OCTOBER 30 1980

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Docket No. 50-250

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

Dear Dr. Uhrig:

The Commission has issued the enclosed Amendment No. 60 to Facility Operating License No. DPR-31 for the Turkey Point Plant Unit No. 3. The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated October 22, 1980.

The amendment permits continued operation of the Turkey Point Plant Unit 3 for six equivalent months of operation from October 24, 1980 at which time the steam generators shall be inspected.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

Original signed by:
S. A. Varga

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Enclosures:
1. Amendment No. 60 to DPR-31
2. Safety Evaluation
3. Notice of Issuance

cc: w/enclosures
See next page

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DE: MTEB for S.S. Pawlicki 10/30/80

DE: MQE V.S. Noonan

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

October 30, 1980

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

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The Commission has issued the enclosed Amendment No. 60 to Facility Operating License No. DPR-31 for the Turkey Point Plant Unit No. 3. The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated October 22, 1980.

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Sincerely,

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

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cc: w/enclosures
See next page

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U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

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

FLORIDA POWER AND LIGHT COMPANY

DOCKET NO. 50-250

TURKEY POINT PLANT, UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 60
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 October 22, 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, paragraph 3.E of the license is modified to amend subparagraph 3.E.5 of Facility Operating License No. DPR-31 to read as follows:

   E. Steam Generator Inspections

   5. In order to perform an inspection of the steam generators, Unit No. 3 shall be brought to the cold shutdown condition within six equivalent months of operation from October 24, 1980 or at the next refueling shutdown, whichever occurs first, unless: (1) an inspection of the steam generators is performed within this period as a result of the requirements in 2, 3 and 4 above, or (2) an acceptable analysis of the susceptibility for stress corrosion cracking of tubing is submitted to explicitly justify continued operation of Unit No. 3 beyond the authorized period of operation. Any analysis justifying continued operation must be submitted at least 45 days prior to the expiration date of the authorized period of operation. For the purpose of this requirement, equivalent operation is defined as operation with a primary coolant temperature greater than 350°F. NRC approval shall be obtained before resuming power operation following this inspection.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Attachment:
Page 4 of Operating
License DPR-31

Date of Issuance: October 30, 1980

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 60 TO FACILITY OPERATING LICENSE NO. DPR-31

DOCKET NO. 50-250

Replace the following pages of Facility Operating License No. DPR-31 with the attached pages as indicated. The changed area in the license is indicated by a marginal line.

Remove Pages	Insert Pages
4	4

2. Primary to secondary leakage through the steam generator tubes shall be limited to 0.3 gpm per steam generator. With any steam generator tube leakage greater than this limit, the reactor shall be brought to the cold shutdown condition within 24 hours. The leaking tube(s) shall be evaluated and plugged prior to resuming power operation, if leaking is not attributable to the denting phenomena.

3. Reactor operation shall be terminated and Nuclear Regulatory Commission approval shall be obtained prior to resuming operation if primary to secondary leakage attributable to the tube denting phenomena is detected from two or more tubes in the plant in any 20-day period.

4. Unit No. 3 steam generators shall be inspected during the next refueling outage or sooner in the event the limitations of 2 and 3, above, are exceeded. Nuclear Regulatory Commission approval shall be obtained before resuming power operation following this inspection.

5. In order to perform an inspection of the steam generators, Unit No. 3 shall be brought to the cold shutdown condition within six equivalent months of operation from October 24, 1980 or at the next refueling shutdown, whichever occurs first, unless: (1) an inspection of the steam generators is performed within this period as a result of the requirements in 2, 3 and 4 above, or (2) an acceptable analysis of the susceptibility for stress corrosion cracking of tubing is submitted to explicitly justify continued operation of Unit No. 3 beyond the authorized period of operation. Any analysis justifying continued operation must be submitted at least 45 days prior to the expiration date of the authorized period of operation. For the purpose of this requirement, equivalent operation is defined as operation with a primary coolant temperature greater than 350°F. NRC approval shall be obtained before resuming power operation following this inspection.

F. Physical Security

The licensee shall maintain in effect and fully implement all provisions of the Commission-approved physical security plan, including amendments and changes made pursuant to the authority of 10 CFR 50.54(p). The approved security plan documents, withheld from public disclosure pursuant to 10 CFR 2.790(d), collectively titled "Turkey Point Plant Unit Nos. 3 and 4 Physical Security Plan", dated October 18, 1979, as supplemented February 20, 1979.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 60 TO FACILITY OPERATING LICENSE NO. DPR-31

FLORIDA POWER AND LIGHT COMPANY

TURKEY POINT PLANT, UNIT NO. 3

DOCKET NO. 50-250

Introduction

By letter dated October 22, 1980, Florida Power and Light Company (the licensee) submitted the results of the September/October 1980 steam generator inspection and implemented preventative plugging at Turkey Point Unit 3. The licensee concluded that the inspection results, implemented plugging program, and previously submitted analyses support at least an additional six (6) equivalent* months of operation prior to performing the next steam generator inspection, and requested NRC approval to return Unit 3 to power operation.

Discussion

The steam generator tube inspection performed at Turkey Point Unit 3 during October 1980 included programs to assess tube degradation associated with both the denting and wastage phenomena. For denting, tube gauging was performed in all three steam generators using .650 inch, .610 inch, and .540 inch (diameter) eddy current probes. The implemented gauging program was similar to those implemented previously at this and other similarly degraded units and included the gauging of all unplugged tubes within areas (tubelane, periphery, wedge, and patch plate regions of the hot leg, and tubelane region of the cold leg) where significant denting activity had been observed previously. Significant denting, in this context, is considered to include (in addition to leakers) tubes restricting passage of a .610 inch probe (or less) and tubes at the periphery of the hot leg wedge location and on either side of the patch plate boundary which restrict passage of a .650 inch probe (or less), since these tubes are the most likely candidates to develop inservice leaks.

In previous inspections of the tubelane region, finite element analysis had been used to determine the extent of significant tube restriction activity for purposes of defining the boundary for the tubelane gauging inspection. However, the 17.5% tube hoop strain contour which realistically bounded the significant tube restriction activity in the tubelane following the previous inspection is now predicted to cover most of the support plate. Thus, the licensee elected to gauge the tubelane tubes within a boundary incorporating previously observed activity, plus several rows of tubes beyond.

*For purposes of this SER, equivalent operation is defined as operation with primary coolant temperature greater than 350°F.

With regards to the defined regions (discussed above) within which all tubes were gauged, if a restricted tube (tube restricting a .650 inch probe) was found close to the inspection boundary, the inspection was expanded in that area. In addition, a sample population of tubes in the central bundle region, located outside these defined regions, was tested with a .700 inch probe in the hot and cold legs, respectively, as part of the Regulatory Guide 1.83 eddy current inspection (to be discussed). These latter inspections provide an early indication of any new deformation which exists away from the regions usually regarded as active (i.e. the tubelane, patch plate, wedges and periphery). Tubes restricted in previous sample inspections, but not adjacent to the areas of predominant activity were also incorporated into the inspection.

Measurements of the visible support plate flow slots in all steam generators were made to assess the condition of the support plates and to provide a gross measure of the continuation of denting.

Eddy current inspection for wastage was conducted in accordance with Regulatory Guide 1.83 in all of the steam generators. Eddy current examinations were also performed on the U-bends of the unplugged tubes in rows three through five in steam generator A.

The following tabulation summarizes the number of tubes included in the gauging and eddy current inspections:

	A Hot Leg	A Cold Leg	B Hot Leg	B Cold Leg	C Hot Leg	C Cold Leg
Gauging	1170	144	1342	210	1273	231
U-bend Rows 2-5	-	141	-	-	-	-
R. G. 1.83	155	428	199	42	260	150

INSPECTION RESULTS

The results of the gauging inspection in terms of the number of tubes restricting passage of a given size probe of .650 inch or less are summarized below:

	Tubelane		Periphery and Wedge		Patch Plate
	Hot Leg	Cold Leg	Hot Leg	Cold Leg	Hot Leg
SG A					
.650"	22	0	22	0	25
.610"	4	0	1	1	0
.540"	9	0	2	0	0
SG B					
.650"	14	0	7	0	3
.610"	1	1	1	0	0
.540"	0	0	0	0	0
SG C					
.650"	25	0	8	0	5
.610"	4	0	0	2	1
.540"	2	0	0	0	0

Tubes in the tubelane region that restrict a 0.650 inch probe or less are located adjacent to the areas in which such restrictions have been observed during previous inspections or clustered together with other new activity. A total of 82 tubes were reported restricting passage of a 0.650 inch probe or less in the tubelane region after 8.5 equivalent full power months (EFPM) of operation. This compares with a total of 75 tubes observed in December 1979 after 6 EFPM and 214 tubes observed in January 1979 after 9.5 EFPM.

Tube restriction activity observed in the periphery, wedge, and patch plate areas appears consistent with previous experience at this and other similarly degraded units. The level of denting activity in the cold leg remains low compared to the hot leg activity.

The random eddy current inspection performed in accordance with Regulatory Guide 1.83 identified 14 tubes that required plugging due to thinning indications. An additional tube (R4-C46) in steam generator A is pluggable for a indication equal to or greater than 40% wall penetrations, but is also pluggable due to a 0.540 inch restriction. The following summarizes the results of the Regulatory Guide 1.83 inspection:

Size of Indication

(%Wall Penetration)

	SG A		SG B		SG C	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
<20	8	140	4	32	5	45
20-29	2	74	1	20	3	88
30-39	0	29	0	11	1	24
>40	0	14	0	0	1	0

A comparison of the eddy current signals for tubes containing pluggable indications with corresponding signals from previous inspections indications that wastage degradation is not developing at a significant or unexpected rate.

No eddy current indications were identified in the U-bends of the unplugged tubes in Rows 3 through 5.

The measurements of the support plate flow slots indicated no deviations from anticipated conditions.

TUBE PLUGGING PROGRAM

Except as noted below, the plugging criteria implemented during the October 1980 steam generator inspection are the same as those implemented previously at this and other similarly degraded units to support six months operation. These criteria include the plugging of leakers and surrounding tubes, .540 inch and .610 inch restricted tubes, .650 inch restricted tubes in the periphery of the hot leg wedge region and on either side of the patch plate boundary.

The plugging criteria for the previous two inspections for the tubelane region (to support six months of operation) had included plugging two tubes beyond .540 inch restricted tubes in columns 15 through 79, and three tubes beyond 0.540 inch restricted tubes in columns 1 to 14 and 80 to 94, based upon finite element predications regarding the progression of denting during the next operating interval.

The licensee stated in a letter dated May 18, 1979 for Turkey Point Unit 4 that wedge and tubelane interaction was apparently causing the finite element analysis to over predict the progression of denting in the end regions of the tubelane. This conclusion was based upon their evaluation of the denting activity in these end regions where the denting was observed to be consistent with the remainder of the tubelane region. Consequently, the implemented criterion for this inspection was to plug two rows beyond .540 inch restricted tubes for columns 1 through 92.

Finally, tubes with greater than 40% through wall eddy current indications were plugged.

Implementation of the plugging criteria resulted in 57, 7, and 22 tubes being plugged for denting and 13, 0, and 1 tubes being plugged for wastage in steam generators A, B, and C, respectively. Total steam generator tube plugging in all three steam generators is approximately 20.4% which is conservatively bounded by the 25% tube plugging assumption ECCS analysis.

Evaluation

The October 1980 gauging and preventive plugging program at Turkey Point Unit 3 is similar to previous programs conducted at this and other similarly degraded units. This inspection included the gauging of all tubes within areas (tube-lane, periphery, wedge, and patch plate regions) where significant denting activity has been observed previously. In addition, a sample population of tubes in the central bundle region were gauged as part of the Regulatory Guide 1.83 inspection for wastage.

Based upon our review of the gauging results, we find that the observed denting activity is generally consistent with previous experience at this and other similarly degraded units, and that the implemented gauging program was sufficient to adequately determine the condition of the steam generator from a denting standpoint.

The preventive plugging criteria implemented in October 1980 and in previous inspections have proven successful in removing from service severely restricted tubes which are the most likely candidates to develop inservice leaks. In addition, the inspection data and recent operating experience provide adequate justification for the implementation of a criterion of plugging two tubes beyond .540 inch restricted tubes throughout the tubelane region. We find that the implemented gauging program and preventive plugging criteria provide reasonable assurance that the vast majority of tubes most likely to develop inservice leaks have been identified and removed from service. No forced shutdowns because of steam generators tube leakage occurred during the 8.5 EFPM of operation since the previous inspection in December 1979. The Technical Specifications 0.3 gpm leak rate limit provides adequate assurance that even if through wall cracks and leaks occur, they will be detected and appropriate corrective action taken before excessive leakage can occur from tube degradation during normal operating, transient, or accident conditions.

With regards to the wastage phenomenon, the October 1980 wastage inspection (per Regulatory Guide 1.83) and associated plugging criteria are similar to those implemented in previous inspections. A comparison of the eddy current signals for tubes containing pluggable indications with corresponding signals from previous inspections indicate that wastage degradation is not developing at a significant or unexpected rate. We consider that the October 1980 inspection was adequate

to establish the condition of the steam generators from a wastage standpoint and that with the implemented plugging criteria provides reasonable assurance that unacceptable wastage degradation will not occur during the next operating interval.

In conclusion, we find that the inspection results, implemented plugging, and existing leak rate limits adequately support six equivalent months of operation from the time of this inspection. Turkey Point Unit 3 is therefore required to shut down for steam generator inspection at the conclusion of the six (6) month operating interval.

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 impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) 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.

Date: October 30, 1980

7590-01

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-250

FLORIDA POWER AND LIGHT COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 60 to Facility Operating License No. DPR-31 issued to Florida Power and Light Company (the licensee), which revised Technical Specifications for operation of the Turkey Point Plant Unit No. 3 (the facility) located in the Dade County, Florida. The amendment is effective as of the date of issuance.

The amendment permits continued operation of the Turkey Point Plant Unit 3 for six equivalent months of operation from October 24, 1980 at which time the steam generators shall be inspected.

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 this amendment does not involve a significant hazards consideration.

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 or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated October 22, 1980, (2) Amendment No. 60 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 and 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 Licensing.

Dated at Bethesda, Maryland, this 30th day of October, 1980.

FOR THE NUCLEAR REGULATORY COMMISSION

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing