.

The use of existing station locations is generally preferable to creating new ones, but the latter may be required as field conditions or the station becomes inaccessible. The same station sampled for multiple years of data collection is helpful for field staff and WAS staff as it supports building a dataset that is meaningful for the Department, stakeholders, and the public. Though not always possible, sampling at publicly accessible stations is preferred to support this goal. When samplers access a station by using private property, they request access from the landowner.

If possible, sampling at roads and bridge crossings should be avoided, however, these locations are sometimes the only accessible, repeatable, and representative locations that can be sampled in the WBID. In the case that a station is selected at a road or bridge, field staff should conduct field reconnaissance to determine if the location has obvious flow impeded by vegetation or debris. If this is found, field staff should report these conditions to the SMP coordinator, and an alternate location should be considered. Sampling at roads and bridges should be conducted on the upstream side of the road or bridge to minimize sampling runoff.

Additionally, stations should be selected where the waterbody is connected and the minimum d criteria for water quality sampling are expected to be met throughout the year. This is so seasonal impacts on the parameters can be evaluated during the waterbody’s assessment. All sampling are conducted per DEP SOPs, however some general requirements for conducting water quality sampling are provided below.

- Water must be at least 10 cm deep to collect samples.
- For streams, ideally water should be visibly flowing and connected; however, water chemistry samples should still be collected in non-flowing streams (or canals) as long as the water is connected.

- When performing more than one site visit in the same watershed, work downstream to upstream to prevent drift.
- When sampling from a bridge or dock, collect samples on the upstream side whenever possible.
- When wading into a waterbody, enter the water carefully to avoid disturbing the sediments, and allow any material that has been disturbed to settle before collecting the sample.
- Always collect water samples upstream from your body or upstream from the boat.
- If a Class 1 or Class 3F WBID is tidally influenced, the water chemistry sample must be collected during a falling tide (heading toward low tide) in order to capture freshwater representative of the watershed.
- In stream WBIDs, establish sites in an area that best represents the system regarding flow conditions.
- Navigate to the selected station using a GPS unit and collect the field measurements and samples at the selected station.

Analytes collected for SMP are dependent on assessment data gaps for the waterbody of interest and thus, analytes that are added to the SMP for each waterbody will vary based on data needed for assessment purposes. Analytes are typically added to the SMP because it was previously on the State's Planning, Study, or Verified Lists, are trending impaired, or there are specific public or environmental health concerns raised by stakeholders and additional data is needed to confirm the assessment. Typical analytes that may be targeted for SMP sampling are listed in Table 1 below. Although analytes sampled are determined by data gaps, some analytes are always paired to determine potential pollutant sources. For example, bacteria may be paired with molecular markers and chemical tracers to determine the source of the impairment. While all sample collection, preservation, and documentation protocols follow DEP SOPs, specific additional sampling and sample preservation protocols are described in the SMP Sampling Manual Sections 3 and 6.

TABLE 1. COMMON ANALYTES THAT MAY BE TARGETED FOR SMP.

Analyte Group	Analyte	Waterbody Type
Bacteria	Escherichia coli	Stream/Lake
	Enterococci	Estuary/Coastal/Beaches
	Fecal Coliform	Any
Bioassessment	Stream Condition Index	Stream
	Rapid Periphyton Survey	
	Linear Vegetation Survey	
	Lake Vegetation Index	Lake
Molecular Markers	BACR	Any
	DG3	
	HF183	
	COWM2	
	HOF	
Chemical Tracers	Sucralose	Any
	Acesulfame K	
	Acetaminophen	
	Carbamazepine	
	Hydrocodone	
	Ibuprofen	

	Naproxen	
	Primidone	
Field Measurements	Alkalinity	Any
	Dissolved Oxygen	
	pH	
	Specific Conductance	
Metals	Antimony	Any
	Arsenic	
	Cadmium	
	Chromium	
	Copper	
	Iron	
	Lead	
	Nickel	
	Selenium	
	Silver	
	Thallium	
	Zinc	
Nutrients	Chlorophyll-a	Any
	Nitrate-Nitrite	All
	Total Kjeldahl Nitrogen	Any
	Total Phosphorus	Any
	Total Ammonia	Any
Physical/Aggregate Properties	Chloride	Any
	Fluoride	
	Turbidity	
Pesticides/Herbicides	Beta BHC	Any
	Chlorpyrifos	
	Demeton	
	Diazinon	
	Lindane	
	Malathion	
	Methoxychlor	
	Parathion	

Per SMP requirements, each year ROC staff collect at least 5 water quality samples for each assigned WBID requiring water quality samples on the year's SMP. This ensures that the minimum sample requirement for data sufficiency for nutrients is achieved per A6 of this QAPP. Non-nutrients require at least twenty samples with a minimum of five temporally independent sampling events during the assessment period to meet data sufficiency requirements for assessments, whereas nutrient samples require at a minimum 2 years of annual geometric means to make an assessment determination. WBIDs may remain on the SMP for up to 5 years to collect sufficient data for assessment for both nutrients and non-nutrients. ROC staff collect 1 temporally independent bioassessment sample each year for each WBID requiring bioassessments on the year's SMP. This ensures that the minimum sample requirement for data sufficiency is met for bioassessments to be used for assessment purposes per A6 of this QAPP. In addition, one field blank sample is required for every twenty (5 %) field samples collected, or one every six months, whichever is more frequent.

When intermediate sampling equipment is used, then an equipment blank is collected in lieu of a field blank.

To ensure data sufficiency and quality assurance requirements are met, DEP Laboratory receiving staff notifies the samplers and/or the DEP SMP Coordinator when SMP samples are received out of holding time or improperly preserved (out of temperature compliance, above pH of 2, or preserved with the wrong acid). If samples are received exceptionally late, the receiving staff will ask the DEP SMP Coordinator and/or the sample owner, if the analyses should be cancelled. If any samples exceed holding times or are deemed unacceptable, sampling staff should re-schedule the samples and contact the SMP coordinator to determine if additional data are needed to alleviate deficits. If the out of hold or improperly preserved analytes are listed as a "parameter of concern" or needed to complete an assessment, the SMP Coordinator will request field staff to resample. The study design for the SMP includes the scheduling of additional samples so there are sufficient samples for assessment in the event that samples are "lost" due to non-collection (such as inclement weather conditions), or other events (e.g., sample QA deficiencies, qualifier coded data, etc.).

B2 Methods for Environmental Information Acquisition

SMP sampling follows the most recent versions of the DEP SOPs (effective May 20, 2026) and SMP Manual for all sampling activities, including field-meter testing, sample collection, and documentation. AEQAS is responsible for updating and maintaining all DEP SOPs, however the SMP Coordinator in WAS is responsible for updating the SMP Manual. General water quality sampling requirements follow FS 1000 and the FS 1000 tables (1000-1 to 1000-12) provide the sampling equipment allowed per matrix, preservation requirements, choice of container materials, sample volumes, as well as maximum allowable holding times for water quality sampling conducted for the SMP. Surface water sampling follows SOP FS 2100 and biological community and habitat sampling follows SOP FS 7000, SCI 1000, BRN 1000, LVI 1000, and FT 3000. Sampling staff follow SOP FD 1000 for documentation requirements for field sampling activities, and SOP FQ 1000 for quality control requirements, including required field quality control blank collection frequency of 5%. Field instrument calibration and verification procedures are followed using FT 1000-FT 1700. For biological assessment, samplers also follow guidelines described in the Stream Condition Index Primer and Lake Vegetation Index Primer. A list of all existing SOPs used for SMP sampling can be found in Appendix A of this document. The QA Rule and all SOPs have the same revision date of May 20, 2026. There is no plan to update the DEP SOPs or the QA Rule 62-160 F.A.C. again at this time. All SMP procedures will follow the most recent version of these documents.

Laboratory analysis procedures conducted by the DEP laboratory follows the most recent version of the DEP Laboratory Quality Manual (effective January 2026) and associated laboratory SOPs. All DEP lab SOPs, along with version number and effective date, are available on the DEP laboratory website. The FDEP laboratory provides sampling containers to its customers on request. Sample turnaround times are specified by the sample priority assigned to samples in the LIMS scheduler. See SOP LB-028, *Standard Operating Procedure for Tracking Priority Projects*, for details on how priority projects are handled and clients are kept informed of progress. The LIMS software system for scheduling samples assesses the capacity and previously scheduled workload of the laboratory and warns the user whenever laboratory capacity for any work group may be exceeded. Additional details on using the LIMS scheduler can be found in SOP LB-018, *Using the LIMS Scheduler*. A list all chemistry analytes, preparative and analytical methods, matrices, accuracy and precision targets derived from Laboratory Control sample (LCS) or method requirements, and Method Detection Limit (MDL)/Practical Quantitation Limit (PQL) are identified in in section 5.4 of the DEP Laboratory Quality Manual in Table 5.1. Table 5.2, linked in section 5.4 of the DEP Laboratory Quality Manual

contains the listing of all biology parameters and their associated matrices, methods, and QA targets. Protocols used for establishing MDL and PQL for laboratory methods are also described in section 5.9. Section 5.5 and Appendix B of the Laboratory Quality Manual describes calibration requirements for methods employed by the lab. Test results are reported accurately, clearly and objectively and contain all method required information, reporting requirements of the TNI standards and the requirements of the State of Florida QA Rule, Chapter 62-160, FAC.

The customer is notified of any non-conformances that may affect the integrity of the data. The samples are analyzed unless the customer requests otherwise or the nature of the nonconformance makes analysis impractical. Data from compromised samples are flagged with the appropriate qualifier(s) or comments and/or a non-conformance report is issued with the analysis report, depending on the nature of the issue. The Laboratory non-conformance system procedures are described in SOP LB-002, *Non-Conformance Reporting System*. The DEP Laboratory QA Officer is responsible for any corrective actions that are required following a non-compliance or failure in the analytical system.

New methods, non-standard methods, Laboratory designed methods, and method modifications are validated to confirm that the methods are fit for the intended use. The validation procedures are conducted according to SOP LB-007 and the requirements of the DEP QA Rule, Chapter 62-160, F.A.C. Procedures for assessing precision and accuracy for non-standard methods are described in section 5.9 of the Laboratory Quality Manual and the QC from the SOPs associated with the individual tests. If there are variations on how the QC is assessed due to the unique nature of the tests they are discussed in the appropriate SOP. Precision and bias are evaluated against test method, client, or contractual targets and laboratory established targets. Precision and bias are evaluated over varying analyte concentrations defined as high, mid, or low, depending on what portion of the calibration curve the check concentration falls. The assessment of precision and bias is done independently for each quality system matrix and each analyte is assessed through the entire measurement system.

The WAS generates a small percentage of water quality or biological data for strategic monitoring purposes but acquires a significant amount of data from external data providers using Florida STORET, Legacy STORET, WIN, SBIO, AQUARIUS, and USGS. Those data have been collected for various purposes, but are used for IWR assessments unless they are deemed not representative of the waterbody. External biology data is submitted to the WAS via the WQETP Program Administrator for use in IWR assessments. The process for evaluating representativeness and usability of biological data submitted to the WAS is outlined in the Data Review Section of the WAS Quality Manual. External bioassessment data that passes the WAS QA/QC is normalized and appended to the biology assessment table. The data used to support the Impaired Waters assessments, developments of TMDLs, and BMAPS must comply with the Department's QA Rule 62-160, F.A.C., as well as all DEP SOPs. Such data is pulled from the various databases and compiled into an "IWR Run" Access database used for assessments.

B3 Integrity of Environmental Information

All employees are held to high professional ethical standards and are required to complete an annual ethics training class. Improper, unethical or illegal actions will be dealt with according to the published Administrative Directives of the DEP. 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.

The sample chain of custody begins prior to shipping empty containers to the field personnel. Prior to shipping, the lot numbers of containers are documented in the LIMS which then generates the Sampling Kit Packing List. The Packing List is printed and signed by the laboratory technician and shipped with containers to the customer. After collection, the samples are shipped to the Laboratory by common carrier or are hand-delivered by the field staff. An example Chain of Custody form submitted to the laboratory with samples is provided in the Appendix C of this QAPP. Once a sample is logged in, a custody log is automatically created for that sample in the LIMS. This log tracks the sample's movement throughout the laboratory, from sample receipt to sample disposal. When a sample is removed from the sample storage area, the custody is transferred from the storage area to the user. This transaction is recorded in the custody log by date, time, and user. Each LIMS user is issued a unique ID card with a bar code with their User ID. When users wish to check out or transfer samples, they scan their ID card, which transfers their unique user ID to the custody record. As each sample has a bar code label, the user can check out samples by using the bar code scanner. In the event the network or LIMS is down, the user can also manually record their user ID and use a logbook for recording sample custody. When a sample is removed from the receiving area for analysis before the login process is completed, sample chain of custody is established through analyst initials and time on the field sheet. When users are finished with samples, they must return them to their designated storage locations for check-in and secure storage. After samples have been analyzed and final analysis reports are issued to the customer, samples are either disposed of properly, returned to the client, or stored until the client approves disposal or transfer of the samples. For routine sample disposal, the technician scans the samples in the LIMS. The sample custody record notes the date, time, and identity of the person disposing of the sample. Records of sample login, sample check-in/checkout, sample transfers between analysts, and sample disposal are recorded electronically in the LIMS custody log. All logbook records are dated and initialed by the person(s) who carries out the task.

Florida DEP Laboratory chain of custody (DEP COC) must be used for all sample submittals to the DEP Lab for the SMP. Overflow lab chain of custody forms (overflow COC) must be used for all microbiology sample submittals to overflow labs for the SMP. The DEP COC and overflow COC are provided by the DEP Lab and shipped with the sample kits. The DEP COC and a copy of the overflow COC, if applicable, is placed in a sealed plastic bag and taped to the inside top of the cooler for shipment back to the DEP Lab with the samples. At the DEP Lab, information on the DEP COC and overflow COC is used to log the samples into the LIMS.

Samples that need to be sent out to an overflow contract laboratory will show transfer to an overflow lab in the LIMS custody record unless they are sent directly from the field to the contract laboratory. For all overflow analyses except microbiology and chlorophyll-a, there is a task assignment number (e.g. SA034) documented on a task assignment form. The task assignment form includes the DEP Contract Manager’s signature authorizing the work, a list of sample IDs and requested analyses with turnaround time, the date/time the samples were sent out, cost information, and the identity of the custodian responsible. Samples, along with copies of the field information and the task assignment form, are delivered to the contract laboratory. The delivery person and the recipient at the contract laboratory must sign the task assignment form indicating the transfer date and time. The task assignment form becomes part of the custody record.

All data generated for the SMP are from certified labs. The majority of environmental samples collected by DEAR staff are analyzed by the DEP laboratory, which includes programs for Biology and Chemistry. . The DEP laboratory performs internal system audits and internal performance audits as described in the DEP Laboratory Quality Manual Section 4.14. The DEP Laboratory is NELAC certified (E31780) by the Florida Department of Health Environmental Lab Certification Program for all

analyses offered. In cases where a specific SOP version has been certified and subsequently undergoes a major revision, the supervisor submitting the revision must also submit a method validation package and the appropriate paperwork for requesting TNI certification of the new SOP version. Supervisors are responsible for ensuring that analysts are trained on new or revised SOPs. The only official versions of SOPs are those that reside on the Laboratory's internet site for SOPs. Printed copies are not considered by the Laboratory to be official SOPs. The Florida Department of Health, Environmental Laboratory Certification Program is the Laboratory's primary accreditation body.

Any samples not analyzed by the DEP laboratory are analyzed by overflow laboratories, which are contracted by the DEP laboratory. DEP contracts out lab analysis to overflow labs for bacteria samples due to short hold times. Contract labs are chosen based on location to ROC offices, methods available, and quality of data produced by the lab. Contracts are reviewed annually and thus contract labs used may change annually as well. Overflow laboratories must be NELAC certified for any analyses they are contracted to perform. When contracts are renewed, accreditation is checked to ensure the overflow laboratory with the contract has remained NELAC certified. Overflow laboratories are also used as backup laboratories on a case-by-case basis when the DEP laboratory undergoes instrument failure or lab allocations are exceeded and samples may not be analyzed within the required hold time. Non-DEAR sampling entities who submit data to WIN for use by DEAR are also required to follow DEP SOPs and use certified labs. Labs are required to have sufficiently low method detection limits (MDLs) for assessment of criteria, per rule 62-4.246, F.A.C., and the companion list of expected MDLs and practical quantitation limits (PQLs).

B4 Quality Control

Blank collection methods follow DEP SOP FQ 1000. One field blank sample is required for every twenty (5 %) field samples collected, or one every six months, whichever is more frequent. When intermediate sampling equipment is used, then an equipment blank is collected in lieu of a field blank. QC samples need to be scheduled in LIMS with the paired field sample(s) under the same RQ. Quality of analyte-free (deionized) water is confirmed by semiannual analysis for all analytes that will be sampled within that period. Analyte-free source water blanks are scheduled as needed to investigate suspected problems.

TABLE 2. SMP QUALITY CONTROL SAMPLE REQUIREMENTS BY ANALYTE GROUP.

Analyte Group	QC Blank
Nutrients	Required
Metals	Required
Chlorophyll-*a*	Not Required
Microbiologicals	Not Required
qPCR	Not Required
Bioassessment Methods	Not Required
Algal-ID	Not Required
Pesticides, Tracers	Required
Physical and Aggregate Properties	Required

Field and equipment blank results should be reviewed when Lab Reports are posted. Lab Reports are emailed to the person(s) indicated in the LIMS Scheduled Module. Field staff should review the blank results and take action to determine cleaning procedures necessary for contamination. If blanks and duplicates taken when sampling in the field for analytical chemistry parameters indicate problems with sampling or cleaning methods, the leader or supervisor of the field team are responsible for assessing and approving corrective action. This may include qualifying test results, resampling, or other appropriate compensation.

A G data qualifier needs to apply to the paired field and blank sample results when contamination in the blank is above 10% of sample result. G data qualifier checks are done in WIN, so manual comparison and calculation procedures are not necessary for field staff to complete. For the G Qualifier, WIN will compare Field QC results to all associated samples within the same import file and flag samples that require a G qualifier as an Advanced Error. To resolve this error, DMT Users must append the G qualifier to the affected samples using the Advanced Validation Error screen in WIN. Changes are not needed in the DMT or LIMS tables. If an RQ was split into multiple events (e.g., coolers arriving at different times) and the Field QC record are to be associated with samples outside of the Event, the Blank Batch ID is filled in for all associated samples across all relevant events for the associated Field QC record. This will ensure that samples collected outside of the event containing the Field QC record will be evaluated for a G qualifier via WIN back-end reporting. The sample collection entity is responsible for loading the data to WIN and determining which samples are associated with each blank. G, N, H, O, Q (except microbiological results), V, Y, and ? data qualifiers will be excluded for assessment due to a lack of confidence in the validity of the data and sites resampled as needed.

Corrective actions for DEP Laboratory's Chemistry and Biology Programs are described in relevant laboratory SOPs or the laboratory Quality Manual. The likely causes of a given problem are first identified and then corrective actions put into place to alleviate the problem. Corrective actions are initiated based on either internal QC checks, data validation by a reviewing authority, or performance audits. Outside sources such as performance evaluation studies, split samples, as well as recommendations by the DEP QA Coordinator may initiate corrective actions. The extent of the corrective actions required is evaluated against the seriousness of the non-conformance. All corrective actions are administered within a reasonable time frame. All corrective actions are documented and monitored to ensure compliance with the Laboratory's policy and procedures. The Laboratory QA officer maintains a list of corrective actions undertaken by Lab personnel. The efficacy of any corrective action is evaluated during routine internal and performance audits. Additional audits are scheduled to address non-conformances that will not allow the Laboratory to meet their established operating protocols. For details regarding calculating precision and accuracy, refer to the DEP Laboratory Quality Manual section 5.9.

External biology data submitted to WAS undergoes an extensive QA/QC process that is outlined in the Data Review section of the WAS quality manual. Checklists are used to ensure all external biology data submitted to WAS are reviewed using consistent criteria.

B5 Instruments/Equipment Calibration, Testing, Inspection, and Maintenance

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

- Van Dorn sampler (or similar)

- Secchi disk
- Cooler and ice
- Tablet
- YSI multi-probe (ProDSS, EXO1, EXO3) and all associated standards and buffers
- GPS equipment (Trimble, Garmin, data logger)
- Additional non-equipment supplies (cleaning materials, buckets, gloves, filters, syringes, preservatives, brushes, camera, etc.)

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

- D-Frame Dipnet with #30 mesh and handle marked in 0.1m increments
- Two 4-Liter wide-mouth plastic jugs
- Buffered formalin
- Brush
- 100 Meter Tape
- Flagging Tape
- Secchi Disk
- Aquatic & wetland plant identification manuals
- Boat, canoe, or gheenoe (if non-wadeable site)
- Plastic bags
- Cooler and ice
- Ruler to measure a 10 cm distance
- Spherical Densiometer (concave or convex)
- Personal Floatation Devices
- Paddles
- Frotus
- Aquascope
- GPS equipment (Trimble, data logger)
- Hand Lens
- Binoculars

Field instrument calibration follows the procedures and requirements for frequency and acceptance criteria as outlined in the SMP Sampling Manual, FT 1000, and the FT Series of the DEP SOPs. All standards and buffers used in calibration procedures are documented in a logbook and maintained in an Excel Spreadsheet by the appropriate ROC staff. The acceptability of field supplies and equipment are specified in FC 1001, FC 1002, FD 2000, FT 1000 and the FT series of the DEP SOP. All records are maintained per FT 1000, the FT Series and FD 1000 of the DEP SOPs. Per FT 1000 and FD 1000, calibration standards and the calibration procedure are traceable to each instrument. Preventive and corrective maintenance follow FS 1007, FT 1000, and the FT Series of the DEP SOPs. All instruments and equipment used for sample collection and calibration procedures are maintained and cleaned on an as-needed basis and all associated documentation regarding maintenance and cleaning is recorded in logbooks. All equipment cleaning/decontamination is based on DEP SOPs (DEP-SOP-FS 1001 and FC 1000). Calibration standards, supplies, and consumables are purchased by the ROC staff. All ROCs are provided with the budget to ensure they have all equipment and supplies needed for sampling, including any replacement or spare parts. Additionally, due to the presence of sampling teams around the state, ROCs may borrow equipment or supplies from other

ROC offices if needed. All instrument and equipment maintenance are based on recommendations made in the individual FT series of the DEP SOPs and manufacturer recommendations.

Procedures for preventative maintenance for DEP laboratory equipment can be found in the DEP Laboratory Quality Manual section 4.12. All maintenance or repair to equipment is documented in a laboratory notebook or in the appropriate LIMS\Laboratory Logbook. Documentation includes a description of the problem(s), work performed, date, and analyst's initials. All instruments and equipment used for analytical measurements are calibrated before being put into service. Procedures for calibrating these instruments and support equipment are described in applicable lab SOPs. Instruments are calibrated using traceable calibration standards and certified reference materials from qualified vendors. Laboratory instrument calibration and calibration documentation requirements can be found in the DEP Laboratory Quality Manual section 5.5.

B6 Inspection/Acceptance of Supplies and Services

NIST thermometers for all ROC offices are collected once a year by Water Quality Monitoring Program staff for an annual inspection and verification. On an annual basis, barometric pressure sensors connected to field multi-parameter meters must be checked (CCV) against a NIST-traceable barometer with a valid certificate for the period of measurement. The values must meet the calibration acceptance criteria. The barometer should be allowed to equilibrate to the temperature of the sample before readings are recorded. If a barometer fails the calibration verification, the barometer should be recalibrated and the new calibration should be checked (ICV) against the NIST-traceable barometer. Verification results are documented by the WQMP using a Temperature Verification log, scanned, and saved electronically in a shared network folder.

ROC staff are responsible for maintenance and repairs performed for each instrument or piece of sampling equipment, including routine procedures, corrective actions, and solution or parts replacement for instrument probes in an electronic or paper Equipment Maintenance Log. The electronic versions of maintenance logs are kept on SharePoint. For any equipment that is serviced outside of the agency, vendor service records must be retained for all affected equipment. Each ROC office has a paper logbook to record receipt, expiration date, date opened, and lot numbers of all specific conductance standards and pH buffers used for field sampling calibrations and verifications per DEP SOPs. These log books are either kept with the standards and pH buffers or electronically on SharePoint. Additionally, a designated member of each ROC office is responsible for maintaining sampling trucks and boating equipment for sampling purposes. Maintenance activities to any YSI / EXO probes should be included as a part of the teams maintenance log.

Laboratory staff procure laboratory supplies from state approved vendors. A list of state approved suppliers for the purchase of supplies and services is maintained by the Florida Department of Management Services (DMS). Acids used for field sample preservation are provided in polypropylene ampules by the DEP Laboratory. If DI water is obtained from an alternate source other than the DEP lab, the source is recorded, as well as the date received and the inclusive dates of use for each batch of DI water. The laboratory maintains an inventory list of chemicals and supplies commonly used for analyses performed in the laboratory. See SOP LB-030*, Purchasing and Receiving Laboratory Chemicals and Supplies*. This SOP includes procedures ensuring the necessary quality of the purchase, checking that the proper quality was received and how the supplies are stored if needed to maintain their quality. The quality of items being ordered is specified prior to the purchase. This applies to the specifications of durable goods such as laboratory instrumentation and software. Similarly, the Laboratory orders consumables such as chemical reagents of known quality (purity) from reputable vendors. The quality of the chemical is usually specified by “grades” that conform to

industry standards prior to their purchase. Examples include the American Chemical Society (ACS) Reagent Grade chemicals, Trace Metal Grade (TMG) acids, HPLC Grade organic solvents, Ultra High Purity (UHP) Grade gases, etc.

Typically, field sampling and lab services are conducted by agency staff. However, DEP contracts out lab analysis to regional overflow labs for bacteria samples when sample locations prevent delivery to the DEP Lab within holding time deadlines. All contracts/orders are reviewed and accepted only if the requirements are clear and understood, and the Laboratory has the capability and capacity to meet full customer expectations. The criteria used to review and accept projects are described in SOP LB-033, *Procedure for Receiving and Accepting Laboratory Projects*. Upon receiving a client's request, the DEP Project Manager obtains specific project information.

B7 Environmental Information Management

ROC staff use the electronic form named "DEAR 2021 SMP Field Sheet" in ArcGIS's Survey123 to collect qualitative and quantitative field data as well as record their bottle collections. Once submitted, Microsoft's Powerautomate takes the submitted data and creates the field documentation (Field Sheet, Chain of Custody, EDD file). Field documentation and photos collected with Survey123 are then saved within the DEAR Teams Channel on SharePoint. The EDD file is also transferred to the laboratory receiving folder. A label is placed on each container with the RQ number, the major analyte group, a notation if filtration is required, and the required preservation method(s). Samplers place in house made Barcoded Station Labels on sample containers, and Survey123 adds barcodes onto the DEP COC and the SMP Field Sheet. This links the containers, the field sheets and the DEP COC.

Sample results produced by analysis performed by the FDEP Laboratory are entered into LIMS by FDEP Laboratory staff. The Data Merge Tool (DMT) is a module in LIMS developed by FDEP Laboratory staff. The DMT is used to merge field measurements associated with lab results, apply field data qualifiers J, G, R, and create an EDD text file formatted for WIN uploading. Before uploading to WIN, sampling staff must add and verify field instrument values in the DMT to the DMT. For each LIMS Event the WIN Org ID, sampling agency, field measurements, and if applicable, data qualifiers need to be added. The Station ID(s) are verified against the field sheets and a WIN station table to verify the Station ID(s) are correct. After sampling data has been added to the DMT, the data are verified by an individual who did not perform the initial data entry.

The WSP WIN Section manages data from both internal data providers (e.g., DEP ROCs) and external data providers (e.g., Water Management Districts, Counties, and local governments). All data are made available for access through the WIN data warehouse through the publicly available WIN Reports Module. Data housed in Florida's former data repository, the STORET Warehouse, can be found publicly through the STORET Public Access (SPA)Website.

AQUARIUS houses continuous monitoring data that is collected by DEP ROC staff and used for assessment purposes. Following a deployment, continuous monitoring data is loaded into AQUARIUS and labelled as "working" status by ROC staff. Continuous data is "trimmed" to exclude readings recorded during deployment and retrieval. Additionally, qualifiers may be added during this process to indicate verification failures, a low water event leading to sonde out of water, questionable or erratic data, or instrument malfunction or damage. A secondary ROC member reviews the "working" data and changes data to "approved" status once their review is complete. Only approved data is used for assessment purposes.

The function of the WAS involves implementing the Identification of Impaired Surface Waters Rule, Chapter 62-303, F.A.C. Surface water quality assessments are made for the entire state in accordance with the IWR and the Surface Water Quality Standards, Chapter 62-302, F.A.C. The IWR database serves as a companion tool to the Master List spreadsheet (Excel spreadsheet) that is posted to the DEP website and available to the public that tracks the assessment decisions made by staff. The water quality and bioassessment data used in the assessment process are extracted from multiple sources (WIN, STORET, AQUARIUS, USGS, SBIO, and external biological data) that are then processed through SAS (Base SAS 9.4 Maintenance Level 8) code, which then produces an output of results that are loaded into Microsoft Access to produce what is called the IWR Run database. MS Access has been used by WAS since 2002 as the platform to share a preliminary summary of assessments based on the data sufficiency. The IWR Run database is primarily an internal tool used by WAS to view stations, data sufficiency, data exclusions, trends, and to export those data into Microsoft Excel but is made available to the public for download.

GROUP C ELEMENTS FOR ASSESSMENT, RESPONSE ACTIONS, AND OVERSIGHT

C1 Assessments and Response Actions

Audits provide objective feedback concerning the effectiveness of our program's quality system and may identify areas in need of improvement. Most of the samples collected for the SMP are taken by ROC sampling staff located in district offices throughout Florida. ROC Environmental Administrators conduct systems audits of internal data generators and conduct annual sampling performance audits of ROC teams. EAs also ensure that corrective actions are implemented for data non-conformance incidents as determined by evaluation of the data against our program's DQOs. Additionally, the EAs are responsible for the overall Quality System and other logistical aspects of its implementation, such as coordinating associated training needs. New employees must complete training in the areas that pertain to their sampling projects at a minimum of three sites and pass an internal sampling proficiency audit to demonstrate competence. Every three years, sampling personnel are required to take a series of on-line tests to assure their continued proficiency and knowledge of DEP SOPs. Field procedures including field meter calibration, sample collection, and record maintenance will be reviewed at least annually for a representative sampling team from each ROC to ensure compliance with the quality assurance plan and applicable DEP SOPs. The results of audits are distributed to Program Administrator and all affected individuals. The Team Leads oversee responses to audits and recommend corrective and preventive actions or other measures. All audits are conducted according to the requirements of FA 4200 of the DEP SOPs.

The DEP Laboratory participates in numerous external assessments on a periodic basis. Among them is a biennial assessment of the lab conducted by the Florida Department of Health (DOH) Environmental Lab Certification Program, Florida's NELAC Institute (TNI) accreditation body, to maintain NELAC certification. In addition, audits are occasionally conducted by the South Florida Water Management District (SFWMD) and the U.S. Army Corps of Engineers (USACE) for samples analyzed by the lab and associated with the Comprehensive Everglades Restoration Plan (CERP). The lab's QA officer also conducts an annual internal audit for all NELAC certified parameters in chemistry and biology. The QA officer uses NELAP audit checklists in conducting internal audits. The checklists for quality systems, microbiology, toxicity testing, chemistry and chemistry technology can be accessed at the Florida DOH website. Additional details on internal audits and audit checklists are provided in section 4.14 of the Laboratory Quality Manual. Deficiencies found in the course of internal or external audits are addressed by lab supervisors who issue corrective action reports to the Laboratory QA officer. Deficiencies are generally expected to be addressed within 30-60 days from the receipt of the audit report. The laboratory QA officer verifies that the corrective actions have been implemented as described in the corrective actions report. The lab's Biology section and the AEQAS also perform external audits of contract laboratories that report microbiology data to DEP. The audits generally involve labs performing E. coli, Fecal Coliform, and Enterococci tests by approved enzyme substrate and membrane filtration methods. The lab's Chemistry and Biology programs participate in numerous Performance Testing (PT) studies every year to maintain NELAC certification. They include biannual NELAC PT studies for parameters in non-potable water and solids, microbiology and toxicity testing. In addition, the lab participates in USGS round robins for nutrients and metals in water. The lab QA officer conducts an annual management quality review at the end of each calendar year. Details are provided in section 4.15 of the Laboratory Quality Manual.

Occasionally WAS requests AEQAS to audit specific data providers and the WAS QAO may assist AEQAS in these audits. The AEQAS performs audits at various levels ranging from audits of other DEP work units and programs to audits of external organizations. Program audits and performance audits are carried out on an as-needed basis. Section 9 of the WQSP QA Plan describes the various

audits conducted by AEQAS staff. Those audits include field audits to evaluate proficiency in statewide bioassessment methods, field sampling performance audits, program or project audits, and lab audits for other DEP units or non-DEP entities. The AEQAS maintains and uses audit checklists available on its Data Review and Audits webpage. The procedures for conducting and documenting the audits are in section 9 of the QMP, which addresses audit evaluations as well as corrective actions. The AEQAS conducts sampling performance and field- testing audits upon the request of FDEP Programs and compiles audit reports. The audit reports can be accessed on the audit search page. Some data are excluded from some assessments due to lab audit reports from DEP QA staff. The WAS QAO also ensures corrective actions are implemented for data non-conformance incidents as determined by evaluation of the data against our program's DQOs. The QAO may also review audits performed by other work units within DEP to ensure quality data is used for assessment activities. The procedures for conducting and documenting the audits are in section 9 of the QMP, which addresses audit evaluations as well as corrective actions. The AEQAS conducts sampling performance and field- testing audits upon the request of FDEP Programs and compiles audit reports. The audit reports can be accessed on the audit search page. Some data are excluded from assessments due to lab audit reports from AEQAS. The WAS QAO also ensures corrective actions are implemented for data non-conformance incidents as determined by evaluation of the data against our program's DQOs. The QAO may also review audits performed by other work units within DEP to ensure quality data is used for assessment activities.

The WSP WIN Section conducts data assessments serving the purpose of audits throughout the data management process resulting in data verifications, reporting, and/or data corrections as described in Section 6 of the Quality Plan for WSP WIN Section. WSP WIN staff work together in a team environment providing feedback, troubleshooting, and confirmation throughout the data management process. Deficiencies identified within the data management process are corrected based on WSP WIN Data Quality Objectives and Data Quality Indicators and are implement as directed by the Quality Assurance Officer. The results of this integral data assessment are captured in weekly and monthly data quality reporting in WIN.

C2 Oversight and Reports to Management

Environmental Administrators who have direct supervisory responsibilities over ROC staff coordinate and participate in the quality evaluation of program data and provides oversight to ensure that staff performs their QA functions. The FDEP Laboratory QAO initiates and oversees all internal QA/QC audits, manages the laboratory's blind proficiency testing program and maintenance of the Laboratory's SOPs, evaluates quality control results, corrective actions, and establishes policy for laboratory quality management. The WAS EA manages all direct oversight of WAS activities, including the SMP. Any QA issues uncovered for each assessment cycle is documented in an excel spreadsheet and sent to EPA with the EPA submittal for that Biennial Assessment.

The quality assurance officers for all programs referenced in this QAPP document all program QA activities, including training, audits and corrective actions, and provide this information to the DEP AEQAS on an annual basis. Using this information, along with those from other programs within FDEP, the AEQAS prepares an annual QA Report to the FDEP Secretary, which has been submitted annually since 2012. This annual report is a compilation of types and outcomes of QA activities conducted throughout the year in all FDEP programs.

GROUP D ELEMENTS FOR ENVIRONMENTAL INFORMATION REVIEW AND USABILITY DETERMINATION

D1 Environmental Information Review

The *Data Review* section of the WAS Quality Plan provides detailed information on data review, validation, and verification, but in general since water quality monitoring is carried out statewide and by numerous entities, it is particularly important that DEP evaluate the QA of the data used in the 303(d) assessments.

ROC staff record field measurements from multi-probe field meters, station information, and additional sampling documentation requirements on a tablet. The tablets are programmed to compare dissolved oxygen values for percent and mg/L to check for accuracy. This check coincides with a WIN front-end rule which evaluates the correlations between Salinity and Specific Conductance and Dissolved Oxygen (DO) and DO Saturation readings, respectively. These rules compare the reported value to an expected value established by standard formulas. Records that do not meet the established tolerances during initial uploads to WIN will be flagged for review. The tablet also has additional QA features that ensure depth, station information, acid lot numbers, field meter results, and analyte-specific information is completed and accurate.

Field measurements, such as dissolved oxygen (mg/L), pH (SU), conductivity (µmhos/cm), and temperature (°C) are entered into LIMS by laboratory staff upon sample submittal. Other field measurements, such as Secchi depth (m), total depth (m), dissolved oxygen (% saturation), and any parameter or additional data (e.g., field measurements from multiple depths) that is not entered into LIMS is entered into the Data Merge Tool (DMT) by ROC staff. LIMS field data, sample dates and times, and station IDs are verified by a second employee for accuracy. Once all data have been verified, an electronic data deliverable is generated and loaded into the WIN database. Data verification is tracked by each ROC. All data management is consistent with FD 1200 of the DEP SOPs. If data are collected for SMP in addition to another project (e.g., BMAP), data is entered under the other project's ID. Once the laboratory and field data are migrated to WIN, the data is retrieved from LIMS and verified for accuracy and reviewed against blanks and duplicates. All errors and corrective action are documented and saved electronically. Biological assessment data for HA, RPS, LVI, and LVS, is entered into SBIO2 by an analyst while a second analyst verifies the content and accuracy of each entry. Once this process has been completed, all entries are marked complete in SBIO2 which results in community variables and scores being calculated and stored. SCI data is entered and verified by the biology lab staff. All data are stored in an Oracle database on the DEP Server. Similarly, continuous monitoring data from AQUARIUS is entered by an analyst while a second analyst verifies the content and accuracy of each entry. Once the review is complete, continuous monitoring may be moved to Approved status so that it may be used for assessment purposes.

There are several levels of data validations for samples and field measurement data collected by ROCs. It starts with each employee involved in water quality sample collection, field measurement recording, or biological assessment by reviewing his/her records for completeness and correctness. Then, each ROC has a system of checks before data is entered to the Data Merge Tool (DMT), WIN, or SBIO2. The process of transferring data from DMT into the WIN database includes an intermediate verification process. The WIN program electronically reviews each data set for required data quality elements. If there are errors or omissions detected the data will not be uploaded into WIN until such items are corrected. Once results of sample analyses by the Florida DEP Laboratory are available, final data is reviewed for its completeness and if field QC samples are within acceptable limits. Data that do not meet the monitoring objectives are resampled, when

possible. All data generated by ROCs is validated again by WAS. A monthly report is distributed by the SMP coordinator to WAS and ROC staff that tracks the following:

- LIMS data that has been approved but has not been uploaded to WIN.
- SBIO records that are partially entered or verified.
- Scheduled samples that didn't end up being analyzed and were fatally qualified
- Qualified NNC data. These are manually checked by the SMP coordinator as well and resamples may be requested.
- Blanks collected for appropriate frequency.

The DEP Laboratory has an established quality control program for monitoring the performance of test methods conducted in their Quality Manual. Section 5.9 of the Lab Quality Manual, *Quality Assurance for Environmental Testing*, details data verification and validation procedures for environmental samples. Each supervisor or workgroup designee is responsible for authorizing the individual analysis results and samples for release. When all the samples within a job are authorized, the managers or supervisors are responsible for reviewing and authorizing the job for release. After all the jobs in an event are authorized, the LIMS automatically generates a list of reports that are ready to be reviewed and certified. The Program Administrator (or his/her designee) reviews the report in LIMS and if requested by the client, evaluates the data using a quality assessment tool, Automated Data Processing Tool (ADaPT). See SOP LB-025, *Event Level Authorization Checklist*, for complete details. Once the review is completed, the report is certified in LIMS. A .pdf file of the signed report is automatically created and, along with a .pdf of the sample submittal form, and any associated paperwork (e.g. reports received from a subcontract laboratory), and an ADaPT data file, transferred to an ftp directory accessible to the client. All final sample results with associated QC data are archived together in the LIMS committed database and can be retrieved in the future if necessary.

D2 Useability Determination

One of the primary functions of WAS involves conducting IWR assessments as part of the state's program for identifying impaired waters. The section *Data Use for Impaired Waters Assessment* in the WAS Quality Plan, provides a reference to key documents explaining how decisions for data usability are made based on data quality assessments and a description of how water quality data collected for the identification of impaired surface waters is used in the impaired waters assessment. The biennial Integrated Water Quality Assessment for Florida, or the 305(b) Report, explains in detail Florida's 303(d) listing process. For additional information on the usability of water quality data in the impaired waters assessment and the 303(d) listing process please see EPA's Overview of Listing Waters under CWA Section 303(d).

The IWR addresses QA and quality control (QC) by requiring all data providers to use established SOPs and NELAC-certified laboratories to generate results intended for use in IWR assessments. All data must meet DEP QA rule requirements (Chapter 62-160, F.A.C.). To further ensure that the QA/QC objectives are being met, DEP, on request, audits data providers (or laboratories used by data providers). DEP QA staff perform lab and field audits that monitor on-site sampling techniques, the suitability of sampling environments, and proper use of sample preservatives and sample transport and storage conditions. Some data are excluded from some assessments due to lab audit reports from DEP QA staff.Data are also reviewed for quality assurance by evaluation of results, data qualifiers, and method detection limits (MDLs). Data used in each assessment are extracted from the Florida STOrage and RETrieval (STORET) database (the predecessor to WIN) and WIN, as well as the United States Geological Survey (USGS). Continuous monitoring data is extracted from AQUARIUS. The department's statewide biological database (SBIO) and additional biology

data submitted to the department from external entities are also used in each assessment. The valid water quality data are assessed against the water quality criteria applicable for the waterbody's classification or designated use.

The WSP WIN Section staff understand the need to manage and evaluate the quality and usefulness of environmental data to be used in environmental assessments. The WSP WIN staff regularly conduct data management procedures relative to the collection, evaluation, storage, and reporting of the data in WIN in accordance with established Data Quality Objectives and Data Quality Indicators referenced in Table 1 of the Quality Plan for WSP WIN Section. The WSP WIN staff ensure quality control during data migration to WIN and data upload to U.S. EPA WQX in accordance with Section 6 of the Quality Plan for WSP WIN Section. WSP WIN staff assist data providers in providing high quality data that include all FDEP required fields for the identification of impaired surface waters (referenced in Data Quality Assessment Elements for Identification of Impaired Surface Waters; DEP EAS 01-01) and U.S. EPA WQX requirements are implemented into the Data Provider's formatting software and WIN import configuration.

If QA/QC audits identify specific data deficiencies, corresponding data subsets may be excluded from the assessment process. In these situations, DEP will provide recommendations to the appropriate data providers. If a review of water quality assessment data identifies specific discrepancies or anomalies, these data also may be precluded from an assessment. Typically, such discrepancies include systematic issues such as errors in the conversion of units, errors caused by using an incorrect fraction to characterize an analyte, or other data-handling errors that may have occurred in conjunction with the data-loading process. In these cases, DEP will work with the data provider to resolve the underlying issues. Upon resolution corrected data are reloaded to WIN and made available for subsequent IWR assessments.

In assessing surface water quality under the IWR, DEP attempts to assemble and use all readily available ambient surface water quality data. Measurements or observations that are known not to be representative of ambient waters (e.g., results for samples collected from discharges or in approved mixing zones) are excluded from IWR assessments. In addition, data collected at locations or during periods that are not representative of the general condition of the waterbody (e.g., samples collected during or immediately after a hurricane or samples linked to a short-term event such as a sewage spill) are subject to additional review before inclusion in the IWR assessment process.

There are various reasons why data may be excluded from an assessment, but typically data are excluded because it has been found to be inaccurate or of poor quality. This is usually determined while reviewing data for assessment, by the use of data qualifiers, or through audits by the AEQAS. Overall, the excluded data makes up a small proportion of the total. Details about the specific types of data that have been excluded from assessments performed under the IWR can be found in Table 8 of the Consolidated Assessment and Listing Methodology (CALM) document that the WAS maintains. Data quality issues that are discovered during the assessment process are documented and shared with EPA in the Submittal Package for the corresponding Biennial Assessment. Additionally, data quality issues are shared with EPA and the public via Public Meeting Webinars provided by the Department following the completion of the draft assessment lists. Data quality issues with data loaded to WIN are relayed to the appropriate WIN Coordinator to resolve with the data provider.

Additionally, particular data handling is enacted for metals with hardness-based criteria in order to make sure all exceedances are captured in the assessments. In the rare scenario where hardness is I-qualified and the pql is greater than 25, a maximum criterion is determined by calculating the criteria

at the pql and a minimum criterion is the criteria at a hardness of 25 per Rule 62-302.530, F.A.C. If the metal result is lower than the lowest criterion, it is counted as a result and is not an exceedance. If the metal result is higher than the highest possible criterion, it is counted as a result and is an exceedance. If the metal result falls in between the lowest and highest criteria, we cannot make a definitive statement on whether it is an exceedance or not, so the result is not counted.

APPENDIX A

DEP SOPs USED FOR SMP SAMPLING (EFFECTIVE MAY 20, 2026).

SOP	Description
Field Title Page	Title Page, Field
FA 1000	Administrative
FC 1000	Field Decontamination
FD 1000	Documentation
FM 1000	Field Mobilization
FQ 1000	Quality Control
FS 1000	General Sampling
FS 2000	General Water Sampling
FS 2100	Surface Water Sampling
FS 6000	Tissue Sampling
FS 7000	Biological Communities
FS 8200	Clean Sampling for Trace Metals
FT 1000	Field Testing General
FT 1100	Field pH
FT 1200	Field Specific Conductance
FT 1300	Field Salinity
FT 1400	Field Temperature
FT 1500	Field Dissolved Oxygen
FT 1900	Field Continuous Monitoring
FT 3000	Habitat Assessment

SOP	Description
Lab Title Page	Title Page, Laboratory
LD 1000	Laboratory Documentation
LQ 1000	Laboratory Quality Control
LT 7000	Biological Indices
Bioassessment Title Page	Title Page, Bioassessment
BRN 1000	Biological Reconnaissance Field Method
LVI 1000	Lake Vegetation Index Methods
SCI 1000	Stream Condition Index Methods

APPENDIX B

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,	See Note 4

Data Quality Indicator	Analyte, Parameter or Assessment Test	Data Quality Objective
	Polychlorinated Biphenyls (PCBs), Oils & Greases	
Matrix Spike (MS) %R	Hardness (Ca + Mg calculation method)	See Note 8
Matrix Spike (MS) %R	Hardness (titration method)	See Note 1
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 &	See Note 4

Data Quality Indicator	Analyte, Parameter or Assessment Test	Data Quality Objective
	Greases	
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 & Greases	Note 14
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

Data Quality Indicator	Analyte, Parameter or Assessment Test	Data Quality Objective
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, Chlorinated Cresols, PAHs, Phthalate Esters, PCBs)	N/A
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	Dissolved Oxygen	See Note 9

Data Quality Indicator	Analyte, Parameter or Assessment Test	Data Quality Objective
Verification Acceptance Criteria		
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, Phthalate Esters, PCBs	See Note 14
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

Data Quality Indicator	Analyte, Parameter or Assessment Test	Data Quality Objective
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
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

Data Quality Indicator	Analyte, Parameter or Assessment Test	Data Quality Objective
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
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

APPENDIX C

EXAMPLE CHAIN OF CUSTODY FORM SUBMITTED TO THE LABORATORY WITH ENVIRONMENTAL SAMPLES.

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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
CHAIN OF CUSTODY FORM

Date: _____ **Collected By:** _____
Customer: **Sampling Agency:** _____
_____
RQ: _____ **Project ID:** _____
EDD file path:

PLEASE RETURN THE ORIGINAL OF THIS FORM WITH SAMPLE SUBMITTAL FORMS AND THE COOLER PACKING WORKSHEET TO THE LAB AT LAB.RECEIVING@FLORIDADEP.GOV

Number of Coolers Shipped: **Delivery Method:**

FIELD ID (Labels) submitted under this RQ for this collection date.

Site Location	Field ID/WIN ID
Location:	WIN/Field:

RELINQUISHED BY(SIGNATURE): **DATE/TIME:**

THIS SECTION TO BE COMPLETED BY LABORATORY

Rec'd/Inspected By: **Rec'd/Inspected Date:**

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RQ	Collected By:
Customer:	Field Report Prepared by:
Project ID:	Sampling Agency:
WIN ID/Field ID:	Comments:
Location:	
Matrix:	☐ Grab ☐ Composite

Date and Time {TimeZone}	DO (mg/L)	DO (%SAT)	Temp. °C	pH	Sample Depth (m)	Secchi Depth	Total Depth (m)	Sp COND (µmhos /cm)	Salinity (PPTh)

Parameter Suite	Parameter Methods	Preservation	pH Check	# Bottles sent to Lab	Bottle Group
Preserved Nutrients (P-500ML)	W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP Lot # H2SO4Lot Exp:	Ice H2SO4* H2SO4Exp	<2		
Metals (P-500ML)	W-ICPMS W-ICP W-HARD Lot # HNO3Lot Exp:	Ice HNO3* HNO3Exp	<2		
Filtered Nutrients (P125ML)	W-PO4-F Field Filtered 0.45 um Filter Filter Lot # Syringe Lot #	Ice			
BOD (BP-1L)	OV-BODUNIN	Ice			
Chlorophyll (BP-1L)	CHLSUITE-W	Ice			
Physical/Aggregate (Fresh) (P-1L)	Alkalinity / W-F / W-TSS / TURBIDITY / W-CHC / W-COLOR / W-SO4-IC / W-TDS	Ice			
Physical/Aggregate (Marine) (P-1L)	Alkalinity / W-F / W-TSS / TURBIDITY	Ice			
Macroinvertebrates (PJ-2L)	MI-TW-QLDC Formalin Lot # FORMALIN_LOT	Formalin			
Periphyton (PT-50ML)	ALGAE-ID	Ice			
Microbiology (Contract Lab Bottle)	E Coli F Coli Enterococci Contract Lab	Ice			
Molecular (QPCR-P-500ML)	PCR-HF183 PCR-BacR PCR-DG3 PCR-GULL2 PCR-GFD	Ice			
Tracers (BG-500ML)	W-EB321-DI W-EB321-MS	Ice			
Pesticides (BG-500ML) (BG-1L)	W-EB321-DI W-EB321-MS W-PSNP-TQ W-PCL-TQ-R W-CARB-AA (5 ml of MCAA Buffer Solution) W-CT-CL-R W-TR-SQ-R W-PCB-TQ-R	Ice MCAA Exp. MCAA_Exp	MCAA Lot# MCAA_Lot		
Phytoplankton (BP-1L)	DTY-QN-C PKD-QN-BV	Ice			
DOC (P-500ML)	W-DOC Field Filtered 0.45 um Filter Acid Preservative Expiration Date Acid Preservative Lot Number	Ice H2SO 4*	<2		
PFAS (P-125ML)	W-PFAS-MS	Ice			