Flow-Path: Eastern
Stormwater Treatment Area 1E
EFA Permit No. 0311207

Mercury and Other Toxicants Monitoring Plan

STA-1E Mercury and Other Toxicants Monitoring Plan

The Florida Department of Environmental Protection (Department or FDEP) issued concurrence April 25, 2017, approving the transfer of STA-1E 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 in STA-1E.

Flow-Path: Eastern
Stormwater Treatment Area 1W
EFA Permit No. 0311207

Mercury and Other Toxicants Monitoring Plan

STA-1W Mercury and Other Toxicants Monitoring Plan

The Florida Department of Environmental Protection (Department) issued minor permit modification 0279449-009 August 21, 2009, approving transfer of STA-1W 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 in STA-1W Cells 1A, 1B, 2A, 2B, 3, 4, 5A and 5B.

STA-1W Expansion # 1 includes Cells 6, 7 and 8. When construction of STA-1W Expansion #1 was completed, the District initiated start-up monitoring prior to discharge as follows:

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

Field samples for Phase 1 – Tier 2: Initial Startup Monitoring Prior to Discharge for the STA-1W Expansion #1 project were collected in 2019 with surface water on February 25, mosquitofish collected on February 26 and March 3, and sediment on March 12-14. Sediment and mosquitofish mercury concentrations met startup criteria identified in the *Protocol*.

Analyses of other toxicants demonstrated that surface water samples met the other toxicant startup criteria, however elevated levels of chromium were detected in mosquitofish. Consequently, mosquitofish were recollected on April 25 and analyzed for chromium. A review of data analyzed from these samples indicated chromium concentrations were below levels of concern.

Elevated chlordane concentrations in sediment led to a recollection of both mosquitofish and sediment. Mosquitofish were collected on June 6, 2019 and analyzed for cis-chlordane and trans-chlordane to evaluate whether concentrations in biota remained stable and below the action criteria. Mosquitofish resampling results were consistent with the initial sampling event; below detection level (BDL) or extremely low concentrations detected. Sediment collected on June 4-6, 2019 were found to be consistent with the initial sampling event, with elevated chlordane concentrations in some sediment samples.

On August 21, 2019 the FDEP Office of Ecosystem Projects requested the District to resample mosquitofish and surface water for chlordane. All chlordane mosquitofish results from this resampling event were BDL. One surface water sample collected at G732, was between the Method Detection Limit (MDL) and Practical Quantitation Limit (PQL), while all others were BDL. 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: Monitoring during Stabilization and Routine Operational Period for STA-1W Expansion #1 on October 21, 2019.

To provide the Department with reasonable assurance that operation of the project will not cause or contribute to an unacceptable increase in the risk of toxic effects to aquatic or terrestrial resources, the District monitored chromium, cis-chlordane and trans-chlordane quarterly in surface water and mosquitofish and annually in large-bodied fish during the first year of Phase 2 – Tier 1: Monitoring during Stabilization and Routine Operational Period.

2.0 Monitoring during Five-Year Stabilization and Routine Operational Period

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

2.1.a Sediment

Sediment will not be collected during Phase 2 - Tier 1 monitoring.

2.1.b Fish Tissues

Mosquitofish will be collected quarterly from multiple locations within each cell of STA-1W Expansion #1. The mosquitofish (minimum of 100) shall be physically composited into one, spatially-averaged sample per cell. Additionally, mosquitofish (minimum of 100) will be collected from a single downstream station (ST1WDWN) located in the receiving water of the project (Figure 1). On October 21, 2019, the Department issued concurrence to relocate the downstream station from ST1WLX in WCA-1 to ST1WDWN where the L-7 canal meets an airboat trailhead into WCA-1. The ST1WLX marsh station initially proposed and sampled during startup proved difficult to access during low water level events during the two startup resampling events, resulting in no samples. Relocating the downstream station should improve access and increase the likelihood of obtaining fish samples during the Phase 2 – Tier 1: Monitoring during Stabilization and Routine Operational Period. All mosquitofish samples will be analyzed for THg.

On an annual frequency, bluegill (n=5) should be collected and individually analyzed as whole fish. Because this project contains habitat that is expected to support largemouth bass and because recreational harvesting is likely in the future, bass will also be collected (n=5) and a fillet from each individual analyzed. For the reasons outlined in the *Protocol*, collections target bluegills ranging in size from 102 to 178 mm (i.e., 4 to 7 inches) and largemouth bass ranging in size from 307 to 385 mm (i.e., 12 to 15 inches); however, other lepomids (priority being given to spotted sunfish) or sizes are to be collected if efforts fail to locate targeted fish. These samples will be analyzed for THg.

In July 2020, the District completed one year of Phase 2 – Tier 1: Routine Monitoring During Stabilization Period. All other toxicants monitoring (i.e., cis-chlordane, trans-chlordane, and chromium) performed November 2019 through July 2020 met the action criteria specified in the 2018 *Protocol* (see STA-1W Expansion #1 Protocol Assessment dated October 2, 2020). Based on an evaluation included in the same Protocol Assessment, average sunfish and bass THg concentrations at Cell 6 were higher, although not significantly different, than Cells 7 and 8. Consistent with the guidance in the *Protocol* and with concurrence of the Department, effective November 17, 2020, the District

terminated large-bodied fish monitoring at Cell 7 and Cell 8. The District will monitor and assess large-bodied fish at Cell 6 (ST1WC6A) as "worst case" and the downstream station.

Mosquitofish collections will continue from all cells and the limited spatial sampling of large-bodied fish within the project is to revert back to include formerly sampled stations if Phase 2 - Tier 2: Expanded Monitoring and Risk Assessment is triggered or if mosquitofish demonstrate significantly altered spatial patterns in mercury biomagnification.

Table 1 summarizes the monitoring requirements for Phase 2 - Tier 1: Monitoring during Five-Year Stabilization and Routine Operational Period.

2.1.c Water

In July 2020, the District completed one year of Phase 2 – Tier 1: Routine Monitoring During Stabilization Period. All mercury and other toxicants (i.e., chlordane and chromium) surface water monitoring performed November 2019 through July 2020 met the action criteria specified in the 2018 *Protocol* (see STA-1W Expansion #1 Protocol Assessment dated October 2, 2020). Subsequently, the Department issued concurrence to terminate mercury and other toxicants monitoring November 17, 2020.

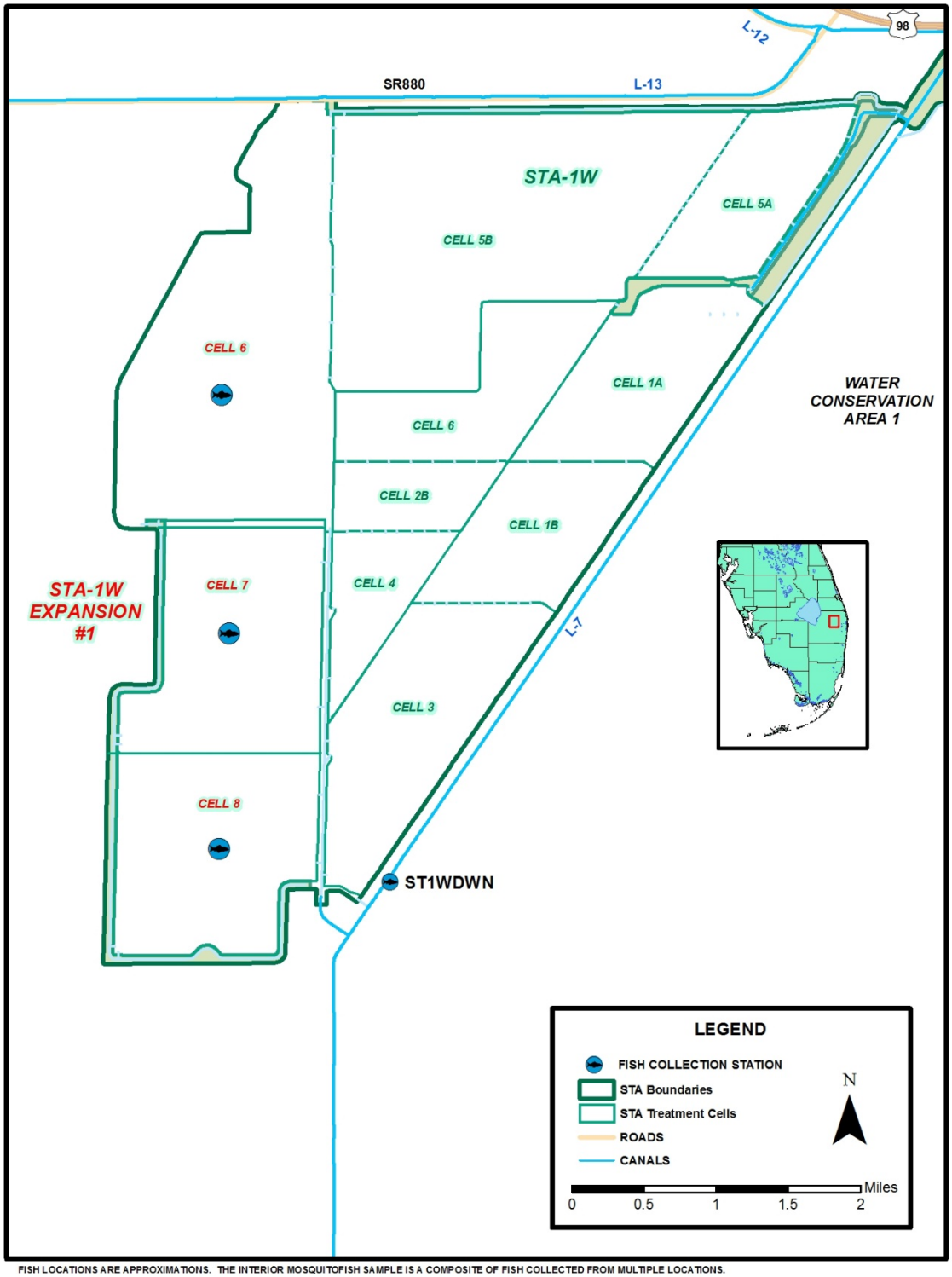

Figure 1. STA-1W Expansion #1 Phase 2 – Tier 1 Monitoring Station

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

Project Code	Matrix	Location	Collection Method	Frequency	Duration	Parameter(s)
ST1F	Mosquitofish	ST1WC6COM ST1WC7COM ST1WC8COM ST1WDWN	Net or Trap	Quarterly	Five Years	THg
ST1F	Sunfish and Bass (n=5 each)	ST1WC6A ST1WDWN	Electro-shock or Hook and Line	Annually	Five Years	THg

Assessment

To detect and minimize any adverse effects as early as possible (and to provide a basis for identifying adaptive management options, if deemed necessary), the results of this monitoring will be assessed based on the criteria and time table described under Phase 2 - Tier 1 in the *Protocol* as approved at the time of the assessment. Monitoring results will be provided to the Department in accordance with the reporting requirements identified in Section 3.

Based on these assessments, if monitoring reveals anomalous conditions as described under Phase 2 - Tier 2: Expanded Monitoring and Risk Assessment, the District shall expand monitoring and undertake all necessary steps under Phase 2 – Tier 2.

2.2 Phase 2 - Tier 2: Expanded Monitoring and Risk Assessment

In accordance with the *Protocol*, if Tier 1 data exceed the action levels identified under Phase 2 – Tier 2 Expanded Monitoring and Risk Assessment, the District shall notify the Department and, after obtaining the Department's concurrence, shall expand monitoring and undertake all necessary steps consistent with the *Protocol*.

Tier 2 monitoring and assessment is triggered if one of the following action levels is exceeded during operation:

- If annual average THg levels in any given fish species become elevated to the point of exceeding the 90 percent upper confidence level of the basin-wide average, or if basin-specific data are lacking, exceeding the 75th percentile concentration for the period of record for all basins.
- If annual average THg levels in a given fish species increase progressively over time (i.e., two or more years; probability factor .1).

The following steps will be taken if any action level in Tier 2 is triggered:

Step 1: Notify the Department;

Step 2: Resample media that triggered Tier 2.

If results of Step 2 (i.e., re-sampling) demonstrate that the anomalous condition was an isolated event, the Department will be notified that the project will revert and continue with Tier 1 monitoring. Alternatively, if results of Step 2 reveal the anomalous condition was not an isolated event, proceed to Step 3.

Step 3: Expand monitoring program as follows:

- Increase frequency of mosquitofish collection from quarterly to monthly.
- If Tier 2 was triggered by exceedance of a WQS at common outflow, then begin sampling discharges at outflows of each OU to better define the spatial extent of the problem. If necessary, increase the frequency of surface water collection to monthly (reducing temporal interpretation), or as appropriate for hydraulic retention time.
- To further define the spatial extent of the problem, collect multiple mosquitofish composites from within the OU exhibiting anomalous conditions.
- If Tier 2 was triggered by tissue THg or toxicant levels in large-bodied fish, increase sample size of large-bodied fish to 20, i.e., 20 each of sunfish (collect various species and sizes) and/or bass (collect various sizes and extract otolith from bass for age determination).
- To evaluate possible trends in methylation rates in sediments (i.e., to determine if methylation rates are increasing or decreasing), replicate sediment cores (0-4 cm) can be collected from the suspected methylation "hot spot" and reference locations within the component (for THg, MeHg, moisture content, total organic carbon (TOC), total sulfur (TS), and total iron (TFe)) over a given period of time (i.e., 2 to 4 months). At these same locations and collection times, collect pore water samples and analyze for THg, MeHg, and sulfides, or if no acceptable pore water protocol has been developed, then acid-volatile sulfide (AVS) on solids shall be completed.

Step 3 will also include notification to the Department that anomalous conditions are continuing. The Department and the District may then develop an adaptive management plan using the data generated from the expanded monitoring program. This plan will evaluate the potential risks from continued operation under existing conditions (i.e., through a risk assessment for appropriate ecological receptors). If risk under existing operational conditions is deemed acceptable, then project monitoring would continue under a modified Tier 2 scheme to monitor exposure. On the other hand, if risk under existing operational conditions is deemed unacceptable, then the adaptive management plan would then proceed to determine potential remedial actions to (1) reduce exposure and risk (e.g., signage for human health concerns[1], reduce fish populations, reduce forage habitat suitability) and (2) affect mercury biogeochemistry to reduce net methylation (e.g., modify hydroperiod, stage, or water quality). If risk under existing operational conditions is of acute toxicity, an immediate drawdown of an OU and reevaluation of the ESA is required.

[1]Note that assessment of potential human health impacts and corrective actions (i.e., signage) will require the involvement of the Florida Department of Health)

In developing this adaptive management plan, the Department may conduct a publicly noticed workshop to solicit comments from the District, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, National Park Service, Florida Fish and Wildlife Conservation Commission, and other interested persons.

The next step would then be to carry out such remedial or corrective action. If the remedial or corrective action is demonstrated to be successful, then the project would revert to Tier 1 monitoring. Alternatively, if monitoring data indicate that the remedial action was unsuccessful in reducing fish tissue concentrations, the Department and the District would then initiate a peer-reviewed, scientific assessment of the benefits and risks of the project.

2.3 Termination of Monitoring After Year 5

If data collected under Phase 2 have not exceeded action criteria by Year 5, with concurrence of the Department, project-specific monitoring will be discontinued, and future assessments will be based on regional monitoring.

3.0 Annual Mercury Monitoring Report

The District shall notify the Department immediately if monitoring data indicate that any of the action levels are exceeded. In addition, the District shall submit an annual report to be incorporated into the SFER and submitted to the Department no later than March 1st of each year. The annual report shall summarize the most recent results of the monitoring as defined above and compares them with the cumulative results from previous years. This report shall also evaluate assessment performance measures (i.e., action levels) outlined above.

4.0 Adaptive Management Strategy

It is the intent that this monitoring plan will be carried out within the context of an adaptive management strategy that will allow for appropriate changes based on new, better understanding of mercury cycling, fate and transport as conveyed in the guidance contained in the *Protocol*.

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	02/25/19 – 06/06/19
FDEP Concurrence to Advance to Phase 2 – Tier 1	10/21/19
Phase 2 – Tier 1: Monitoring During Stabilization and Routine Operational Period	11/04/19 – MM/DD/YY
FDEP Concurrence to Terminate Other Toxicants Monitoring	11/17/20
FDEP Concurrence to Terminate Mercury Surface Water Monitoring	11/17/20
FDEP Concurrence to Reduce Interior Large-Bodied Fish Monitoring to One Operable Unit	11/17/20
FDEP Concurrence to Terminate All Project-specific Mercury Monitoring	MM/DD/YY

References:

FDEP and SFWMD. 2018. *A Protocol for Monitoring Mercury and Other Toxicants*. Florida Department of Environmental Protection, Tallahassee, FL, and South Florida Water Management District, West Palm Beach, FL.

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.

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

Flow-Path: Central
Stormwater Treatment Area 2
EFA Permit No. 0311207

Mercury and Other Toxicants Monitoring Plan

STA-2 Mercury and Other Toxicants Monitoring Plan

Monitoring of water-column concentrations of total mercury (THg) and methylmercury (MeHg) began in the summer of 2000 at STA-2. STA-2 Cells 2 and 3 met mercury (Hg) startup criteria, as specified in Exhibit "D" of EFA Permit No.0126704, in September 2000 and November 2000, respectively. In August 2001, flow-through operation of Cell 1 was authorized under an EFA permit modification; Cell 1 met startup criteria in November 2002 (for review, see 2003 and 2004 Everglades Consolidated Reports and the 2005 South Florida Environmental Report [SFER]).

In January 2007, the District completed construction of a new flow-way in STA-2, known as Cell 4. STA-2 Cell 4 met the mercury start up criteria as specified in Exhibit "D" of EFA Permit No. 0126704-005-EM in September 2007. Routine monitoring of mercury in Cell 4 was initiated October 2007. In addition, Cell 4 met conditions contained in "*A Protocol for Monitoring Mercury and Other Toxicants"* (dated April 2011; hereafter referred to as the *Protocol*) to terminate atrazine monitoring in June 2008 (see data summary provided in correspondence from H. Andreotta, SFWMD dated January 6, 2012). The Florida Department of Environmental Protection (Department) approved termination of atrazine monitoring January 30, 2012. February 29, 2012, the Department approved transfer of STA-2 mercury monitoring from Phase 2 - Tier 1: Routine Monitoring during Stabilization Period for Cells 1, 2 and 3 of STA-2 to Phase 3 – Tier 3: Routine Operational Monitoring After Year 9 and Phase 3 – Tier 1: Routine Operational Monitoring From Year 4 to Year 9 for Cell 4 of STA-2. Phase 3 – Tier 3 implemented the termination of all site-specific mercury monitoring at STA-2 Cells 1, 2, and 3.

In August 2012, the District completed construction of the EAA Compartment B Buildout Project (Compartment B). Compartment B includes three pump stations (G-434, G-435, and G-436) and two flow-ways: the North Buildout (NBO), which includes Cells 4, 5, and 6 and the South Build-out (SBO), which includes Cells 7 and 8. Compartment B incorporated the existing Cell 4. Startup monitoring for mercury and other toxicants was performed for Compartment B in September (mosquitofish) and October (sediment) of 2011 to capture the "first-flush effect" when NBO and SBO were initially inundated. Compartment B met the mercury and other toxicant startup criteria as specified in Specific Condition 23 of EFA Permit No. 0311207 in October 2011 (see data summary provided in correspondence from H. Andreotta, SFWMD dated December 14, 2012). December 20, 2012, 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 Compartment B (Cells 4, 5, 6, 7 and 8).

In July 2013, the District completed one year (i.e., four quarterly sampling events) of Phase 2 – Tier 1: Routine Monitoring During Stabilization Period. Based on guidance contained in the *Protocol* (page 14, 2nd paragraph), after one year of monitoring, project managers may elect to reduce the number of operating units (OU) sampled for large-bodied fish to one OU with the highest observed concentration of mercury and one downstream station and assess results as "worst case". Consistent with this guidance (see data summary provided in correspondence from H. Andreotta, SFWMD dated October 1, 2013) and with concurrence of the Department, the District terminated large-bodied fish monitoring at the Compartment B NBO station ST2C4A and will monitor SBO station ST2C8A as "worst case", effective October 2, 2013.

The *Protocol* also states that "if, after one year of monitoring, action level criteria are met, surface water sampling for other toxicants would be discontinued. If levels of other toxicants in tissues do not exceed recognized background tissue concentrations or benchmarks established in ecological risk assessments completed as part of the Environmental Site Assessment (ESA), then sampling would be discontinued." Compartment B met these criteria (see data summary provided in correspondence from H. Andreotta, SFWMD dated October 1, 2013) and October 2, 2013 the Department approved termination of monitoring for other toxicants.

In July 2015, the District completed three years of Phase 2 – Tier 1: Routine Monitoring During Stabilization for STA-2 Cells 4, 5, 6, 7, and 8. These Cells met criteria to transfer to Phase 3 – Tier 1: Routine Operational Monitoring from Year 4 to Year 9 (see data summary provided in correspondence from H. Andreotta, SFWMD dated March 17, 2016). March 21, 2016, the Department approved transfer of monitoring from Phase 2 – Tier 1: Routine Monitoring During Stabilization to Phase 3 – Tier 1: Routine Operational Monitoring from Year 4 to Year 9 for Cells 4, 5, 6, 7, and 8).

The Department issued concurrence April 2, 2020, approving transfer of STA-2 Compartment B (Cells 4, 5, 6, 7 and 8) 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 STA-2.

Flow-Path: Central
Stormwater Treatment Area 3/4
EFA Permit No. 0311207

Mercury and Other Toxicants Monitoring Plan

STA-3/4 Mercury and Other Toxicants Monitoring Plan

Monitoring of water-column concentrations of total mercury (THg) and methylmercury (MeHg) began in December 2003 at STA-3/4. The eastern flow-way (Flow-way 1 consisting of Cells 1A and 1B) met the mercury startup criteria as specified in Exhibit C of EFA Permit No 0192895 in January 2004, the western flow-way (Flow-way 3 consisting of Cell 3A and 3B) met the mercury startup criteria in June 2004, and the central flow-way (Flow-way 2 consisting of Cells 2A and 2B) met the mercury startup criteria in August 2004 (see Chapter 4 of the 2005 South Florida Environmental Report [SFER]). The Florida Department of Environmental Protection (Department) issued minor permit modification 0192895-011 June 6, 2008, approving transfer of STA-3/4 mercury monitoring from Phase 2 – Tier 1: Routine Monitoring during Stabilization Period to Phase 3 – Tier 1: Routine Operational Monitoring from Year 4 to Year 9 for all flow ways.

In October 2012, all Phase 3 – Tier 1 mercury monitoring criteria were met (see correspondence from H. Andreotta (District) dated January 17, 2013). February 20, 2013 the Department approved transfer of STA-3/4 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 STA-3/4.

Flow-Path: Western
Stormwater Treatment Area 5/6
EFA Permit No. 0311207

Mercury and Other Toxicants Monitoring Plan

STA-5/6 Mercury and Other Toxicants Monitoring Plan

Monitoring of water-column concentrations of total mercury (THg) and methylmercury (MeHg) began in 1999 in STA-5 Flow-ways 1 and 2. These flow-ways met the mercury startup criteria as specified in Exhibit C of EFA Permit No. 0131842 in September 1999. In October 1999, the Florida Department of Environmental Protection (Department) issued Emergency Order 99-1748 in response to Hurricane Irene which included authorization for short-term temporary flow-through operations of STA-5 and acknowledgment that the mercury EFA permit startup requirements had been met. Because of drought conditions that followed and the detection of high phosphorus concentrations at the outflows, STA-5 did not begin routine flow-through until June 2000 for the Flow-way 2 and August 2000 for the Flow-way 1 (see Chapter 4 of the 2001 Everglades Consolidated Report). STA-5 Flow-ways 1 and 2 met Phase 3 – Tier 1 conditions contained in "*A Protocol for Monitoring Mercury and Other Toxicants"* (dated April 2011; hereafter referred to as the *Protocol*) in February 2008 (see data summary provided in correspondence from R. Bearzotti, SFWMD dated April, 2008). STA-5 Flow-ways 1 and 2 met Phase 3 – Tier 3 conditions "Routine Operational Monitoring After Year 9" in November 2008 (see data summary provided in correspondence from G. Vince, SFWMD dated October 12, 2009 and data for the final November 2009 fish collection submitted to the Department in December 2009 by H. Andreotta, SFWMD).

The District completed construction of a new southern flow-way (known as Flow-way 3 - consisting of Cells 5-3A and 5-3B) of STA-5 in May 2007. The flow-way was inundated in July 2008, met the mercury startup criteria as specified in Exhibit D of EFA Permit No. 0131842 in August 2008, and is currently in Phase 2 – Tier 1: Routine Monitoring During Stabilization Period.

STA-6 Section 1 (Cells 6-3 and 6-5) met the mercury start-up criteria as specified in Exhibit "C" of EFA Permit No. 262918309 in November 1997 and began flow-through operation in December 1997. Routine monitoring of mercury in STA-6 Section 1 was initiated in the first calendar quarter of 1998. The Department issued minor permit modification 0236905-001 June 6, 2008, approving transfer of mercury monitoring from Phase 2 – Tier 1: Routine Monitoring during Stabilization Period to Phase 3 – Tier 3: Routine Operational Monitoring from Year 4 to Year 9 for STA-6 Section 1. Phase 3 – Tier 3 implemented the termination of all site-specific mercury monitoring at STA-6 Section 1.

STA-6 Section 2 (Cell 6-2) met the mercury startup criteria as specified in Exhibit "C" of EFA Permit No. 0236905-001 in September 2007 and began flow-through operation in December 2007. Routine monitoring of mercury in Section 2 was initiated January 2008 and is currently in Phase 2 – Tier 1: Routine Monitoring During Stabilization Period.

In September 2012, the District completed construction of the EAA Compartment C Buildout Project (Compartment C). Compartment C includes the G-508 pump station, STA-5 Flow-way 4 (consisting of Cells 5-4A and 5-4B), STA-5 Flow-way 5 (consisting of Cells 5-5A and 5-5B), and STA-6 Cell 6-4. STA-6 Cell 6-4, combined with the existing Cell 6-2, formed Flow-way 6. The entire STA-5, STA-6, and Compartment C Buildout complex is now referred to as STA5/6.

Startup monitoring for mercury and other toxicants was performed for Compartment C in September (mosquitofish) and October (sediment) of 2011 to capture the "first-flush effect" when the project was initially inundated. Compartment C met the mercury and other toxicant startup criteria as specified in Specific Condition 23 of EFA Permit No. 0311207 in October 2011 (see data summary provided in correspondence from H. Andreotta, SFWMD dated December 14, 2012). December 20, 2012, 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 Compartment C (Flow-ways 4, 5, and 6).

In July 2013, the District completed one year (i.e., four quarterly sampling events) of Phase 2 – Tier 1: Routine Monitoring During Stabilization Period. Based on guidance contained in the *Protocol*, after one year of monitoring project managers may elect to reduce the number of operating units (OU) sampled for large-bodied fish to one OU with the highest observed concentration of mercury and one downstream station and assess results as "worst case". Consistent with this guidance and with concurrence of the Department, the District terminated large-bodied fish monitoring at STA-5/6 flow-ways 3 (station STA5C3B1), 4 (station STA5C4B1), and 6 (station STA6S2) and will monitor flow-way 5 (station STA5C5B1) as "worst case", effective October 2, 2013. Based on an evaluation submitted to the Department October 1, 2013, it was determined that flow-way 6 has slightly higher concentrations of mercury than flow-way 5, however, flow-way 6 is maintained at lower operational priority for receiving inflow water for treatment and tends to dry-out. Large-bodied fish will be monitored in flow-way 5 since it was determined to have the second highest concentrations of mercury, a higher operational priority than flow-way 6, and there is a greater likelihood of obtaining bass, sunfish, and mosquitofish samples from that flow-way.

The *Protocol* requires fish monitoring at one downstream station per project. In September 2012, Compartment C combined with the former STA-5 and STA-6 to form STA-5/6. Because the STA-5/6 complex now operates as one project, the number of downstream stations was reduced from two (i.e., stations RA1 in Rotenberger Wildlife Management Area (Rotenberger) and STA6DC in the STA-5/6 discharge canal) to one (i.e., STA6DC). Downstream mosquitofish THg concentrations were significantly higher at STA6DC than RA1. Furthermore, Rotenberger does not provide hydrological conditions favorable for recruitment of large-bodied fish and the District was frequently unable to obtain a full quota (n=5) of largemouth bass at station RA1. For these reasons and with concurrence of the Department, station STA6DC was retained as the STA-5/6 downstream monitoring station and all monitoring was terminated at station RA1, effective October 2, 2013.

In August 2015, the District completed three years of Phase 2 – Tier 1: Routine Monitoring During Stabilization and STA-5/6 flow-ways 3, 4, 5, and 6 met criteria to transfer to Phase 3 – Tier 1: Routine Operational Monitoring from Year 4 to Year 9 (see data summary provided in correspondence from H. Andreotta, SFWMD dated March 17, 2016). March 21, 2016, the Department approved transfer of monitoring from Phase 2 – Tier 1: Routine Monitoring During

Stabilization to Phase 3 – Tier 1: Routine Operational Monitoring from Year 4 to Year 9 for flow-ways 3, 4, 5, and 6).

The Department issued concurrence March 24, 2020, approving transfer of STA-5/6 Compartment C (flow-ways 3, 4, 5, and 6) 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 STA-5/6.