**FACT SHEET**
**FOR**
**FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**INDUSTRIAL WASTEWATER FACILITY PERMIT**

Permit No.: FL0304549 (Minor) Permit Writer: Shelley Yaun

Application No.: FL0304549-001-IW7A

Application Date: February 15, 2002

Additional Information: August 15, 2002; February 24, 2003; February 24, 2004; and July 29, 2004

1. SYNOPSIS OF APPLICATION

a. Name and Address of Applicant

South Florida Water Management District

3301 Gun Club Road

West Palm Beach, FL 33406

For:

Stormwater Treatment Area 1E (STA-1E)

3301 Gun Club Road

West Palm Beach, Martin County, FL 33406

b. Type of Facility

Primary SIC 3822 ENVIRONMENTAL CONTROLS

STA-1E is a designed and engineered flow-through marsh system utilizing natural biological processes to remove excess phosphorus from jurisdictional waters of the C-51W and S-5A Basins.

c. Design Capacity of Facility

Treated water within STA-1E will be discharged from the internal discharge collection canal through the S-362 outflow pump station into the L-40 Canal located in the Loxahatchee National Wildlife Refuge (Refuge), a Class III fresh water and an Outstanding Florida Water (OFW). The S-362 outflow pump station has the capacity to discharge up to 4,200 cfs. The pumping station includes seven pumps; three 960 cfs pumps, two 550 cfs pumps, and two additional 110 cfs electric motor drive water supply pumps.

STA-1E is operationally related to the STA-1 Inflow and Distribution Works (STA-1 Inflow Basin). The STA-1 Inflow Basin is designed to allow the diversion of water to the Refuge and redirection of flows between STA-1E and STA-1W, in order to utilize both of the STAs in the treatment of runoff from the C-51 West and S-5A Basins, prior to discharge into the Refuge. Diversion occurs when water from the STA-1 Inflow Basin is directed untreated into the Refuge through the G-300 or G-301 Structures. Redirection occurs when water is redirected from STA-1E to STA-1W through the G-311 Gated Spillway for treatment. It is hydrologically possible for the STA-1 Inflow Basin to also accept runoff from the L-8 Basin, Okeechobee regulatory releases, and the East Beach Water Control District, although STA-1E is not expected to regularly accept water from these sources after the CERP diversion projects are completed. The current design and operation contemplates that redirection of flows from STA-1W to STA-1E will only occur whenever the discharge from Pumping Station S-5A exceeds the hydraulic capacity of STA-1W or when other contributing factors warrant such redirection in order to optimize system performance. Runoff from the C-51 West Basin could be directed to

STA-1W through the G-311 Structure; however, the present design of STA-1E is such that no redirection should be necessary as a result of hydraulic limitations in STA-1E, except in response to extreme storm events. STA-1W, STA-1 Inflow Basin, and STA-1E are hydraulically connected and interrelated, but STA-1W and the STA-1 Inflow Basin are not included in this permit.

If STA-1E exceeds its ability to accept water from the western C-51 Basin, and capacity is available in STA-1W, water may be redirected through STA-1E to STA-1W. S-319 will direct C-51 Basin water to the eastern portion of the distribution cell within STA-1E and then the S-375 gates may be opened to convey flow to the western portion of the distribution cell and then on to G-311. Water from the distribution cells can also be released back through the S-319 Pump Station by gravity to the C-51 West Canal. When G-311 headwater reaches 18.5 feet, G-311 gates will be opened and flow will be discharged through G-311 through the STA-1 Inflow Basin to STA-1W. G-300 will remain closed to prevent water from entering the L-40 Canal prior to treatment. G-302 will allow inflow at STA-1W to accommodate the water redirected from STA-1E. See attached map for discharge locations.

d. Applicant's Receiving Water

Monitoring Group D-001: Discharges to L-40 Canal, Class III Fresh waters.

Latitude: 26° 37' 32" N Longitude: 80° 19' 04" W

e. Description of Wastewater Treatment Facilities

STA-1E is located immediately east of the Refuge and the STA-1 Inflow Basin and immediately south of the C-51 canal and includes works in wetlands and Class III fresh waters in central Palm Beach County, Florida. The purpose of the facility is to provide water quality treatment of stormwater run-off prior to discharge to the Everglades Protection Area (EPA). These stormwaters are currently being discharged untreated easterly to the Lake Worth Lagoon or westerly to the Refuge via the S-5AE structure. STA-1E consists of three parallel treatment paths that will provide an effective treatment area of approximately 6,505 acres. STA-1E is designed to treat approximately 165,000 acre-feet of runoff annually.

The project facilities consist of two inflow pump stations (S-319 and S-361); a gated spillway (G-311); the interior works (distribution cells and treatment paths/flow-way 1-3); and an outflow pumping station (S-362). Inflow pumping station S-319 will route discharges from the C-51 West Canal to the eastern and western distribution cells, and is the primary point of inflow to STA-1E. Water from the distribution cells can also be released back through the S-319 Pump Station by gravity to the C-51 West Canal. The eastern and western distribution cells are located at the northern most part of STA-1E and are utilized to distribute and route the inflows to one or more of the three separate and independently operable treatment paths. These distribution cells are designed for water management and are not a part of the treatment system. If necessary for water supply or flood protection purposes, water from the distribution cells can also be released back through the S-319 pump station by gravity to the C-51 west canal. The S-361 pump station is a secondary inflow pumping station located on the southeastern perimeter of STA-1E. S-361 is intended to preserve permitted drainage for the Rustic Ranches subdivision and about 430 acres of agricultural lands located in the areas south and east of STA-1E, as well as return collected seepage (STA seepage) back into the STA. The G-311 structure will accept flows from the STA-1 Inflow Basin or direct flows from the eastern and western distribution cells to the STA-1 Inflow Basin. After inflow water is directed into the eastern or western distribution cells, it is then routed to one or more of the treatment paths (flow ways). Treated water can then be routed from the southern most treatment cells into the discharge collection canal and discharged into the L-40 Borrow Canal through the S-362 discharge pump station.

The treatment cells are designed to have an operational depth of between 6 inches and 4.5 feet to encourage colonization by and continued viability of wetland plants and maximize (to the greatest extent possible utilizing available technology) uptake 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-1E.

f. Description of Discharges (as reported by applicant)

Monitoring Site D-001: Discharge of stormwater.

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

Report Data from the STAs

| Effluent Characteristics | Data Range |
|---|---|
| Total Phosphorus (mg/l) | 0.005-0.691 |
| pH Range (std. units) | 6.25-8.97 |
| Dissolved Oxygen (mg/l) | 0.21-8.9 |

g. Background and Overview of the Everglades STA-1E Project

It has been determined that STA-1E requires a wastewater permit under the authority of Section 403.0885, Florida Statutes (F.S.) since the facility will be discharging treated stormwater into waters of the United States.

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 February 15th, 2002 to construct and operate STA-1E. STA-1E is a part of the larger Everglades Construction Project (ECP), 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, F.S. Subsection 373.4592(9)(b) of the EFA provides that the applicant may begin construction of the ECP, including STA-1E, prior to final agency action, or notice of intended agency action, on permits to be issued by the Department under the authority of the EFA. 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. 0178018) March 9, 2001, and subsequent modifications authorizing short-term commencement of dewatering activities for the construction of facilities within the ECP STAs, pursuant to Subsection 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 turbidity at the project site.

STA-1E is expected to perform similarly to the original prototype STA, the ENR project, and subsequently built STAs (i.e., STA-1W, STA-2, STA-3/4, STA-5, and STA-6). In order to track project performance, the STA-1E monitoring plan requires water quality monitoring at several stations representative of inflows and outflows at STA-1E. A summary and analysis of this data is required to be submitted in annual monitoring reports. Similar reports, which were submitted annually from 1995 to 1998, indicated that the ENR Project was 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 562,560 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 70 metric tons of phosphorus. Performance data that has been collected to date from all of the existing STAs (*i.e.*, STA-1W, STA-2, STA-3/4, STA-5, STA-6) has further confirmed the phosphorus removal capabilities of these stormwater treatment areas. During the 2003 Water Year, the STAs treated more than 1,358 cubic hectometers (1,101,032 acre-feet) of water, removed more than 125 metric tons of total phosphorus, and decreased concentrations to an average below 40 ppb, well below the long-term design target of 50 ppb. The result is an overall 63 percent removal rate. Since 1994 the STAs have reduced phosphorus loads by approximately 240 metric tons. STA-1E is expected to achieve similar positive results.

2. BASIS FOR EFFLUENT LIMITS AND MONITORING REQUIREMENTS

The following table provides the basis for Part I. A. provisions.

Outfall D-001

| Parameter | Units | Limit | Statistical Basis | Rationale |
|---|---|---|---|---|
| Oxygen, Dissolved (DO) | MG/L | Report | See attached DO SSAC | Rule 62-302.530(31), FAC |
| pH | SU | 6.0 | Daily Minimum | Rule 62-302.530(52), FAC |
| pH | SU | 8.5 | Daily Maximum | Rule 62-302.530(52), FAC |
| Phosphorus, Total (as P) | ppb | 10.0 | Report * | Section 373.4592, FS; Rule 62-302.540. FAC; Rule 62-302.530(48)(b), FAC |
| Flow | CFS | -- | Daily Minimum | |

The following were used as the basis of the permit limitations/conditions:

A. FAC refers to various portions of the Florida Administrative Code.

The effective dates of FAC Rule Chapters cited in the permit and in this document are as follows:

| Chapter | Effective Date |
|---|---|
| 62-4 | 07-08-02 |
| 62-302 | 05-15-02 |
| 62-520 | 12-09-96 |
| 62-522 | 08-27-01 |
| 62-550 | 11-27-01 |
| 62-620 | 04-17-02 |
| 62-650 | 12-26-96 |
| 62-660 | 10-01-98 |

B. FS refers to various portions of the Florida Statutes

C. CFR refers to various portions of the Code of Federal Regulations, Title 40

D. BPJ refers to Best Professional Judgment

* Monitoring results for this parameter shall be reported as an annual average. The "annual average" effluent limitation is a rolling average equal to the flow-weighted arithmetic mean of the effluent samples collected during consecutive reporting periods which comprise one year. For parameters that are measured at least once per month, the annual average shall be computed at the end of each month and is equal to the arithmetic mean of the monthly average of that month and of each of the previous eleven months. 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 MNR. 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.

The discharge shall not cause phosphorus concentrations in the receiving waters to be altered so as to cause or contribute to an imbalance in natural populations of aquatic flora or fauna. A 10 part per billion (ppb) default numeric phosphorus criterion went into effect December 31, 2003 and was approved by the U.S. EPA on January 24, 2005. Pursuant to Section 373.4592(4)(e)2 of the EFA, the Department adopted a 10 parts per billion (ppb) numeric criterion for phosphorus in the Everglades Protection Area, which was effective under State law on January 24th, 2005 and superseded the default 10 ppb criterion. The permittee may not be able to immediately comply with this condition and therefore, this permit is issued pursuant to Subsection 403.088(2)(e) F.S. and is consistent with the EFA.

The District is conducting a concurrent monitoring program under the EFA permit (permit no. 0195030) and this data will be evaluated to determine impacts to the stormwater treatment area's operation and maintenance. The Department has 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.

3. GROUND WATER MONITORING REQUIREMENTS

This Section is not applicable to this facility.

4. ADMINISTRATIVE ORDERS (AO) AND CONSENT ORDERS (CO)

This permit is accompanied by an Administrative Order (AO) AO-009-EV, effective [Effective Date DRAFT]. The AO is hereby incorporated by reference.

Section 403.088(2)(e), F.S. states that under certain circumstances, if a discharge will not meet permit conditions or applicable Statutes and rules, the Department may issue, renew, or reissue the operation permit. Section 373.4592(1) of the EFA recognizes that waters flowing into the Everglades Protection Area contain excessive levels of phosphorus. Based upon information from the Everglades Nutrient Removal project, and performance data that has been collected to date from all of the existing stormwater treatment areas (i.e., STA-1W, STA-2, STA-3/4, STA-5, STA-6) the STA-1E facility is likely to produce substantial reductions in loads and concentrations of phosphorus being delivered to the Everglades Protection Area.

The Department has concluded that the most appropriate way to measure whether STA-1E is achieving the design goal of 50 ppb for phosphorus requires consideration of the known characteristics of wetland treatment systems. Wetland treatment systems reach optimal performance only after initial periods called "Start-up" and "Stabilization" phases. The 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 Subsection 403.088(2)(f), F.S.

5. REQUESTED VARIANCES OR ALTERNATIVES TO REQUIRED STANDARDS

No variances were requested for this facility.

6. COMPLIANCE SCHEDULE AND EFFECTIVE DATE OF PROPOSED EFFLUENT LIMITS

Section 373.4592(10), F.S., of the EFA requires the permittee to take such action as may be necessary to implement the pre-2006 projects and strategies of the Long-Term Plan by December 31, 2006, so that water delivered to the Everglades Protection Area achieves state water quality standards, including the phosphorus criterion approved by U.S. EPA on January 24, 2005, and moderating provisions. The Long-Term Plan is a comprehensive program of source controls, STAs, (including STA-1E) regulatory programs and integrated Comprehensive Everglades Restoration Program projects to achieve phosphorus reductions for discharges to the Everglades Protection Area. Under the State's Long-Term Plan, the goal is to achieve the 10 ppb phosphorus criterion at the earliest achievable date through the adaptive management approach outlined in the Long-Term Plan. The Florida Legislature has found that the Long-Term Plan is the Best Available Phosphorus Reduction Technology (BAPRT) to achieve the phosphorus criterion in the Everglades Protection Area.

Consistent with the Long-Term Plan and Section 373.4592(10), F.S., a Technology-Based Effluent Limitation (TBEL) for phosphorus has been derived in accordance with state policy as contained in the EFA, § 373.4592, F.S., and is consistent with the Federal guidelines for best available technology economically achievable (BAT) set forth in 40 CFR § 125.3(d). The initial TBEL for phosphorus is a long-term flow-weighted mean of 50 ppb. Under the Long-Term Plan, the goal is to achieve the 10 ppb phosphorus criterion at the earliest achievable date, which will be accomplished through the iterative adaptive implementation process set forth in the Long-Term Plan. The initial 50 ppb TBEL will be revised as appropriate, consistent with the iterative implementation of BAPRT, until such time as the TBEL can achieve compliance with the 10 ppb phosphorus criterion. If the TBEL cannot achieve the 10 ppb phosphorus criterion by December 31, 2006, the permittee will submit the necessary information to demonstrate the applicability of a moderating provision pursuant to Rule 62-302.540(6), F.A.C. Persons whose substantial interests are affected by modification of this permit to include a new TBEL for phosphorus will be afforded a point of entry under Chapter 120, F.S. Additionally, the EFA sets forth timelines for compliance for all STAs, including STA-1E authorized by Permit Number 0195030. A detailed compliance schedule consistent with the requirements of the EFA is included in Administrative Order AO-009-EV which is accompanying this permit.

7. DISCUSSION OF PREVIOUS PERMIT EFFLUENT LIMITS

This Section is not applicable to this permit.

8. NEW OR EXPANDED DISCHARGES TO SURFACE WATERS; ANTIDEGRADATION INFORMATION

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 Chapter 373.4592(9)(a), F.S. and the requirements of Rule 62-4.242(2), F.A.C. 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 and existing STAs. Data generated from the operation of the ENR Project and existing STAs to date demonstrate that similarly designed STAs can be operated to achieve the design objectives of the ECP to significantly improve water quality and hydrology of downstream receiving waters. In addition, the primary objective of the ECP is to reduce the levels of excess nutrients in the Everglades, in accordance with Subsections 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.

9. EFFECTS OF SURFACE WATER DISCHARGE ON THREATENED OR ENDANGERED SPECIES

The Department does not anticipate adverse impacts on threatened or endangered species as a result of permit issuance.

10. FDEP CONTACT

Additional information concerning the permit may be obtained during normal business hours from:

Shelley Yaun
Environmental Specialist III
Department of Environmental Protection, Water Quality Standards and Special Projects Program
2600 Blair Stone Rd
Tallahassee, FL 32399-2400
Telephone Number: (850) 245-8422
Fax Number: (850) 412-0658

11. THE ADMINISTRATIVE RECORD

The administrative record including application, draft permit, fact sheet, public notice (after release), comments received and additional information is available by writing FDEP or for public inspection during normal business hours at the location specified in item 10. Copies will be provided at a minimal charge per page.

12. PROPOSED SCHEDULE FOR PERMIT ISSUANCE

| | |
|---|---|
| Application Complete…….. | July 29, 2004 |
| Draft Permit to Applicant and USEPA… | June 1, 2005 |
| Applicant to Publish Public Notice by…. | June 7, 2005 |
| Public Comment Period…… | July 6, 2005 |
| Notice of Intent to Issue…… | July 13, 2005 |