

REGULATORY DOCKET FILE COPY

MAY 15 1980

Docket Nos. 50-250
and 50-251

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

Distribution

Docket Files 50-250 I&E (5)
and 50-251

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Attorney, OELD	

Dear Dr. Uhrig:

The Commission has issued the enclosed Amendment No. 57 to Facility Operating License No. DPR-31 and Amendment No. 50 to Facility Operating License No. DPR-41 for the Turkey Point Nuclear Generating Unit Nos. 3 and 4, respectively. The amendments consist of changes to the Technical Specifications in response to your application transmitted by letter dated April 29, 1980.

These amendments incorporate the results of a revised ECCS analysis for a steam generator tube plugging level of 25%.

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. 57 to DPR-31
2. Amendment No. 50 to DPR-41
3. Safety Evaluation
4. Notice of Issuance

cc: w/enclosures
See next page

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

May 15, 1980

Docket Nos. 50-250
and 50-251

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. 57 to Facility Operating License No. DPR-31 and Amendment No. 50 to Facility Operating License No. DPR-41 for the Turkey Point Nuclear Generating Unit Nos. 3 and 4, respectively. The amendments consist of changes to the Technical Specifications in response to your application transmitted by letter dated April 29, 1980.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Steven A. Varga".

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

Enclosures:

1. Amendment No. 57 to DPR-31
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cc: w/enclosures
See next page

Robert E. Uhrig
Florida Power and Light Company

- 2 -

May 15, 1980

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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 UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 57
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 April 29, 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.

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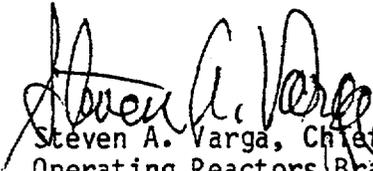
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-31 is hereby amended to read as follows:

(B) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 57, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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:
Changes to the Technical
Specifications

Date of Issuance: May 15, 1980



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

FLORIDA POWER AND LIGHT COMPANY

DOCKET NO. 50-251

TURKEY POINT NUCLEAR GENERATING UNIT NO. 4

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 50
License No. DPR-41

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Florida Power and Light Company (the licensee) dated April 29, 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, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-41 is hereby amended to read as follows:

(B) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 50, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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:
Changes to the Technical
Specifications

Date of Issuance: May 15, 1980

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 57 TO FACILITY OPERATING LICENSE NO. DPR-31

AMENDMENT NO. 50 TO FACILITY OPERATING LICENSE NO. DPR-41

DOCKET NOS. 50-250 AND 50-251

Revise Appendix A as follows:

Remove Pages

3.2-3
Figure 3.2-3b

Insert Pages

3.2-3
Figure 3.2-3b

reactivity insertion upon ejection greater than 0.3% k/k at rated power. Inoperable rod worth shall be determined within 4 weeks.

- b. A control rod shall be considered inoperable if
 - (a) the rod cannot be moved by the CRDM, or
 - (b) the rod is misaligned from its bank by more than 15 inches, or
 - (c) the rod drop time is not met.
- c. If a control rod cannot be moved by the drive mechanism, shutdown margin shall be increased by boron addition to compensate for the withdrawn worth of the inoperable rod.

5. CONTROL ROD POSITION INDICATION

If either the power range channel deviation alarm or the rod deviation monitor alarm are not operable rod positions shall be logged once per shift and after a load change greater than 10% of rated power. If both alarms are inoperable for two hours or more, the nuclear over-power trip shall be reset to 93% of rated power.

6. POWER DISTRIBUTION LIMITS

a. Hot channel factors:

- (1) With steam generator tube plugging >22% and ≤25%, the hot channel factors (defined in the basis) must meet the following limits at all times except during low power physics tests:

$$F_q(Z) \leq (1.97/P) \times K(Z), \text{ for } P > .5$$

$$F_q(Z) \leq (3.94) \times K(Z), \text{ for } P \leq .5$$

$$F_{\Delta H}^N \leq 1.55 [1.0 + 0.2(1-P)]$$

Where P is the fraction of rated power at which the core is operating; K(Z) is the function given in Figure 3.2-3b; Z is the core height location of F_q .

If F_q , as predicted by approved physics calculations, exceeds 1.97, the power will be limited to the rated power multiplied by the ratio of 1.97 divided by the predicted F_q , or augmented surveillance of hot channel factors shall be implemented.

- (2) With steam generator tube plugging ≤22%, the hot channel factors (defined in the basis) must meet the following limits at all times except during low power physics tests:

$$F_q(Z) \leq (1.99/P) \times K(Z), \text{ for } P > .5$$

$$F_q(Z) \leq (3.98) \times K(Z), \text{ for } P \leq .5$$

$$F_{\Delta H}^N \leq 1.55 [1.0 + 0.2(1-P)]$$

Where P is the fraction of rated power at which the core is operating; K(Z) is the function given in Figure 3.2-3a; Z is the core height location of F_q .

HOT CHANNEL FACTOR
NORMALIZED OPERATING ENVELOPE

(for steam generator tube plugging 25% and $F_q=1.97$)

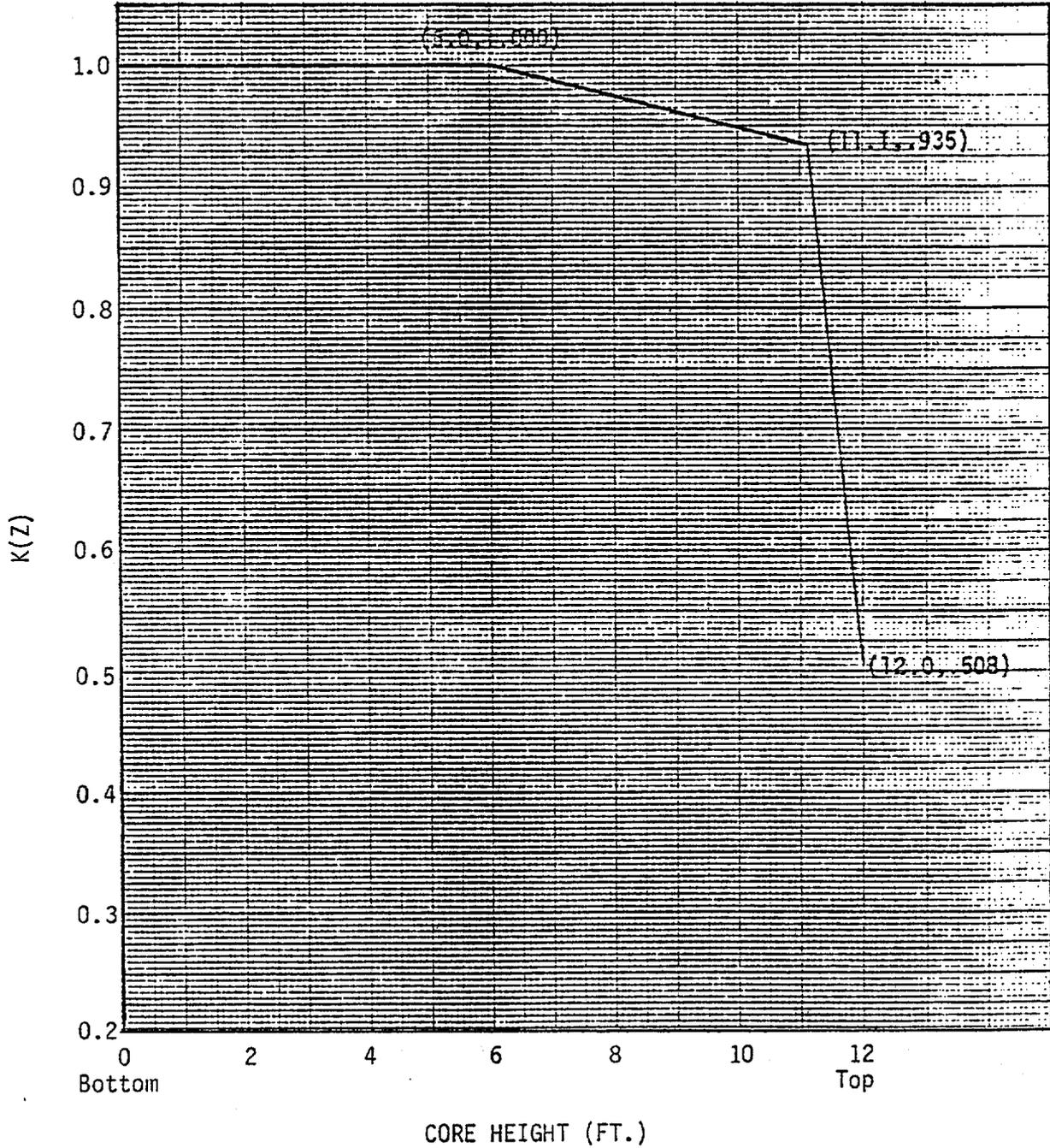


Figure 3.2-3b

Amendment No. 57, Unit 3
Amendment No. 50, Unit 4



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 57 TO FACILITY OPERATING LICENSE NO. DPR-31
AND AMENDMENT NO. 50 TO FACILITY OPERATING LICENSE NO. DPR-41

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT NUCLEAR GENERATING, UNIT NOS. 3 AND 4
DOCKET NOS. 50-250 AND 50-251

Introduction

By letter dated April 29, 1980 (Reference 1), Florida Power and Light Company (the licensee) requested amendments to Operating License Nos. DPR-31 and DPR-41 for Turkey Point Units 3 and 4. The letter contains a LOCA analysis and proposed Technical Specification changes in connection with the operation of Units 3 and 4 with 25 percent of steam generator tubes plugged and a peaking factor F_0 of 1.97. In addition, the licensee provided sensitivity study indicating that the penalty caused by introducing the new fuel performance models developed by the NRC (Reference 2) is compensated by the conservatisms existing in the present ECCS models (Reference 1) and therefore no reduction of F_0 due to this effect is required.

The changes to the Technical Specifications requested by the licensee are the following:

- (a) Specification of $F_0 = 1.97$ for plant operation with 25 percent of steam generator tubes plugged.
- (b) Change of the Hot Channel Factor Normalized Operating Envelope for a steam generator tube plugging level of 25 percent (Figure 3.2-3b)

Since the limiting value of F_0 is below the level at which the excore detectors could provide reliable readings and because the "18 case FAC analyses" performed for both units indicated that the maximum predicted F_0 exceeded the LOCA determined limits, the licensee is required either to operate the plant with the augmented power distribution surveillance or at the suitably reduced power levels.

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Evaluation

The licensee has provided an evaluation of the performance of Emergency Core Cooling System (ECCS) for both Units 3 and 4 corresponding to the hot channel peaking factor value of $F_Q = 1.97$ and assuming a steam generator plugging level of 25 percent, a 5 percent reduction in thermal design flow and a removal of 65°F fuel temperature conservatism in the PAD fuel performance evaluation code. The reduction of thermal design flow was introduced to compensate for an additional hydraulic resistance caused by the plugged steam generator tubes. It is a conservative assumption. The removal of 65°F fuel temperature conservatism is a non-conservative assumption because in itself it would cause the peak cladding temperature to increase. However, other assumptions existing in the PAD code compensate for it and as a result the fuel performance evaluation by the code is conservative. This change has been approved by us in Reference 3.

The LOCA analysis was performed using the February 1978 version of the Westinghouse Evaluation Model (Reference 4) which was reviewed and approved by us (Reference 5). It was performed for a double ended cold leg guillotine break (DECLG) with a discharge coefficient of $C_D = 0.4$. The licensee has shown in the previous submittal (Reference 6) that this break size corresponds to the highest value of peak cladding temperature and Zr-water reaction. The licensee has also demonstrated that the break size remains unaffected by the number of the steam generator tubes plugged (Reference 7).

The previous analysis for Units 3 and 4 (Reference 8) was performed using the same evaluation model and assuming the same steam generator tube plugging level. However, the value of F_Q was 2.03 for both units. This value was subsequently administratively reduced to 1.87 to compensate for an error discovered in the input to the SATAN computer code, used in LOCA evaluation (Reference 9) and to account for the changes in the fuel performance models (Reference 10).

The currently submitted LOCA analysis includes the input corrections to the SATAN code, but it does not include the changes caused by the modified fuel performance models. The input parameters assumed in the analysis are listed below:

Core Power: 102 percent of 2200 MWt (rated power)
Peak Linear Power: 102 percent of 11.19 KW/ft
Peaking Factor: 1.97
Accumulator Water Volume: 875 cu ft/each

The results of the analysis indicate a peak cladding temperature of 2136°F, a maximum local Zr-water reaction of 6.945 percent and a total Zr-water reaction of less than 0.3 percent. All these values are below the limits specified in 10 CFR 50.46.

The licensee did not include small break analysis since steam generator tubes plugged did not affect significantly the results of the original analysis.

The licensee has provided additional calculations (Reference 1) to assess the potential impact of the recent concerns related to the fuel performance model changes included in draft report NUREG-0630 (Reference 2). Adoption of these changes would produce an increase of the peak cladding temperature by 405°F, due to the fuel burst model change and by 450°F, due to the fuel strain model change. To compensate for these changes and keep the peak cladding temperature below the 2200°F limit, the peaking factor F_Q should be reduced by 0.053. There are, however, two compensating effects which could provide credits offsetting the above mentioned penalties in LOCA analysis. These effects are due to the changes involving the slip and break flow models which have been approved by us for UHI plants after an extensive review. It is estimated that the total benefit of use of these models would be an increase of 0.38 units in F_Q . However, at the present moment, no adequate basis exists for considering horizontal slip. Also an uncertainty exists in translating the phenomena at blowdown to an effect during reflood. It is our current best technical judgment that application of these model changes would result in an increase of F_Q by 0.15 (Reference 11). This value more than offsets the penalties in F_Q and the results of the LOCA analysis submitted by the licensee (Reference 1) could be considered conservative.

The licensee has performed the "18 case FAC analyses" for Unit 3, Cycle 7 and Unit 4, Cycle 6 (Reference 12) because the limiting peaking factor in the LOCA analysis was below the value for which the excore detectors could give reliable measurements. The results of these analyses have indicated that for both units the predicted maximum peaking factor exceeds the limiting value of F_Q . The licensee is therefore required either to limit power to the rated power multiplied by the ratio of 1.97 divided by the predicted peaking factor or to implement the augmented surveillance discussed in Reference 13 and ascertain that the peaking factor would not exceed the limiting value of 1.97. This requirement could be lifted anytime during plant operation if the licensee demonstrates by the "18 case FAC analysis" that the maximum predicted F_Q is within the LOCA determined limit.

Summary

Based on the review of the submitted documents, we conclude that the results of the LOCA analysis performed with $F_Q = 1.97$ are conservative relative to the 10 CFR 50.46 criteria. We consider the resultant changes to the Technical Specifications acceptable for operating Units 3 and 4 with up to a maximum of 25 percent of steam generator tubes plugged.

Environmental Consideration

We have determined that the amendments do 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 amendments involve 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 these amendments.

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.

Date: May 15, 1980

References

1. Letter from R. E. Uhrig (FPL) to D. G. Eisenhut (NRC), Serial No. L-80-129, dated April 29, 1980.
2. NUREG-0630, Cladding Swelling and Rupture Models for LOCA analysis, November 1979.
3. NRC Memo from P. S. Check to A. Schwencer, Safety Evaluation by NRR of LOCA Reanalysis for Zion Station, Units 1 and 2, dated March 14, 1980.
4. WCAP-9220, Westinghouse ECCS Evaluation Model, February 1978 Version, February 1978.
5. Letter from J. F. Stolz (NRC) to T. M. Anderson (Westinghouse), dated August 29, 1978.
6. Letter from R. E. Uhrig (FPL) to V. Stello (NRC), dated December 9, 1976.
7. Letter from R. E. Uhrig (FPL) to G. Lear (NRC), Serial No. L-77-217, dated July 11, 1977.
8. Letter from R. E. Uhrig (FPL) to V. Stello (NRC), Serial No. L-78-264, dated August 9, 1978.
9. Letter from A. D. Schmidt (FPL) to J. P. O'Reilly (NRC-Region II), Serial No. PRN-LI-79-414, dated November 15, 1979.
10. Letter from A. D. Schmidt (FPL) to J. P. O'Reilly (NRC-Region II), Serial No. PRN-LI-79-423, dated November 23, 1979.
11. G. N. Lauben (NRC) to R. P. Denise (NRC) Memorandum, "Review Status of Considered Revisions to Vendor ECCS Evaluation Models," dated December 21, 1979.
12. Letter from R. E. Uhrig (FPL) to D. G. Eisenhut (NRC), Serial No. L-80-68 dated March 3, 1980.
13. Letter from R. E. Uhrig (FPL) to V. Stello (NRC), Serial No. L-78-127, dated April 10, 1978.

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NOS. 50-250 AND 50-251FLORIDA POWER AND LIGHT COMPANYNOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 57 to Facility Operating License No. DPR-31, and Amendment No. 50 to Facility Operating License No. DPR-41 issued to Florida Power and Light Company (the licensee), which revised Technical Specifications for operation of Turkey Point Nuclear Generating, Unit Nos. 3 and 4 (the facilities) located in Dade County, Florida. The amendments are effective as of the date of issuance.

The amendments incorporate the results of a revised ECCS analysis for a steam generator tube plugging level of 25%.

The application for the amendments 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 amendments. Prior public notice of these amendments was not required since the amendments do not involve a significant hazards consideration.

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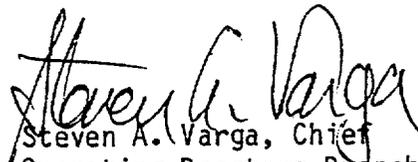
- 2 -

The Commission has determined that the issuance of these amendments 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 these amendments.

For further details with respect to this action, see (1) the application for amendments dated April 29, 1980, (2) Amendment Nos. 57 and 50 to License Nos. DPR-31 and DPR-41, 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 15th day of May, 1980.

FOR THE NUCLEAR REGULATORY COMMISSION


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