Permit No.: FL0002208

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended (33 U.S.C. 1251 et. seq; the "Act"),

Florida Power and Light Company
Post Office Box 529100
Miami, Florida 33152

is authorized to discharge from a facility located at

St. Lucie Nuclear Power Plant
Units 1 and 2
Hutchinson Island
St. Lucie County, Florida

to receiving waters named Atlantic Ocean

from discharge points enumerated herein, as serial numbers 001, 002, 003, 004, 005, 006, 007 and 008

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, and III hereof. The permit consists of this cover sheet, Part I 11 pages(s), Part II 12 page(s) and Part III 3 page(s).

This permit shall become effective on JAN 29 1982

This permit and the authorization to discharge shall expire at midnight,

JAN 28, 1987.

JAN 29 1982

Date Signed

Paul J. Traina
Director
Water Management Division

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on effective date and lasting through start of Unit 2 chlorination the permittee is authorized to discharge from outfall(s) serial number(s) 001 - Condenser cooling water and auxiliary cooling water discharged to the Atlantic Ocean (includes other plant wastes). Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations	Monitoring Requirements	
	Instantaneous Maximum	Measurement Frequency	Sample Type
Flow—m^3/Day (MGD)	N/A	Hourly	Pump logs
Discharge Temperature °C(°F)	45(113) 1/	Hourly	Recorders
Temperature Rise °C(°F)	16.7(30) 1/	Hourly	Recorders
Total Residual Oxidants-auxiliary systems(mg/1)	0.03	1/week	Multiple Grabs
Total Residual Oxidants-condenser (mg/1)	0.10 2/	1/week	Multiple Grabs
Mixing Zone Temperature °C(°F)	3/	N/A	N/A
Condenser Chlorine Addition (minutes/day)	120	N/A	N/A

Discharge of intake screen backwash is permitted without limitation or monitoring requirements.

Auxiliary cooling water systems for Unit 1 may be continuously chlorinated; however, TRO shall not exceed a maximum instantaneous concentration of 0.03 mg/1 prior to entry into the Altantic Ocean at times when only this source and/or the sewage treatment plant is being chlorinated. An intensive sampling program shall be instituted for at least 30 days following start of system chlorination to assure compliance. In the event that TRO levels at the terminus of the discharge canal equal or exceed 0.02 mg/1, permittee shall implement a minimization study as indicated in Part III.J.

Permittee shall investigate the availability of continuous recording TRO monitors with low levels of sensitivity (0.01 to 0.03 mg/1) and shall field test such unit(s). Not later than the start of Auxiliary cooling water system chlorination, permittee shall install a continuous TRO recorder, if an acceptable device is found, at the terminus of the discharge canal. In the event that a continuous recorder cannot be installed by start of chlorination, efforts shall continue (with progress reports submitted quarterly) and monitoring for TRO shall be 1/week on not less than six grab samples during daylight hours. Additional grab samples shall be conducted during period(s) of TRO discharge from condensers.

(CONTINUED)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on effective date and lasting through start of Unit 2 chlorination the permittee is authorized to discharge from outfall(s) serial number(s) 001 - Condenser cooling water and auxiliary cooling water discharged to the Atlantic Ocean (includes other plant wastes).

(CONTINUED)

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Intake temperature and flow at plant intake and all other parameters in the discharge canal prior to discharge to the Atlantic Ocean.

1/ Under the following conditions the maximum discharge temperature shall be limited to 47.2°C(117°F) and the temperature rise to 17.8(32): (1) Condenser and/or circulating water pump maintenance, (2) trottling circulating water pumps to minimize use of chlorine, and (3) fouling of circulating water system. In the event that discharge temperature exceeds 45°C(113°F) permittee shall notify the Chief, Water Permits Branch in a manner similar to that provided for in Part II.A.3.c. (5 days).

2/ Total residual oxidants (TRO) shall not exceed a maximum instantaneous concentration of 0.10mg/1. TRO shall not be discharged from Unit 1 condensers for more than two hours per day.

3/ The ambient ocean surface temperature snall not exceed 36.1°C(97°F) as an instantaneous maximum at any point.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on start of Unit 2 chlorination and lasting through expiration the permittee is authorized to discharge from outfall(s) serial number(s) 001 and 008 - Condenser cooling water and auxiliary cooling water discharged to the Atlantic Ocean (includes other plant wastes) from Units 1 and 2, respectively.

Such discharges shall be limited and monitored by the permitted as specified below:

Effluent Characteristic	Discharge Limitations	Monitoring Requirements	
	Instantaneous Maximum	Measurement Frequency	Sample Type
Flow—m^3/Day (MGD)	N/A	Hourly	Pump logs
Discharge Temperature °C(°F)	45(113) 1/	Hourly	Recorders
Temperature Rise °C(°F)	16.7(30) 1/	Hourly	Recorders
Total Residual Oxidants-auxiliary systems (mg/1)	0.03	1/week	Multiple Grabs
Total Residual Oxidants-condensers (mg/1)	0.10	1/week	Multiple Grabs
Free Residual Oxidants (mg/1)	See Below	1/week	Multiple Grabs
Mixing Zone Temperature °C(°F)	36.1(97) 2/	See Part III.I.	
Condenser Chlorine Addition (minutes/day/unit)	120 per unit	Daily	Log

Discharge of intake screen backwash is permitted without limitation or monitoring requirements.

Free available oxidants shall not exceed and average concentration of 0.2 mg/1 and a maximum instantaneous concentration of 0.5 mg/1 at the outlet corresponding to an individual condenser during any chlorination period. Neither free available oxidants (FAO) nor total residual oxidants (TRO) may be discharged from either unit condensers for more than two hours in any one day and not more than one unit may discharge FAO or TRO from its condensers at any one time. Additionally, TRO shall not exceed a maximum instantaneous concentration of 0.10 mg/1 at any time as measured in the discharge canal prior to discharge to the Atlantic Ocean.

Auxiliary cooling water systems for Unit 1 may be continuously chlorinated; however, TRO shall not exceed a maximum instantaneous concentration of 0.03 mg/1 prior to entry into the Altantic Ocean at times when only these sources and/or the sewage treatment plantare being chlorinated. An intensive sampling program shall be instituted for at least 30 days following start of system chlorination to assure compliance. In the event that TRO levels at the terminus of the discharge canal equal or exceed 0.02 mg/1, permittee shall implement a minimization study as indicated in Part III.J.

(CONTINUED)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on start of Unit 2 chlorination and lasting through expiration the permittee is authorized to discharge from outfall(s) serial number(s) 001 and 008 - Condenser cooling water and auxiliary cooling water discharged to the Atlantic Ocean (includes other plant wastes) from Units 1 and 2, respectively.

(CONTINUED)

Not later than three years after promulgation or July 1, 1987, whichever is earlier, there shall be no discharge of TRO. Notwithstanding the foregoing, the permittee may upon successfully showing the Director, Water Management Division, that the facility must use chlorine for cooling water system biofouling control, discharge the minimum amount of TRO necessary to operate the facility. In no case shall TRO be discharged for more than two hours per day nor shall the TRO exceed an instantaneous maximum of 0.01 mg/1 at the terminus of the discharge canal. Not later than one year after promulgation, permittee shall submit a proposed implementation schedule to expeditiously provide controls necessary to comply with these requirements. Note: In the event that BAT regulations for control of TRO or chlorine are promulgated in a manner inconsistent with the October 14, 1980, proposed guidelines, requirements of this paragraph will be modified consistent with the promulgated regulations (40 CFR 423).

Permittee shall investigate the availability of continuous recording TRO monitors with low levels of sensitivity (0.01 to 0.03 mg/1) and shall field test such unit(s). Not later than the start of Auxiliary cooling water system chlorination, permittee shall install a continuous TRO recorder, if an acceptable device is found, at the terminus of the discharge canal. In the event that a continuous recorder cannot be installed by start of chlorination, efforts shall continue (with progress reports submitted quarterly) and monitoring for TRO shall be 1/week on not less than six grab samples during daylight hours. Additional grab samples shall be conducted during period(s) of TRO discharge from condensers.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Intake temperature and flow at plant intakes and all other parameters in the discharge canal prior to discharge to the Atlantic Ocean, except that TRO and FRO shall also be monitored at the condenser discharge for each Unit prior to entry into the plant discharge canal.

1/ Under the following conditions the maximum discharge temperature shall be limited to 47.2°C(117°F) and the temperature rise to 17.8(32): Condenser and/or circulating water pump maintenance, and (2) fouling of circulating water system. In the event that discharge temperature exceeds 45°C(113°F) permittee shall notify the Chief, Water Permits Branch in a manner similar to that provided for in Part II.A.3.c. (5 days).

2/ The ambient ocean surface temperature shall not exceed 36.1°C(97°F) as an instantaneous maximum at any point.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through expiration the permittee is authorized to discharge from outfall(s) serial number(s) 002 1/ - Low volume waste discharge to intake canal from Units 1 and 2

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations				Monitoring Requirements	
	kg/day (lbs/day)		Other Units (mg/l)			
	Daily Avg	Daily Max	Daily Avg	Daily Max	Measurement Frequency	Sample Type
Flow—m^3/Day (MGD)	N/A	N/A	N/A	N/A	1/week	Calculation
Oil and Grease	41(90)	55(120)	15	20	1/week	Grab
Total Suspended Solids	82(180)	270(600)	30	100	1/week	Composite

Prior to the start of discharges from Unit 2, quantity limitations shall be one-half of the limitation shown.

In the event that this waste is directed to an evaporation/percolation pond from which there is no discharge, these effluent limitations and monitoring requirements will not apply.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/batch on a grab sample.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): discharge from the neutralization basin prior to mixing with any other waste stream.

1/ Serial number assigned for identification and monitoring purposes.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through expiration the permittee is authorized to discharge from outfall(s) serial number(s) 003 1/ - Pre-operational metal cleaning wastes from Unit 2 and similar cleaning operations discharged to discharge canal Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations			Monitoring Requirements	
	kg/batch(lbs/batch)	Other Units (mg/l)			
		Daily Avg	Daily Max	Measurement Frequency	Sample Type
Flow—m^3/Day (MGD)	2/	N/A	N/A	1/day	Determination(s)
Oil and Grease	2/	15	20	2/	Grab
Total Suspended Solids	2/	30	100	2/	Composite
Copper, Total	2/	1.0	1.0	2/	Composite
Iron, Total	2/	1.0	1.0	2/	Composite
Phosphorus as P	2/	1.0	1.0	2/	Composite

Metal cleaning wastes shall mean any cleaning compounds, rinse waters, or any other water-borne residues derived from cleaning any metal process equipment. The quantity of pollutants discharged from this source shall not exceed the quantity determined by multiplying the flow of metal cleaning wastes times the concentrations listed above.

In the event that this waste is directed to an evaporation/percolation pond from which there is no discharge, these effluent limitations and monitoring requirements will not apply.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored on representative grab samples.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): discharge from the metal cleaning wastes treatment facility(s) prior to mixing with any other waste stream.

1/ Serial number assigned for identification and monitoring purposes.
2/ The total quantity of each pollutant discharged shall be reported. In no case shall the quantity discharged exceed the quantity determined by multiplying the volume of the batch of metal cleaning waste generated times the concentrations noted above (i.e., 3.8 kg (8.3 lbs) of iron, copper and phosphorus; 57 kg (125 lbs) of oil and grease; and 114 kg (250 lbs) of total suspended solids per million gallons of metal cleaning waste generated). The permittee shall also report the frequency of measurement used to adequately quantify the pollutants discharged. Total volume of wastewater generated and discharge shall be reported.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through expiration the permittee is authorized to discharge from outfall(s) serial number(s) 004 1/ - Radwaste System Discharge to discharge canal from Units 1 and 2.
Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations kg/day (lbs/day)		Other Units (mg/l)		Monitoring Requirements Measurement Frequency	Sample Type
	Daily Avg	Daily Max	Daily Avg	Daily Max		
Flow–m^3/Day (MGD)	N/A	N/A	N/A	N/A	1/batch	Calculation
Oil and Grease	4.1(9.0)	5.5(12.0)	15	20	1/batch 2/	Grab
Total Suspended Solids	8.2(18)	27.0(60.0)	30	100	1/batch	Grab

Prior to the start of discharges from Unit 2 , quantity limitations shall be one-half of the limitation shown.

In the event that metal cleaning wastes are discharged through this serial number, limitations shall not exceed those provided for outfall serial number 003.

This discharge is regulated by the Nuclear Regulatory Commission under the provisions of its operating license and is monitored and reported to the Nuclear Regulatory Commission. No additional monitoring of the radiological aspects of this discharge are required herein.

The pH shall not be less than N/A standard units nor greater than 9.0 standard units and shall be monitored 1/batch.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): discharge from the radwaste system prior to mixing with any other waste stream.

1/ Serial number assigned for identification and monitoring purposes.
2/ If radwastes is passed through filter and demineralizer system, sampling shall be 2/month on representative batches. If data for a one-year period indicates that all oil and grease determinations are less than 10 mg/l, this monitoring may be discontinued.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through expiration the permittee is authorized to discharge from outfall(s) serial number(s) 005 1/ - Dewatering wastes from Unit 2 construction discharged to intake or discharge canal
Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Daily Max	Daily Avg	Measurement Frequency	Sample Type
Flow–m^3/Day (MGD)	N/A	N/A	2/month	Calculation
Total Suspended Solids (mg/l)	55	115	2/month	Grab

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): point(s) discharge prior to entering the intake or discharge canals.

1/ Serial number assigned for identification and monitoring purposes.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on effective date and lasting through expiration
the permittee is authorized to discharge from outfall(s) serial number(s) 006 1/ - Sewage Treatment Plant Discharge

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations mg/l (except as noted) Daily Avg.	Daily Max.	Monitoring Requirements Measurement Frequency	Sample Type
Flow—m^3/Day (MGD)	N/A	64 (0.017)	1/week	Instantaneous
BOD_5	30	60	1/quarter	Grab 2/
Total Suspended Solids	30	60	1/quarter	Grab 2/
Fecal Coliform organisms/100 ml	N/A	N/A	1/quarter	Grab

In addition to the specific limits, the daily average effluent BOD_5 and suspended solids concentrations shall not exceed 10 percent of the respective daily average influent concentrations.

Effluent shall be aerobic at all times.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/week.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):
Sewage treatment plant discharge prior to mixing with any other waste streams.

1/ Serial number assigned for identification and monitoring purposes.
2/ Influent and effluent.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on effective date and lasting through expiration the permittee is authorized to discharge from outfall(s) serial number(s) 007 1/ - Steam Cleanup System Blowdown to discharge canal from Units 1 and 2 .
Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow—m^3/Day (MGD)	N/A	N/A	2/	Calculation
Oil and Grease (mg/1)	15	20	2/	Grab
Total Suspended Solids (mg/1)	30	100	2/	Grab
Total Iron (mg/1)	1.0	1.0	2/	Grab
Total Copper (mg/1)	1.0	1.0	2/	Grab

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): point(s) of discharge prior to entering the discharge canal.

1/ Serial number assigned for identification and monitoring purposes.
2/ One per discharge event or one per week whichever is more frequent. Total volume of batch and period of discharge shall be reported.

B. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

   a. All effluent limitations shall be met on effective date or start of discharge

   b. Aquatic monitoring program (Part III.F.)
      (1) Implement - Continuing
      (2) Annual Reports - April 30 of each year

   c. Discharge structure operation (Part III.G.)
      (1) Operational scheme - December 31, 1981 operation of Unit 2 condenser pumps

   d. Thermal Plume Monitoring (Part III.I.)
      (1) Study Plan - Three months prior to fuel loading of Unit 2
      (2) Report - 15 months after commercial operation date of Unit 2

   e. Auxiliary Cooling System Chlorine Minimization (Part III.J)
      (1) Implement - Start of system chlorination
      (2) Status reports - Quarterly (4 reports)
      (3) Final Report - 15 months after implementation

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

A. MANAGEMENT REQUIREMENTS

1. Discharge Violations

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant more frequently than, or at a level in excess of, that identified and authorized by this permit constitutes a violation of the terms and conditions of this permit. Such a violation may result in the imposition of civil and/or criminal penalties as provided in Section 309 of the Act.

2. Change in Discharge

Any anticipated facility expansions, production increases, or process modifications which will result in new, different, or increased discharges of pollutants must be reported by submission of a new NPDES application at least 180 days prior to commencement of such discharge. Any other activity which would constitute cause for modification or revocation and reissuance of this permit, as described in Part II (B) (4) of this permit, shall be reported to the Permit Issuing Authority.

3. Noncompliance Notification

a. Instances of noncompliance involving toxic or hazardous pollutants should be reported as outlined in Condition 3c. All other instances of noncompliance should be reported as described in Condition 3b.

b. If for any reason, the permittee does not comply with or will be unable to comply with any discharge limitation specified in the permit, the permittee shall provide the Permit Issuing Authority with the following information at the time when the next Discharge Monitoring Report is submitted.

(1) A description of the discharge and cause of noncompliance;
(2) The period of noncompliance, including exact dates and times and/or anticipated time when the discharge will return to compliance; and
(3) Steps taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

c. Toxic or hazardous discharges as defined below shall be reported by telephone within 24 hours after permittee becomes aware of the circumstances and followed up with information in writing as set forth in Condition 3b. within 5 days, unless this requirement is otherwise waived by the Permit Issuing Authority:

(1) Noncomplying discharges subject to any applicable toxic pollutant effluent standard under Section 307(a) of the Act;
(2) Discharges which could constitute a threat to human health, welfare or the environment. These include unusual or extraordinary discharges such as those which could result from bypasses, treatment failure or objectionable substances passing through the treatment plant. These include Section 311 pollutants or pollutants which could cause a threat to public drinking water supplies.

d. Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

4. Facilities Operation

All waste collection and treatment facilities shall be operated in a manner consistent with the following:

a. The facilities shall at all times be maintained in a good working order and operated as efficiently as possible. This includes but is not limited to effective performance based on design facility removals, adequate funding, effective management, adequate operator staffing and training, and adequate laboratory and process controls (including appropriate quality assurance procedures); and

b. Any maintenance of facilities, which might necessitate unavoidable interruption of operation and degradation of effluent quality, shall be scheduled during noncritical water quality periods and carried out in a manner approved by the Permit Issuing Authority.

c. The permittee, in order to maintain compliance with this permit shall control production and all discharges upon reduction, loss, or failure of the treatment facility until the facility is restored or an alternative method of treatment is provided.

5. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact to waters of the United States resulting from

noncompliance with any effluent limitations specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature of the noncomplying discharge.

6. Bypassing

"Bypassing" means the intentional diversion of untreated or partially treated wastes to waters of the United States from any portion of a treatment facility. Bypassing of wastewaters is prohibited unless all of the following conditions are met:

a. The bypass is unavoidable-i.e. required to prevent loss of life, personal injury or severe property damage;

b. There are no feasible alternatives such as use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment down time;

c. The permittee reports (via telephone) to the Permit Issuing Authority any unanticipated bypass within 24 hours after becoming aware of it and follows up with written notification in 5 days. Where the necessity of a bypass is known (or should be known) in advance, prior notification shall be submitted to the Permit Issuing Authority for approval at least 10 days beforehand, if possible. All written notifications shall contain information as required in Part II (A)(3)(b); and

d. The bypass is allowed under conditions determined to be necessary by the Permit Issuing Authority to minimize any adverse effects. The public shall be notified and given an opportunity to comment on bypass incidents of significant duration to the extent feasible.

This requirement is waived where infiltration/inflow analyses are scheduled to be performed as part of an Environmental Protection Agency facilities planning project.

7. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the United States.

8. Power Failures

The permittee is responsible for maintaining adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failures either by means of alternate power sources, standby generators or retention of inadequately treated effluent. Should the treatment works not include the above capabilities at time of permit issuance, the permittee must furnish within six months to the Permit Issuing Authority, for approval, an implementation schedule for their installation, or documentation demonstrating that such measures are not necessary to prevent discharge of untreated or inadequately treated wastes. Such documentation shall include frequency and duration of power failures and an estimate of retention capacity of untreated effluent.

9. Onshore or Offshore Construction

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any waters of the United States.

B. RESPONSIBILITIES

1. Right of Entry

The permittee shall allow the Permit Issuing Authority and/or authorized representatives (upon presentation of credentials and such other documents as may be required by law) to:

a. Enter upon the permittee's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions of this permit;

b. Have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;

c. Inspect at reasonable times any monitoring equipment or monitoring method required in this permit;

d. Inspect at reasonable times any collection, treatment, pollution management or discharge facilities required under the permit; or

e. Sample at reasonable times any discharge of pollutants.

2. Transfer of Ownership or Control

A permit may be transferred to another party under the following conditions:

a. The permittee notifies the Permit Issuing Authority of the proposed transfer;

b. A written agreement is submitted to the Permit Issuing Authority containing the specific transfer date and acknowledgement that the existing permittee is responsible for violations up to that date and the new permittee liable thereafter.

Transfers are not effective if, within 30 days of receipt of proposal, the Permit Issuing Authority disagrees and notifies the current permitttee and the new permittee of the intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed.

3. Availability of Reports

Except for data determined to be confidential under Section 308 of the Act, (33 U.S.C. 1318) all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Permit Issuing Authority. As required by the Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Act (33 U.S.C. 1319).

4. Permit Modification

After notice and opportunity for a hearing, this permit may be modified, terminated or revoked for cause (as described in 40 CFR 122.15 et seq) including, but not limited to, the following:

a. Violation of any terms or conditions of this permit;

b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;

c. A change in any condition that requires either temporary interruption or elimination of the permitted discharge; or

d. Information newly acquired by the Agency indicating the discharge poses a threat to human health or welfare.

If the permittee believes that any past or planned activity would be cause for modification or revocation and reissuance under 40 CFR 122.15 et seq, the permittee must report such information to the Permit Issuing Authority. The submission of a new application may be required of the permittee.

5. Toxic Pollutants

a. Notwithstanding Part II (B)(4) above, if a xic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Act for a toxic pollutant which is present in the discharge authorized herein and such standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be revoked and reissued or modified in accordance with the toxic effluent standard or prohibition and the permittee so notified.

b. An effluent standard established for a pollutant which is injurious to human health is effective and enforceable by the time set forth in the promulgated standard, even though this permit has not as yet been modified as outlined in Condition 5a.

6. Civil and Criminal Liability

Except as provided in permit conditions on "Bypassing", Part II (A) (6), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

7. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act (33 U.S.C. 1321).

8. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Act.

9. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations

10. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

11. Permit Continuation

A new application shall be submitted at least 180 days before the expiration date of this permit. Where EPA is the Permit Issuing Authority, the terms and conditions of this permit are automatically continued in accordance with 40 CFR 122.5, provided that the permittee has submitted a timely and sufficient application for a renewal permit and the Permit Issuing Authority is unable through no fault of the permittee to issue a new permit before the expiration date.

C. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Reporting

Monitoring results obtained during each calendar month shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1). Forms shall be submitted at the end of each calendar quarter and shall be postmarked no later than the 28th day of the month following the end of the quarter. The first report is due by the 28th day of the month following the first full quarter after the effective date of this permit.

Signed copies of these, and all other reports required herein, shall be submitted to the Permit Issuing Authority at the following address(es):

Water Permits Branch
Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

3. Test Procedures

Test procedures for the analysis of pollutants shall conform to all regulations published pursuant to Section 304(h) of the Clean Water Act, as amended (40 CFR 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants").

4. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

a. The exact place, date, and time of sampling;

b. The person(s) who obtained the samples or measurements;

c. The dates the analyses were performed;

d. The person(s) who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of all required analyses.

5. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form (EPA No. 3320-1). Such increased frequency shall also be indicated.

6. Records Retention

The permittee shall maintain records of all monitoring including: sampling dates and times, sampling methods used, persons obtaining samples or measurements, analyses dates and times, persons performing analyses, and results of analyses and measurements. Records shall be maintained for three years or longer if there is unresolved litigation or if requested by the Permit Issuing Authority.

D. DEFINITIONS

1. Permit Issuing Authority

The Regional Administrator of EPA Region IV or designee.

2. Act

"Act" means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act) Public Law 92-500, as amended by Public Law 95-217 and Public Law 95-576, 33 U.S.C. 1251 et seq.

3. Mass/Day Measurements

a. The "average monthly discharge" is defined as the total mass of all daily discharges sampled and/or measured during a calendar month on which daily discharges are sampled and measured, divided by the number of daily discharges sampled and/or measured during such month. It is, therefore, an arithmetic mean found by adding the weights of the pollutant found each day of the month and then dividing this sum by the number of days the tests were reported. This limitation is identified as "Daily Average" or "Monthly Average" in Part I of the permit and the average monthly discharge value is reported in the "Average" column under "Quantity" on the Discharge Monitoring Report (DMR).

b. The "average weekly discharge" is defined as the total mass of all daily discharges sampled and/or measured during a calendar week on which daily discharges are sampled and/or measured divided by the number of daily discharges sampled and/or measured during such week. It is, therefore, an arithmetic mean found by adding the weights of pollutants found each day of the week and then dividing this sum by the number of days the tests were reported. This limitation is identified as "Weekly Average" in Part I of the permit and the average weekly discharge value is reported in the "Maximum" column under "Quantity" on the DMR.

c. The "maximum daily discharge" is the total mass (weight) of a pollutant discharged during a calendar day. If only one sample is taken during any calendar day the weight of pollutant

calculated from it is the "maximum daily discharge". This limitation is identified as "Daily Maximum," in Part I of the permit and the highest such value recorded during the reporting period is reported in the "Maximum" column under "Quantity" on the DMR.

4. Concentration Measurements

a. The "average monthly concentration," other than for fecal coliform bacteria, is the concentration of all daily discharges sampled and/or measured during a calendar month on which daily discharges are sampled and measured divided by the number of daily discharges sampled and/or measured during such month (arithmetic mean of the daily concentration values). The daily concentration value is equal to the concentration of a composite sample or in the case of grab samples is the arithmetic mean (weighted by flow value) of all the samples collected during that calendar day. The average monthly count for fecal coliform bacteria is the geometric mean of the counts for samples collected during a calendar month. This limitation is identified as "Monthly Average" or "Daily Average" under "Other Limits" in Part I of the permit and the average monthly concentration value is reported under the "Average" column under "Quality" on the DMR.

b. The "average weekly concentration," other than for fecal coliform bacteria, is the concentration of all daily discharges sampled and/or measured during a calendar week on which daily discharges are sampled and measured divided by the number of daily discharges sampled and/or measured during such week (arithmetic mean of the daily concentration values). The daily concentration value is equal to the concentration of a composite sample or in the case of grab samples is the arithmetic mean (weighted by flow value) of all samples collected during that calendar day. The average weekly count for fecal coliform bacteria is the geometric mean of the counts for samples collected during a calendar week. This limitation is identified as "Weekly Average" under "Other Limits" in Part I of the permit and the average weekly concentration value is reported under the "Maximum" column under "Quality" on the DMR.

c. The "maximum daily concentration" is the concentration of a pollutant discharged during a calendar day. It is identified as "Daily Maximum" under "Other Limits" in Part I of the permit and the highest such value recorded during the reporting period is reported under the "Maximum" column under "Quality" on the DMR.

5. Other Measurements

a. The effluent flow expressed as M^3/day (MGD) is the 24 hour average flow averaged monthly. It is the arithmetic mean of the total daily flows recorded during the calendar month. Where monitoring requirements for flow are specified in Part I of the permit the flow rate values are reported in the "Average" column under "Quantity" on the DMR.

b. Where monitoring requirements for pH, dissolved oxygen or fecal coliform are specified in Part I of the permit the values are generally reported in the "Quality or Concentration" column on the DMR.

6. Types of Samples

a. Composite Sample - A "composite sample" is any of the following:

(1) Not less than four influent or effluent portions collected at regular intervals over a period of 8 hours and composited in proportion to flow.

(2) Not less than four equal volume influent or effluent portions collected over a period of 8 hours at intervals proportional to the flow.

(3) An influent or effluent portion collected continuously over a period of 24 hours at a rate proportional to the flow.

b. Grab Sample: A "grab sample" is a single influent or effluent portion which is not a composite sample. The sample(s) shall be collected at the period(s) most representative of the total discharge.

7. Calculation of Means

a. Arithmetic Mean: The arithmetic mean of any set of values is the summation of the individual values divided by the number of individual values.

b. Geometric Mean: The geometric mean of any set of values is the N^{th} root of the product of the individual values where N is equal to the number of individual values. The geometric mean is equivalent to the antilog of the arithmetic mean of the logarithms of the individual values. For purposes of calculating the geometric mean, values of zero (0) shall be considered to be one (1).

c. Weighted by Flow Value: Weighted by flow value means the summation of each concentration times its respective flow divided by the summation of the respective flows.

8. Calendar Day

a. A calendar day is defined as the period from midnight of one day until midnight of the next day. However, for purposes of this permit, any consecutive 24-hour period that reasonably represents the calendar day may be used for sampling.

PART III

OTHER REQUIREMENTS

A. There shall be no discharge of polychlorinated biphenyls compounds such as those commonly used for transformer fluid.

B. The company shall notify the Director, Water Management Division in writing not later than sixty (60) days prior to instituting use of any additional biocide or chemical used in cooling systems, other than chlorine, which may be toxic to aquatic life other than those previously reported to the Environmental Protection Agency. Such notification shall include:

1. name and general composition of biocide or chemical,
2. quantities to be used,
3. frequencies of use,
4. proposed discharge concentrations, and
5. EPA registration number, if applicable.

C. Plant stormwater which is uncontaminated by plant wastes may be discharged without limitation or monitoring requirements.

D. Intake screen backwash may be discharged without limitation or monitoring requirements.

E. All environmental monitoring reports submitted to the U. S. Nuclear Regulatory Commission shall be submitted to EPA.

F. Permittee shall continue the approved non-radiological aquatic monitoring program (revised continuation of existing program) which serve as St. Lucie 1 operational and St. Lucie 2 pre-operational and operational. The program will continue for at least two years after Unit 2 begins commercial operation. After this period the program will be evaluated by the Permittee and EPA to assess the continued need or possible deletion and/or modification of the program. Reports shall be submitted annually not later than April 30 of the year following the reporting period.

G. Subsequent to the commercial operation date of Unit 2, heated water shall be discharged from the Unit 2 multiport discharge line when only one unit is operating. Periods of short-term, one-unit operation shall not be subject to this requirement. Not later than December 31, 1981, a proposed operational scheme, including a definition of "short-term", hall be submitted for approval by the Director, Water Management Division and State Director to assure conformance with these requirements.

H. If an applicable standard or limitation is promulgated under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) and that effluent standard or limitation is more stringent than any effluent limitation in this permit or controls a pollutant not limited in this permit, this permit shall be promptly modified or revoked and reissued to conform to that effluent standard or limitation.

I. Permittee shall implement a monitoring program to assure compliance with temperature limitations provided herein and with thermal requirements of the Florida Water Quality Standards. Such program to include field surveys, infrared thermal imagry overflights and/or other monitoring to assure compliance. A study plan shall be submitted for approval not later than three months prior to fuel loading of Unit 2 and shall be expeditiously implemented on approval. A report shall be submitted not less than 15 months after implementation.

J. Permittee shall conduct a chlorine minimization program for the auxiliary cooling water system if the TRO concentration levels at the terminus of the discharge canal during continuous chlorination of the auxiliary system(s) equal or exceed 0.02 mg/L. Such study if required, shall be conducted generally in conformance with techniques and concepts published in Appendix A, FR 68354, October 14, 1980, to the extent implementable on the auxiliary cooling system at the St. Lucie Plant. Implementation of the plan, if required, shall be no later than 30 days after the Permittee becomes aware that the concentration level of TRO equals or exceeds 0.02 mg/L. Brief status reports shall be submitted quarterly with the first report due at the end of the third full month following implementation of the study. A final report shall be submitted not less than the end of the fifteenth full month of the implementation.

K. Copies of reports submitted in accordance with Part III.F. shall be forwarded by the permittee as follows:

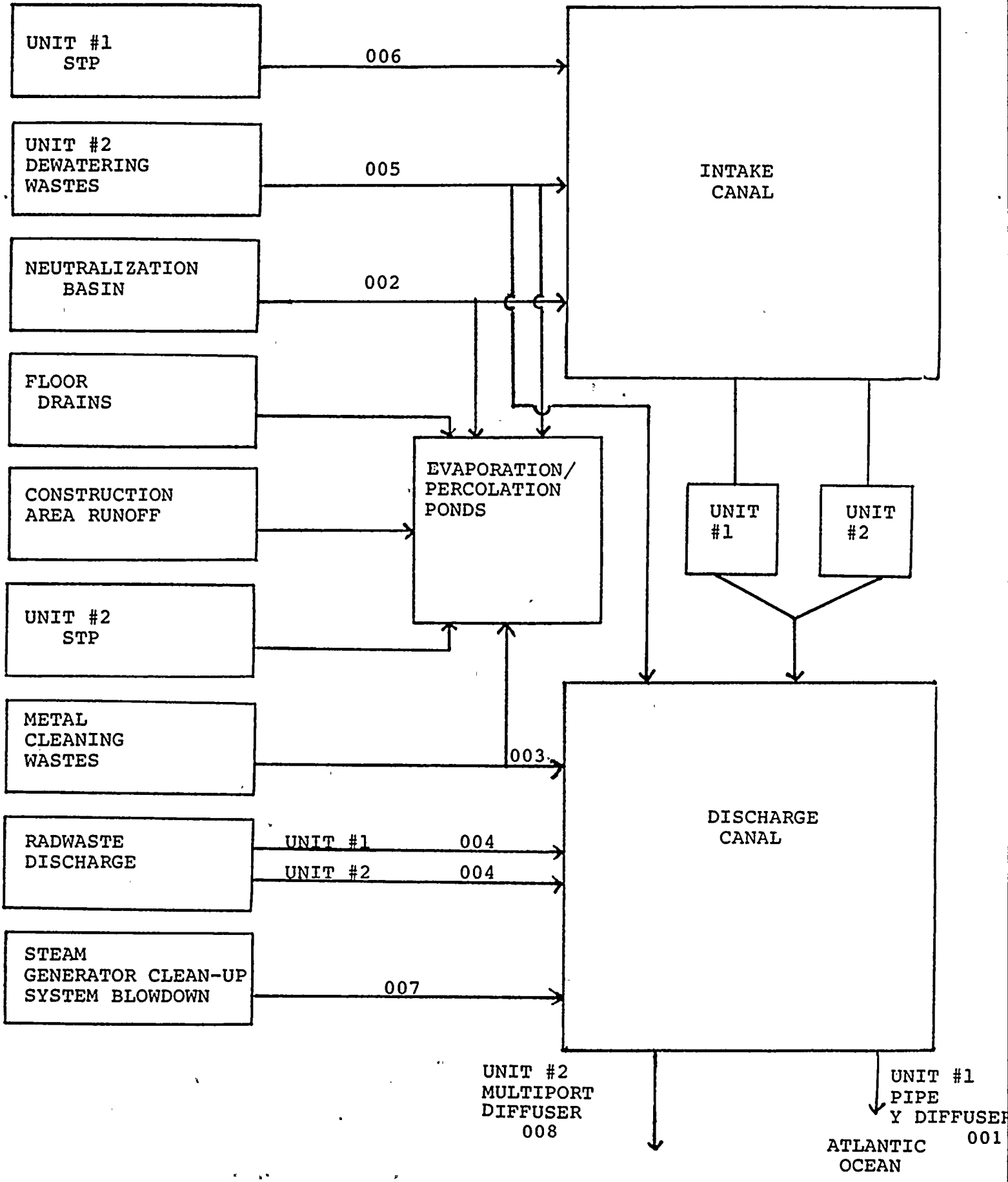
Number of Copies	Addressee
2	Chief, Water Permits Branch, EPA (Atlanta)
1	Chief, Ecology Branch, EPA(Athens)
2	Florida Dept. of Environmental Regulation (Tallahassee)
2	Assistant Director for Environmental Technology USNRC (Washington)
2	Regional Director, Fish and Wildlife Service (Atlanta)
2	Regional Director, National Marine Fisheries Service (St. Petersburg)

Additionally, two copies of all plans and reports submitted in accordance with Parts III. G, I and J shall be submitted to FLDER (Tallahassee) and USEPA (Atlanta) and one copy to EPA (Athens).

L. The State of Florida Department of Environmental Regulation has certified the discharge(s) covered by this permit with conditions (Attachment B). Section 401 of the Act requires that conditions of certification shall become a condition of the permit. The monitoring and sampling shall be as indicated for those parameters included in the certification. Any effluent limits, and any additional requirements, specified in the attached state certification which are more stringent supersede any less stringent effluent limits provided herein. During any time period which the more stringent state certification effluent limits are stayed or inoperable, the effluent limits provided herein shall be in effect and fully enforceable.

ATTACHMENT A
NPDES No. FL0002208

ST. LUCIE PLANT
WASTEWATER FLOW DIAGRAM



ATTACHMENT B
NPDES No. FL0002208

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

January 27,1982

Paul J. Traina
Director, Water Division
U.S. Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Mr. Traina:

Pursuant to Section 401 of the Federal Water Pollution Control Act, Public Law 92-500, as amended, the State of Florida hereby issues certification to:

Florida Power & Light Company FL0002208
St. Lucie Nuclear Power Plant
Units 1 and 2
St. Lucie County

an applicant for a National Pollutant Discharge Elimination System permit.

State certification for Unit 1 is issued subject to the following conditions:

A. The applicant meets all effluent limitations, monitoring and other requirements developed for the revised draft NPDES permit dated October 15, 1981.

B. The applicant complies with all applicable requirements of Chapter 403, Florida Statutes, and Chapter 17 series, Florida Administrative Code.

1. The concentration of pollutants discharged from this facility must meet State water quality standards at the point of discharge in accordance with Chapter 17-3, F.A.C., unless a mixing zone has been obtained in accordance with Chapter 17-4, F.A.C. If a mixing zone has been approved, State water quality standards would apply at the edge of the mixing zone. Certain minimum criteria still apply to those waters located within mixing zones approved by the Department (see Section 17-3.051, F.A.C.). The mixing zone is defined according to Chapter 17-4.244, Florida Administrative Code.

2. In accordance with Chapter 17-3.061(2)(j), Florida Administrative Code, the following surface water standards shall be met in the receiving body of water except within zones of mixing:

   a. Dissolved or emulsified oils and greases shall not exceed 5.0 mg/1.

   b. No undissolved oil or visible oil defined as iridescence, shall be present to cause taste or odor, or otherwise interfere with the beneficial uses of waters.

State certification for Unit 2 is issued subject to the following conditions:

A. The applicant meets all effluent limitations, monitoring and other requirements developed for the revised draft NPDES permit dated October 15, 1981.

B. The applicant complies with the terms and requirements of the conditions of certification in Case No. PA-74-02 as revised on 3/12/80 and modified on 12/7/81 (see Attachment I) pursuant to applicable requirements of Chapter 403, Florida Statutes, and Chapter 17 series, Florida Administrative Code.

If the above requirements are met, the discharge from this facility will comply with Sections 301, 302, and 303 of the Federal Water Pollution Control Act, as amended.

Insofar as the Department can determine, there are no further limitations under Sections 306 and 307 of the Act applicable to this discharger.

The Department may modify the effluent limitations and other conditions placed on this facility pursuant to Federal and State law, should further water quality analysis of the discharge, its volume and character, together with the flow and characteristics of the receiving body of water, indicate that the discharge will not meet and comply with applicable water quality standards contained in Chapter 17-3, Florida Administrative Code.

The correct address for submission of Florida's copy of the Discharge Monitoring Reports is:

Florida Department of Environmental Regulation
South Florida Subdistrict Branch Office
2745 Southeast Morningside Blvd.
Port St. Lucie, FL 33452

Sincerely,

Suzanne P. Walker

Suzanne P. Walker
Chief, Bureau of Permitting

SPW:hpp

cc: District w/attachment
Applicant w/attachment

PERMIT RATIONALE
ST. LUCIE NUCLEAR POWER PLANT
UNITS 1 and 2
FLORIDA POWER AND LIGHT COMPANY
JANUARY 7, 1982

I. Applicable Regulations

A. The proposed conditions provide for compliance with (1) Effluent Guidelines and Standards for the steam electric power generating point source category (40 CFR 423) as promulgated on October 8, 1974 (39 Federal Register 36186), and with proposed guidelines revisions published on October 14, 1980 (45 FR 68328), for plant chemical wastes; and (2) a tentative determination under Section 316(b) of the Clean Water Act for the plant cooling water intake; as well as,

B. Provisions of the Florida Water Quality Standards (Chapters 17-3 and 17-4 Florida Administrative Code). The receiving waters have been classified by the State of Florida as Class III - Recreation - Propagation and Management of Fish and Wildlife - Surface waters.

II. Effluent Limitations

A. Outfall Serial Numbers (OSN) 001 and 008 - Once through condenser cooling water and auxiliary cooling water:

1. Temperature: Discharge temperature of 45°C(113°F) at the terminus of the discharge canal, except under specific abnormal operating conditions when limitation is 47.2°C(117°F) and temperature rise of 16.7°C(30°F) and 17.8°C(32°F), respectively. Limitations are as requested by the applicant and are supported by biological sampling data.

2. Total residual oxidants (includes total residual chlorine):
   a. An instantaneous maximum limitation of 0.1 mg/l due to condenser chlorination for a maximum period of two hours per day per unit. Limitation is based on Water Quality Standards requirements which are more stringent than effluent guidelines. Florida Standards (17-4.244(4)) preclude a maximum pollutant concentration within a mixing zone which exceeds the amount lethal to 50 percent of the test organisms in 96 hours (96-hr LC50) for a species significant to the indigenous aquatic community. The 96-hr LC50 value for Blue Crabs of 0.10 mg/l has been used to establish the effluent limit.

b. An instantaneous maximum limitations of 0.03 mg/l due to continuous chlorination of auxiliary cooling systems at times other than during main condenser chlorination has been included as a best professional judgement. A minization study is required if TRO levels from this source exceed 0.02 mg/l at the terminue of the discharge canal.

c. Requirements of the October 8, 1974, promulgated and October 14, 1980, proposed regulations and a reopener provision have been included also.

B. OSN 002 - Low volume wastes: Limitations are as required by promulgated and proposed 423.12(b)(3). Quantity limitations are computed using a waste flow of 0.72 MGD, based on historical records from Unit 1.

C. OSN 003 - Metal cleaning wastes: Limitations are as required by promulgated 423.12(b)(5) and proposed 423.13(g), except that a best professional judgement limitation for phosphorus of 1.0 mg/l has been included.

D. OSN 004 - Radwaste: Limitations are as required by promulgated and proposed 423.12(b)(3) for low volume wastes using a flow of 0.07 MGD, based on historical records for Unit 1. NOTE: The radioactive component of this discharge is regulated by the U. S. Nuclear Regulatory Commission and is not subject to NPDES permitting requirements. Comments relative to the radioactive component of this discharge should be directed to NRC and may not be considered by EPA in its permitting decisions.

E. OSN 005 - Dewatering Wastes from Unit 2 Construction: Concentration limitations on total suspended solids are included based on best professional judgement and historical records. Due to the highly variable nature of this waste flow, quantity limitations are not provided.

F. OSN 006 - Sewage treatment plant discharge: Limitations are generally based on secondary treatment requirements (40 CFR 102) for domestic waste. However, the one-day maximum, limitations of 60 mg/l each for total suspended solids and biochemical oxygen demand (BOD) proposed is extrapolated from the seven-day average limitation of 45 mg/l presented in the regulations. This extrapolation was made to conform with the proposed monitoring frequency.

G. OSN 007 - Steam cleanup system blowdown: Limitations are based on promulgated 40 CFR 423.12(b)(6). Quantity limitations are not included due to the infrequent nature (normally recycled) and variable flow of the waste stream.

H. Quantity Limitations: Quantity limitations are calculated as follows:

Quantity (lbs/day)=8.345 x Flow (MGD) x Allowed Concentration (mg/l)

where: 8.345 is the appropriate conversion factor, flows are based on historical data from Unit 1 and information provided by the applicant, and concentrations (mg/l) are as provided in applicable subsections of 40 CFR 423.

I. Proposed Permit Period: Five years. The NPDES permit requires compliance with the most stringent requirements of either the promulgated (October 8, 1974) or proposed (October 14, 1980) regulations (40 CFR 423.12, etc.). Data on priority pollutants has been submitted from Unit 1. Samples can not be collected from Unit 2 waste sources since the Unit is not yet in operation. Evaluation of data submitted by the applicant for Unit 1 and expected effluent quality from Unit 2, have led the permit writer to the tentative conclusion that additional treatment for priority pollutants is not likely for any pollutants and that a full five-year permit should be issued. However, to assure that this judgement is correct, a reopener clause is included in the permit (Part III.H.) in the event that more stringent requirements are ultimately promulgated by EPA.

January 29, 1982

ST. LUCIE NUCLEAR PLANT

BEST TECHNOLOGY AVAILABLE (BTA) FINDING FOR CIRCULATING WATER SYSTEM MODIFICATIONS

A BTA finding of fact for the existing intake system was conducted by EPA in 1981. Since that finding, Florida Power and Light Company (FP&L) submitted an application proposing a third cooling water pipeline to correct for predicted headlosses and reductions in canal water level when unit 2 becomes operational. Information found in EPA's finding of fact (1981) and documents submitted on December 3, 1981 by FP&L are the substance of the following findings for the proposed intake structure.

FINDINGS

- An ocean pipeline and channel extension to convey cooling water from the Atlantic Ocean into the existing intake canal is proposed. The 1515 ft long pipeline is 16 ft inside diameter, extends 1195 ft offshore, and it is buried beneath the dunes and ocean bottom. The pipe will terminate into a velocity cap adjacent to the existing caps. The velocity cap structure will be similar in size and design to the existing structures (EPA, 1981).

- The new pipeline will have a maximum design flow velocity of approximately 6.8 fps, 3.2 fps less than the velocity of the two existing pipelines.

- The location of the velocity caps are in a high energy/low impact area as characterized in EPA's (1981) prior finding of fact.

- Permanent losses include 1/2 acre of mangrove swamp pre-empted for an access road and canal widening. Removal of less than 1/2 an acre of the swamp represents about 1% of the mangrove between the intake and discharge canals.

- Temporary impacts because of construction activities include 14.7 acres of disturbed benthos, disruption of littoral flow of sand, decreases in turtle nesting, and excavation of a strip of dune vegetation and sand less than 100 ft wide.

- Specific provision designed to minimize impact caused by construction include:
    - construction of a temporary beach dune when cutting through the natural dunes,
    - use of sheet piling and/or silt screens around excavation work to limit turbidity to <50 Jackson units,
    - disposal of soils in an approved onshore disposal,
    - a turtle nest surveillance and relocation program on those areas of beach potentially affected by construction activity, and
    - dune area contours restored to pre-construction conditions, and the disturbed areas replanted with native dune-stabilizing species.

OPINION

Based upon the information received from FP&L and our experience in assessing power plant impacts over the past decade, it is our opinion that the design, capacity, construction and location of the third ocean intake structure of the St. Lucie Nuclear Plant reflects BTA for minimizing adverse impacts to terrestrial communities and oceanic fishes and invertebrates.

Because of increased intake capacity of this power plant and the present entrapment rate of endangered sea turtles, it seems, in our opinion, that the company should assess technology aimed at preventing entrapment of sea turtles at the velocity cap of this new structure. Best technology available does not preclude, in our opinion, additional improvements upon BTA to protect endangered species.

REFERENCES

EPA, 1981. St. Lucie Nuclear Plant 316(b) Finding for Best Technology Available. Region IV, Atlanta, Georgia.

FP&L transmittal of information to Mr. Traina, Director of Water Management Division. December 3, 1981.

August 15, 1981

ST. LUCIE NUCLEAR PLANT
316(b) Finding for Best Technology Available

Section 316(b) of P.L. 95-217 requires that the location, design, construction and capacity of cooling water intake structures reflect the best technology available (BTA) for minimizing adverse environmental impacts. Decisions relating to BTA are to be made on a case-by-case basis using such factors as size and type of water body and relative magnitude of flow withdrawn for cooling (40CFR, Pt. 402). Through deliberations between Florida Power and Light Company (FPL) and several government agencies, BTA was determined for the St. Lucie Nuclear Plant intake system prior to plant operation.

FINDINGS

The 2-unit 1612 net MW St. Lucie Nuclear Plant is located on a 1130-acre site of Hutchinson Island, Florida approximately mid-way between Ft. Pierce and St. Lucie inlets. The nuclear plant is bound on the west by the Indian River and on the east by the Atlantic Ocean.

The condenser cooling water is provided by a once-through circulating water system which consists of intake and discharge

pipes in the ocean linked by canals to the nuclear plant. The ocean intake for Units 1 and 2 is located 1200 ft from the Atlantic shoreline in a high energy/low impact area characterized by water turbulence and shifting sand or sand-shell substrate with a lack of bottom cover or outcroppings. The unstable substrate precludes the establishment of macrophytes or attached benthic communities. From the ocean intake point, water is drawn through 2 buried pipelines (I.D. - 12.0 ft) at 10 fps to the intake canal. This 300-ft wide canal begins 450 ft west of the shoreline where it funnels the cooling water some 500 ft to the nuclear plant intake structures (bars and screens). Pumps at the nuclear plant provide a design flow of 2290 cfs (5.62×10^6 m^3/day) for condenser cooling through the nuclear plant. Approach velocities to each of 8 traveling screens are less than 1.0 fps. Traveling screen washings are sluiced to a trash pit where organisms and trash are collected for disposal.

The top of the ocean intakes (Figure 1) are situated approximately 8 ft below the water surface at mean low water. A vertical section to prevent sanding and bottom organism migration and a velocity cap to minimize fish entrapment were installed for each pipe. Presently, with one unit operating, horizontal intake velocities are 0.5 fps; with both units, velocities will increase

to approximately 1.0 fps. The design of the ocean intake is similar to that employed by Southern California Edison Company at their El Segundo fossil fuel plant. At El Segundo, 272 tons of fish were entrapped during the first year of operation when no velocity cap was used and the flow vectors entering the intake were vertically downward. After installation of a velocity cap with maximum design flows of 3.5 fps, only 15 tons of fish were entrapped in the following year (94.5% reduction) (USAEC, 1974). Velocity caps are designed to provide flow rate in a horizontal radial direction because fish are familiar with horizontal velocities, and they usually will tend to swim against a current even when their net movement is downstream. Vertical velocities, however, are not commonly found in nature, and a detection response mechanism does not seem to exist for them in fishes (USAEC, 1974).

The Florida Department of Natural Resources' Miami Research Laboratory in conjunction with FPL conducted preoperational baseline environmental studies of the marine environment adjacent to the St. Lucie Nuclear Plant from September 1971 to July 1974. In 1975, Applied Biology, Inc. continued the monitoring through 1980. Unit 1 was placed on-line in 1976. The nuclear plant was base loaded throughout 1977, 1978, 1979 and 1980. Monitoring information pertaining to entrapment of fishes and invertebrates over the years shows that:

- The primary commercial fishes in St. Lucie and Martin Counties are Spanish Mackerel, King Mackerel, and Bluefish. During the past 5 years, only 5 Spanish Mackerel, 10 King Mackerel and 24 Bluefish have been collected in the intake canal by gill netting designed to determine accumulations of fishes and shellfishes in the canal.

- The greatest yearly canal catch over the past 5 years was 1501 fish in 1980. Total estimated fish biomass lost to the Atlantic Ocean that year was 6818 kg or about 0.2% of the St. Lucie and Martin County commercial catches. A total of 121 shellfish weighing 42.5 kg was also collected during the same period.

- Five species of marine turtles are found along Hutchinson Island. The most common is the Atlantic loggerhead turtle followed by the green turtle, leatherback turtle, hawksbill turtle, and the Atlantic Ridley turtle. The leatherback turtle and the Florida population of green turtles are classified as endangered species by the Federal Government [CFR 41 (208):47180-47198; CFR 43:32,808], and all marine turtles are protected by Florida Statute 307.12; 1974.

- Total sea turtle entrapment in the St. Lucie intake canal over a 6-year period amounted to 572 loggerheads, 51 greens, 6 leatherbacks, 1 hawksbill, and 1 Atlantic Ridley. Annual entrapment of all 5 species has ranged from 0 to 173.

- Ichthyoplankton was generally abundant during the spring and summer of each year. The most common larval fishes were herrings and anchovies. Eggs and larvae collected averaged from 0.13 to 5.50/m^3 as compared to the baseline sampling of 0.23/m^3. These concentrations are substantially lower than concentrations found in a more productive area, the upper Indian River, where mean densities of eggs and larvae were 132.83/m^3 (Applied Biology, Inc. and Ray L. Lyerly and Associates, 1980).

- Average egg and larval populations in the intake canal (0.889 eggs/m^3 and 0.080 larvae/m^3) were lower than average populations found offshore.

- To put the impact of entrainment into perspective, an offshore boundary was determined for the region from which ichthyoplankton is potentially withdrawn by the nuclear

plant. The distance between the designated offshore boundary and the shoreline is 3500 m and the average depth is 9.2 m for a calculated cross-sectional area of 32,200 m^2. The percentage loss estimates from 1976 through 1980 for fish eggs ranged from 0.13 to 0.50 and for fish larvae losses ranged from 0.01% to 0.18%.

Ecology Branch staff has been assessing power plant impacts over the past decade. There is nothing in the monitoring information reviewed that, in our opinion, warrants a detailed 316(b) study nor the continued monitoring of the intake for fishes and invertebrates. The design, capacity and location of the ocean intake structure of the St. Lucie Nuclear Plant reflects, in our opinion, BTA for minimizing adverse impacts upon these organisms.

In view of the declining world populations of marine turtles, the Hutchinson Island turtle rookery is of special importance in maintaining marine turtle populations. Because of the nuclear plant's location on Hutchinson Island and the protected status of sea turtles, it is our opinion that continued monitoring of turtle entrapment is necessary to fully evaluate intake location, design and capacity.

REFERENCE

Applied Biology, Inc. and Ray L. Lyerly and Associates. 1980. Biological and environmental studies at the Florida Power and Light Co. Cape Canaveral Plant and the Orlando Utilities Commission Indian River Plant. Vol. I.

U.S. Atomic Energy Commission. 1974. Final EIS related to construction of St. Lucie Plant Unit 2, Florida Power and Light Company Docket No. 50-389.

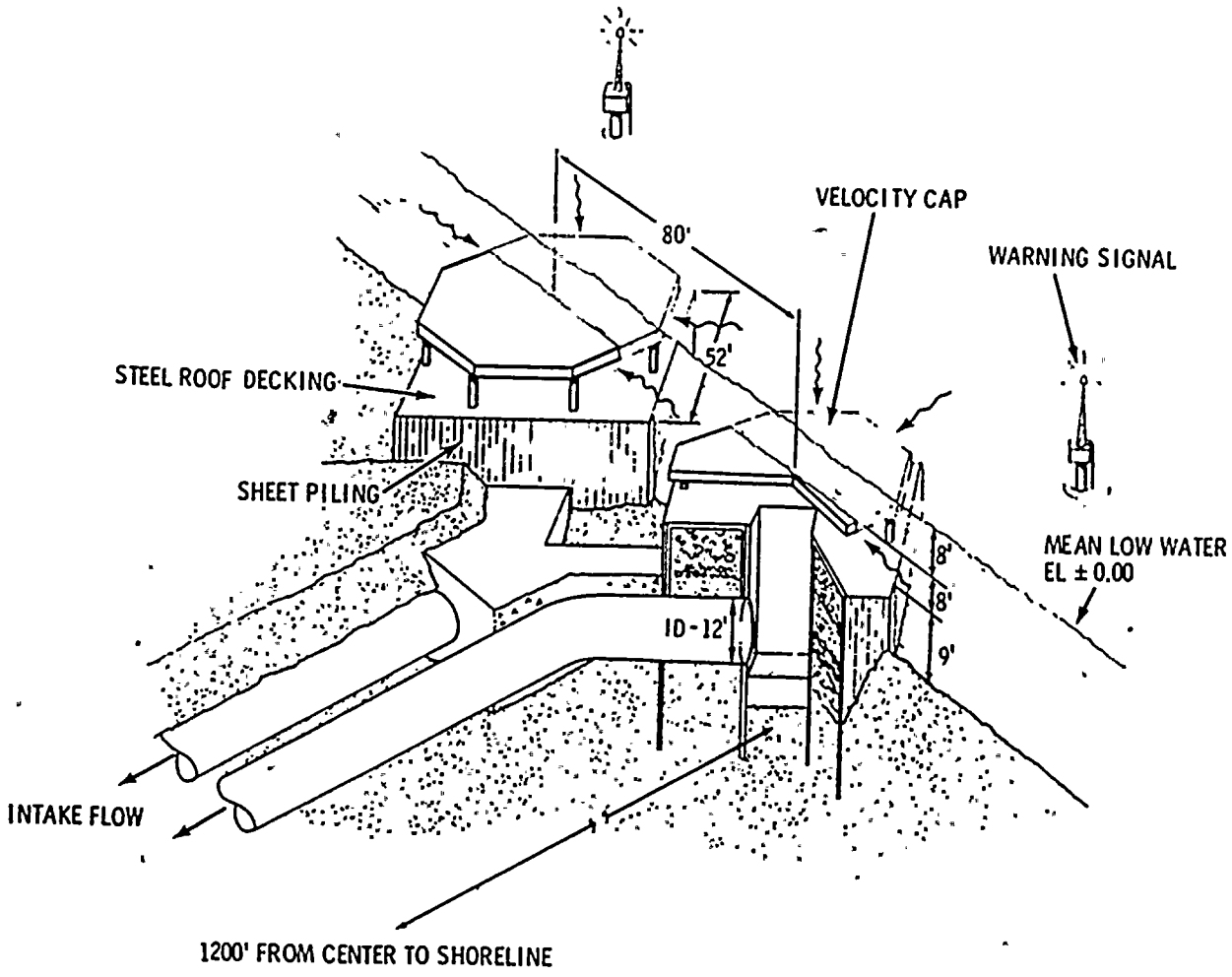


FIGURE 1. OCEAN INTAKE STRUCTURE

P.O. BOX 529100 MIAMI, FL 33152

FLORIDA POWER & LIGHT COMPANY

November 9, 1981

Mr. Charles Kaplan
US-EPA Region IV
345 Courtland Street
Atlanta, Georgia

Re: Comments on St. Lucie Plant NPDES Permit
Public Notice

Dear Charlie:

FPL has reviewed the subject document dated October 15, 1981 and submits the following comments for your consideration:

1) First page of Permit Rationale, Item II.A.1.

It is suggested that language be added to this item specifying that compliance with these thermal limitations will be demonstrated at the terminus of the discharge canal.

2) Second page of Permit Rationale, Item II.A.2.b.

This item should be amended as follows: .....discharge at times other than during main condenser chlorination.

3) Page I-3

In column entitled Effluent Characteristic, change Condenser Chlorine Addition to Condenser Chlorine Discharge.

Last paragraph, first sentence should be amended to read ....Atlantic Ocean at times when only this source is being chlorinated.

4) Page I-4

First paragraph third sentence should be amended to read .....0.1 mg/L at the terminus of the discharge canal.

Second paragraph, add the following after the second sentence; This requirement applies only if an instrument has demonstrated successful operation as required by the last paragraph page I-1 of this permit.

Sincerely,

Frank M. Saiba for

W. J. Barrow, Jr.
Manager of Permitting and Programs

WJBjr:ADB:ku

January 29, 1982

Response to Comments

St. Lucie Nuclear Power Plant

NPDES Permit No. FL0002208

A. Florida Power and Light Company, November 9, 1981.

1. Revision included.
2. Revision included.
3a. Revision not included per discussions with Mr. Frank M. Gavila of the FP & L staff. As stated in Footnote 2 Page I-2 and the middle paragraph (below effluent limitations) on Page I-3, it is the Agency intent to limit only the discharge of TRO from condenser chlorination to two hours per day per unit. However, it has been agreed between EPA and FP & L staff that for monitoring purposes, it was easier to document the time of chlorine addition which is approximately equal to the time of discharge. At some future time should FP & L prefer to analyze for TRO in the condenser effluent to document that TRO is being discharged for only two hours per day per unit. EPA would concur.

3b. Revision included but with reference to Sewage Treatment Plant (Page I-1 also).

4a. Revision included.

4b. Revision not included. EPA concurs that use of a continuous recorder will only be applicable if demonstrated successful. The referenced paragraph on Page I-1 is identical to that on Page I-4.

P.O. BOX 529100 MIAMI, FL 33152

FLORIDA POWER & LIGHT COMPANY

September 15, 1981

Mr. Michael Taimi, Chief
Consolidated Permits Branch
U.S.E.P.A., Region IV
345 Courtland St., N.E.
Atlanta, Georgia 30308

Re: St. Lucie Unit No. 1
NPDES No. FL0002208

Dear Mr. Taimi:

This transmittal constitutes an official request to amend FP&L's St. Lucie Unit No. 1 NPDES application disclosing FP&L's intention to continuously chlorinate the auxiliary cooling systems for Unit No. 1.

FP&L had determined that continuous and direct low level chlorination of these systems is the most efficient manner to prevent the auxiliary heat exchanger from experiencing biofouling problems.

FP&L may institute continuous chlorination of these systems as early as November 1981.

FP&L estimates there will be no measurable discharge of chlorine to the Atlantic Ocean as a result of this activity nor will there be any adverse environmental impact to the receiving body of water.

Should there be a need of clarification of the above disclosure, please have your staff contact Frank M. Gavila at telephone 305-552-3568.

Sincerely,

Robert E. Uhrig

Robert E. Uhrig
Vice President
Advanced Systems & Technology

REU:FMG:dc

cc: Buck Oven
State of Florida
DER

Applicable to Intensive monitoring of the Auxiliary Cooling Systems For Residual Oxidants — Permit Pages I-1 and I-3

ST. LUCIE PLANT
AUXILIARY COOLING WATER SYSTEM
CHLORINE MONITORING PROGRAM

Initial Start up of Auxiliary Cooling Water System Chlorination at 24 hr./day schedule.

Day 1

TRC Test Locations	Frequency
Heat Exchanger Outlet	2/day
End of Unit 2 Discharge Canal	2/day
Terminus of Facility Discharge Canal	1/hour
Blank on Intake Water	2/day
Record Chlorinator Flow Rate	12/day

If TRC is detectable at the terminus of the facility discharge canal during the initial 1.5 hrs. of chlorination, injection of chlorine to the auxiliary system chlorination will be terminated for Day 1 and resumed on Day 2 at lower dose rate. Day 1 procedure will be followed until such time that no TRC is detectable at terminus of discharge canal utilizing aperometric titration test method.

Day 2 through Day 7

TRC Test Locations	Frequency
Heat Exchanger Outlet	2/day
End of Unit 2 Discharge Canal	2/day
Terminus of Facility Discharge Canal	6/day
Blank on Intake Water	2/day
Record Chlorinator Flow Rate	12/day

Day 8 through 2 Months

TRC Test Locations	Frequency
Heat Exchanger Outlet	1/day
End of Unit 2 Discharge Canal	1/day
Terminus of Facility Discharge Canal	1/day
Blank on Intake Water	1/2 weeks
Record Chlorinator Flow Rate	6/day

Evaluation of test results to be made concurrently with test program from Day 1 through 2 months. FP&L will report prior to completion of the test period to EPA via telephone results, general conclusions drawn from results and proposed schedule of monitoring beyond the two month test period.

AUXILILARY SYSTEM CHLORINE MINIMIZATION STUDY GUIDELINES

The effectiveness of chlorine treatment on the auxiliary cooling water heat exchangers will be examined using the following techniques:

1) Visual observations of heat exchangers during maintenance outages including photographs and maintenance cleaning records.
2) Measurement of pressure differentials between inlet and outlet sides of heat exchanger.
3) Correlation of chlorine dose rates with results of visual observations and measurement of chlorione concentrations at the terminus of the discharge canal.