Docket Nos. 50-250
and 50-251

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June 9, 1995

Mr. J. H. Goldberg
President-Nuclear Division
Florida Power and Light Company
P.O. Box 14000
Juno Beach, Florida 33408-0420

SUBJECT: TURKEY POINT UNITS 3 AND 4 - ISSUANCE OF AMENDMENTS RE: IMPLEMENTATION OF FPL NUCLEAR PHYSICS METHODOLOGY (TAC NOS. M91393 AND M91394)

Dear Mr. Goldberg:

The Commission has issued the enclosed Amendment No. 174 to Facility Operating License No. DPR-31 and Amendment No. 168 to Facility Operating License No. DPR-41 for the Turkey Point Plant, Unit Nos. 3 and 4, respectively. The amendments consist of changes to the Technical Specifications (TS) in response to your application dated January 17, 1995, concerning implementation of FPL nuclear physics methodology for calculations of the core operating limits report parameters.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,
Original signed by:
Richard P. Croteau, Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 174to DPR-31
2. Amendment No. 168to DPR-41
3. Safety Evaluation

cc w/enclosures: See next page

FILENAME - G:\TP91393.AMD *Previously concurred

w/ change to SE sec. 6.0

OFFICE	LA:PDII-1	PM:PDII-1	D:PDII-1	OGC	
NAME	Dunnington	RCroteau	DMatthews		
DATE	5/25/95	5/31/95	6/7/95	6/1/95	
COPY	Yes/No	Yes/No	Yes/No	Yes/No	

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Mr. J. H. Goldberg
Florida Power and Light Company

Turkey Point Plant

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DATED: June 9, 1995

AMENDMENT NO. 174 TO FACILITY OPERATING LICENSE NO. DPR-31-TURKEY POINT UNIT 3
AMENDMENT NO. 168 TO FACILITY OPERATING LICENSE NO. DPR-41-TURKEY POINT UNIT 4

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

FLORIDA POWER AND LIGHT COMPANY

DOCKET NO. 50-250

TURKEY POINT PLANT UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 174
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 January 17, 1995, 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-31 is hereby amended to read as follows:

   (B) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 174, are hereby incorporated in the license. The Environmental Protection Plan contained in Appendix B is hereby incorporated into the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Bart C. Buckley for

David B. Matthews, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 9, 1995

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

FLORIDA POWER AND LIGHT COMPANY

DOCKET NO. 50-251

TURKEY POINT PLANT UNIT NO. 4

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 168
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 January 17, 1995, 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) <u>Technical Specifications and Environmental Protection Plan</u>

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 168 , are hereby incorporated in the license. The Environmental Protection Plan contained in Appendix B is hereby incorporated into the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Bart C. Buckley for

David B. Matthews, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 9, 1995

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 174 FACILITY OPERATING LICENSE NO. DPR-31

AMENDMENT NO. 168 FACILITY OPERATING LICENSE NO. DPR-41

DOCKET NOS. 50-250 AND 50-251

Revise Appendix A as follows:

Remove page	Insert page
6-20	6-20
6-20a	6-20a

PEAKING FACTOR LIMIT REPORT (Continued)

Factor Limit Report, the Peaking Factor Limit Report shall be provided to the NRC Document Control desk with copies to the Regional Administrator and the Resident Inspector within 30 days of their implementation, unless otherwise approved by the Commission.

The analytical methods used to generate the Peaking Factor limits shall be those previously reviewed and approved by the NRC. If changes to these methods are deemed necessary they will be evaluated in accordance with 10 CFR 50.59 and submitted to the NRC for review and approval prior to their use if the change is determined to involve an unreviewed safety question or if such a change would require amendment of previously submitted documentation.

CORE OPERATING LIMITS REPORT

6.9.1.7 Core operating limits shall be established and documented in the CORE OPERATING LIMITS REPORT (COLR) before each reload cycle or any remaining part of a reload cycle for the following:

1. Axial Flux Difference for Specifications 3.2.1.

2. Control Rod Insertion Limits for Specification 3.1.3.6.

3. Heat Flux Hot Channel Factor - $F_Q(Z)$ for Specification 3/4.2.2.

The analytical methods used to determine the AFD limits shall be those previously reviewed and approved by the NRC in:

1. WCAP-10216-P-A, "RELAXATION OF CONSTANT AXIAL OFFSET CONTROL F_Q SURVEILLANCE TECHNICAL SPECIFICATION," June 1983.

2. WCAP-8385, "POWER DISTRIBUTION CONTROL AND LOAD FOLLOWING PROCEDURES - TOPICAL REPORT," September 1974.

The analytical methods used to determine the K(Z) curve shall be those previously reviewed and approved by the NRC in:

1. WCAP-9220-P-A, Rev. 1, "Westinghouse ECCS Evaluation Model - 1981 Version," February 1982.

2. WCAP-9561-P-A, ADD. 3, Rev. 1, "BART A-1: A Computer Code for the Best Estimate Analysis of Reflood Transients - Special Report: Thimble Modeling W ECCS Evaluation Model."

The analytical methods used to determine the Rod Bank Insertion Limits shall be those previously reviewed and approved by the NRC in:

1. WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985.

The ability to calculate the COLR nuclear design parameters are demonstrated in:

1. Florida Power & Light Company Topical Report NF-TR-95-01, "Nuclear Physics Methodology for Reload Design of Turkey Point & St. Lucie Nuclear Plants".

CORE OPERATING LIMITS REPORT (Continued

Topical Report NF-TR-95-01 was approved by the NRC for use by Florida Power & Light Company in:

1. Safety Evaluation by the Office of Nuclear Reactor Regulations Related to Amendment No. 174 to Facility Operating License DPR-31 and Amendment No. 168 to Facility Operating License No. DPR-41, Florida Power & Light Company Turkey Point Units Nos. 3 and 4, Docket Nos. 50-250 and 50-251.

The AFD, K(Z), and Rod Bank Insertion Limits shall be determined such that all applicable limits of the safety analyses are met. The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements thereto, shall be provided upon issuance, for each reload cycle, to the NRC Document Control Desk with copies to the Regional Administrator and the Resident Inspector, unless otherwise approved by the Commission.

SPECIAL REPORTS

6.9.2 Special reports shall be submitted to the Regional Administrator of the Regional Office of the NRC within the time period specified for each report as stated in the Specifications within Sections 3.0, 4.0, or 5.0.

6.10 RECORD RETENTION

6.10.1 In addition to the applicable record retention requirements of Title 10, Code of Federal Regulations, the following records shall be retained for at least the minimum period indicated.

6.10.2 The following records shall be retained for at least 5 years:

a. Records and logs of unit operation covering time interval at each power level;

b. Records and logs of principal maintenance activities, inspections, repair, and replacement of principal items of equipment related to nuclear safety;

c. All REPORTABLE EVENTS;

d. Records of surveillance activities, inspections, and calibrations required by these Technical Specifications;

e. Records of changes made to the procedures required by Specification 6.8.1;

f. Records of radioactive shipments;

g. Records of sealed source and fission detector leak tests and results; and

h. Records of annual physical inventory of all sealed source material of record.

6.10.3 The following records shall be retained for the duration of the unit Operating License:

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 174 TO FACILITY OPERATING LICENSE NO. DPR-31

AND AMENDMENT NO. 168 TO FACILITY OPERATING LICENSE NO. DPR-41

FLORIDA POWER AND LIGHT COMPANY

TURKEY POINT UNIT NOS. 3 AND 4

DOCKET NOS. 50-250 AND 50-251

1.0 INTRODUCTION

In a letter of January 17, 1995 (Ref. 1), from T. F. Plunkett to the U.S. Nuclear Regulatory Commission (NRC), Florida Power and Light Company (FPL) submitted Topical Report NF-TR-95-01 (Ref. 2) entitled "Nuclear Physics Methodology for Reload Design of Turkey Point & St. Lucie Nuclear Plants" for NRC review (Ref. 2). The report describes the methodology used by FPL to analyze the core design characteristics for Turkey Point Units 3 and 4 and St. Lucie Units 1 and 2. The methodology was obtained from Westinghouse Electric Corporation and calculations using this methodology were performed by FPL and the results compared to operating data from Turkey Point and St. Lucie. However, since Westinghouse is the nuclear steam supply system (NSSS) vendor and present fuel supplier for only the Turkey Point units, only approval for FPL use of the methodology for reload design calculations for Turkey Point Units 3 and 4 was requested at this time.

2.0 TOPICAL REPORT SUMMARY

The report describes the use of Westinghouse methodology as applied by FPL to analyze the core characteristics of the Turkey Point and St. Lucie nuclear plants. Startup physics measurements as well as core follow results for Turkey Point Unit 4 during Cycles 12, 13, and 14 are used to compare critical boron concentrations, temperature coefficients, control rod worth, differential boron worth, power peaking factors, and radial and axial power distributions. Comparisons between measurements and predictions of critical boron concentration, moderator temperature coefficients (MTCs), control rod worth, differential boron worth, and axial power distributions for St. Lucie Unit 1 Cycles 10, 11, and 12 are also presented.

3.0 TOPICAL REPORT EVALUATION

FPL has entered into a technology exchange agreement with the Commercial Nuclear Fuel Division of Westinghouse through which the relevant physics design methodology and associated computer programs have been obtained. A training program was initiated which included hands-on experience performing actual calculations to ensure that the FPL engineers understood the Westinghouse methodology. Some of the reload physics calculations were performed by FPL independently of Westinghouse with Westinghouse providing quality assurance of all calculations. All of the methods employed and described in this topical report (including model development, computer programs, measured data processing, etc.) are NRC-approved standard Westinghouse methods and reflect current practices.

3.1 Computer Codes

PHOENIX-P is a two-dimensional multigroup transport theory code (Ref. 3) which has been qualified and approved (Ref. 4) for use in calculating pressurized water reactor (PWR) lattice physics parameters and determining neutronics input for the two-group diffusion theory code, ANC. PHOENIX-P uses a 42-energy group cross section set derived from the standard ENDF/B-V cross section library.

ANC is an approved Westinghouse three-dimensional two-group diffusion theory nodal code (Ref. 5) which was also qualified for use with PHOENIX-P by Reference 4. The code is based on coarse mesh nodal (4 nodes per assembly) diffusion theory using the non-linear nodal expansion method, with coupled thermal-hydraulic and Doppler feedback. The code includes the following modeling capabilities: solution of the two-group neutron diffusion equation, equivalence theory cross section homogenization, cross section depletion, explicit baffle/reflector modeling, and a rod power recovery model.

The two-group model solves the neutron diffusion equation in three dimensions, with assembly homogenization. In order to preserve the flux and current continuity at nodal interfaces, ANC uses flux assembly discontinuity factors that are obtained from the PHOENIX-P two-dimensional detailed lattice analysis. ANC also employs flux discontinuity correction factors to combine the global (nodal) flux shape and the assembly heterogeneous flux distribution for the rod power recovery model. The use of an explicit baffle/reflector cross section representation eliminates the need for user-supplied albedoes, normalization, or other adjustment at the core/reflector interface.

The fuel depletion model uses macroscopic cross sections to account for fuel exposure without tracking the individual nuclide concentrations. ANC can be used to calculate the three-dimensional pin-by-pin power distribution in a manner that accounts for individual pin burnup and spectral effects. ANC also calculates control rod worth and moderator, Doppler, and xenon and samarium feedback effects.

APOLLO is a Westinghouse one-dimensional axial two-group diffusion theory code (Ref. 6), currently under NRC review, which uses radially homogenized flux and volume weighted cross sections from the three-dimensional ANC model. The one-dimensional APOLLO model is normalized to the three-dimensional ANC model results by performing an elevation-dependent radial buckling search at each burnup step (Ref. 7). APOLLO is an advanced version of the approved PANDA code (Ref. 8) which was also described in the October 1984 meeting between Westinghouse and the NRC (Ref. 9).

FIGHTH is a Westinghouse computer code derived from previous LASER (Ref. 10) and REPAD (Ref. 11) models and which has been accepted (Ref. 12) for predicting steady-state fuel rod temperatures for low-enriched sintered UO_2 fuel rods. This code is currently used only for calculating fuel and cladding effective temperatures for input to the PHOENIX-P code as a function of burnup, linear heat generation rate, moderator temperature and flow rate.

The standard Westinghouse INCORE computer code (Ref. 13) is used to process the neutron flux measurements made by the movable incore fission chambers to determine the core power distribution, as required by the Turkey Point Technical Specifications (TS). The measured flux values are combined with power-to-reaction rate ratios analytically generated with the PHOENIX-P/ANC models in order to infer a "measured" three-dimensional power distribution. This standard Westinghouse technique allows use of the previously established measurement uncertainties. Since all methods employed are stated to be standard licensed methods, the Westinghouse calculational uncertainties (Ref. 14) for the nuclear hot channel factors are also used by FPL.

FPL has used the Westinghouse methodology package described above to perform design calculations for Cycles 12, 13 and 14 of Turkey Point Unit 4. Unit 4 was chosen because of its wide variety of assembly and burnable absorber types, its transition to axial blanketed fuel, its large number of reinserted fuel assemblies, vessel flux reduction features (e.g., hafnium inserts at the periphery), and its low-leakage fuel management. An evaluation of these comparisons is presented below for the key PWR physics parameters to be generated by the licensee.

3.2 Critical Boron Concentrations

Critical boron concentrations were measured at hot zero power (HZP) conditions by acid-based titration with all rods out (ARO) and with the reference bank (the bank of highest worth) fully inserted. The FPL ANC three-dimensional model predictions of critical boron concentration were compared to zero power startup test measurements for Cycles 12, 13 and 14 of Turkey Point Unit 4. The results from the HZP comparisons qualify the model for predicting the critical boron concentration and reactivity for beginning-of-cycle (BOC) xenon-free conditions. Six measurements from the three cycles of startup tests are included. All differences are within the ±50 ppm review criterion.

3.3 Isothermal Temperature Coefficients

The isothermal temperature coefficient (ITC) is defined as the change in reactivity due to an incremental change in the core average moderator and fuel temperature. ITCs were measured by making small changes in the reactor coolant system (RCS) temperature and determining the corresponding change in reactivity with the plant reactivity computer. FPL used the three-dimensional ANC model to calculate the ITC by uniformly varying the moderator temperature by ±5 °F about the HZP temperature and by determining the Doppler (fuel) temperature effect using the fitting coefficients from the FIGHTH calculations. The measured and predicted ITCs and MTCs compared within the review criterion of ±2 pcm/°F from the three cycles of operation. Note that 1 pcm is equivalent to $1x10^{-5}$ percent $\Delta k/k$. The measured MTC is obtained by subtracting the Doppler coefficient from the measured ITC.

3.4 Control Rod Worths

Control rod worth is the reactivity difference (pcm) between two different control rod configurations. The worth of the reference bank (the bank of highest worth) was measured by boron dilution, using step-wise bank insertion and summing the differential worths obtained from the reactivity computer. The remaining banks were then individually fully inserted, while holding boron concentration constant, and withdrawing the reference bank to maintain criticality. The integral worth of each inserted bank is inferred from the equivalent worth of the reference bank measured critical position, corrected for the presence of the inserted bank. This is consistent with the Westinghouse Rod Swap Technique (Ref. 15), which was approved by the NRC in 1982. The three-dimensional ANC model was used for the prediction of the individual control rod bank worths and was compared by FPL with the BOC zero-power startup measurements for three operating cycles of Turkey Point Unit 4. All relative differences were within the test review criteria of ±10% on the reference bank worth and ±15% (or 100 pcm) on the swapped rod worths. The ANC model is also used to generate the analytical correction factors which account for the effect of the inserted bank on the partial integral worth of the reference bank.

3.5 Differential Boron Worths

Measured differential boron worths (pcm/ppm) were inferred by dividing the measured reference bank worth by the difference between the critical boron concentrations with ARO and the reference bank inserted. The three-dimensional ANC model was used to calculate the worth of a ±25 ppm change about the HZP measured ARO critical boron concentration. The measured and predicted boron worths from the three Turkey Point cycles were compared by FPL. All relative differences were within the test review criterion of ±15%.

3.6 Boron Letdown Curves

Critical boron concentrations from measured hot full power (HFP), equilibrium xenon and samarium conditions were compared to the three-dimensional ANC model predicted boron letdown curves for the three cycles of Turkey Point Unit 4 stated above. These at-power comparison results, corrected for control rod insertion and for deviations from the full-power, equilibrium xenon and samarium conditions, are used as estimates of the model uncertainty for all equilibrium power conditions with thermal feedback. There are a total of 31 measurements from three operating cycles, taken at the time of INCORE power distribution measurements. The mean difference between measured and predicted critical boron concentrations for all three operating cycles is 9 ppm, with a standard deviation of 13 ppm, and well within the test review criterion of ±50 ppm.

3.7 Power Peaking Factors

Measured values of the primary power peaking factors, the heat flux hot channel factor (F_Q) and the nuclear enthalpy rise hot channel factor ($F^N_{\Delta H}$), were inferred using the Westinghouse INCORE code. The predicted power peaking factors were obtained from the three-dimensional ANC model results at the closest depletion interval. For F_Q, the mean difference between the measured and predicted values for 31 measured statepoints over the three operating cycles was 3.33% with a standard deviation of 1.86%. For $F^N_{\Delta H}$, the mean difference is 2.02% with a standard deviation of 1.27%. These are within the Westinghouse uncertainty values stated in Reference 14.

3.8 Radial Power Distributions

The measured radial power distributions are inferred by the INCORE code, after the flux map measurements are performed using the moveable incore neutron flux detector system. The predicted power distributions are interpolated from the three-dimensional ANC depletion step results at HFP, ARO operating conditions. The mean absolute difference between measured and predicted assembly relative powers is less than 0.021 with a standard deviation less than 0.023.

3.9 Axial Power Distributions and Axial Offset

A total of nine axial power distribution measurements from the above flux maps over the three cycles were compared to the three-dimensional ANC model predicted values at similar depletion points. The measured axial offset (AO), defined as the percent difference between the relative power in the top half of the core and that in the bottom half of the core, is also inferred by INCORE and is compared with the predicted values from ANC at 31 flux map statepoints. The mean difference between measured and predicted values for the three cycles is 0.66% with a standard deviation of 1.54%.

3.10 Technical Specification Changes

The licensee proposed changing TS 6.9.1.7, Core Operating Limits Report, to reference Topical Report NF-TR-95-01 once the staff had approved the use of this report. The use of this report is acceptable for the reasons stated in this SE and is approved by this SE, therefore, reference to it in the TS is acceptable.

4.0 SUMMARY AND CONCLUSIONS

FPL has performed benchmarking for three cycles of operating data from Turkey Point Unit 4 using currently accepted Westinghouse reload design methodologies. The benchmarking effort consisted of detailed comparisons of the calculated physics parameters with the measurements obtained from the Turkey Point PWR. The results demonstrate that the Turkey Point plant-specific agreement is within the Westinghouse determined uncertainty analysis for the stated PWR physics parameters. This effort also demonstrates the capability of FPL to use the Westinghouse computer program package for application to the Turkey Point units. FPL intends to use these methods for steady-state PWR core physics reload design applications and safety analysis inputs.

Based on the analyses and results presented in the topical report, the NRC staff concludes that currently approved Westinghouse methodologies, as validated by FPL, can be applied to steady-state PWR reactor physics calculations for the Turkey Point reload design applications discussed in the above technical evaluation. The accuracy of this methodology has been demonstrated to be sufficient for use in design applications, including PWR reload physics analysis, generation of transient analysis input data, startup predictions, plant reactivity computer inputs and Core Operating Limits Report (COLR) parameters (axial flux differences, control rod insertion limits, and heat flux hot channel factors).

Application of the approved package is to be limited to the range of fuel assembly and core reload design parameters verified in the topical report. Addition of new Westinghouse fuel designs would be acceptable without further review, if analyzed by currently approved methodologies. Future adoption by FPL of Westinghouse improved methodology which has been reviewed and approved by the NRC is also acceptable for COLR referencing. However, any change from the current fuel vendor, which also introduces different fuel designs or core operating strategies, may require further validation by the licensee since the approved computer codes and procedures have been qualified against a Westinghouse fuel design base.

Based on the above, the proposed changes to the TS referencing Topical Report NF-TR-95-01 are acceptable. The Commission has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of these amendments will not be inimical to the common defense and security or the health and safety of the public.

5.0 STATE CONSULTATION

Based upon the written notice of the proposed amendments, the Florida State official had no comments.

6.0 ENVIRONMENTAL CONSIDERATION

These amendments involve a change with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (60 FR 11133). Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

7.0 REFERENCES

(1) Letter from T. F. Plunkett (FPL) to Document Control Desk (NRC), Implementation of FPL Nuclear Physics Methodology for Calculations of

Core Operating Limits Report Parameters, dated January 17, 1995.

(2) NF-TR-95-01, "Nuclear Physics Methodology for Reload Design of Turkey Point & St. Lucie Nuclear Plants," Florida Power & Light Company, January 1995.

(3) WCAP-10106-P-A, "A Description of the Nuclear Design Analysis Programs for Boiling Water Reactors," June 1982.

(4) WCAP-11596-P-A, "Qualification of the PHOENIX-P/ANC Nuclear Design System for Pressurized Water Reactor Cores," November 1987.

(5) WCAP-10965-P-A, "ANC: A Westinghouse Advanced Nodal Computer Program," December 1985.

(6) WCAP-13524-P, "APOLLO - A One Dimensional Neutron Diffusion Theory Program," October 1992.

(7) WCAP-8903 (Proprietary), "Analysis of Elevated Dependent Power Peaking Factors," December 1976.

(8) WCAP-7048-P-A and WCAP-7757-A (Non-proprietary), "The PANDA Code," January 1975.

(9) Letter from N. J. Liparulo (W) to R. C. Jones (NRC), "Presentation Material from the October 10, 1984 NRC/Westinghouse Meeting on the Improved Versions of Neutronics Codes Being Utilized (Non-proprietary)," ET-NRC-92-3736, August 27, 1992.

(10) WCAP-6073, "LASER - A Depletion Program for Lattice Calculations Based on MUFT and THERMOS," April 1966.

(11) WCAP-2048, "The Doppler Effect for a Non-Uniform Temperature Distribution in Reactor Fuel Elements," July 1962.

(12) Letter from S. A. Varga (NRC) to D. L. Farrar (CECo), accepting "Commonwealth Edison Company Topical Report on Benchmark of PWR Nuclear Design Methods," NFSR-0016, Rev. 0, December 1983.

(13) WCAP-8498, "INCORE Power Distribution Determination in Westinghouse Pressurized Water Reactors," July 1975.

(14) WCAP-7308-L, "Evaluation of Nuclear Hot Channel Factor Uncertainties," April 1969, and "Update to WCAP-7308-L-P-A (Proprietary), Evaluation of Nuclear Hot Channel Factor Uncertainties," June 1988.

(15) WCAP-9863-P-A, "Rod Bank Worth Measurements Utilizing Bank Exchange," May 1982.

Principal Contributors: L. Kopp
Date: June 9, 1995