Compliance Monitoring Plan

For

TEN MILE CREEK WATER PRESERVE AREA

(TMC)

AGENCY: FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Document Date: 11/18/2022

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

SFWMD-FIELD-CMP-029-06

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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 the Ten Mile Creek Water Preserve Area Project (TMC). Samples and/or data are collected to satisfy the mandated monitoring requirements in accordance with the permit(s) 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.

TMC consists of a 526-acre storage cell designed for water attenuation and preliminary treatment and a 132-acre polishing cell designed for additional attenuation and water quality benefits (Figure 1). An inflow pump station, S-382, lifts water from Ten Mile Creek on the north side of the WPA and delivers it into the Reservoir Cell via three diesel powered pumps with a total capacity of 380 cfs. S382CULV Outflow pump station gated culvert is used to move water from the reservoir to Ten Mile Creek in times of need. Gated culvert S-383 and two small auxiliary pumps (40 cfs total) move water from the reservoir into the polishing cell. Gated culvert S-384 discharges water from the Ten Mile Creek polishing cell into Canal 96, which connects to Ten Mile Creek immediately downstream of the Gordy Road control structure. Seepage is contained and directed to Ten Mile Creek via Canals 93, 95, 96 and 101, operated by the North St. Lucie River Water Control District.

The purpose of the project is to provide seasonal temporary storage of peak stormwater flows from the Ten Mile Creek basin and to slowly release those flows back into the creek to moderate the salinity levels and reduce sediment loads in the downstream St. Lucie River and Estuary.

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

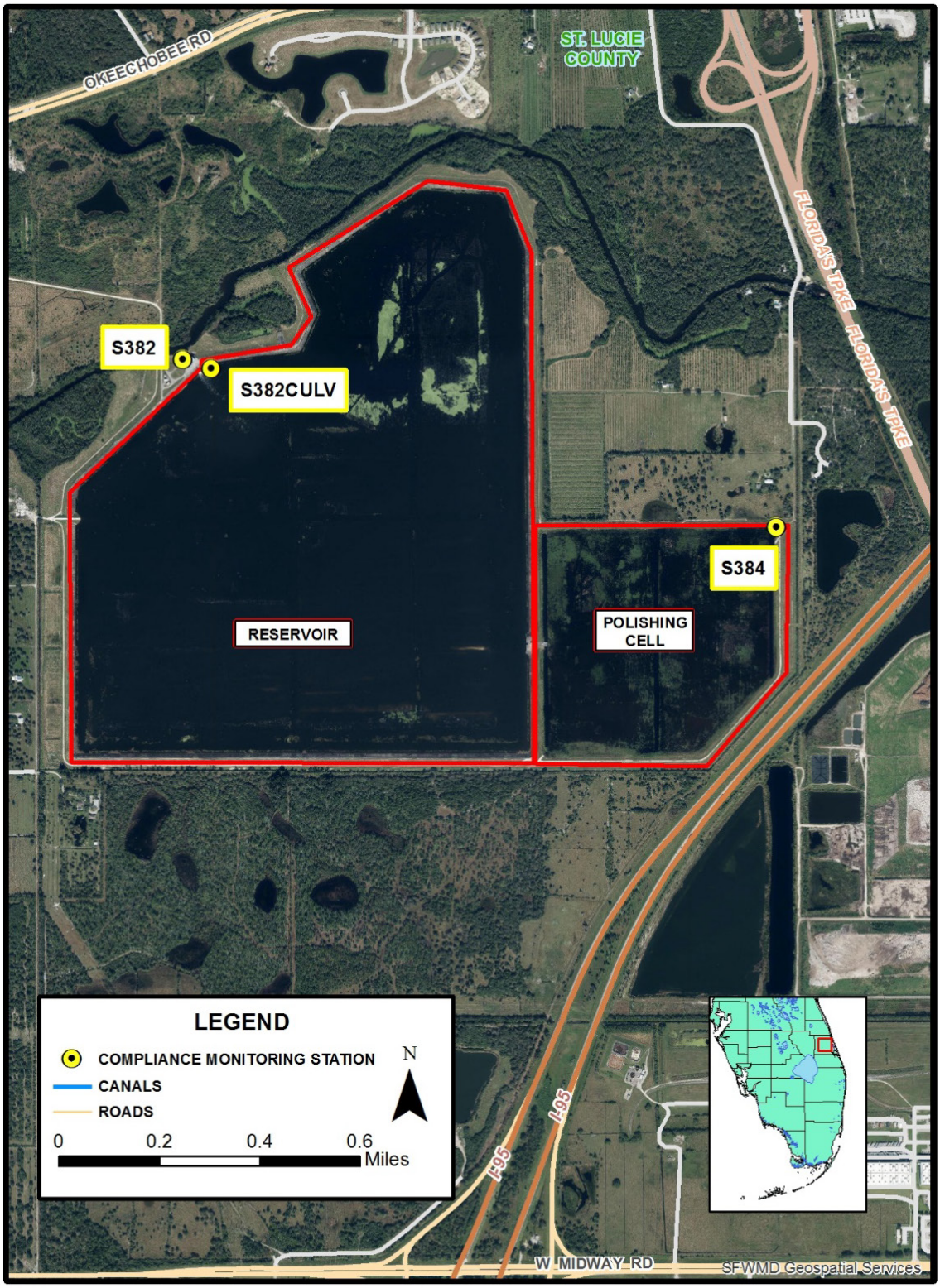
3.0 Geographic Location

The Ten Mile Creek WPA is located on the south bank of Ten Mile Creek immediately west of both the Florida Turnpike and Interstate 95 in Fort Pierce, in St. Lucie County, Florida. Three (3) 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: TMC Surface Water Monitoring Stations and GPS Coordinates

Station	Latitude (ddmmss.sss)	Longitude (ddmmss.sss)	Description
S382	272402.642	802507.534	Inflow Pump Station Intake from Ten Mile Creek to Reservoir
S382CULV	272402.040	802505.370	Outflow Pump Station Gated Culvert from the Reservoir to Ten Mile Creek
S384	272345.165	802359.318	Gated Outflow Culvert from Polishing Cell to Ten Mile Creek

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



2018 St. Lucie County 6-Inch Natural Color Aerial Photography

Figure 1: TMC 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 2: TMC Grab Station, Frequency and Parameter TESTS

Station	Type	Frequency	Parameter TESTS
S382 S384	Grab	Weekly Recorded Flow (WRF)	Total Nitrogen (TN), Total Phosphorous (TP)
		Biweekly Recorded Flow (BWRF)	Nitrate/Nitrite (NOX), Sulfate (SO4), Total Suspended Solids (TSS)
	In-situ Grab	BWRF	Dissolved Oxygen (DO), pH (PH), Specific Conductance (SCOND), Temperature (TEMP)
S382CULV	Grab	WRF	TN, TP
	In-situ Grab	BWRF	DO, pH, SCOND, TEMP

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

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 associated mandate.

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.

The minimum DQOs for mercury and other toxicants, which are analyzed by contract laboratories, are covered by the list of FDEP established analytical methods, and corresponding method detection limits (MDLs) and practical quantification limits (PQLs), which is titled "Florida Department of Environmental Protection Table as Required By Rule 62-4.246(4) Guidance for the Selection of Analytical Methods and the Evaluation of MDLs and PQLs List" dated November 10, 2020.

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) shall be 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 a "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 laboratory evaluates data in accordance with the data quality objectives stated in the 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 the FSM. Corrections to data in DBHYDRO must follow *Data Investigations and Corrections* (SFWMD-DVS-SOP-010).

7.0 References

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-2021-001 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.

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	Notes
01	01/05/2015	All	Creation of CMP.
02	01/05/2015	All	Format changed to comply with an agreement reached by FDEP and the District in 2011 regarding the use of compliance monitoring plans.
03	09/08/2016	Appendix 1	Added language relating to the termination of Other Toxicant Monitoring. FDEP issued concurrence to terminate Other Toxicant monitoring 9/7/16.
04	12/05/2019	All; Appendix 1	Format changed to comply with updated CMP template; Updated Appendix 1 to reflect termination of large-bodied fish monitoring at station TMCR3, and 2018 CGM 42.02 requirements based on FDEP concurrence issued 05/14/2019 and FDEP concurrence to terminate mercury surface water monitoring based on FDEP concurrence issued 12/05/2019
05	06/02/2021	Fig. 1, Table 1 & 2	Addition of structure S382CULV to the sampling tables and site map.
06	11/18/2022	Appendix 1	Updated Appendix 1 to reflect termination of all mercury monitoring.

Appendix 1: Mercury and Other Toxicants Monitoring Plan

TEN MILE CREEK WATER PRESERVE AREA (TMC)
CERPRA Permit No. 0192879

1.0 Phase 1: Baseline Collection and Assessment

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

Sub-section omitted; reference CERP Guidance Memorandum 42.02: *A Protocol for Monitoring Mercury and Other Toxicants* effective August 29, 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

This project is currently permitted under the Florida Department of Environmental Protection (FDEP) Comprehensive Everglades Restoration Plan Regulation Act (CERPRA) permit number 0192879-019, issued July 14, 2017. The initial construction authorization permit to the US Army Corps of Engineers (USACE) covered the period of time described in the Initial Start-up monitoring section of the Protocol. The start-up monitoring was successfully conducted May 23, 2006 through February 7, 2008 by the USACE and follows the requirements negotiated with FDEP in permit No. 0192879-002 (issued to USACE). SFWMD has perfromed monitoring for Mercury and Other Toxicants according to the guidelines below for the period during which the operational phase began and the requirements of Permit No. 0192879-017-GL took effect.

2.0 Phase 2: Monitoring During Five-Year Stabilization and Routine Operational Period

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

According to the report submitted to FDEP titled "*Protocol Assessment for Other Toxicants: Justification to Terminate Monitoring for Ten Mile Creek Water Preserve Area Project"* dated August 18, 2016, all action criteria were satisfied for pesticides. Therefore, the one-time pesticide monitoring for Phase 2 – Tier 1 was terminated with concurrence from FDEP on September 7, 2016.

Phase 2 – Tier 1 mercury surface water monitoring was performed September 28, 2015 through July 24, 2019. A review of data analyzed from these samples indicated that levels of surface water mercury were below levels of concern. Based on *A Protocol for Monitoring Mercury and Other Toxicants* dated November 19, 2019, the Department concurred with the termination of mercury in surface water monitoring on December 5, 2019.

In December 2021, the District completed five years of Phase 2 – Tier 1: Monitoring During Stabilization and Routine Operational Period for the TMC Project. All Phase 2 – Tier 1 mercury monitoring performed September 28, 2015 through December 7, 2021 met the action criteria in the Protocol. Subsequently, FDEP issued concurrence to terminate all station-specific mercury monitoring at TMC on 11/18/2022.

5.0 History of Progression through Monitoring Phases and Tiers

Milestone	Dates of Collection or Concurrence
Phase 1 – Tier 2: Initial Startup Monitoring Prior to Discharge (performed by USACE)	05/23/06 – 02/07/08
FDEP Concurrence to Advance to Phase 2 – Tier 1 (approved with permit mod. 0192879-016)	06/30/15
Phase 2 – Tier 1: Monitoring During Stabilization and Routine Operational Period	09/28/15 – 12/07/22
FDEP Concurrence to Terminate Other Toxicants Monitoring	09/07/16
FDEP Concurrence to Reduce Interior Large-bodied Fish Monitoring to One Operable Unit	05/14/19
FDEP Concurrence to Terminate Mercury Surface Water Monitoring	12/05/19
FDEP Concurrence to Terminate All Project-specific Mercury Monitoring	11/18/22

References

MacDonald Environmental Sciences, Ltd. and USGS. 2003. *Development and Evaluation of Numerical Sediment Quality Assessment Guidelines for Florida Inland Waters*. Prepared by MacDonald Environmental Sciences, Ltd and United States Geological Survey and submitted to Florida Department of Environmental Protection, Tallahassee, FL.

USACE and SFWMD. 2018. *CERP Guidance Memorandum 42.02: Screening Process for Mercury and Other Toxicants*. United States Army Corps of Engineers, Jacksonville, FL, and South Florida Water Management District, West Palm Beach, FL.

Weaver, K. 2001. Appendix 4-4: Evaluation of Chronic Toxicity Based Guidelines for Pesticides and Priority Pollutants in the Florida Everglades. In: *2001 Everglades Consolidated Report*, South Florida Water Management District, West Palm Beach, FL. Available online at www.sfwmd.gov/sfer.