Compliance Monitoring Plan

For

EAA A-1 Flow Equalization Basin

(A1FEB)

AGENCY: FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Document Date: 05/25/23

Water Quality Monitoring Section
Water Quality Bureau, Water Resources Division
South Florida Water Management District

SFWMD-FIELD-CMP-011-07

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1.0 Project Organization

The following documents define the procedures used by South Florida Water Management District (SFWMD or District) Water Quality Monitoring (WQM) Section personnel to meet the Florida Department of Environmental Protection's (FDEP or Department) Quality Assurance (QA) Rule, Florida Administrative Code (F.A.C.) 62-160, and should be referred to for details on key personnel and relevant responsibilities.

- Overall project organization and responsibilities -
  - SFWMD Water Quality Bureau (WQB) and Applied Sciences Bureau (ASB) Quality Management Plan (QMP).
- Field activity and data validation responsibilities -
  - SFWMD Water Quality Monitoring Section's (WQM) Quality Manual (QM), Field Sampling Manual (FSM), and applicable Standard Operating Procedures (SOP).
- Laboratory analysis and data validation responsibilities –
  - SFWMD Analytical Service's (AS) Chemistry Laboratory Quality Manual (CLQM) and applicable SOPs.

2.0 Project Introduction and Background

This document serves as a reference for surface water quality monitoring for EAA A-1 Flow Equalization Basin (A1FEB). Samples and/or data are collected to satisfy the mandated monitoring requirements in accordance with the permit to which this document is attached.

This plan details permit mandated monitoring requirements. Modifications to this sampling may be requested in response to any future design changes, and/or changes to project objectives. Monitoring reductions may also be requested to stations, frequencies, and/or analytes if monitoring demonstrates that specific parameters are not present or if found consistently in compliance with regulatory standards. This plan will be reviewed and/or modified as needed to reflect necessary changes. At a minimum, this plan will be reviewed when the permit is renewed.

Compliance monitoring was initiated in September 2015 and will continue for the life of the permit.

2.1 Water Quality Performance Measures

The primary objective of the A1FEB is to provide flow equalization by attenuating peak stormwater discharges from the North New River (NNRC) and Miami Canals to Stormwater Treatment Areas: STA-3/4 and STA-2.

Flows approaching the A1FEB inflow structures (G-720 and G-721) will be conveyed by existing STA-3/4 inflow pump stations G-372 and G-370, respectively. Outflow operations will be controlled with structures G-722 and G-724A - G-724J. G-722 will be located at the intersection of the outflow canal and the G-370 access road. G-722 will open to allow for outflow from the A1FEB and close for inflow operations into the A1FEB from existing pump station G-370.

Outflow structures, G-724A - G-724J, located along the southern levee, allow the discharge of water from the A1FEB directly into the STA-3/4 Inflow Canal, providing water to STA-3/4 without the use of the G-370 pump station. The existing mandated water quality monitoring at G-370 and G-372 under EFA Permit #0311207 is intended to characterize A1FEB inflow water quality. Monitoring at G-722 and G-724A - G-724J will characterize A1FEB outflow water quality. After one year, the District may request to reduce monitoring. For this purpose, a water quality data assessment justifying a reduction will be submitted to the Department.

3.0 Geographic Location

A1FEB is located within Palm Beach County (Figure 1). Five (5) of the thirteen (13) mandated monitoring stations listed in Table 1 will be sampled for this project. Station locations and descriptions are listed in Table 1 with locations depicted in Figure 1.

Table 1: A1FEB Surface Water Monitoring Sites and GPS Coordinates

Station	Latitude (ddmmss.sss)	Longitude (ddmmss.sss)	Description
G370[1]	262345.903	803519.720	Pump station operated to control surface water elevations in the North New River Canal. The station discharges into STA-3/4 and A1FEB.
G372[1]	262608.505	804828.090	Pump station operated to control surface water elevations in the Miami Canal. The station discharges into STA-3/4 and A1FEB.
G722	262351.410	803522.366	Three (3) barrel gated box culvert controlling outflow.
G724A	262348.377	803603.818	Single barrel box culverts equipped with the Rubicon SlipGate® slide gate, allowing outflow from the A1FEB into the STA-3/4 inflow canal.
G724B	262348.513	803631.853	
G724C	262348.420	803705.781	
G724D	262348.339	803737.402	
G724E	262348.441	803812.658	
G724F	262348.125	803837.009	
G724G	262348.159	803908.279	
G724H	262347.897	803938.533	
G724I	262347.710	804010.105	
G724J	262347.646	804038.533	

The standard positional goal for station coordinates is detailed in the Establishing & Verifying WQ Monitoring Station Registration SOP (SFWMD-Field-SOP-031). The coordinates are relative to NAD83 HARN horizontal datum. [1]*Water quality data for stations G-370 and G-372 are available in DBHYDRO under Project Code ST34.*

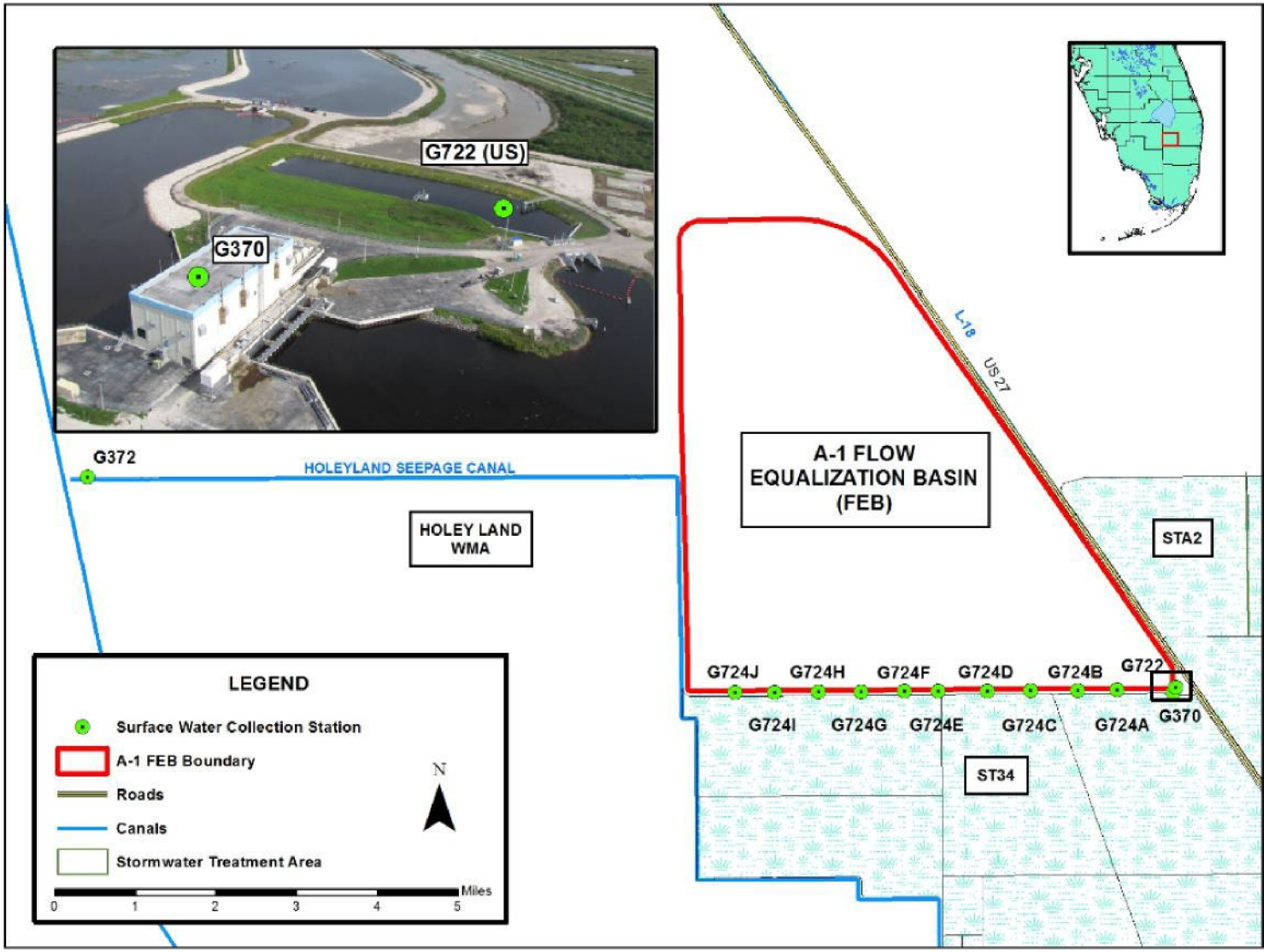

Figure 1: A1FEB Surface Water Monitoring Locations

4.0 Field Activities

4.1 Monitoring Frequencies and Parameters Collected

All monitoring parameters, frequencies of collection and locations are listed in Table 2. Some analytes may be reported by the lab that are not requested by the project.

Stations collected on a frequency determined by recorded flow are sampled following the SOP outlined in the Sampling Flow-Related Stations SOP (SFWMD-Field-SOP-027). If no flow (i.e., no operations) is recorded during the prescribed time period, the station is designated as a No Bottle (NOB) sample and the structure is not visited unless other parameters (i.e., TP) are required to be collected regardless of flow. Diversion Structures are only monitored if flowing, NOBs are not assigned during nonflow periods.

Table 2: A1FEB Station Frequency and Parameter TESTS

Station	Sample Type	Frequency	Parameters TESTS
G370 G372 G722 G724D[1, 2] G724G[1, 3]	Grab	Weekly Recorded Flow (WRF)	Total Phosphorus (TP)
	In-situ Grab	WRF	Dissolved Oxygen (DO), pH (PH), Specific Conductance (SCOND), Temperature (TEMP)
	Grab	Bi-weekly Recoded Flow (BWRF)	Total Nitrogen (TN)

[1] Any recorded flow for stations G724A through G724J, samples are collected at both G724D & G724G.

[2] Samples collected would be representative of G724A - E.

3 Samples collected would be representative of G724F - J.

4.2 Project Specific Guidelines

All surface water grab samples are collected on the upstream side of any structure at a depth of 0.5 meters unless collection of a representative sample is inhibited by vegetation and/or other conditions. If an alternative sampling location is required, a consultation with a Science Technician Supervisor and/or the Field Project Manager (FPM) must take place prior to the sampling being collected; this action must be documented in the field notes.

If recorded flow occurs for any of the following stations, G724A through G724J, sample collection will be conducted at both G724D and G724G.

4.3 Grab Sampling Procedures

Sample collection for this project follows the procedures and requirements found in the *Grab Sampling Protocol* section of the WQM FSM. Project-specific deviations are detailed in Section 4.2.

4.4 Field Parameters

The collection of field parameters follows the procedures and requirements outlined in the *Instrument Calibration and Field Measurements* section of the WQM FSM. Project-specific deviations are detailed in Section 4.2.

4.5 Field Quality Control Requirements

Field quality control requirements shall follow the procedures found in the *Field Quality Control Measurements and Requirements* section of the WQM FSM. Project-specific deviations are detailed in Section 4.2.

4.6 Autosampler Collection

Autosampler samples are collected in accordance with the *Autosamplers* section of the WQM FSM. Project-specific deviations are detailed in Section 4.2.

There is no requirement for the use of autosamplers for this project.

4.7 Sample Submission

If the District laboratory is to be used, samples are transported to the laboratory and submitted for analyses in accordance with the requirements specified in the WQM FSM. Samples are submitted to the laboratory on the same day as collection or via courier the following day. Sample acceptance criteria are detailed in Section 6 of the CLQM. If samples are submitted to another laboratory, it must meet the contract laboratory requirements as specified in Section 5.2 below.

5.0 Data Quality Objectives (DQOs)

5.1 Data Usage

The data from this project are compiled and are summarized in an annual report in accordance with the conditions outlined in the mandate named in Appendix 1.

5.2 Data Quality

All monitoring described herein shall meet the requirements conveyed in the FDEP's Quality Assurance Rule, 62-160 F.A.C. The District has adopted a uniform set of DQOs following criteria detailed within the *Analytical Methods and Default QA/QC Targets* table of the CLQM.

Field parameter DQOs are described in the *Field Instrument Minimum Accuracy Requirements* table found in the *Instrument Calibration and Field Measurements* section of the FSM. The most recent version of the FSM details the specific field testing DQOs at the time of sample collection.

Samples are analyzed according to the provisions within the FDEP QA Rule 62-160 F.A.C. and the District's CLQM. This manual is updated regularly, and therefore, the most recent version of the District's CLQM details DQOs for this project at the time of sample collection for each specific laboratory analysis. Data are qualified in accordance with the FSM, CLQM and applicable data validation SOPs.

No contract laboratory is being used.

5.3 Completeness Target

The completeness target (i.e., the number of samples successfully collected and analyzed, as a percentage of those that were planned) has been set at 95% annually for this project. Sampling attempts shall be included in the completeness target. At times samples will not be able to be collected due to no flow or low water conditions, unsafe station conditions, equipment malfunction, site maintenance, tropical storms/hurricanes or other unforeseen problems that might affect sample collection and/or quality. If samples cannot be collected on an attempt, collectors shall document the sample as a "NOB" to indicate an attempt was made and/or the sample could not be collected for the documented reasons.

6.0 Data and Records Management

The District evaluates data in accordance with the data quality objectives stated in the District's FSM and CLQM. All data submittals shall conform to existing District guidelines.

6.1 Contract Deliverables

There are no contract laboratory deliverables.

6.2 Data and Record Storage

After the data validation process, all data and records are maintained so that end users can retrieve and review information relative to a sampling event. Field records are maintained in accordance with the *Archive Records Storage and Retention* SOP (SFWMD-FIELD-SOP-022). All analytical data and specified metadata are sent to the DBHYDRO database for long-term storage and retrieval.

The District shall maintain master copies of field and laboratory generated records. It is the responsibility of the District to maintain both records of current and historical methodologies and operating procedures so that at any given time the conditions that were applied to a sampling event can be evaluated.

Field records storage protocols are outlined in the *Archive Records Storage and Retention* (SFWMD-FIELD-SOP-022). Corrections of field data or records must follow the applicable WQM *Correction of Field Records SOP* (SFWMD-FIELD-SOP-032) and the FSM. Corrections to data in DBHYDRO must follow *Data Investigations and Corrections* (SFWMD-DVS-SOP-010).

7.0 References

Florida Department of Environmental Protection. Quality Assurance Rule, 62-160 Florida Administrative Code (F.A.C.). April 16, 2018.

Florida Department of Environmental Protection. Florida Department of Environmental Protection Table as Required by Rule 62-4.246(4) Testing Methods for Discharges to Surface Water. April 25, 2006.

SFWMD (South Florida Water Management District). *Archive Records Storage and Retention*, SFWMD-FIELD-SOP-022, Water Quality Monitoring Section

South Florida Water Management District. *Chemistry Laboratory Quality Manual (CLQM)*, SFWMD-LAB-QM-001 or most current effective version. Analytical Services Section.

SFWMD (South Florida Water Management District). *Correction of Field Records*, SFWMD-FIELD-SOP-032, Water Quality Monitoring Section

SFWMD (South Florida Water Management District). *Field Sampling Manual (FSM)*, SFWMD-FIELD-FSM-001, Water Quality Monitoring Section.

SFWMD (South Florida Water Management District). *Field Quality Manual (QM)*, SFWMD-FIELD-QM-001, Water Quality Monitoring Section.

SFWMD (South Florida Water Management District). *Data Investigations and Corrections*, SFWMD-DVS-SOP-010, Data Validation Services Unit.

SFWMD (South Florida Water Management District). *Sampling Flow-Related Stations*, SFWMD-FIELD-SOP-027, Water Quality Monitoring Section.

8.0 Revisions and Modifications

Version	Date	Section/Page	Change/Reason
01	08/19/2013	Section 2, Tables 1 and 2, Figure 1, and Appendix 1	Official structure designations determined after monitoring plan was finalized and permit was issued, were included.
02	09/18/2015	Section 3, Tables 1 and 2, and Appendix 1 Section 2.1.1 and Table 3	Structure coordinates were obtained after construction and registered in DBHYDRO. Permit modification removing NOX and shifting SO4 to App. 1 was issued by FDEP on 9/18/2015.
03	11/20/2015	Appendix 1	FDEP issued concurrence to advance from Phase 1 – Tier 2 to Phase 2 – Tier 1 monitoring for mercury and other toxicants 11/20/2015
04	04/12/2017	Appendix 1	Phase 2 – Tier 1 other toxicants eliminated following FDEP issued concurrence to terminate (04/10/2017)
		All	Format changed to comply with an agreement reached by FDEP and the District in 2011 regarding the use of compliance monitoring plans.
05	02/11/2019	All Appendix 1	Updated to correct and/or clarify language as per the CMP template. Updated the Mercury and other toxicants plan (Appendix 1) to conform with FDEP Protocol (effective date 08/29/2018) and include FDEP's concurrence to terminate surface water monitoring of total and methyl mercury associated with Phase 2 – Tier 1 of the Protocol for Monitoring Mercury and Other Toxicants (02/08/2019)
06	03/03/2021	All Appendix 1	Updated to correct and/or clarify language as per CMP template. Phase 2 – Tier 1 mercury fish monitoring terminated with the concurrence of the FDEP on 03/03/2021
07	05/25/2023	All Table 1 & 2	Updated to correct and/or clarify language as per CMP template. Reduce sampling stations to G724D (representative of G724A-E) and G724G (representative of G724F-J).

Appendix 1: Mercury and Other Toxicants Monitoring Plan

A-1 Flow Equalization Basin

EFA Permit No. 0313994

1.0 Phase 1: Baseline Collection and Assessment

1.1 Phase 1 – Tier 1: Compilation and Review of Available Data

Sub-section omitted; reference *A Protocol for Monitoring Mercury and Other Toxicants* dated August 2018 and subsequent revisions (hereafter referred to in this document as the "*Protocol*") as needed.

1.2 Phase 1 - Tier 2: Initial Startup Monitoring Prior to Discharge

Phase 1 – Tier 2: Field samples for Initial Startup Monitoring Prior to Discharge for the A1FEB project were collected in 2015 with mosquitofish collected on September 10, sediment on September 30, and surface water on October 1. Analyses of these samples established the A1FEB project met the mercury and other toxicant startup criteria as specified in Specific Condition 20 of EFA Permit No. 0313994-003 (see data summary provided in correspondence from J. Schaffer, SFWMD dated November 6, 2015). The Department approved transfer of monitoring from Phase 1 – Tier 2: Field Sampling for Initial Startup Monitoring Prior to Discharge to Phase 2 – Tier 1: Routine Monitoring During Stabilization Period for A1FEB on November 20, 2015.

2.0 Monitoring During Five-Year Stabilization and Routine Operational Period

2.1 Phase 2 - Tier 1: Monitoring During Stabilization and Routine Operational Period

Phase 2 – Tier 1: Routine Monitoring During Stabilization Period other toxicants sampling was performed December 2, 2015 through September 26, 2016. A review of data analyzed from these samples indicated that levels of toxicants other than mercury were below levels of concern. Based on the report entitled, *Protocol Assessment: Justification to Terminate Other Toxicants Monitoring for A-1 Flow Equalization Basin (FEB) Project* dated April 06, 2017, the Department concurred with the termination of other toxicant monitoring on April 10, 2017.

In November 2020, the District completed five years of Phase 2 – Tier 1: Monitoring During Stabilization and Routine Operational Period for the A1FEB Project. All Phase 2 – Tier 1 mercury monitoring performed December 15, 2015 through November 5, 2020 met the action criteria in the *2018 Protocol* (see A1FEB Protocol assessment dated February 23, 2021) Subsequently, FDEP issued concurrence to terminate all site-specific mercury monitoring at A1FEB on March 3, 2021. Sulfate will continue to be monitored.

Table 1: Phase 2 – Tier 1: Routine Monitoring During Stabilization Period

Matrix	Station	Collection Method	Frequency	Parameters TESTS
Surface Water	G370 G372 G722	Grab	Quarterly (Q)	Sulfate (SO4)

5.0 History of Progression through Monitoring Phases and Tiers

Milestone	Date(s) of Collection or Concurrence
Phase 1 – Tier 2: Initial Startup Monitoring Prior to Discharge	09/10/2015 – 10/01/2015
FDEP Concurrence to Advance to Phase 2 – Tier 1	11/20/2015
Phase 2 – Tier 1: Monitoring During Stabilization and Routine Operational Period	12/15/2015 – 11/05/2020
FDEP Concurrence to Terminate Mercury Surface Water Monitoring	02/08/2019
FDEP Concurrence to Reduce Large-bodied Fish to One Interior Operable Unit	N/A
FDEP Concurrence to Terminate All Project-specific Mercury Monitoring	03/03/2021