

SEP 24 1976

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Docket No. 50-250

Florida Power and Light Company
 ATTN: Dr. Robert E. Uhrig
 Vice President
 P. O. Box 013100
 Miami, Florida 33101

Gentlemen:

The Commission has issued the enclosed Amendment No. 20 to Facility Operating License No. DPR-31 for the Turkey Point Nuclear Generating Unit No. 3. The amendment consists of a revision to License No. DPR-31 in response to your application dated July 30, 1976, as supplemented by letters dated August 25, September 1, and September 16, 1976. This amendment will modify that portion of the facility operating license which relates to the storage of special nuclear material as reactor fuel. The amendment will allow the storage capacity of the Turkey Point Unit No. 3 spent fuel storage pool to be increased from 217 to 235 fuel assemblies for a period of one year.

Copies of the Safety Evaluation and the Federal Register Notice are also enclosed.

Sincerely,

Original signed by

George Lear, Chief
 Operating Reactors Branch #3
 Division of Operating Reactors

Enclosures:

1. Amendment No. 20
2. Safety Evaluation
3. Federal Register Notice

cc: See next page

Eisenhart subject to 9/24/76 changes in reading copy.

OFFICE ➤	ORB #3	ORB #3 <i>DE</i>	DDP <i>DE</i>	ORB #3 <i>GL</i>	OELD <i>SY</i>	AD/DOB <i>KG</i>
SURNAME ➤	CParrish <i>CP</i>	DElliott:mj <i>DE</i>	BGrimes <i>DE</i>	GLear	S. GOLDBERG	KGoeller
DATE ➤	9/22/76	9/22/76	9/23/76	9/24/76	9/24/76	9/24/76

cc:

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Mr. Ed Maroney
Bureau of Intergovernmental Relations
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Honorable Ray Goode
County Manager of Metropolitan
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Florida Power & Light Company
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P. O. Box 013100
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Environmental & Urban Affairs Library
Florida International University
Miami, Florida 33199



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

FLORIDA POWER AND LIGHT COMPANY

DOCKET NO. 50-250

TURKEY POINT NUCLEAR GENERATING UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 20
License No. DPR-31

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Florida Power and Light Company (the Licensee) dated July 30, 1976, as supplemented by letters dated August 25, September 1, and September 16, 1976, 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, the license is hereby amended by revision of Section 2.B. of the license to read as follows:
 - "B. Pursuant to the Act and 10 CFR Part 70, and specifically, to limit spent fuel pit storage capacity to 235 assemblies (for a period not to exceed one year, at which time the capacity reverts to 217 assemblies unless otherwise approved by the Commission), also to receive, possess, and use at any time, special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation."

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

FOR THE NUCLEAR REGULATORY COMMISSION

Karl R. Goller

Karl Goller, Assistant Director
for Operating Reactors
Division of Operating Reactors

Date of Issuance: September 24, 1976



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 20 TO LICENSE DPR-31

FLORIDA POWER AND LIGHT COMPANY

TURKEY POINT NUCLEAR GENERATING UNIT NO. 3

DOCKET NO. 50-250

Introduction

By letter dated July 30, 1976, Florida Power and Light Company (FPL) proposed an amendment to the Facility Operating License No. DPR-31 for Turkey Point Unit No. 3. Supplemental information relating to the proposed license amendment was supplied by FPL in their letters of August 25, September 1, and September 16, 1976.

The proposed amendment would modify that portion of the facility operating license which relates to the storage of special nuclear material as reactor fuel. The proposed amendment would allow the storage capacity of the Turkey Point Unit No. 3 spent fuel storage pool to be increased from 217 to 235 fuel assemblies.

Discussion

The existing spent fuel storage pool at Turkey Point Unit No. 3 has a capacity for storing 217 fuel assemblies. The existing fuel assembly storage racks maintain a 21 inch center-to-center spacing between the stored fuel assemblies. Borated water normally fills the spent fuel storage pool and surrounds the spent fuel storage racks and stored fuel assemblies. The center-to-center distance of the storage racks is such that a neutron multiplication factor, K_{eff} , of less than 0.90 is maintained even in the event that unborated water is used to fill the storage pool. The spent fuel pool cooling system is designed to remove decay heat from the spent fuel assemblies stored in the pool and to control the chemistry and clarity of the pool water. The spent fuel pool cooling system was designed to maintain the pool water at a temperature of approximately 120°F during normal refueling operations and less than 150°F during the full core offload condition.

FPL proposes to increase the Unit No. 3 spent fuel pool storage capacity to 235 fuel assemblies by installing a fuel assembly rack storage module

within the storage pool along the periphery of the shipping cask lay down area. FPL requests approval for installation of the fuel assembly storage rack module so that they can unload the Unit No. 4 storage pool for pool repair and in addition have sufficient storage spaces available to store those spent fuel assemblies unloaded from the Unit No. 3 reactor during the fall 1976 refueling. Following Unit No. 4 pool repair and installation of new storage racks with increased storage capacity the fuel assemblies will be transferred from the Unit No. 3 to the Unit No. 4 storage pool. Since it is expected that the fuel assembly storage rack module will be in use for less than a one year period, the proposed license amendment has been modified to provide that the increased capacity is authorized for a one year period only. The fuel assembly storage rack module, which will store 18 additional fuel assemblies, will maintain the same spacing between the stored fuel assemblies and will be constructed to the same design as is the presently installed fuel assembly storage racks.

Evaluation

A. Criticality Considerations of Additional Fuel Storage

The normal center-to-center spacing for stored fuel assemblies in the Turkey Point spent fuel storage pools is 21 inches. This spacing maintains the neutron multiplication factor, K_{eff} , of the array at a value equal to or less than 0.90. Our independent calculations determined that the addition of the 18 fuel assembly storage rack module would not affect K_{eff} and that K_{eff} would be maintained less than 0.90 even when the pool is filled with unborated water. The present Technical Specification requirement that the pool be filled with borated water whenever spent fuel is stored in the pool gives added assurance that K_{eff} will be less than 0.90.

On the basis of our review, we conclude that the criticality considerations of the proposed spent fuel storage pool modification are acceptable.

B. Shipping Cask Handling System

Installation of the fuel assembly storage racks module within the storage pool will reduce the size of the cask lay down area. The Turkey Point Technical Specifications prohibit movement of the spent fuel shipping cask over fuel assemblies stored in the spent fuel storage pool. To assure that this requirement will not be violated, FPL will install a shipping cask crane movement interlock system prior to June 1977. In the interim period until June 1977, FPL has instituted augmented operating procedures which fulfill the same functions as the crane movement interlock system. We have evaluated the shipping cask crane interlock system and the interim augmented

crane operating procedures with respect to the reduced lay down area. Based on this evaluation we have determined that either the crane movement interlock system or the interim augmented crane operating procedures will assure that a spent fuel shipping cask will not be moved over stored spent fuel following installation of the fuel assembly storage rack module.

C. Thermal Considerations

We have reviewed the effect the increased storage capacity will have on the cooling ability of the spent fuel storage pool cooling system. Based on our review, we determined that following installation of the fuel assembly storage rack module the spent fuel pool cooling system will continue to maintain the pool water temperature below 120°F during normal refueling operations and below 150°F during a full core transfer to the pool without augmented cooling.

We made a conservative analysis of the spent fuel pool heat-up time, following installation of the fuel assembly storage rack module, in the event that the spent fuel pool cooling system fails. The minimum time to reach boiling from a pool water temperature of 150°F will be 15 hours under the most adverse conditions. Thus, we conclude there is sufficient time to effect a cooling system repair or connect additional cooling should it be necessary following spent fuel pool cooling system failure.

On the basis of our review, we conclude that the heat removal capability of the spent fuel pool will be adequate following installation of the fuel assembly storage rack module.

D. Tipped or Dropped Cask in Fuel Pool

The Technical Specifications require a minimum period (1000 hours) for the decay of stored spent fuel before a shipping cask may be moved into the spent fuel storage pool. This requirement assures that in the event a shipping cask were dropped in the storage pool and fell on stored fuel assemblies the resulting release of activity past the facility boundary would not be unacceptable. Since the Technical Specifications prohibit the movement of a shipping cask over the stored fuel, such an accident could only result from the dropped cask tipping during its fall.

Our independent review of the tipped cask accident determined that the increased number of stored fuel assemblies will not significantly increase the release of activity following an accident. Based on our review we have concluded that, even if all of the fuel rods were

damaged in all of the fuel elements upon which a tipped cask could impact, the presently specified 1000 hour fuel decay period will assure that the resultant dose at the site boundary is within the calculated dose (17 rem) for the design basis fuel handling accident accepted by the NRC staff in our Safety Evaluation dated March 15, 1972. We conclude that the increased number of stored fuel assemblies has no significant effect on the amount of activity released by the cask drop accident and that because of the specified 1000 hour fuel decay period the potential consequences of accidents are not increased over those previously evaluated.

We performed an additional review of the cask drop accident to determine if K_{eff} could be significantly affected by a change in fuel assembly configuration following a cask drop accident. Based on our review we concluded that the required use of borated water in the spent fuel pool will assure that K_{eff} remains less than 0.95 for all possible cask drop accidents. A K_{eff} of less than 0.95 satisfies our requirements and assures that no undesirable criticality conditions will result from a dropped and tipped cask drop accident.

E. Radiation Levels Following Modification

The proposed license amendment will allow the storage capacity of the Unit No. 3 spent fuel storage pool to be increased from 217 to 235 fuel assemblies. This is an increase in storage capacity of less than 10%. FPL will not as a result of this action increase the total number of stored fuel assemblies at the Turkey Point site or modify the number of fuel assemblies normally removed from either reactor during refueling. Since: (1) the fuel pool storage capacity will be increased less than 10% and (2) the number of fuel assemblies to be removed from the reactor during refueling operations and stored in the spent fuel pool is not increased, the source term used in the calculation of radiation doses associated with the Unit No. 3 spent fuel pool is not significantly affected by the small increase in storage capacity.

Our independent evaluation determined that the increased fuel assembly storage capacity will not effect FPL's ability to maintain individual occupational doses as low as reasonably achievable and within the limits of 10 CFR Part 20. Thus, we conclude that storing 18 additional fuel assemblies in the Unit No. 3 spent fuel storage pool will not result in a significant increase in doses received by occupational workers.

We also evaluated the offsite doses associated with the increased storage capability of the spent fuel storage pool. Based on our evaluation, we concluded that there will be no significant impact on offsite radiation levels or personnel exposure due to facility operation following installation of the fuel storage rack module.

F. Structural and Material Considerations

The fuel assembly storage rack module will be designed and constructed to the same criteria as the presently installed fuel assembly storage racks. The dimensional and structural characteristics of the presently installed storage racks will be maintained. The fuel assembly storage rack module will be constructed of the same materials as is the presently installed fuel storage racks.

The fuel assembly storage rack module will be attached to the presently installed storage racks and will be braced against the spent fuel pool wall to form a single structural unit. This structural unit has been designed to withstand the forces resulting from the maximum seismic event as defined in the Turkey Point Nuclear Generating Station Final Safety Analysis Report (FSAR). FPL has performed analyses to assure that the lateral and vertical loads imposed by the fuel storage rack module are well within the structural capacity of the existing storage rack framework and storage pool structure.

On the basis of our review, we conclude that the analysis, design, fabrication and installation of the fuel assembly storage rack module are in accordance with accepted criteria for safety related structures and are acceptable.

G. Installation Considerations

1. Procedures

The fuel assembly storage rack module will weigh approximately two tons and will be lowered into place using the shipping cask handling crane. Crane stops will be utilized to restrict movement of the shipping cask handling crane so that crane loads will not be transported over stored spent fuel assemblies. We have reviewed the outline of FPL's procedures for the installation of the additional fuel storage module and have determined they are acceptable.

2. Personnel Radiation Exposure

The installation of the fuel assembly storage rack module will be performed remotely and it is expected that no abnormal personnel exposures will be experienced. Because of the radiation protection procedures routinely utilized by FPL, we consider the installation of the fuel assembly storage rack module to be relatively minor from a radiation exposure standpoint. Therefore, we have concluded that personnel performing the installation of the fuel assembly storage rack module will not be exposed to unacceptable levels of radiation.

Summary

Our evaluation supports the conclusion that the proposed modification to the Unit No. 3 spent fuel storage pool is acceptable because: (1) the physical design of the fuel assembly storage rack module will preclude criticality for any moderating conditions, (2) the structural design and materials of construction are adequate, (3) the spent fuel pool can be adequately cooled, (4) installation can be accomplished safely and without abnormal personnel exposures to radiation, and (5) the increase in onsite and offsite radiation levels will be negligible, and (6) the consequences of a cask drop accident have not been increased. Therefore, we conclude that the proposed license amendment is acceptable.

Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5(d)(4) that an environmental statement, negative declaration, or environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

We have further determined that, since this action allows only for a temporary expansion of the Unit No. 3 fuel storage pool to facilitate pool repair and is not intended to ameliorate a possible shortage of spent fuel storage capacity, an environmental impact statement or appraisal envisioned by the Commission's policy statement (40 F.R. 42801) is not required.

Conclusion

We have concluded, based on the considerations discussed above that:
(1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and
(2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: September 24, 1976

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-250

FLORIDA POWER AND LIGHT COMPANY

NOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY
OPERATING LICENSE

Notice is hereby given that the U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 20 to Facility Operating License No. DPR-31, issued to Florida Power and Light Company, which revised Technical Specifications for Operation of the Turkey Point Nuclear Generating Unit No. 3, located in Dade County, Florida. The amendment is effective as of the date of issuance.

This amendment will modify that portion of the facility operating license which related to the storage of special nuclear material as reactor fuel. The amendment will allow the storage capacity of the Turkey Point Unit No. 3 spent fuel storage pool to be increased from 217 to 235 fuel assemblies for a period of one year.

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. Notice of Proposed Issuance of Amendment to Facility Operating License in connection with this action was published in the FEDERAL REGISTER on August 19, 1976 (41FR35103). No request for a hearing or petition for leave to intervene was filed following notice of the proposed action.

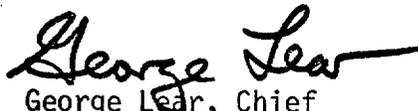
(The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement, negative declaration or environmental impact appraisal need not be prepared in connection with issuance of this amendment.)

For further details with respect to this action, see (1) application for amendment dated July 30, 1976, as supplemented by letters dated August 25, September 1 and September 16, 1976, (2) Amendment No. 20 to License No. DPR-31 and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Environmental & Urban Affairs Library, Florida International University, Miami, Florida 33199.

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 Operating Reactors.

Dated at Bethesda, this 24th day of September, 1976.

FOR THE NUCLEAR REGULATORY COMMISSION



George Lear, Chief
Operating Reactors Branch #3
Division of Operating Reactors