Appendix 1B-1: Objectives for Water Quality Monitoring in Water Conservation Area 2A

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STATEMENTS IN MANDATES ON THE NEED TO MONITOR STRUCTURES AT INFLOWS AND OUTFLOWS TO WCA-2A

The objective of the state permitting process, which encompasses both the Non-Everglades Construction Project (non-ECP) and Stormwater Treatment Area (STA) permits, is to assure that discharges into the waters of the United States are complying with established water quality standards. Similarly, the federal Settlement Agreement[1] states: "The objective of the monitoring is to measure effectiveness of the total phosphorus limits and concentration levels…in order to adequately assess…WCA nutrient inputs and outputs . . . the monitoring program shall include water quality monitoring of discharges at all relevant structures..." Based on these stated objectives, the primary goal of all mandates for structure monitoring is compliance of discharges with water quality standards. Monitoring will be extended to any new water control structures added to the delivery system.

STATEMENTS IN MANDATES IMPLYING THE NEED TO MONITOR DOWNSTREAM IN WCA-2A

1. From the federal Settlement Agreement and Consent Decree[1]:
    1. The objective of monitoring is to measure effectiveness of the total phosphorus limits and concentration levels and document evidence of further disturbances or recovery processes.
    2. The research objectives will be to assess the current and continuing responses of the Everglades wetlands to nutrient inputs from cultural eutrophication, and to

[1] Settlement Agreement dated July 26, 1991, entered in Case No. 88-1886-Civ-Hoeveler, U.S. District Court for the Southern District of Florida, as modified by the Omnibus Order entered in the case on April 27, 2001 (http://exchange.law.miami.edu/everglades/litigation/federal/usdc/88_1886/index.html), and Memorandum Opinion and Order Entering Settlement Agreement as Consent Decree http://exchange.law.miami.edu/everglades/litigation/federal/usdc/88_1886/orders/1205_847FSupp1567.html

determine maximum levels of nutrients that will not cause imbalances in natural populations of flora and fauna.

2. From the amended Everglades Forever Act:

    1. 4.e.3. Compliance with the phosphorus criterion shall be based upon a long-term geometric mean of concentration levels to be measured at sampling stations recognized from the research to be reasonably representative of receiving waters in the Everglades Protection Area, and so located so as to assure that the Everglades Protection Area is not altered so as to cause an imbalance in natural populations of aquatic flora and fauna and to assure net improvement in the areas already impacted.
    2. 4.e.4 The department's evaluation of any other water quality standards must include the department's antidegradation standards . . .

3. From the Draft Everglades Forever Act STA-2 Discharge Permit:

    1. 25.B. Hydropattern Restoration Monitoring. In order to ensure that the hydropattern restoration discharges from STA-2 do not adversely impact the previously unimpacted downstream portions of WCA-2A, the permittee shall conduct monitoring in downstream locations to ensure that the continued operation of STA-2 does not result in adverse impacts.
    2. 25.B.3. The WCA-2A monitoring shall include at least 2 transects with at least 4 marsh stations each. The transects will be located in proximity to present or projected hydropattern restoration discharges. Stations will be located to include impacted and unimpacted portions of WCA-2A.

4. From Draft Industrial Wastewater Facility (NPDES) Permit for STA-2

    1. I.A.5. The discharge shall not cause phosphorus concentrations in the receiving waters to exceed the criteria in Rule 62-302.540(4) F.A.C., except as authorized in the accompanying Order AO-010-EV which is hereby incorporated by reference.

5. From Fact Sheet for Draft Industrial Wastewater Facility (NPDES) Permit for STA-2

    1. 3. As a condition of Order AO-010-EV, the permitee shall conduct monthly monitoring for total phosphorus and specific conductivity at a series of sites located along two transects downstream of the STA-2 discharge site to characterize the effects of the STA-2 discharge on adjacent marsh areas of WCA-2.

6. From AO-010-EV in the matter of STA-2

    1. Paragraph 20. The permittee shall conduct monthly monitoring for TP and specific conductivity at a series of sites along two transects downstream of STA-2 discharge to characterize the effects of the STA-2 discharge on the adjacent marsh of WCA-2. Table 3 below identifies nine sampling sites. Of the nine sites, seven are located in areas currently identified as impacted and two sites (C4 and C29) located in areas identified as unimpacted.
    2. Paragraph 21. The District will conduct a study to determine the relationship between discharges from the ECP components and resulting water quality in the Everglades Protection Area. The design of this study shall be incorporated into the long-term plan . . . Based on the findings of the study . . . a WQBEL shall be

established pursuant to 62-650 F.A.C., in order for the facility to achieve the phosphorus criterion set forth in 62-302.540 F.A.C.

7. Fundamental questions being asked from various internal perspectives to be answered by water quality monitoring data from WCA-2A. Compiled from the internal working group on water quality monitoring in WCA-2A.

    - What is the status of water quality at inflows to WCA-2A and what are the associated nutrient loads?

    - How has water quality at individual stations changed in response to altered hydrology and loading, and can station-scale data be integrated to document patterns at the landscape-level?

    - How has marsh chemistry responded to changes in hydrology and water quality, and are there associated responses in the flora and fauna?

    - As landscape scale changes occur, how is hydrology being altered?

    - Are there relationships from monitoring data that can be used as tools or indicators for long-term ecosystem management?