FPL

MAR 0 8 2000

L-2000-054
10 CFR 50.36
10 CFR 50.90

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington D. C. 20555

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Proposed License Amendments
Soluble Boron Credit for Spent Fuel Pool and Fresh Fuel Rack Criticality Analyses
Response to Request for Additional Information

By letter L-99-176, dated November 30, 1999, Florida Power and Light Company (FPL) requested that Appendix A of Facility Operating Licenses DPR-31 and DPR-41 be amended to modify Technical Specification (TS) 3.9-1 and 5.6.1. By letter dated January 31, 2000, the NRC staff requested additional information regarding the above referenced FPL submittal.

The response to the request for additional information is provided in Attachment 1. FPL has identified a typographical error in Attachment 5 of L-99-176. Attachment 2 of this letter provides the corrected report and supercedes Attachment 5 of L-99-176. FPL has determined that the additional information provided herein does not change the conclusions reached in the original no significant hazards consideration provided in FPL letter L-99-176. Attachment 3 provides the environmental consideration statement.

In accordance with 10 CFR 50.91 (b) (1), a copy of this letter is being forwarded to the State Designee for the State of Florida.

Should there be any questions on this request, please contact us.

Very truly yours,

R. J. Hovey
Vice President
Turkey Point Plant

SM
Attachments
cc: Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point
Florida Department of Health

A001

STATE OF FLORIDA)
) ss.
COUNTY OF MIAMI-DADE)

R. J. Hovey being first duly sworn, deposes and says:

That he is Vice President, Turkey Point Plant, of Florida Power and Light Company, the Licensee herein;

That he has executed the foregoing document; that the statements made in this document are true and correct to the best of his knowledge, information and belief, and that he is authorized to execute the document on behalf of said Licensee.

R. J. Hovey

STATE OF FLORIDA

COUNTY OF MIAMI-DADE

Subscribed and sworn to before me this
8th day of March, 2000,

by R. J. Hovey is personally known to me.

Cheryl A. Stevenson
Name of Notary Public, State of Florida

CHERYL A. STEVENSON
MY COMMISSION # CC 564017
EXPIRES: June 19, 2000
Bonded Thru Notary Public Underwriters

(Print, type or stamp Commissioned Name of Notary Public)

Attachment 1

The NRC staff requested additional information regarding FPL letter L-99-176, submitted on November 30, 1999, Proposed License Amendments Soluble Boron Credit for Spent Fuel Pool and Fresh Fuel Rack Criticality Analyses. The following discussion provides the response.

Request 1

The NRC staff safety evaluation report contained in WCAP-14416-NP-A presents the required technical specifications for use with the approved soluble boron credit methodology. The Fuel Storage Criticality specifications in the Design Features Section for both k-eff less than 1.0 if fully flooded with unborated water and for k-eff less than or equal to 0.95 if fully flooded with borated water require reference to WCAP-14416-P for a description of the uncertainties included. Therefore, proposed Technical Specifications 5.6.1.1.a and 5.6.1.1.b should include the phrase "which includes a conservative allowance for uncertainties as described in WCAP-14416-P."

Response 1

FPL agrees with the above recommendation and wording of proposed Technical Specifications 5.6.1.1.a and 5.6.1.1.b to include the phrase, "which includes a conservative allowance for uncertainties as described in WCAP-14416-P." The inclusion of this wording does not change the conclusions reached in the original no significant hazards consideration provided in FPL letter L-99-176.

Request 2

Please describe the administrative procedures used to select the appropriate assemblies for storage in the burnup-dependent racks in Region 2.

Response 2

Spent fuel assemblies assignment in Region II are specified by the Reload Engineering Design Modification Package which is reviewed and approved by the plant's safety review board prior to the offload of the irradiated fuel assemblies from the core. The basis for these assignments is documented in an engineering calculation in accordance with Nuclear Engineering Department Standard STD-F-009 Revision 3, "Irradiated Fuel Storage Assignments." The requirements in this standard are in compliance with Technical Specification 3/4.9.14 regarding the storage of irradiated fuel.

At Turkey Point, the movement of fuel assemblies is controlled by Administrative Procedure 0-ADM-556, Fuel Assembly and Insert Shuffle. Guidelines in this procedure along with the designation of assemblies which satisfy the requirements for storage in Region II, are used to proceduralize the movement of each individual assembly by an assembly identification number and an alpha numeric storage location via Fuel Handling Data Sheets. The Fuel Handling Data Sheets are used by operating personnel to coordinate and track the movement of each assembly to assure that it is stored in its proper location. Control of this evolution is via headphone communication between the Control Room and the fuel handling personnel. Once in the pool, an insert shuffle is done and a camera inspection of the assemblies that are going back into the core is performed. This inspection ensures that the assemblies going back in the core have the right insert and are located in the proper storage rack. The Fuel Handling Data Sheets become Quality Assurance records.

Request 3

Attachment 5 describes the criticality analysis performed with a reduced B-10 loading in the degraded Boraflex. The assumptions in the analysis include the following:

Region 1: 0.009 g/cm^2 absorber B-10 loading and 0.0351 inch thickness

Region 2: 0.006 g/cm^2 absorber B-10 loading and 0.051 inch thickness

The analysis based on these assumptions results in a K_{eff} less than 1.0 with no soluble boron. Please provide your plan to verify that the Boraflex panels have not degraded beyond the assumed thicknesses.

Response 3

Contingent upon approval of the proposed license amendments, FPL plans to perform a test, in 2001, to verify the analysis assumptions for Boraflex degradation.

Currently, FPL has an on-going in-service Boraflex verification program, which consists of measuring the gap formation, gap distribution, and gap size. The program accomplishes these goals through the performance of blackness testing on a frequency of one test every five years in either Spent Fuel Pool.

Upon approval of the proposed license amendments, FPL would commit to perform a test that validates our assumption on the thickness of the Boraflex every five years beginning in the year 2001. FPL would upgrade the blackness testing with a test which will not only measure the number of gaps and gap size but also validate our assumptions on the thickness of the Boraflex.

Substituting the blackness testing with an upgraded test, as well as changing the test date from the year 2000 to 2001, would change FPL's previous commitment as documented in L-95-041, dated September 5, 1995. Upon approval of the proposed license amendments, FPL will notify the NRC by separate correspondence, of the change in commitment.

Attachment 2

The value of 0.0006 g/cm^2 that is quoted on page 2 of 4 of FPL letter L-99-176, Attachment 5 (Westinghouse letter 999FP-G-012, Rev 1) is a typo and should read 0.006 g/cm^2. Westinghouse has corrected the typographical error and the attached report (Westinghouse letter 999FP-G-0102, Rev 2) supercedes Attachment 5 of L-99-176.

Westinghouse Electric Company Commercial Nuclear Fuel Division Box 355
Pittsburgh Pennsylvania 15230-0355

January 5, 2000

Mr. Jimmie L. Perryman
ENG-JB Room D 4466
Florida Power & Light Company
P. O. Box 14000
Juno Beach, Florida 33408

Reference: 1) 99FP-G-0067, dated June 15, 1999
2) 99FP-G-0071, dated July 6, 1999

Dear Mr. Perryman:

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT UNITS 3 & 4
Criticality Analysis with Reduced B^{10} Loading in the Degraded Boraflex for Regions 1 and 2 Spent Fuel Storage, Revision 2

Attached are the results for the completed criticality analysis with the reduced B^{10} loading in the degraded boraflex for Turkey Point Units 3 and 4 Regions 1 and 2 spent fuel storage (no soluble boron). The methodology and assumptions used in the analysis are the same as in References 1 and 2, except that the absorber B^{10} loading and its thickness are reduced to 0.009 g/cm^2 and 0.0351 inch for Region 1 and 0.006 g/cm^2 and 0.051 inch (remain unchanged) for Region 2. For Region 1, the reduction of both the B^{10} loading and the corresponding thickness is slightly more limiting than the reduction of the B^{10} loading only. For Region 2, the reduction of the B^{10} loading only is slightly more limiting than the reduction of the B^{10} loading and the corresponding thickness. The final 95/95 Keff is shown in the attached Table 1 and Table 2 for spent fuel rack Region 1 and Region 2, respectively. Since both Keff's are still less than 1.0, the Turkey Point Units 3 and 4 spent fuel racks will remain subcritical when all cells are loaded 15x15 fresh fuel assemblies with nominal enrichments no greater than 4.50 w/o U^{235} with natural uranium axial blankets in Region 1, and with nominal enrichments no greater than 1.60 w/o in Region 2. This meets the design basis for no soluble boron water in the pool.

This transmittal has been revised to correct the Region 2 absorber B^{10} loading to 0.006 g/cm^2.

Please contact M. F. Muenks or me, if you have any questions or concerns about this criticality analysis.

Very truly yours,

for David E. McKinnon
Project Engineer
Commercial Nuclear Fuel Division

cc: B. Tomonto TP Site
J. Garcia Juno Beach
C. A. Villard Juno Beach
J. R. Dwight Columbia
M. F. Muenks Energy Center

/cad
Attachment

Criticality Analysis With a Reduced B^{10} Loading in the Degraded Boraflex for Turkey Point Units 3 & 4 Region 1 and Region 2 Spent Fuel All Cell Storage (No Soluble Boron)

January, 2000

S. Srinilta (ND)
Core Analysis B
Date: 1/5/2000

Verified:
J. Secker (ND)
Core Analysis C
Date: 1/5/2000

Criticality Analysis With a Reduced B^{10} Loading in the Degraded Boraflex for Turkey Point Units 3 & 4 Region 1 and Region 2 Spent Fuel All Cell Storage (No Soluble Boron)

A criticality analysis was performed with a reduced B^{10} loading in the degraded boraflex for Turkey Point Units 3 & 4 Region 1 and Region 2 spent fuel all cell storage (No Soluble Boron). The methodology and assumptions used in the analysis are the same as in Reference 1 except that the absorber B^{10} loading and its thickness are reduced to 0.009 g/cm^2 and 0.0351 inch for Region 1 and 0.006 g/cm^2 and 0.051 inch (remain unchanged) for Region 2. For Region 1, the reduction of both the B^{10} loading and the corresponding thickness is slightly more limiting than the reduction of the B^{10} loading only. For Region 2, the reduction of the B^{10} loading only is slightly more limiting than the reduction of the B^{10} loading and the corresponding thickness. The final 95/95 Keff is shown in the attached Table 1 and Table 2 for spent fuel rack Region 1 and Region 2, respectively. Since both Keff's are still less than 1.0, the Turkey Point Units 3 and 4 spent fuel racks will remain subcritical when all cells are loaded 15x15 fresh fuel assemblies with nominal enrichments no greater than 4.50 w/o U^{235} with natural uranium axial blankets in Region 1, and with nominal enrichments no greater than 1.60 w/o in Region 2. This meets the design basis for no soluble boron water in the pool.

Reference: 1) 99FP-G-0071 Criticality for Spent Fuel Storage for Turkey Point Units 3 & 4 (Degraded Boraflex)

Table 1. Region 1 - No Soluble Boron

Base Keno Reference Reactivity		0.97155
Calculation and Methodology Biases	**Range**	
Methodology (Benchmark) Bias		0.00770
Pool Temperature Bias	50 F to 185 F	0.00077
Boron Particles in Boraflex		0.00384
Total Bias		0.01231

Tolerances and Uncertainties	**Parameter Variation**	**Reactivity Variation**
Fuel Enrichment	+0.05/-0.05 %	0.00191
Fuel Density	+2/-2 %	0.00250
Fuel Pellet Dishing	-1.187 %	0.00145
Rack Cell Inner Dimension	+0.05/-0.025 inch	0.00153
Rack Cell Pitch	+0.12/-0.12 inch	0.01022
Rack Wall Thickness	+0.007/-0.007 inch	0.00024
Wrapper Plate Thickness	+0.002/-0.002 inch	0.00000
Poison Panel Thickness	+0.007/-0.007 inch	0.00973
Poison Cavity Thickness	+0.010/-0.010 inch	0.00004
Poison Panel Width	+0.075/-0.075 inch	0.00047
Asymmetric Assembly Position		0.00534
Calculation Uncertainty		0.00129
Benchmark Bias Uncertainty		0.00300
Total Uncertainty (convoluted)		0.01590

Final K_{eff} on 95/95 Basis	**0.99976**

Table 2. Region 2 - No Soluble Boron

Base Keno Reference Reactivity		0.97383
Calculation and Methodology Biases	**Range**	
Methodology (Benchmark) Bias		0.00770
Pool Temperature Bias	50 F to 185 F	0.00103
Boron Particles in Boraflex		0.00450
Total Bias		**0.01323**

Tolerances and Uncertainties	**Parameter Variation**	**Reactivity Variation**
Fuel Enrichment	+0.05/-0.05 %	0.00972
Fuel Density	+2/-2 %	0.00254
Fuel Pellet Dishing	-1.187 %	0.00116
Rack Cell Inner Dimension	+0.025/-0.025 inch	0.00000
Rack Cell Pitch	+0.07/-0.03 inch	0.00116
Rack Wall Thickness	+0.007/-0.007 inch	0.00000
Wrapper Plate Thickness	+0.002/-0.002 inch	0.00000
Poison Panel Thickness	+0.007/-0.007 inch	0.00582
Poison Cavity Thickness	+0.010/-0.010 inch	0.00000
Poison Panel Width	+0.075/-0.075 inch	0.00026
Asymmetric Assembly Position		0.00000
Calculation Uncertainty		0.00041
Benchmark Bias Uncertainty		0.00300
Total Uncertainty (convoluted)		**0.01213**

Final K_{eff} on 95/95 Basis	**0.99919**

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Attachment 3

Environmental Consideration

10 CFR 51.22(c)(9) provides criteria for identification of licensing and regulatory actions eligible for categorical exclusion from performing an environmental assessment. A proposed amendment to an operating license for a facility requires no environmental assessment if operation of the facility in accordance with the proposed amendment would not:

(i) involve a significant hazards consideration,
(ii) result in a significant change in the types or significant increase in the amounts of any effluents that my be released offsite, and
(iii) result in a significant increase in individual or cumulative occupational radiation exposure.

The proposed license amendments change the subcritical margin in the Spent Fuel Pool in order to accommodate degradation of the Boraflex panels in the fuel storage racks by permitting credit for soluble Boron. The proposed amendments do not expand the capacity of the Turkey Point Spent Fuel Pools. As described in UFSAR Section 5.2.4, each spent fuel pool rack has a maximum capacity of 1404 cells available for use, with no blanks inserted. 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 no significant increase in individual or cumulative occupational radiation exposure. FPL has concluded that the proposed amendments involve no significant hazards consideration and meet the criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). FPL has determined pursuant to 10 CFR 51.22(b), that an environmental impact statement or environmental assessment need not be prepared in connection with issuance of the amendments.