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Docket No. 50-335

Dr. Robert E. Uhrig, Vice President  
Florida Power & Light Company  
Advanced Systems & Technology  
Post Office Box 529100  
Miami, Florida 33152



Dear Dr. Uhrig:

The Commission has issued the enclosed Amendment No. 39 to Facility Operating License No. DPR-67 for the St. Lucie Plant, Unit No. 1. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated April 12, 1979, as supplemented by letters dated September 10, 1979, and February 26, 1980. We have revised your proposed changes as discussed with and agreed to by your staff.

This amendment deletes certain non-radiological water quality requirements of the Appendix B Technical Specifications, deletes license conditions associated with the Appendix B Technical Specification changes and adds reporting requirements.

Since the amendment applies only to the deletion of certain non-radiological environmental specifications and the addition of reporting requirements, it does not involve significant new safety information of a type not considered by a previous Commission safety review of the facility. It does not involve a significant increase in the probability or consequences of an accident, does not involve a significant decrease in a safety margin, and therefore does not involve a significant hazards consideration. We have also concluded that there is reasonable assurance that the health and safety of the public will not be endangered by this action.

Copies of the Environmental Impact Appraisal and Notice of Issuance/Negative Declaration are also enclosed.

Sincerely,

Original signed by  
Robert A. Clark

Robert A. Clark, Chief  
Operating Reactors Branch #3  
Division of Licensing

*no to amendment  
& notice only*

OELD  
*W.D. Paton*  
2/6/81

Enclosures:

1. Amendment No. 39 to DPR-67
2. Environmental Impact Appraisal
3. ~~Notice/Negative Declaration~~

cc w/enclosures: See next page

OFFICE	DL:ORB#3	DL:ORB#3	EEB	DL:OR
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DATE	2/22/81	2/24/81	2/26/81	3/2/81
2/13	8103250328			



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555

DISTRIBUTION:  
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ORB#3 Rdg  
PMKreutzer

Docket No. 50-335

Docketing and Service Section  
Office of the Secretary of the Commission

SUBJECT: FLORIDA POWER & LIGHT COMPANY, STL LUCIE PLANT, UNIT NO.1

Two signed originals of the Federal Register Notice identified below are enclosed for your transmittal to the Office of the Federal Register for publication. Additional conformed copies ( 12 ) of the Notice are enclosed for your use.

- Notice of Receipt of Application for Construction Permit(s) and Operating License(s).
- Notice of Receipt of Partial Application for Construction Permit(s) and Facility License(s): Time for Submission of Views on Antitrust Matters.
- Notice of Availability of Applicant's Environmental Report.
- Notice of Proposed Issuance of Amendment to Facility Operating License.
- Notice of Receipt of Application for Facility License(s); Notice of Availability of Applicant's Environmental Report; and Notice of Consideration of Issuance of Facility License(s) and Notice of Opportunity for Hearing.
- Notice of Availability of NRC Draft/Final Environmental Statement.
- Notice of Limited Work Authorization.
- Notice of Availability of Safety Evaluation Report.
- Notice of Issuance of Construction Permit(s).
- Notice of Issuance of Facility Operating License(s) or Amendment(s).
- Other: Amendment No. 39.  
Referenced documents have been provided PDR.

Division of Licensing, ORB#3  
Office of Nuclear Reactor Regulation

Enclosure:  
As Stated

OFFICE →	ORB#3:DL					
SURNAME →	PMKreutzer/pn					
DATE →	3/1/81					



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

March 10, 1981

Docket No. 50-335

Dr. Robert E. Uhrig, Vice President  
Florida Power & Light Company  
Advanced Systems & Technology  
Post Office Box 529100  
Miami, Florida 33152

Dear Dr. Uhrig:

The Commission has issued the enclosed Amendment No. 39 to Facility Operating License No. DPR-67 for the St. Lucie Plant, Unit No. 1. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated April 12, 1979, as supplemented by letters dated September 10, 1979, and February 26, 1980. We have revised your proposed changes as discussed with and agreed to by your staff.

This amendment deletes certain non-radiological water quality requirements of the Appendix B Technical Specifications, deletes license conditions associated with the Appendix B Technical Specification changes and adds reporting requirements.

Since the amendment applies only to the deletion of certain non-radiological environmental specifications and the addition of reporting requirements, it does not involve significant new safety information of a type not considered by a previous Commission safety review of the facility. It does not involve a significant increase in the probability or consequences of an accident, does not involve a significant decrease in a safety margin, and therefore does not involve a significant hazards consideration. We have also concluded that there is reasonable assurance that the health and safety of the public will not be endangered by this action.

Copies of the Environmental Impact Appraisal and Notice of Issuance/Negative Declaration are also enclosed.

Sincerely,

A handwritten signature in cursive script, appearing to read "Robert A. Clark".

Robert A. Clark, Chief  
Operating Reactors Branch #3  
Division of Licensing

Enclosures:

1. Amendment No. 39 to DPR-67
2. Environmental Impact Appraisal
3. Notice/Negative Declaration

cc w/enclosures: See next page

Florida Power & Light Company

cc:

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Fort Pierce, Florida 33450

Administrator  
Department of Environmental Regulation  
Power Plant Siting Section  
State of Florida  
2600 Blair Stone Road  
Tallahassee, Florida 32301

Mr. Weldon B. Lewis  
County Administrator  
St. Lucie County  
2300 Virginia Avenue, Room 104  
Fort Pierce, Florida 33450

Director, Criteria and Standards Division  
Office of Radiation Programs (ANR-460)  
U.S. Environmental Protection Agency  
Washington, D. C. 20460

U.S. Environmental Protection Agency  
Region IV Office  
ATTN: EIS COORDINATOR  
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Atlanta, Georgia 30308

Mr. Charles B. Brinkman  
Manager - Washington Nuclear Operations  
C-E Power Systems  
Combustion Engineering, Inc.  
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Bethesda, Maryland 20014

Mr. Jack Schreve  
Office of the Public Counsel  
Room 4, Holland Building  
Tallahassee, Florida 32304

Resident Inspector/St. Lucie  
Nuclear Power Station  
c/o U.S.N.R.C.  
P. O. Box 400  
Jensen Beach, Florida 33457

cc w/enclosure(s) and incoming  
dated: 4/12/79, 9/10/79, 3/26/80

Bureau of Intergovernmental  
Relations  
660 Apalachee Parkway  
Tallahassee, Florida 32304



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

FLORIDA POWER & LIGHT COMPANY

DOCKET NO. 50-335

ST. LUCIE PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 39  
License No. DPR-67

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Florida Power & Light Company (the licensee) dated April 12, 1979, as supplemented September 10, 1979, and February 26, 1980, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, Facility Operating License No. DPR-67 is amended by changes to the Technical Specifications as indicated in the Attachment to this license amendment, by amending paragraphs 2.C.(2) and 2.F.(2) to read as follows, and by deleting paragraph 2.F.(3).

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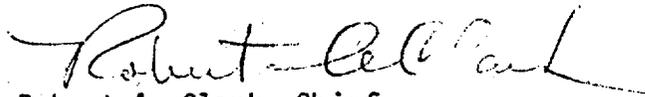
(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 39, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

(2) The licensee will extend the current aquatic biological monitoring program in order to fully assess the effects of plant operation on the ocean environment. This will include sampling the cooling canal system to determine entrainment effects.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert A. Clark, Chief  
Operating Reactors Branch 3  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: March 10, 1981

ATTACHMENT TO LICENSE AMENDMENT NO. 39

FACILITY OPERATING LICENSE NO. DPR-67

DOCKET NO. 50-335

Replace the following pages of the Appendix B Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

Remove Pages

Insert Pages

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ii	ii
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1-2	1-2
2-1	2-1
2-2	
2-3	
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1.0 DEFINITIONS

The definitions for terms used in these environmental technical specifications are listed below.

1.1 National Power Emergency

Shall mean any event causing authorized Federal officials to require or request that Florida Power and Light supply electricity to points within or without the State of Florida.

1.2 A Regional Emergency

Shall mean any of the following occurrences within the State of Florida: (1) a catastrophic natural disaster including hurricanes, floods, and tidal waves; or (2) other emergencies declared by State, county, municipal, or Federal authorities during which an uninterrupted supply of electric power is vital to public health and safety.

1.3 Reactor Emergency

Shall mean an unanticipated equipment malfunction necessitating prompt remedial action to avoid endangering the public health or safety.

1.4 Circulating Water System

Comprised of the following: velocity cap, intake pipe, intake canal, discharge canal, discharge pipe, "Y" port discharge and miscellaneous mechanical devices. The recirculation canal is included, if constructed.

1.5 Frequency Definitions

Daily - Not less than 360 times per annum.

Weekly - Not less than 48 times per annum - interval may vary by 3 days.

Monthly - Not less than 12 times per annum - interval may vary by 15 days.

Quarterly - Not less than 4 times per annum - interval may vary by 30 days.

Semi-annually - Not less than 2 times per annum - interval may vary by 60 days.

Refueling - at refueling intervals not to exceed 24 months.

1.6 Deleted

1.7 Deleted

1.8 Deleted

1.9 Deleted

1.10 Limiting Conditions

Those conditions to be imposed on plant effluents and operating practices which may have an adverse impact on the environment.

1.11 Continuous Recording

Recording of a measured parameter on a chart by a single pen or a multi-point recorder with less than a one-minute interval between successive printing of the same parameter.

1.12 Channel Calibration

A Channel Calibration shall be the adjustment of the channel output such that it corresponds with specified range and accuracy to known values of the parameter which the channel monitors. The Channel Calibration shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the Channel Functional Test.

1.13 Channel Functional Test

A Channel Functional Test shall be the injection of a simulated signal into the channel as close to the primary sensor as practicable to verify operability including alarm and/or trip functions.

1.14 Batch Releases

Discontinuous release of gaseous or liquid effluent which takes place over a finite period of time, usually hours or days.

1.15 Continuous Release

Release of gaseous or liquid effluent which is essentially uninterrupted for extended periods during normal operation of the facility.

2.0 LIMITING CONDITIONS

General

- 2.0.1 The circulating water system shall be operated to result in an acceptable environmental impact. Flexibility of operation is permitted, consistent with consideration of health and safety, to ensure that the public is provided a dependable source of power even under unusual operating conditions which may set forth in this specification, as provided below in 2.0.2 and 2.0.3.
- 2.0.2 During a national power emergency, a regional emergency, reactor emergency, or any time when the health or safety of the public may be endangered by the inability of Florida Power & Light to supply electricity from any other sources available to it, the operating limits provided in this specification shall be inapplicable. However, during such emergencies, the operating limits shall not be exceeded except as is necessitated by the emergency.
- 2.0.3 Whenever, in accordance with paragraphs 2.0.1 and 2.0.2 above, Florida Power & Light exceeds the operating limits otherwise imposed, notification shall be made to the Director of the Region II Regional Office of the Office of Inspection and Enforcement, in accordance with 5.6.2.a.

2.1 THERMAL

None Required \*

2.2 CHEMICAL

None Required \*

2.3 RESERVED

2.4 RADIOACTIVE EFFLUENTS

Objective

To define the limits and conditions for the controlled release of radioactive materials in liquid and gaseous effluents to the environs to ensure that

---

\* In consideration of the provisions of the Clean Water Act (33 USC 1251, et seq.) and in the interest of avoiding duplication of effort, the conditions and monitoring requirements related to water quality and aquatic biota are specified in the National Pollutant Discharge Elimination System (NPDES) Permit No. FL-0002208 issued by the U. S. Environmental Protection Agency for the St. Lucie Plant No. 1 to discharge into the Atlantic Ocean. The Nuclear Regulatory Commission will be relying on the NPDES permit limitations for the protection of the aquatic environment due to non-radiological effluents.

3.0 ENVIRONMENTAL SURVEILLANCE

3.1 Non-Radiological Surveillance

3.1.A ABIOTIC

Deleted

3.1.B BIOTIC

Objective

To determine the effects of plant operation on the planktonic, nektonic, and benthic populations of the Atlantic Ocean near the discharge during plant operation.

#### 4.0 SPECIAL SURVEILLANCE AND SPECIAL STUDY ACTIVITIES

##### 4.1 Entrainment of Aquatic Organisms

###### Objective

The purpose of this study is to assess the effects on planktonic organisms of passage through the plant condensers. Specialists in the biological sub-disciplines of zooplankton and ichthyology will perform appropriate portions of this study. Figures obtained for the intake and discharge canals will be compared to data collected at a control station.

###### Specification

Samples shall be collected from the intake and discharge canals and a control station at monthly intervals when the unit is in operation to identify the organisms involved, and to attempt to quantify how many of each organism are potentially affected. Biomass measurements, numbers of eggs collected, and numbers and identification of larvae - to the level of major taxonomic groups, if possible - shall be performed. Present "state-of-the-art" information shall be used to attempt to quantify the mortality of the organisms due to entrainment. This program shall determine the seasonal abundance of fish eggs and larvae.

###### Reporting Requirements

Results of this study shall be summarized in the Annual Environmental Monitoring Report. If, at the end of two years, no significant problem is evident, an option to formally delete this portion of the Technical Specifications may be initiated.

### 5.6.1.c Semiannual Radioactive Effluent Release Report

A report on the radioactive discharges (Regulatory Guide 1.21, Rev. 1, June 1974) released from the site during the previous 6 months of operation shall include the following:

Analyses of Effluent releases shall be summarized on a quarterly basis and reported in a format similar to Tables 5.6.1-B, C, D, and E.

Supplemental information shall be included covering topics similar to those itemized in Data Sheet 5.6.1-1.

Abnormal releases should be handled as batch releases for accounting purposes.

Solid wastes shall be summarized on a quarterly basis and reported in a format similar to that of Table 5.6.1-F.

The following information should be reported for shipments of solid waste and irradiated fuel transported from the site during the report period:

1. The semiannual total quantity in cubic meters and the semiannual total radioactivity in curies for the categories or types of waste.
  - a. Spent resins, filter sludges, evaporator bottoms;
  - b. Dry compressible waste, contaminated equipment, etc.;
  - c. Irradiated components, control rods, etc.;
  - d. Other (furnish description).
2. An estimate of the total activity in the categories of waste in 1, above.
3. The disposition of solid waste shipments. (Identify the number of shipments, the mode of transport, and the destination.)
4. The disposition of irradiated fuel shipments. (Identify the number of shipments, the mode of transport, and the destination.)

### 5.6.2 Non-Routine Reports

#### 5.6.2.a Non-Radiological Environmental Reports

#### 5.6.2.a.1 Unusual or Important Non-Radiological Environmental Events

The licensee shall record any occurrence of unusual or important events that potentially could result in environmental impact causally related to station operation. The following are examples: excessive bird impaction events; onsite plant or animal disease outbreaks; unusual occurrence or mortality of any species protected by the Endangered Species Act of 1973; fish kills in the site vicinity; and unanticipated or emergency discharges of waste water or chemical substances.

Should an unusual or important event occur, the licensee shall make a prompt report to the NRC as follows:

##### Prompt Reports

Those events requiring prompt reports shall be reported within 24 hours by telephone, telegraph, or facsimile transmission to the Director of the Regional Office of Inspection and Enforcement and within 10 days by a written report to the Director of the Office of Inspection and Enforcement. <sup>1/</sup>

#### 5.6.2.a.2 Exceeding Limits of Permits

The licensee shall notify the NRC of occurrences in which the limits specified in relevant permits and certificates issued by other Federal, State and local agencies are exceeded and which are reportable to the agency which issued the permit.

The licensee shall make a 30-day report to the NRC as discussed below in the event that a limit specified in a relevant permit or certificate issued by another Federal, State or local agency is exceeded (for example, the NPDES Permit and the 401 Certification are relevant).

##### 30-Day Reports

Those events not requiring prompt reports shall be reported within 30 days by a written report to the Director of the Regional Office of Inspection and Enforcement with a copy to the Director of the Office of Inspection and Enforcement. <sup>1/</sup>

<sup>1/</sup> Written 10-day and 30 day reports and, to the extent possible, the preliminary telephone, telegraph, or facsimile reports shall: a) describe, analyze, and evaluate the occurrence, including extent and magnitude of the impact, b) describe the cause of the occurrence and c) indicate the corrective action (including any significant changes made in procedures) taken to preclude repetition of the occurrence and to prevent similar occurrences involving similar components or systems.

The significance of an unusual or apparently important event with regard to environmental impact may not be obvious or fully appreciated at the time of occurrence. In such cases, the NRC shall be informed promptly of changes in the assessment of the significance of the event and a corrected report shall be submitted as expeditiously as possible.

5.6.2.a.3 Reporting of Changes in Permits and Certificates

The licensee shall notify the NRC of changes and additions to required Federal, State, regional and local authority permits and certificates for the protection of the environment that pertain to the requirements of these ETS.

The licensee shall make a report to the NRC within 30 days in the event that a change is made, or the licensee initiates, or becomes aware of request for changes to any of the water quality requirements, limits or values stipulated in a relevant permit or certificate issued by other Federal, State and local agencies. This shall be a written report to the Director of the Regional Office of Inspection and Enforcement, with a copy to the Director of the Office of Inspection and Enforcement describing details of the change.

5.6.2.b Radioactive Effluent Reports

Liquid Radioactive Wastes Report

If the cumulative releases of radioactive materials in liquid effluents, excluding tritium and dissolved gases, should exceed one-half the design objective annual quantity during any calendar quarter, the licensee shall make an investigation to identify the causes of such releases and define and initiate a program of action to reduce such releases to the design objective levels. A written report of these actions shall be submitted to the NRC within 30 days from the end of the quarter during which the release occurred.

Gaseous Radioactive Wastes Report

Should the conditions a), b), or c) listed below exist, the licensee shall make an investigation to identify the causes of the release rates and define and

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555



ENVIRONMENTAL IMPACT APPRAISAL

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 39 TO FACILITY OPERATING LICENSE NO. DPR-67

FLORIDA POWER & LIGHT COMPANY

ST. LUCIE PLANT, UNIT NO. 1

DOCKET NO. 50-335

Description of Proposed Action

By letter dated April 12, 1979, supplemented by letters dated September 10, 1979 and February 26, 1980, Florida Power and Light Company (FP&L or the licensee) requested an amendment to the Appendix B Environmental Technical Specifications (ETS) for St. Lucie Plant, Unit No. 1. The licensee proposed to delete certain water quality requirements from the ETS. The licensee's justification for deleting these requirements is that they are contained in the National Pollutant Discharge Elimination System (NPDES) permit issued by the U.S. Environmental Protection Agency (EPA) under the Clean Water Act and are not within the jurisdiction of the NRC.

On September 12, 1979, Region IV of EPA requested NRC review of changes to the St. Lucie NPDES permit proposed by FP&L. The proposed permit changes were for the same parameters proposed to be deleted from the ETS. The licensee provided EPA with an extensive environmental assessment of making the proposed changes.

In responding to EPA's request, we reviewed the assessment which FP&L sent to EPA. At the same time, we reviewed the portions of the NPDES permit which contain restrictions similar to those in the ETS. We found that we had no objections to the proposed changes to the permit. We found that we could rely on the NPDES permit for limiting those parameters which the licensee requested to be deleted from the ETS. On December 4, 1979, we sent a letter to the Chief, Water Enforcement Branch of Region IV-EPA, informing him that we did not object to the permit modifications and that we could rely on the NPDES permit conditions for limiting those parameters proposed to be deleted from the ETS. On March 4, 1980, EPA-Region IV informed us that the proposal to rely on the NPDES permit for regulation of the water quality parameters to be deleted from the ETS was acceptable.

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Specifically, the licensee proposed to delete limiting conditions for operation in Section 2.1.1, "Maximum Discharge Temperature,": 2.1.2, "Maximum Condenser Temperature Rise," 2.2.1, "Biocides," and 2.2.2, "pH"; surveillance programs in Section 3.1.A.1, "Biocides," 2.1.A.2, "Heavy Metals," 3.1.A.3, "pH," 3.1.A.4, "Dissolved Oxygen" and 3.1.A.5, "Temperature," and the requirements of Section 4.2, "Minimum Effective Chlorine Usage." Definitions in Section 1.0 and the condition specified in paragraph 2.F.(3) of the operating license, associated with the sections to be removed, would be deleted. In addition, the portion of license condition 2.F.(2) pertaining to fish impingement would be deleted per Amendment No. 29 issued on January 24, 1980.

This appraisal reviews the results of, and provides a basis for, deleting the specifications described above and for relying on the NPDES permit for protection of the aquatic environment in the vicinity of the St. Lucie site.

#### Environmental Impacts of Proposed Action

##### Temperature Limits

Specification 2.1.1 requires that the maximum discharge temperature into the Atlantic Ocean shall not exceed 111°F. The surface temperature within the zone of mixing is not to exceed a rise of 5.5°F nor a maximum temperature of 93°F as an instantaneous maximum at any point. In addition, thermal defouling of the intake is allowed subject to a maximum release temperature of 120°F, and under conditions of circulating water system outage, the discharge temperatures are limited to 115°F.

Specification 2.1.2 limits the temperature rise across the condenser under full power operation to 26°F. During maintenance or outage of the circulating water system, the temperature rise shall not exceed 35°F for greater than a 72-hour period.

The FES for operation of Unit No. 1 (June 1973) summarized the projected impact related to the thermal discharge as follows (p. i):

Planktonic organisms will be eventually killed by thermal shock as they pass through the condenser. However, there appears to be very little marine life in the vicinity of the intake, so the impact on the eco-system is expected to be minor.

The maximum ocean surface temperature rise at the Atlantic Ocean discharge will be about 6°F. The 3°F isotherm should cover about 35 acres and the 1°F isotherm about 2860 acres. These temperatures may have some unknown effects on the mating habits of turtles in the plume zone and on the activity of turtle hatchlings as they leave their beach nests. Effects on other marine life are expected to be minimal.

The thermal limitations in the permit, as modified on February 18, 1980, are: a maximum discharge temperature for normal operation of 113°F and 117°C during maintenance of the circulating water system (CWS); a maximum condenser temperature rise of 30°F except during maintenance of the CWS when the temperature can be 32°F; and, ambient ocean surface-temperature not to exceed an instantaneous maximum of 97°F.

The licensee's consultant provided an assessment to EPA of the impacts which might occur at the higher discharge limits allowed by the NPDES permit.<sup>1</sup> This comprehensive report considered the "worst case" situation of discharging the heated water during the month of September, which is the hottest month for ambient water temperatures and coincides with the highest animal densities in the site vicinity. The impact of the thermal discharge was evaluated with the receiving water under static and dynamic conditions. Thermal effects were evaluated on phytoplankton, zooplankton, ichthyoplankton, benthic invertebrates, fish and turtles.

Reduction in phytoplankton due to increased temperature is estimated to be less than 2.5% of the total phytoplankton in the region of potential impact. Rapid turnover rates in the community would easily compensate for this reduction.

Zooplankton mortality will increase at the higher discharge temperatures but will largely be offset by a decreased mortality from lower volumes of water pumped through the plant. A maximum effect of a decrease of less than 1% in number of zooplankters was predicted.

Mortality of ichthyoplankton entrained through the plant would decrease at reduced pumping rates while higher discharge temperatures would increase the impact on organisms entrained into the plume. It was projected that impacts of higher temperatures would be offset by reduced impacts at lower flows.

Benthic invertebrates would not be directly influenced by the discharge water as it is directed towards the surface and does not impinge on the bottom near the discharge.

The adult fishes will be primarily affected by the thermal plume by being excluded from an offshore area where they would encounter increased temperatures. Within the thermal plume, total exclusion of the adult fishes due to thermal avoidance will probably occur from the point of discharge to the 95°F isotherm, and no exclusion from temperatures less than 90°F. The total volume of water which may limit adult fishes offshore of the plant was calculated by the licensee to be about 65 acre-ft. This volume of heated water is less than 1% of that available as habitat for fishes in the site vicinity.

Marine turtles use the offshore for breeding and the beach for nesting. The adult turtles are mobile and can easily avoid the heated plume. According to the licensee, turtle hatchlings have demonstrated reduced swimming speeds at water temperatures over 86°F. If turtle hatchlings encounter heated areas, they would resume normal swimming after sinking below the heated areas. No adverse effects are anticipated.

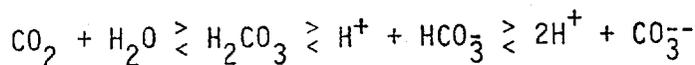
In summary, we conclude that the impacts from deleting the current ETS thermal limits and relying on the thermal requirements of the NPDES permit are acceptable for the following reasons: (1) the St. Lucie FES conservatively assumed that all entrained organisms would be killed, (2) the thermal impact of the entrainment of phytoplankton, zooplankton, and ichthyoplankton was not predicted to be significant, (3) in general, low concentrations of ichthyoplankton were recorded in the intake canal thereby confirming the FES prediction that small numbers would be entrained, and (4) as discussed above, the increase in  $\Delta T$  will permit less water to be drawn into the plant, and thereby fewer organisms would be exposed to the higher  $\Delta T$ .

#### Biocides

Specification 2.2.1 limits the concentration of total residual chlorine at the end of the discharge canal to 0.1 mg/l. Chlorine is also not to be added for more than 2 hours per day. The NPDES permit requirements on the discharge of chlorine are identical to those in ETS 2.2.1. We conclude that no environmental impact will result from reliance on the NPDES permit values as the chlorine discharges allowed by the permit are the same as those allowed by the ETS.

#### pH

Specification 2.2.2 limits the pH of the cooling water in the discharge canal not to be less than 6.0 nor greater than 9.0 standard units. The NPDES permit restricts the pH of the neutralization basin discharge to the intake canal to not less than 6.0 standard units. No upper limit is provided. Monitoring in the discharge canal since 1976 has shown that the pH of the circulating water ranges from a low of 8.00 to a high of 8.4. These data show that the pH is quite stable which is to be expected for a sea water system which is naturally well buffered. Normal sea water has a pH of approximately 8.0, but can range from 7.5 to 8.4. At a pH of 8.0, the vast amount of the  $CO_2$  present in sea water occurs in bound forms, with most of it occurring as bicarbonate ion. Sea water containing weak acids, such as carbonic acid and to a lesser extent boric acid, has a strong buffering action compared with pure water. Thus the addition of acid to the system:



shifts the equilibrium to the left and the resulting carbonic acid ionizes to a small extent so the pH remains relatively stable.

We conclude that Specification 2.2.2 limiting the pH of the cooling water in the discharge canal can be deleted, as acids or bases released into the CWS would be diluted many times by the flow of the CWS, and because the buffering action of the sea water will help to neutralize releases of acid or bases. The combination of dilution and the buffering action of sea water will assure that releases of acids or bases will not affect the biotic community in the site vicinity.

#### Environmental Surveillance

Specification 3.1.A.1 requires monitoring of total residual chlorine in the discharge canal on a weekly schedule. Section 2.2.1 requires monitoring of total residual chlorine at the discharge canal terminus, however, Specification 3.1.A.1 requires monitoring in the discharge canal to determine the decay of chlorine in the canal.<sup>2,3</sup> The licensee has measured residual chlorine in the canal since March 1976<sup>2,3</sup>. Levels measured have ranged from 0.01 to 0.08 mg/l. All measurements have been below the 0.1 limit of Specification 2.2.1.

The NPDES permit requires monitoring of total residual chlorine in the discharge canal prior to discharge to the Atlantic Ocean. Compliance with the NPDES permit level of 0.1 mg/l and monitoring will assure that impacts to organisms from the discharge of chlorine are within those discussed in the St. Lucie FES.

Specification 3.1.A.2 requires monthly monitoring of the heavy metals, Mercury, Arsenic, Chromium, Copper, Iron, Lead, Nickel and Zinc, in the intake and discharge canals to detect any measurable increase in these metals. Sampling conducted by the licensee during 1977 and 1978 has shown levels at or below the level of detectability with no measurable increase due to plant operation<sup>2,3</sup>. The NPDES permit does not require routine monitoring for heavy metals. However, based on the results of the licensee's monitoring, we conclude that heavy metal monitoring is no longer necessary and can be deleted from the EIS.

Specification 3.1.A.3 requires monitoring for pH. This specification is not required because of the deletion of the Limiting Condition for Operation 2.2.2, "pH".

Specification 3.1.A.4 requires surveillance of the dissolved oxygen (DO) in the intake and discharge canals to determine whether the cooling water being returned to the ocean has been depleted of oxygen. Dissolved oxygen has been monitored since early 1976<sup>2,3</sup> and found to be normally within the range of 6.00 and 8.00 ppm. DO levels in the two canals have been found to be very similar throughout the year. The NPDES permit does not require DO monitoring. We find, however, that the DO surveillance program can be deleted as plant operation has not significantly affected the concentrations in the canals.

Specification 3.1.A.5 requires temperature monitoring in the intake and discharge canals and in the offshore thermal plume by continuous self-contained thermographs. In addition, the licensee was to conduct a study using aerial infrared photography to demonstrate compliance with the temperature rise limitations outside the zone of mixing.

The licensee conducted the aerial infrared photography study in 1977. Four infrared flights were performed approximately three months apart to reflect seasonal conditions. Each quarter's flight was scheduled to occur during low and high tide conditions. The results of three of the quarters showed compliance with the ETS limit of 4°F temperature rise outside the 400-acre mixing zone. The flight during the summer months showed that the ETS limit of 1.5°F temperature rise outside the 400-acre mixing zone was complied with during the months June through September. The licensee's study satisfied the requirements of the overflight study and demonstrated that compliance with the limitations on temperature rise outside the mixing zone could be met. We conclude that this section of Specification 3.1.A.5 is complete and can be deleted.

The NPDES permit requires monitoring at the intake and discharge canals for compliance with the permit temperature limitations, but does not require continuous monitoring of the ocean surface temperature. The permit, however, contains a limit of 36.1°C for the instantaneous surface maximum at any point in the thermal plume. The permit does not indicate how compliance with the surface limitation can be met. We find that the ETS requirements can be deleted and the NPDES permit relied on for monitoring of the discharge temperature. However, for monitoring of the surface thermal plume, we consider that the aerial overflights have demonstrated compliance with the requirements of Specification 2.1.1, and may be deleted on that basis.

#### Minimum Effective Chlorine Usage

Specification 4.2 requires that the licensee study ways to minimize the amount of chlorine needed to maintain condenser cleanliness while avoiding unnecessary discharge of chlorine to the environment. Starting in 1977, the licensee began testing different injection rates of chlorine and generally has found that lower injection rates result in fouling in circulating water system parts other than the condenser. The fouling of components of the circulating water system has been found to be unacceptable and rates had to be returned to normal.

In the licensee's submittal of September 10, 1979, it was stated that Specification 4.2 could be deleted because the NPDES permit ". . . contains provisions dealing with this subject . . ." The NPDES permit states on page 2 of Part I that in the event that the station cannot be operated at or below 0.1 mg/l, the licensee can submit a demonstration that discharges of higher levels of chlorine are consistent with requirements of the Florida Water Quality Standards. Evidently the NPDES permit does not require a chlorine minimization study, but rather provides for studies for the use of higher chlorine concentrations. We find that because the chlorine discharge concentration in the permit is the same as that in the ETS and that initial attempts by the licensee have not shown effective defouling of the CWS at lower injection rates, the chlorine minimization

program can be deleted from the ETS. However, as discussed below, we have added to the ETS a requirement that when changes are proposed to be made to the NPDES permit, the NRC be notified and the supporting justification for the proposed limitations required by EPA be submitted to us. In this way, we can update the chlorine environmental impact analyses made in the St. Lucie FES.

#### Reporting Requirements

Although we are deleting many of the non-radiological environmental requirements we desire to be kept informed of environmental events, the exceeding of environmental limits and the change of any associated limits. Therefore, we have added requirements for such reporting as discussed with and agreed to by the licensee.

#### Conclusion and Basis for Negative Declaration

On the basis of the foregoing analysis, it is concluded that there will be no environmental impact attributable to the proposed action other than has already been predicted and described in the Commission's FES for St. Lucie Plant, Unit No. 1. Having made this determination, the Commission has further concluded that no environmental impact statement for the proposed action need be prepared and that a negative declaration to this effect is appropriate.

Date: March 10, 1981

## REFERENCES

1. Effects of Increased Water Temperature on the Marine Biota of the St. Lucie Plant Area. Applied Biology, Inc., 106 pp. February 1979.
2. Annual Environmental Report No. 2 For The Year 1977. Florida Power & Light Company. St. Lucie Plant, Unit No. 1.
3. Annual Non-Radiological Monitoring Report 1978. Volume 1 Abiotic Monitoring. Florida Power & Light Company.

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NO. 50-335FLORIDA POWER & LIGHT COMPANYNOTICE OF ISSUANCE OF AMENDMENT TO  
FACILITY OPERATING LICENSEANDNEGATIVE DECLARATION

The U.S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 39 to Facility Operating License No. DPR-67, issued to Florida Power & Light Company (the licensee), which revised the Technical Specifications for operation of the St. Lucie Plant, Unit No. 1 (the facility), located in St. Lucie County, Florida. The amendment is effective as of its date of issuance.

The amendment deletes certain non-radiological water quality requirements of the Appendix B Technical Specifications, deletes license conditions associated with the Appendix B Technical Specifications changes and adds reporting requirements.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

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The Commission has prepared an environmental impact appraisal for this action and has concluded that an environmental impact statement is not warranted because there will be no environmental impact attributable to the action other than that which has already been predicted and described in the Commission's Final Environmental Statement for the facility dated June 1973.

For further details with respect to this action, see (1) the application for amendment dated April 12, 1979, as supplemented September 10, 1979, and February 26, 1980, (2) Amendment No. 39 to License No. DPR-67, and (3) the Commission's Environmental Impact Appraisal. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, NW., Washington, D.C. and at the Indian River Junior College Library, 3209 Virginia Avenue, Ft. Pierce, Florida. A copy of items (2) and (3) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 10th day of March, 1981.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert A. Clark, Chief  
Operating Reactors Branch #3  
Division of Licensing