Compliance Monitoring Plan

For

Taylor Creek Stormwater Treatment Area

(TCSTA)

AGENCY: FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Document Date: 09/16/2021

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

SFWMD-FIELD-CMP-001-04

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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 Taylor Creek STA (TCSTA). Samples and/or data are collected to satisfy the mandated monitoring requirements in accordance with the Lake Okeechobee Protection Permit (LOPP) No. 0194485 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 2006 and will continue for the life of the permit(s).

Taylor Creek STA is a 170-acre project constructed in a publicly held portion of the Grassy Island Ranch, east of Taylor Creek. The STA is expected to divert and treat about 9% of the water flow from Taylor Creek. This would be accomplished by allowing the water to flow parallel to the creek through aquatic vegetation for about 1.6 miles, before returning to the creek.

2.1 Water Quality Performance Measures

The primary objective of this monitoring project is to satisfy the requirements of the FDEP permit and evaluate performance of the STA. This monitoring is being undertaken to evaluate the performance of the Taylor Creek STA in the reduction of TP loading and to verify that discharge from the STA does not exceed Class III water quality standards.

3.0 Geographic Location

TCSTA is located within Okeechobee County (Figure 1). Three mandated monitoring station(s) will be sampled for this project. Station locations and descriptions are listed in Table 1 with locations also depicted in Figure 1.

Table 1: TCSTA Surface Water Quality Compliance Monitoring Stations

Station	Latitude (ddmmss.sss)	Longitude (ddmmss.sss)	Description
S390	271851.632	805013.709	Taylor Creek at STA pump station intake S390
S392	271753.944	804943.446	Taylor Creek STA Cell 2 outflow at S392
TCDO	271750.340	804943.220	Weir 0.5 miles S of S392

The standard positional goal for station coordinates is detailed in the Water Quality Monitoring Station Registration SOP (SFWMD-FIELD-SOP-031). Coordinates are relative to NAD83 HARN horizontal datum.

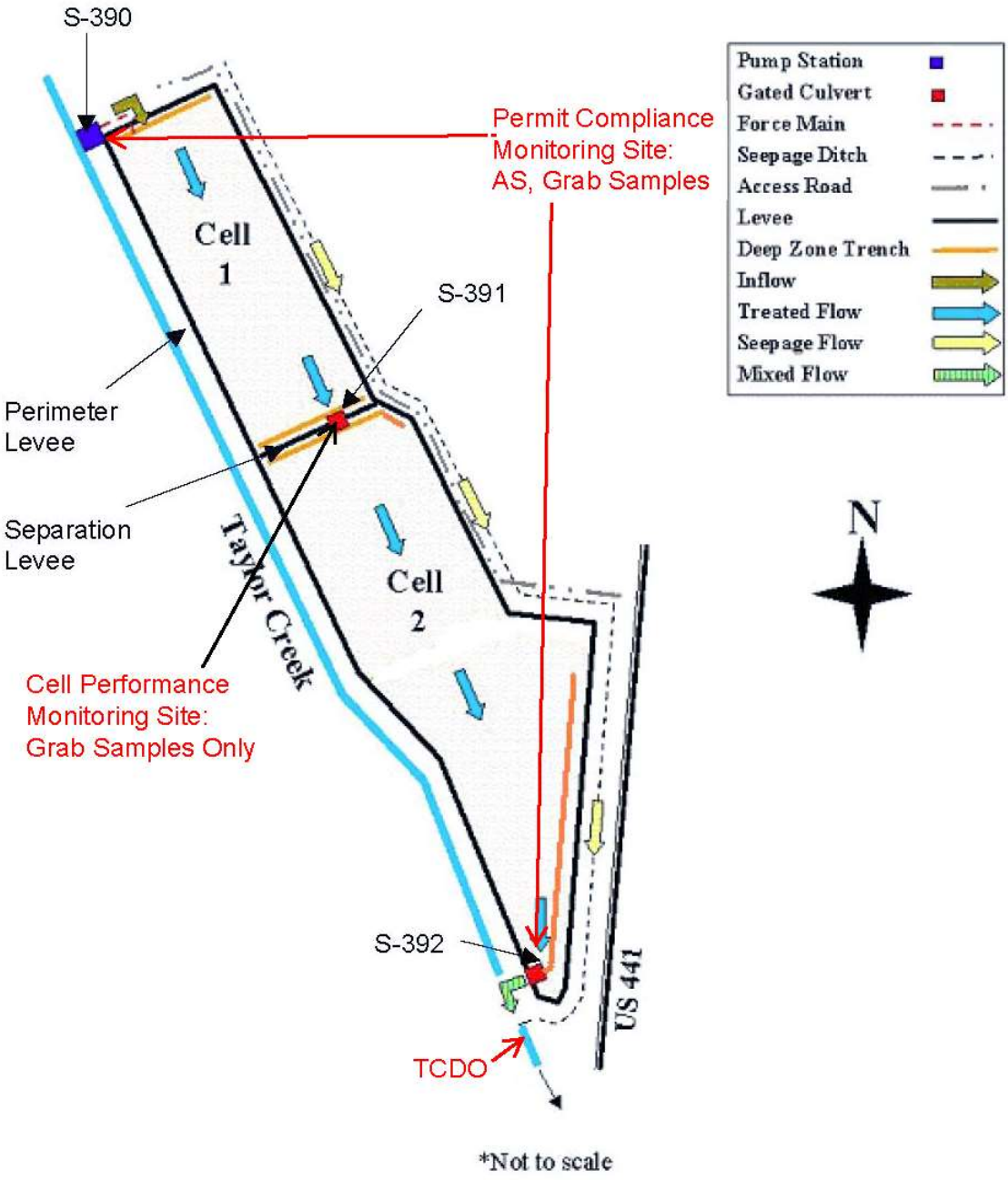

Figure 1: TCSTA Site Location Map

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 12: TCSTA Grab/Autosampler Station, Frequency and Parameter TESTS

Station	Collection Method	Frequency	Parameter TESTS
S390 S392	Flow Composite Autosampler (ACF)	Weekly (W)	Total Phosphorus (TP)
	Grab	Weekly Recorded Flow (WRF)	TP, Total Nitrogen (TN)
		Bi-Weekly Recorded Flow (BWRF)	Ammonia (NH4)
		Monthly	Sulfate (SO4)
	In-situ Grab	Weekly Recorded Flow (WRF)	Dissolved Oxygen (DO), pH (PH), Specific Conductance (SCOND), Temperature (TEMP)
TCDO	In-situ Grab	WRF[1]	DO

[1]DO will be measured at TCDO only if discharge from the STA (S392) is recorded in the previous seven calendar days.

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.

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. The intake for the autosampler is affixed to a float or structure at depth.

For this project, samples are collected as flow proportional (ACF) at stations identified in Table 2. Station-specific "trigger volumes" are established through the protocols described by Abtew and Powell (2004). Discrete bottles within each autosampler are pre-acidified and composited on a weekly basis and analyzed for TP. The 5-gallon carboys used in refrigerated autosamplers are not acidified.

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 reported in accordance with the conditions outlined in the permit.

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. Sampling attempts shall be included in the completeness target. At times samples will not be able to be collected because of 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 "NOB" to indicate and 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 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 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 FSM. Corrections to

data in DBHYDRO must follow *Data Investigations and Corrections* (SFWMD-DVS-SOP-010).

7.0 References

Abtew, Wossenu and Barbara Powell, 2004. Water Quality Sampling Schemes for Variable Flow Canals at Remote Sites. Journal of the American Water Resources Association (JAWRA) 40(5):1197-1204.

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

FDEP (Florida Department of Environmental Protection) Guidance for the Selection of Analytical Methods and the Evaluation of MDLs and PQLs List Referenced in Chapter 62-4.246(4), F.A.C. November 10, 2020.

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

SFWMD (South Florida Water Management District). *Chemistry Laboratory Quality Manual (CLQM)*, SFWMD-LAB-QM-2021 or most current effective version. Analytical Services Section, West Palm Beach, FL.

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.

SFWMD (South Florida Water Management District). *Station Registration*, SFWMD-FIELD-SOP-031, Water Quality Monitoring Section

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

8.0 Revisions and Modifications

Version	Date	Section/Page	Notes
	04/04/2013	All, Appendix 1: Mercury and Other Toxicants Monitoring Plan	Updated format to FDEP Approved Compliance Monitoring Plan, Updated format and plan to reflect approval of initiating Phase 3 Tier I level Mercury Monitoring, per FDEP approval 05/01/2013.
	05/20/2015	Table 2, All	Replaced Nitrate+Nitrite as N, and total Kjeldahl nitrogen with new lab method for Total Nitrogen, Updated Format
	06/29/2015	Table 2	Updated Format
03	05/24/2016	Appendix 1: Mercury and Other Toxicants Monitoring Plan	Updated plan to reflect approval of Phase 3 - Tier 3 Mercury Monitoring, per FDEP approval 05/24/16.
04	09/16/2021	Table 1 and 2, Sections 5.2, 6.2, & 8, All	Update template format, update table 1 to include TCDO, update table 2 to reflect the test reduction approval and approval for recorded flow sampling for TN, TPO4, and in-situ. Changed sulfate frequency to Monthly at the request of DEP. Corrected descriptions to match DB Hydro, update version date in Section 8, Updated boiler plate language in Sections 5.2 & 6.2 and references.

Appendix 1: Mercury and Other Toxicants Monitoring Plan

Taylor Creek Stormwater Treatment Area (TCSTA)

Permit No. FDEP # 0194485-002-GL

Phase 1 – Tier 2: Field Sampling for Initial Startup Monitoring Prior to Discharge for the Taylor Creek Stormwater Treatment Area (TCSTA) began in January 2007 and passed the start-up criteria in August 2008.

April 18, 2013, the Florida Department of Environmental Protection (Department) approved transfer of monitoring from Phase 2 – Tier 1: Routine Monitoring During Stabilization Period to Phase 3 – Tier 1 to Routine Operational Monitoring from Year 4 to Year 9.

May 24, 2016, the Department issued concurrence to transfer mercury monitoring from Phase 3 – Tier 1: Routine Operational Monitoring from Year 4 to Year 9 to Phase 3 – Tier 3: Routine Operational Monitoring After Year 9. This implemented the termination of all site specific mercury monitoring at TCSTA.