

Operational Project Monitoring Plan

For

KISSIMMEE RIVER AND TAYLOR CREEK - NUBBINSLOUGH TRIBUTARY PROJECT

(KREA/TCNS)

Effective Upon Final Signature Date

5/9/2025

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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 Section (WQMS) 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 WQMS 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 Description

2.1 Project Introduction and Background

This document serves as a reference for surface water quality monitoring for **the Kissimmee River and Taylor Creek - Nubbin Slough Tributary Project (KREA/TCNS)**. This operational monitoring plan (OMP) contains descriptions of the mandate(s) justifying monitoring including frequency of collection and parameters by station.

The Kissimmee River Eutrophication Abatement (KREA) Project water quality monitoring program was established in 1986 at locations throughout the Kissimmee River basin in Polk, Osceola, Okeechobee and Highlands Counties. The project has evolved over time from a beef and dairy cattle operation monitoring program to being more focused on trend assessment in the watershed. The current water quality monitoring program on the Kissimmee River tributaries (Project KREA) will help measure the success of regulatory and restoration efforts in the watershed.

The Taylor Creek/Nubbin Slough (TCNS) water quality monitoring program encompasses an area characterized by beef and dairy cattle operations. The basin is located primarily in southeast and central Okeechobee County and parts of Martin County. The water quality monitoring network has been sampled by SFWMD since 1979. This program was initiated as a means of identifying trends and quantifying changes in water quality due to changes in land use and/or implementation of Best Management Practices (BMP) on beef cattle ranches and dairy farms in the basin.

Sampling frequency was changed from biweekly to monthly when flowing due to staff shortages in January 2016.

The project's sampling frequency changed from Monthly flow only to Biweekly flow only on February 1, 2020. The project's sampling parameters changed to include Ammonia

(NH₄), Nitrate-Nitrite (NO_x), Ortho Phosphate (OPO₄), Dissolved Oxygen (DO), pH, Specific Conductance (SCOND), Temperature (TEMP) as approved by the SFWMD Governing Board on August 8, 2019. Additionally, 1 new station, KREA 100, was added to the network. This change is documented in EMRT#: 201909-1.

At the request of data end users sampling at KREA 28 and HP36373013, ended April, 2023. Two replacement stations, IN13373512 and HP24373023 were added May, 2023 to coincide with the water year. This transition addresses safe access issues and better sample representation. Also reference [SFWMD-FIELD-MP-031](#).

At the request of data end users, on July 3, 2024 a recorded flow sampling schedule was requested for KREA 30A. Historically, samples were only collected if flow was visually observed. Samples for KREA 30A will now be collected if flow is recorded and/or visually observed.

As of May 1, 2025 (the start of WY 2026) TCNS 228 is replaced by LO04383512 ([SFWMD-FIELD-MP-031](#)). This change is documented in EMRT#: 201909-1-A05.

The guidance contained in this document will assist in maintaining consistency in sampling locations, parameter lists, and frequencies as well as providing documentation of the project scope and an ongoing historical perspective.

2.2 Sampling Mandates

Station locations, sampling frequencies, and parameters are dictated by the mandate(s) governing this project (Appendix 1). There is no Compliance Monitoring Plan (CMP) associated with this project.

The KREA/TCNS project is mandated by the Northern Everglades and Estuaries Protection Program (NEEPP) 373.4595(3)(a)2, whose primary goal is to improve and protect the water quality (specifically phosphorus load reductions) and quantity in the Lake Okeechobee, Caloosahatchee River, and St. Lucie River watersheds (NEEPP, 373.4595, Florida Statutes).

Under NEEPP, the District in partnership with FDEP and FDACS has established Research and Water Quality Monitoring Programs (RWQMP) for each watershed to evaluate water quality to the estuaries. Among other requirements, the Program directs the coordinating agencies to (NEEPP, 373.4595(2) (a)-(g), Florida Statutes):

- Analyze all available existing water quality data regarding total phosphorus in the watershed;
- Conduct an assessment of the water volumes and timing from the watershed and the timing and volume of water delivered to the estuaries;

- Determine the relative contribution of phosphorus from all identifiable sources and all primary and secondary land use;
- Develop a water quality baseline to represent existing conditions for total phosphorus;
- Develop a water quality model that reasonably represents the phosphorus dynamics of the watershed and incorporates an uncertainty analysis associated with model predictions;
- Evaluate the feasibility of alternative nutrient reduction technologies (including sediment traps, canal and ditch maintenance, aquaculture, bioenergy conversion processes, and algal or other biological treatment technologies);
- Monitor long-term ecological changes; and
- Measure compliance with water quality standards for total phosphorus.

The level of monitoring required for the RWQMP is not specified in NEEPP; projects, stations, frequencies, and parameters collected are at the discretion of the District. Modifications to monitoring will be made based on the needs of the District and funding availability.

An additional component of NEEPP are Basin Management Action Plans (BMAP), which are intended to be a "blueprint" for restoring impaired waters by reducing pollutant loadings to meet the allowable loadings established in a Total Maximum Daily Load (TMDL). A BMAP represents a comprehensive set of strategies, for example, permit limits on wastewater facilities, urban and agricultural best management practices, conservation programs, financial assistance and revenue generating activities, etc., designed to implement pollutant reductions established by the TMDL. These broad-based plans are developed with local stakeholders and rely on local input and local commitment are adopted by Secretarial Order to be enforceable. The District, in cooperation with the coordinating agencies and local governments, continues to implement research and water quality monitoring programs for the Lake Okeechobee BMAP through an Interagency Agreement (4600003632) which involves the monitoring of some water quality stations included in this plan.

In response to the Governor's Executive Order 19-12 (signed January 10, 2019) to expedite nutrient reductions in the Northern Everglades, the District's Applied Sciences Bureau and Everglades and Estuaries Protection Bureau (EEP) recommended an expansion of the District's water quality monitoring network. Specifically, the Bureau's recommendations are intended to:

- Measure progress of individual restoration projects toward attaining specific goals and maintaining compliance with FDEP and USACE permit requirements;
- Monitor non-point source contributions to assess long-term trends in water quality;
- Evaluate necessary modifications to the Watershed Construction Projects to help achieve water quality standards;

- Support FDEP with system wide monitoring to measure compliance with water quality standards (i.e. TMDLs) and progress toward achieving nutrient load goals in BMAPs; and
- Support science-based recommendations for hydrologic and ecologic improvements.

Additional stations, parameters, and frequencies, are approved by the Environmental Monitoring Review Team (EMRT). This project predates EMRT and other managerial approval processes.

A history of EMRT authorizations and/or modifications follows:

- 201909-1 Issued 2/25/2020, First EMRT version authorizing operational monitoring. This approval ends on February 2025 and will need further approval to continue.
- 201909-1A01 Issued 6/2/2020, In response to Governing Board resolution number 2019 – 0815, authorizing an expanded monitoring network to support the Governor’s Executive Order 19-12.
- 201909-1A02 Issued 1/12/2021, this version authorized one (1) additional sampling station as part of a Flash Cattle Grazing pilot study.
- 201909-1A03 Issued 9/13/2023, this version authorized the relocation of two (2) stations within the Lake Okeechobee Watershed project.
- 201909-1A04 Issued 3/27/2024, this version authorized the relocation of three (3) stations within the Lake Okeechobee Watershed project.
- 201909-1A05 Issued 03/10/2025, this version reauthorized the Lake Okeechobee Watershed (LOW) upstream monitoring network for 5 years and, Includes relocation of seven (7) stations within the LOW project. This approval ends on March 2030 and will need further approval to continue.

Changes in the monitoring for these mandates do not need external agency approval. The data from Project KREA/TCNS are compiled and reported in the District’s Annual South Florida Environmental Report (SFER).

2.3 Project Objectives

The primary objectives of the KREA/TCNS project are to provide water quality data to:

- Evaluate water quality conditions in areas upstream of stations;
- Identify areas of priority regarding water quality concerns, within a specific hydrologic unit;
- Provide information to permittees and other stakeholders to assist them in implementing optimized Best Management Plans (BMPs).

Additionally, data is used to help guide future management decision regarding

compliance with the Lake Okeechobee Total Maximum Daily Loads (TMDL).

2.3.1 Modification or Termination Conditions

The monitoring described herein will continue as required by the mandate(s) listed in Section 2.2 and Appendix 1. Conditions for modification or termination of the project are detailed in the mandate(s) specifying the conditions of the project.

3.0 Geographic Location

3.1 Regional Area

The KREA/TCNS surface water quality monitoring takes place in the Kissimmee River Basin, located in Polk, Osceola, Okeechobee, Highlands, and Glades Counties (Figure 1.)

3.2 Sampling Locations and Access

Monitoring stations are depicted in Figure 1 with locations described in Table 1.

This project consists of collecting water quality samples from a total of 23 monitoring stations.

The gates on roadways into KREA/TCNS stations are secured with a District Okeechobee "O" lock. The lock requires a "O" key, which can be obtained through a request made through the Field Project Manager (FPM) and/or a Science Technician Supervisor (STS).

Table 1: KREA/TCNS Surface Water Monitoring Stations and GPS Coordinates

Station	Latitude (ddmmss.sss)	Longitude (ddmmss.sss)	Description
TCNS 207	272404.360	804854.420	Otter Creek on Hwy 441 N
KREA 01	272754.234	805520.540	Fish Slough
KREA 22	272754.455	810026.550	Gore Slough
KREA 23	272756.041	810242.182	Ash Slough
KREA 04	272253.315	805929.923	Chandler Slough
TCNS 201	272340.511	805341.520	NW Taylor Creek Hwy 68
TCNS 204	272312.314	805159.075	Little Bimini on Potter Road
TCNS 209	272239.268	805042.177	Otter Creek on Potter Road
TCNS 213	272154.509	805221.299	Taylor Creek G Bar E
TCNS 214	271815.540	804909.290	Williamson Ditch at Eckard School
TCNS 217	271649.778	804926.622	Wolf Creek on Cemetery Road
TCNS 222	271337.218	804652.772	Mosquito Creek
TCNS 230	271030.440	804206.310	Henry Creek
TCNS 233	270955.850	804114.030	Lettuce Creek
TCNS 249	271520.664	804140.523	Nubbin Slough on Berman Road
TCNS 220	271512.881	804612.390	Hwy 70 East at Mosquito Creek
KREA 25	271926.384	805512.200	Hwy 98 Turkey Slough
KREA 20	272021.424	805619.494	Hwy 98 Sandfly Gully
KREA 41A	271728.200	810106.659	But/Larson Property Line
KREA 14	271621.999	810042.507	Clemons Dairy
KREA 17A	271824.298	810002.905	Yates Marsh by the Children's Home
KREA 30A	271411.350	805335.489	Popash Slough by Lazy 7 Housing
KREA 100	272957.000	811243.000	Culvert under S65B access road at the edge of the Kiss. R. floodplain

The standard positional goal for station coordinates is detailed in the *Establishing & Verifying Water Quality Monitoring Station Registration SOP* ([SFWMD-FIELD-SOP-031](#)). The coordinates are relative to NAD83 HARN horizontal datum.

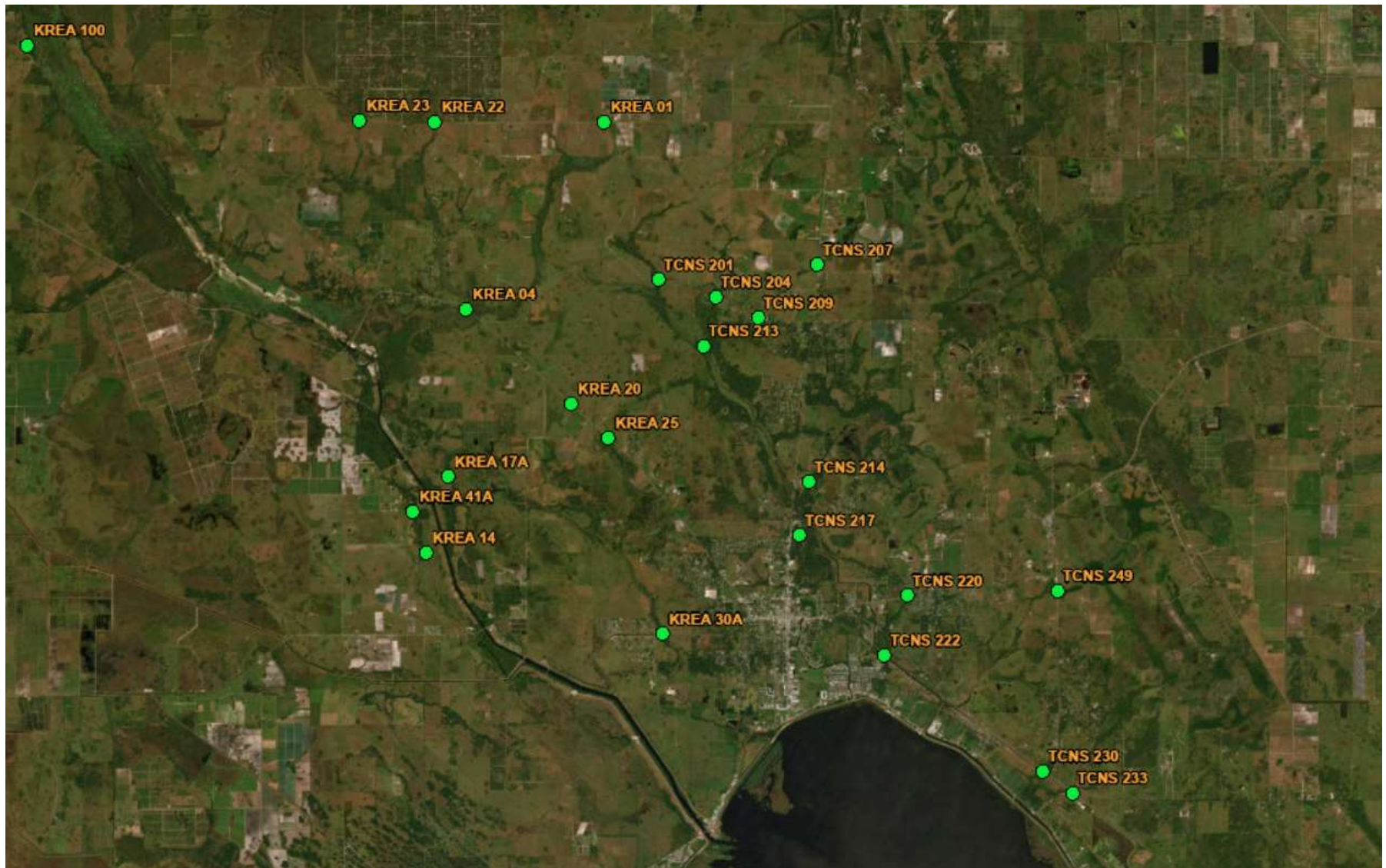


Figure 1: KREA/TCNS Station Locations

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.

Table 2: KREA/TCNS Station, Frequency and Parameter TESTS

Station	Collection Method	Frequency	Parameter TESTS
All Stations	Grab	Biweekly if Flowing	Ammonia (NH ₄), Dissolved Oxygen (DO)*, Nitrate-Nitrite (NO _x), Ortho-Phosphate (OPO ₄), pH (PH)*, Specific Conductance (SCOND)*, Temperature (TEMP)*, Total Phosphorus (TP), Total Nitrogen (TN)

*In Situ Grab

4.2 Project Specific Guidelines

Surface water grab samples are collected on the upstream side of the structure, at a depth of 0.5 meters, unless collection of a representative sample is inhibited by vegetation and/or other conditions, or if specific sampling depths are specified in the associated SOP or FSM for the sampling method. If an alternative sampling location is required, a consultation with a STS and/or the FPM must take place prior to the sampling being collected; this action must be documented in the field notes.

Samples are to be collected only if flow is observed. Any stations with flow opposite of known historical direction (known as: reverse flow) are not to be collected. Clear documentation in the field notes must be made if reverse flow is observed. Clear comments MUST be made recording the site conditions and representative nature of site. Any uncollected TESTS manually crossed out, initialed and dated on the printed COC.

At the request of data end users, if/when possible, flow at KREA 30A is confirmed in advance. Using a USGS station, 02273630 as a surrogate, flow is checked biweekly. Recorded flow is not a requirement for KREA/TCNS however, sampling biased on recorded flow may occur and commented as such.

4.3 Grab Sampling Procedures

Sample collection for this project follows the procedures and requirements found in the *Grab Sampling Protocol* section of the [WQMS 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 [WQMS FSM](#).

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 [WQMS FSM](#).

4.6 Autosampler Collection

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

4.7 Sample Submission

When the District laboratory is used, samples are transported to the laboratory and submitted for analyses in accordance with the requirements specified in the [WQMS 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 and Reporting

The data from this project are compiled and summarized in an annual report in accordance with the conditions outlined in the [mandate\(s\)](#) referenced in Appendix 1.

5.2 Data Quality

All monitoring described herein meet the requirements conveyed in the FDEP's QA 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 CLQM. The most recent version of the CLQM details DQOs 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. At times a sampling attempt will be made, but samples will not be able to be collected because of no flow or low water conditions, unsafe station conditions, equipment malfunction, vegetation or other site impacts that may affect the representativeness of a sample, 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. Sampling attempts are included with successfully collected and analyzed samples in the completeness target.

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 deliverables for this project.

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 record maintenance and storage protocols are outlined in the *Archive Records Storage and Retention SOP* ([SFWMD-FIELD-SOP-022](#)). Corrections of field data, records or data in DBHYDRO must follow the *WQMS Correction of Field Records SOP* ([SFWMD-FIELD-SOP-032](#)) and the [WQMS FSM](#). 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.

7.0 References

FDEP (Florida Department of Environmental Protection). Current Version. Chapter 62-160, Florida Administrative Code (F.A.C.) (Quality Assurance (QA) Rule). Division of Environmental Assessment and Restoration, Aquatic Ecology and Quality Assurance Section. FDEP, Tallahassee, FL.

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

SFWMD. Chemistry Laboratory Quality Manual (CLQM), SFWMD-LAB-QM-001, most current effective version. Analytical Services Section.

SFWMD. Correction of Field Records, SFWMD-FIELD-SOP-032, Water Quality Monitoring Section.

SFWMD. Field Sampling Manual (FSM), SFWMD-FIELD-FSM-001, Water Quality Monitoring Section.

SFWMD. Field Quality Manual (QM), SFWMD-FIELD-QM-001, Water Quality Monitoring Section.

SFWMD. Sampling Flow-Related Stations, SFWMD-FIELD-SOP-027, Water Quality Monitoring Section.

SFWMD. Station Registration, SFWMD-FIELD-SOP-031, Water Quality Monitoring Section.

SFWMD. Water Quality and Applied Sciences Bureaus Quality Management Plan (QMP), SFWMD-QS-QM-001. Applied Sciences and Water Quality Bureaus.

SFWMD. SFWMD-FIELD-MP-031, Water Quality Monitoring Section.

8.0 Revisions and Modifications

Version	Date	Section	Change/Reason
01	04/17/2013	All	Updated to new Format.
02	05/2/2013	All	Optimization of sites and Field parameters not collected at these sites.
03	05/1/2014	All	Annual Review
04	06/17/2014	5.1 Table 2, Appendix 1	Update parameter list to comply with new TN method
05	01/07/2015	Table 1	Site dropped due to earthen plug construction, as per PM Version # changed
06	10/18/2016	Table 1	Site added back. Program manager wants to catch any flow that goes around earthen plug. Updated version
07	10/18/2016	All	Updated to new Format. Changed frequency from biweekly to monthly due to staff shortage reductions.
08	05/30/2019	All	Updated to new Format. Added BAMP mandate
09	04/29/2020	3, 2.3.1, 4.2, 4.4	Sampling frequency changed from Monthly flow only to Biweekly flow only. Updated parameter list. Updated maps. Changed FSM/QM language. Added new project specific language to sections 4.2 and 4.4. Added KREA 100. Updated mandate table.
10	04/06/2021	4.2, table 8	Removed specific language from sections 4.2 that is now covered in the FSM. Added Version column to table 8. Added version number and adjusted version date after review of document archive for versions 05,04,03,02,01. Update OMP format.
11	06/06/2022	All, Table 2, Appendix 1	Monitoring Plan updated to OMP Template dated April 28, 2021. Corrected in Parameter TESTS "Ortho Phosporus" to "Ortho-Phosphate" and spelled out tests/frequency in place of abbreviations.
12	06/27/2023	Section 2.1, Table 1, Figure 1, Appendix 1, All	Updated plan to reflect station KREA28 elimination. Updated to reflect the most current OMP Template language (Template Version Date 03/16/2023).
13	04/03/2024	All	Updated to reflect the most current OMP Template language (Template Version Date 11/09/2023).
14	05/2025	Section 2, Table 1, Figure 1.	Updated table 1 and maps to reflect the removal and addition of sites as described in section 2.1 and approved under EMRT# 201909-1-A05. Added EMRT history. KREA 30A Recorded Flow update. Template version, dated 11/09/2023, is still the most recent; this OMP reflects that version.

* When the new draft is created, the previous version's Date is changed to the exact Effective Date.

Appendix 1: Station Requirements by Mandate/Authorization

Stations	Mandate/Authorization	Collection Method	Frequency	Parameter TESTS
All Stations	Governors Executive Order 19-12	Grab	Biweekly if Flowing	Ammonia (NH4), Dissolved Oxygen (DO)*, Nitrate-Nitrite (NOx), Ortho-Phosphate (OPO4), pH (PH)*, Specific Conductance (SCOND)*, Temperature (TEMP)*
	Northern Everglades and Estuary Protection Program (NEEPP)			Total Nitrogen (TN), Total Phosphorus (TP)
	Lake Okeechobee Basin Management Action Plan (BMAP) Interagency Agreement-4600003632 Tier 2		Monthly if Flowing	

*In Situ Grab