

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

FACT SHEET
APPLICATION FOR A PERMIT
TO DISCHARGE TO WATERS

I. Discussion Of Conditions Required By The State Wastewater Program

Application No.: 503074709

Public Notice Date: July 22, 1998

Application Date: June 4, 1997

NPDES Permit Number: FL0177962-001
Minor Non-POTW

A. SYNOPSIS OF APPLICATION

1. Name and Address of Applicant

South Florida Water Management District
P.O. Box 24680
3301 Gun Club Road
West Palm Beach, Florida 33416-4680

2. Type of Facility

Stormwater Treatment Area (STA) 1 West (STA-1W) is a designed and engineered flow-through marsh system utilizing natural biological processes to remove excess phosphorus from jurisdictional waters of the S-5A and C-51 West Basins, East Beach Water Control District, Lake Okeechobee water releases from the S-354 structure, and a portion of the L-8 Canal.

3. Design Capacity of Facility

There are two primary discharge locations for STA-1W, outflow pumping stations G-251 and G-310, which both discharge into the L-7 Canal located in the Loxahatchee National Wildlife Refuge (the Refuge), a Class III fresh water and an Outstanding Florida Water (OFW). The combined capacity of these pumping stations will be 3,490 cubic feet per second (cfs). The G-310 Pump Station will discharge treated water from Treatment Cells 1 to 4 (formerly the Everglades Nutrient Removal (ENR) Project), as well as Treatment Cell 5. When outflows from Treatment Cells 1 to 4 exceed the G-251 Pump Station discharge capacity of 450 cfs, excess treated water will discharge through the G-310 Pump Station.

The G-310 Pumping Station is the outflow pumping station drawing treated water from the STA-1W internal discharge canal and releasing those discharges to the L-7 canal. This pumping station will have the capacity to discharge up to 3,040 cfs.

4. Applicant's Receiving Water

The L-7 Canal located in Water Conservation Area - 1 (the Refuge), a Class III fresh water as well as an Outstanding Florida Water (OFW).

For a sketch showing the location of the discharge, see Exhibit J.

5. Description of Water Treatment Facilities and Treated Water Quality

a. Water Treatment Facilities

Treatment Cell 5 involved the construction of a water treatment cell that will provide an effective treatment area of 2,855 acres. This cell will provide treatment of waters from the S-5A and C-51 basins, East Beach Water Control District, Lake Okeechobee water releases from the S-354 structure, and a portion of the L-8 Canal. These waters are currently discharged into the Refuge with excessive levels of phosphorus.

Treatment Cell 5 is located immediately north of the existing ENR Project, which currently provides an effective treatment area of 3,815 acres. Treatment Cell 5 has been combined with the existing ENR to become STA-1W. STA-1W is located immediately west of the Refuge and the STA-1 Inflow and Distribution Works (STA-1 I&D Works). It consists of a constructed wetland marsh system providing an effective treatment area of not less than 6,670 acres. STA-1W includes inflow and discharge conveyance canals, gravity control structures and pump stations. See Exhibit 1 to this Fact Sheet.

During design flow conditions, approximately 45% of the flows entering the STA-1W Inflow Canal will be routed to Treatment Cell 5 via structures G-304A-J, creating an east to west sheetflow pattern effect in Treatment Cell 5. The remaining 55% of the water entering the inflow canal during design flow conditions from the G-302 structure will be routed to Cells 1 through 4 via the G-303 structure. The treatment cells are designed to have an operational depth of between 6 inches and 4.5 feet to encourage colonization and continued viability by wetland plants and maximize (to the greatest extent possible utilizing available technology) uptake and removal of phosphorus from the water passing through the cells. Long-term storage of the phosphorus is expected to be provided by peat accretion in STA-1W. The treated water will then be discharged via the G-251 and G-310 pump stations into the L-7 canal in the Refuge.

b. Treated Water Quality

Description of Discharge (as reported by applicant)

Outfalls D-001 (the G-310 structure) and D-002 (the G-251 structure): Treated surface waters from S-5A and C-51 basins, East Beach Water Control District, Lake Okeechobee water releases from the S-354 structure, and a portion of the L-8 Canal.

Pollutants which are present in significant quantities or which are subject to effluent limitations in the permit are as follows:

Reported Data from the ENR Project	
Effluent Characteristics	Data Range
Total Phosphorus, mg/l	0.02-0.04
pH Range (std. units)	6.5-8.5
Dissolved Oxygen(mg/l)	0.3-9.0

6. Background and Overview of the Everglades STA-1 West Project

It has been determined that the STA-1W Project requires a wastewater permit under the authority of Section 403.0885, F.S. since the facility will be discharging treated water into waters of the United States.

The attached permit is accompanied by an Administrative Order (AO). This AO establishes a schedule for achieving compliance with all permit conditions and regulates operation of the STA during the Start-Up and Stabilization phases of operation, pursuant to Section 403.088(2)(f), F.S. The AO also has conditions that require operation of and discharges from the STA to be consistent with the requirements of Section 373.4592(9)(h) of the EFA.

The attached permit includes specific permit conditions needed to assure that discharges from the project do not cause or contribute to violations of State Water Quality Standards.

The applicant, South Florida Water Management District, applied on June 4, 1997, to construct and operate STA-1W. This STA is known as Project ECP-2 of the larger Everglades Construction Project, a monumental program to restore the water quality and hydrology of the Everglades ecosystem. This program represents the largest environmental restoration program of its kind ever undertaken (to date), and is required by the Everglades Forever Act (EFA), Section 373.4592, Florida Statutes. Section 373.4592(9)(b) of the EFA provides that the applicant may begin construction of the Everglades Construction Project, including STA-1W, prior to final agency action, or notice of intended agency action, on permits to be issued by the Department under the authority of the Everglades Forever Act. Section 373.4592(4)(a)6. of the EFA further requires the applicant to complete construction of STA-1W, by January 1, 1999. To facilitate construction, short-term dewatering of the project site is required, for which a water use permit in accordance with Part II of Chapter 373, F.S. would normally be required. The Department issued an Individual Water Use Permit (Permit No. 0125539) October 22, 1997, authorizing the commencement of short-term dewatering activities

necessary to construct the remaining STAs, including STA-1W, pursuant to Section 373.4592(9) of the EFA, and the Individual Water Use Permit described in Rule 40E-2.041, Florida Administrative Code (F.A.C.). Limiting conditions issued with the Department's permit include requirements to control erosion and monitor turbidity at the project site. These requirements are also included in Section 02435 (Turbidity and Erosion Control) of the "Technical Specifications" for the construction of the project which are included in the contract documents.

STA-1 W will incorporate the existing ENR Project, which was permitted by the Department February 18, 1994 (Permit No. 502232569). It was designed to serve three major functions:

- a. Reduce phosphorus entering from WCA-1;
- b. Provide design, operation, and management experience necessary for larger scale application of wetland treatment technologies; and,
- c. Implement optimal nutrient-removal technology.

The project monitoring plan requires water quality monitoring at several stations representative of inflows, outflows, and within-treatment areas of the ENR Project. A summary and analysis of this data is required to be submitted in annual monitoring reports. These reports, which have been submitted annually since 1995, indicate that the ENR Project has been very successful in obtaining, and even surpassing, its design objectives, as phosphorus load reductions of greater than 80% between the inflow and outflow have been recorded for all monitoring periods. Since it began operation, more than 507,000 acre-feet of water that would have previously been pumped directly into the Refuge (WCA-1), was diverted into the ENR Project, resulting in the retention of more than 63 metric tons of phosphorus. This prototype STA has been very successful in preventing high levels of phosphorus from entering the Everglades Protection Area. The proposed Treatment Cell 5, immediately to the north, is expected to achieve similar positive results to the ENR Project. The ENR Project will be joined with Treatment Cell 5, upon its completion, to become STA-1W, as designed (with updated modifications) in the Conceptual Design of 1994.

Consistent with the proposed activities in the completed project application, a 2-acre fill pad for the future planned recreational facilities for the STA-1W Project will be constructed at the site located approximately 500 feet south of State Road 880. The construction of these recreational facilities, consistent with the Everglades Construction Project at the appropriate STAs, in accordance with the EFA, s. 373.4592(4)(a), F.S., to provide public access and enhance recreational potential of the STAs. The future recreational facilities planned for the STA-1W Project will include public access, a picnic pavilion, observation tower, boardwalk, and a landscaping plan.

B. BASIS FOR FINAL MONITORING REQUIREMENTS AND PERMIT CONDITIONS

The monitoring requirements for the surface water discharge are included in the permit per the authority granted the Department under Section 403.0885, F.S., and Rule 62-620, F.A.C.

1. During the period beginning upon placing the system into operation and lasting through the expiration date of this permit, the permittee is authorized to discharge treated water from Outfalls D-001 and D-002. Such discharge shall be limited and monitored by the permittee as specified below:

Parameters (units)	Discharge Limitations			Monitoring Requirements		
	Daily Minimum	Daily Maximum	Annual Average	Monitoring Frequency	Sample Type	Sample Point
Phosphorus, Total as P (mg/L as P)	--	--	*See Item 5 Below	weekly	7-day flow proportioned composite	EFF-1 & EFF-2
Phosphorus, Total as P (mg/L as P)	--	--	*Report	weekly	7-day flow proportioned composite	SWU-1
Oxygen, Dissolved (DO) (mg/L)	5.0	--	--	weekly	meter	EFF-1 & EFF-2
Oxygen, Dissolved (DO) (mg/L)	Report	--	--	weekly	meter	SWU-1
Flow (cfs)	--	Report	Report	continuous	recorder	EFF-1 & EFF-2
PH (s.u.)	6.0	8.5	--	weekly	meter	EFF-1 & EFF-2

* Monitoring for this parameter shall be reported as a 12-month moving flow-weighted average. No violations for the annual average limit will be deemed to have occurred until data have been compiled for the first 12 months after the issuance date of the permit. For the first 11 months after issuance of this permit, the monitoring results for this parameter shall be recorded on the DMR as NODI=9. Starting with the 12th month and lasting until the expiration of this permit, the monitoring results for this parameter shall be recorded on the DMR as a 12-month moving flow-weighted average.

2. Effluent samples shall be taken at the monitoring site locations listed in permit condition I.A.1 and as described below:

Sample Point	Description of Monitoring Location
EFF-1	Sampling location at the G-310 pump station.
EFF-2	Sampling location at the G-251 pump station.
SWU-1	Upstream background sampling location at the S-5A inflow pump station.

3. There shall be no discharge of floating solids or visible foam in other than trace amounts. This provision shall not be interpreted to prevent discharges of constituents normally found in or resulting from marsh wetland systems.
4. The discharge shall not cause a visible sheen on the receiving water. This provision shall not be interpreted to prevent the discharge of constituents normally found in or resulting from marsh wetland systems.
5. The total phosphorus concentration in the discharge shall not cause an imbalance in natural populations of aquatic flora or fauna. (See Item C. below) The permittee may not be able to immediately comply with this condition and therefore, this permit is issued pursuant to section 403.088(2)(e) of the Florida Statutes and the Everglades Forever Act (EFA), §373.4592, Fla. Stat. By operation of the EFA, a numeric effluent limit for phosphorous shall be derived in accordance with state policy as contained in the EFA, § 373.4592(4)(e), Fla. Stat., which provides that if the Department does not adopt by rule a revised phosphorus water quality criterion by no later than December 31, 2003, the numeric criterion for phosphorus shall be 10 parts per billion (ppb) in the Everglades Protection Area. The December 31, 2003 date is an outside date and does not prohibit the Department from establishing a numeric water quality criterion for phosphorus prior to that date. Upon adoption of a revised criterion or the default criterion becoming effective, and upon approval by EPA, an effluent limitation shall be established for this permit, in a manner consistent with the EFA, the federal Consent Decree in USA v. SFWMD, Case No. 88-1886-CIV-HOEVELER, and other applicable state and federal laws and that recognizes the relationship between waters discharged to, and the resulting water quality in the Everglades Protection Area. If an effluent limitation is established for this permit based upon the default criterion, that effluent limitation will be replaced with a new effluent limit based on the approved numeric interpretation of the narrative phosphorous criterion once rulemaking for the phosphorous criterion and an appropriate effluent limitation is promulgated under the requirements of the EFA and the Consent Decree. The new effluent limit will be based on the numeric phosphorous criterion, the associated implementation strategy, and the relationship between waters discharged to, and the resulting water quality in, the Everglades Protection Area in a manner consistent with the EFA, the federal Consent Decree in USA v. SFWMD, Case No. 88-1886-CIV-HOEVELER, and other applicable state and federal laws.

Governor Bush, in his letter of February 26, 1999, to Administrator Carol Browner of EPA, has committed that the State of Florida will make every effort to move forward the time frames for establishing water quality standards in the Everglades under the EFA. Additionally, the Governor has encouraged the District to accelerate incorporation of Phase II technologies into Phase I as quickly as possible.

6. Sampling results from the ENR project have indicated that several parameters have been detected. These specific parameters include beryllium, selenium, silver and specific conductance. The activities of the storm water treatment areas do not contribute any of

these parameters. Therefore, there is reasonable assurance that the activities of the STA-1W will not cause or contribute to violations of the water quality standards for these parameters and thus, this permit does not contain monitoring requirements for these parameters.

The District is conducting a monitoring program under the EFA permit (permit no. 503074709). If data from this concurrent monitoring program indicate that discharges from the STA-1W have a reasonable potential to cause or contribute to violations of water quality standards, this permit shall be revised to include effluent limits for the parameter(s) of concern.

C. PHOSPHORUS MONITORING

Water quality monitoring will be conducted to evaluate compliance with Rule 62-302.530(48)(b), F.A.C.

D. DISSOLVED OXYGEN (D.O.)

F.A.C. 62-302.530 (31). The Class III standard for fresh waters is 5.0 mg/l of D.O. at all times.

E. pH

F.A.C. 62-302.530(52). The pH shall not be less than 6.0 standard units, nor greater than 8.5 standard units for predominantly freshwaters.

F. MONITORING PROGRAM

1. The applicant will be required to monitor for flow and the above parameters with sufficient frequency to ensure compliance with the permit conditions. Any requirements in this permit to only monitor and report data are based on Section 308 (a) of the Clean Water Act.
2. Development of a comprehensive monitoring program is needed to ensure that the STAs achieve their design objectives as required by the EFA.

G. NEW OR EXPANDED DISCHARGES TO SURFACE WATERS; ANTIDegradation REQUIREMENTS

The Department has determined that construction, operation, and maintenance of the project is consistent with the anti-degradation requirements of Rules 62-4.242(1) and 62-302.300, F.A.C. and is clearly in the public interest pursuant to the requirements of Rule 62-4.242(2), F.A.C. The Department has further determined that the applicant has provided reasonable assurance that the construction and operation of the project will not cause or contribute to degradation of water quality. As the project entails the treatment of waters of the U.S. and design standards require that the discharge be of equal or better quality than the inflow, the

Department has determined that the requirements of Rule 62-4.242(1)(b), F.A.C. have been met. In making these determinations, the Department relied on water quality monitoring and other operations data from the ENR Project. Data generated from the operation of the ENR Project to date demonstrate that similarly designed STAs can be operated to achieve the design objectives of the Everglades Construction Project to significantly improve water quality and hydrology of downstream receiving waters. The Department also reviewed additional water quality data collected in accordance with the requirements of permit No. 50-00018-E issued by the applicant to USSC for the operation of the existing agricultural water management system at the project site. This information included total water column phosphorus concentrations for time-weighted samples collected during flow events for the period July 1993 through February 1997.

In addition, the primary objective of the Everglades Construction Project is to reduce the levels of excess nutrients in the Everglades, in accordance with Sections 373.4592(1)(d) and (g) of the EFA. This objective is consistent with anti-degradation requirements, which acknowledge excessive nutrients as one of the most severe water quality problems facing the state, rule 62-302.300(13) F.A.C.

H. EFFECTIVE DATE OF PROPOSED EFFLUENT LIMITS AND COMPLIANCE SCHEDULE

The Everglades Forever Act (the EFA, Chapter 373.4592, Florida Statutes) has established a process by which a numeric phosphorus criterion will be established and in the absence of a criterion being established by the Department, a default criterion of 10 ppb will become effective. Additionally, the EFA sets forth timelines for compliance for all the STAs, including the STA-1W Project authorized by Permit Number 503074709. A detailed compliance schedule consistent with the requirements of the EFA are included in Administrative Order AO-001-EV which is accompanying this permit.

II. Administrative Requirements

A. FDEP CONTACT

Additional information concerning the permit may be obtained by contacting Rich Bray at the address and during the hours noted in Item B below.

B. ADMINISTRATIVE RECORD

The administrative record including application, intent to issue, draft permit, fact sheet, public notice (after release), documents cited herein, comments received and responses thereto, and other documents contained in the supporting file for the permit, is available by writing FDEP or for review and copying at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400 between the hours of 8 A.M. and 5 P.M., Monday through Friday. Copies will be provided at a minimal charge per page.