

MARCH 30 1979

Docket No. 50-250

Dr. Robert E. Uhrig, Vice President
Florida Power and Light Company
P. O. Box 529100
Miami, Florida 33152

Dear Dr. Uhrig:

The Commission has issued the enclosed Amendment No. 46 to Facility Operating License No. DPR-31 for the Turkey Point Nuclear Generating Unit No. 3. The amendment is in response to your application dated March 6, 1979.

This operating license amendment permits continued operation of Turkey Point Unit No. 3 for six equivalent months of operation from March 29, 1979. The application requested ten equivalent months of operation, however, we preferred not to predict the steam generator performance for longer than six months at a time. We have discussed this with your staff and they have accepted that judgment.

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

Sincerely,

Original Signed By

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

*Encl
cep*

Enclosures:

- 1. Amendment No. 46 to DPR-31
- 2. Safety Evaluation
- 3. Notice of Issuance

cc: w/enclosures
See next page

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(*SEE PREVIOUS YELLOW FOR CONCURRENCE)

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DATE	03/29/79	1/1/79	03/29/79	3/30/79	03/29/79

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Docket No. 50-250

Dr. Robert E. Uhrig, Vice President
Florida Power and Light Company
P. O. Box 529100
Miami, Florida 33152

Dear Dr. Uhrig:

The Commission has issued the enclosed Amendment No. to Facility Operating License No. DPR-31 for the Turkey Point Nuclear Generating Unit No. 3. The amendment is in response to your application dated March 6, 1979.

This operating license amendment permits continued operation of Turkey Point Unit No. 3 for six equivalent months of operation from March 29, 1979.

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

Sincerely,

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

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cc: w/enclosures
See next page

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

FLORIDA POWER AND LIGHT COMPANY

DOCKET NO. 50-250

TURKEY POINT NUCLEAR GENERATING STATION UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 46
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 March 6, 1979 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.

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2. Accordingly, paragraph 3.E is modified to amend sub-paragraph 3.E.5 and sub-paragraph 3.E.6 is deleted. Sub-paragraph 3.E.5 reads 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 March 29, 1979, unless: (1) an inspection of the steam generators is performed within this six month 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 six equivalent months of operation. Any analysis justifying continued operation must be submitted at least 45 days prior to the expiration date of the authorized six equivalent months 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



A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Date of Issuance: March 30, 1979

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 46 TO LICENSE NO. DPR-31

FLORIDA POWER AND LIGHT COMPANY

TURKEY POINT NUCLEAR GENERATING UNIT NO. 3

DOCKET NO. 50-250

Introduction

By letter (L-79-51) dated March 6, 1979, Florida Power and Light Company (the licensee) submitted results of the steam generator inspection associated with the Unit 3 reload for Cycle 5. The information was submitted to justify continued operation of Turkey Point Unit No. 3 for an additional six equivalent months beginning March 29, 1979 as required by Amendment 30 issued October 16, 1978. The application requested ten equivalent months of operation, however, we preferred not to predict the steam generator performance for longer than six months at a time. We have discussed this with the licensee and they have accepted that judgment.

Background

License Amendment No. 32 dated January 31, 1978 authorized six equivalent months of operation for Turkey Point Unit 3. This six month period was extended two months by License Amendment No. 36, dated June 2, 1978. The basis for this extension was an evaluation of the consequences of a main steam line break accident including a conservative assumption regarding the number of tubes that could potentially develop a through wall crack. A second, four month extension was granted by License Amendment No. 39 dated October 16, 1978. The justification for the second extension was based on inspections of the Turkey Point Unit 4 steam generators and again an estimate of the number of tubes that could possibly develop a through wall crack during a postulated MSLB. In addition, more strict operating conditions were imposed on the licensee.

During the approximately 9.5 effective full power months of operation between the December 1977 and January 1979 inspections, Turkey Point Unit 3 experienced one steam generator tube leak on July 19, 1978. The leaking tube located in row 2, column 19 of steam generator C was plugged.

By letter dated March 6, 1979, Florida Power and Light Company (the licensee) submitted the results of the steam generator inservice inspection performed at Turkey Point Unit 3 during the January/February, 1979 refueling outage, including the plugging criteria applied to the three steam generators. Based on these inspection results, the implemented plugging criteria, and previously submitted ECCS analysis, the licensee requested that the facility be allowed to return to full power operation for at least ten (10) equivalent months.

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Inspection Program

The steam generator tube inspection performed during this shutdown included programs to assess the conditions associated with both the "denting" and "wastage" problems. For denting, tube gauging was done in all three steam generators in order to assess the extent and pattern of tube denting. On the hot leg side, all tubes near the tube lane which were predicted to be bounded by the 15% hoop strain contour plus an additional two rows of tubes were gauged. Based on previous leaker history at Turkey Point Unit 3 and at similar units, as well as previous gauging results, the gauging program also included wedge and patch plate regions. Additionally, when a restricted tube was found close to the inspection boundary, the inspection was expanded in that area. Gauging was also performed on cold leg tubes in all three steam generators.

Handhole inspections of the visible flow slots in all steam generators and of the support plate to wrapper annulus in steam generator B were performed to assess the conditions of the support plate and to provide input to the finite element analysis of the support plate deformation.

A random eddy current inspection for tube wall thinning 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 two through five of steam generator B.

The following table summarizes the percentage of tubes included in the gauging and random eddy current inspections.

	A-HOT LEG	A-COLD LEG	B-HOT LEG	B-COLD LEG	C-HOT LEG	C-COLD LEG
GAUGING	42.9%	9.9%	38.8%	6.8%	43.1%	9.0%
RANDOM ECT (R.G. 1.83)	5.0%	5.0%	5.2%	3.6%	5.2%	12.3%

Results of Inspection

Gauging results indicated that any tube near the tube lane which restricted the 0.650" probe was within the 15% hoop strain contour. The following table summarizes the tube restrictions.

	<u>Tubelane</u>		<u>Periphery and Wedge</u>	
	<u>Hot Leg</u>	<u>Cold Leg</u>	<u>Hot Leg</u>	<u>Cold Leg</u>
SG A				
.650"	49	-	36	-
.610"	19	4	15	0
.540"	8	0	4	0
SG B				
.650"	15	-	12	-
.610"	15	2	11	2
.540"	8	3	4	3
SG C				
.650"	50	-	35	-
.610"	35	3	14	2
.540"	3	0	8	11

Of the 22 tubes in the tubelane region which restricted the 0.540" probe, 8 tubes were located in row 2, 9 tubes were adjacent to the hardspots between flow slots, and 5 tubes were adjacent to the center of the flow slots. This inspection was the first gauging of the cold leg areas and some peripheral areas. Areas of active denting were consistent with past data for this and other similar units.

Random eddy current inspection (ECT) in accordance with Regulatory Guide 1.83 revealed no defective tubes in the hot leg of any of the steam generators. However, inspections of tubes in the cold legs which had degradation of greater than 20% through wall in past inspection revealed defective (degraded greater than 40% through wall) tubes in all three steam generators. One additional 3% sample was inspected in the cold legs of steam generators A and B and two additional 3% samples were inspected in the cold leg of steam generator C. As a result of the inspections 19, 5, and 9 defective tubes were discovered in the cold legs of steam generators A, B, and C, respectively. The majority of the defects had between 40% and 50% degradation and the rate of wall thinning based on eddy current inspection results from this and the previous inspection is within a level acceptable in establishing the tube plugging limit. Eddy current inspection revealed no degradation in the U-bends in rows two through five of steam generator B.

Only the lower tube support plate was visible in each steam generator. Measurements of the flow slots in these plates and of the support plate to wrapper annulus in steam generator B revealed no deviations from the anticipated conditions.

Plugging Criteria

The plugging criteria is the same as that implemented in December 1977 and as that implemented at other units with similarly degraded steam generators with an exception in the conservative direction. The exception is that three (3) tubes, instead of two (2) tubes, beyond any tube in columns 14 to 79 which did not pass the 0.540" probe were preventively plugged and for such tubes in columns 1 to 13 and 80 to 92 near the tube lane three (3) to six (6), instead of two (2) to four (4), tubes were preventively plugged. As in previously accepted plugging criteria, preventative plugging is based on the projected growth of the critical tube hoop strain contours predicted by a finite element analysis program. The same technique was utilized in the past to establish the extent of preventative plugging necessary for continued operation of this unit and Turkey Point Unit 4 and Surry Units 1 and 2. Tubes with greater than 40% through wall degradation were plugged.

Implementation of the plugging criteria resulted in 167, 151, and 209 tubes plugged for denting and 19, 5, and 9 tubes plugged for wall thinning in steam generators A, B, and C, respectively. Total steam generator tube plugging is approximately 17.5% which is conservatively bounded by the 25% tube plugging assumed in the currently approved ECCS analysis which was previously submitted.

Evaluation

The inspection program which was performed by the licensee is similar to previous programs conducted at this and other units with similar steam generator tube degradation. Because these programs have been determined acceptable by the NRC and because the results of the current inspection have not revealed any unexpected or new phenomenon, we have concluded that the January/February 1979 inspection program was sufficient to adequately determine the condition of the Turkey Point Unit 3 steam generators

With the exception noted above, which is more conservative, the plugging criteria implemented by the licensee is the same as that implemented in previous inspections at this and other units and has been shown to be adequate for six (6) equivalent full power months of operation.

The licensee requested that Turkey Point Unit 3 be permitted to return to power for ten (10) equivalent months of operation. Although the implemented plugging criteria was more conservative for tubes along the tube lane, we continue to have reservations about the validity of extrapolating the predictive methodology beyond six (6) equivalent full power months. In addition, stress corrosion cracking is dependent on stress level, environment, and time. Even though the method for predicting the progression of denting and contours of hoop strain have proved effective, the relation between stress corrosion cracking and time has not been clearly established. Experience has shown that longer operating times will produce stress corrosion cracking at lower strain levels. The preventative plugging program has been shown to be effective for six (6) equivalent months of operation. It is, therefore, our conclusion that Turkey Point Unit 3 may be allowed to return to power for six (6) equivalent* full power months of operation.

Operation of Turkey Point Unit 3 will be carefully monitored by the staff and consideration of extended operation beyond the currently authorized six (6) equivalent months will depend on the operating experience at this unit and other units with similar tube degradation.

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 amendments do not involve a significant increase in the probability or consequences of accidents previously considered and do not involve a significant decrease in a safety margin, the amendments do 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 these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: March 30, 1970

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

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NO. 50-250FLORIDA POWER AND LIGHT COMPANYNOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 46 to Facility Operating License No. DPR-31, issued to Florida Power and Light Company, 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.

The amendment to the operating license will permit continued operation of Turkey Point Unit No. 3 for six equivalent months of operation (EFPM) beyond April 1, 1979 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 the amendment does not involve a significant hazards consideration.

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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) the application for amendment dated March 6, 1979, (2) Amendment No. 46 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 Operating Reactors.

Dated at Bethesda, Maryland this 30th day of March, 1979.

FOR THE NUCLEAR REGULATORY COMMISSION



A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

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