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 FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250
 50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251
 AUTH. NAME AUTHORITY AFFILIATION
 HOVEY, R.J. Florida Power & Light Co.
 RECIPIENT AFFILIATION
 Document Control Branch (Document Control Desk)

SUBJECT: Application for amends to Licenses DPR-31 & DPR-41, modifying
 Tech Specs 6.9.1.7, "COLR" & adding best estimate large
 break loss of coolant accident analysis to COLR.

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L-97-037
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
Large Break Loss of Coolant Accident Re-analysis

In accordance with Title 10 Code of Federal Regulations §50.90 (10 CFR §50.90), Florida Power and Light Company (FPL) requests that Appendix A of Facility Operating Licenses DPR-31 and DPR-41 be amended to modify Turkey Point Units 3 and 4 Technical Specifications 6.9.1.7, Core Operating Limits Report (COLR). This requested change will add Best Estimate Large Break Loss of Coolant Accident Analysis (BELOCA) to the COLR.

A description of the amendments request is provided in Attachment 1. FPL has determined the proposed license amendments do not involve a significant hazard pursuant to 10 CFR §50.92. The no significant hazards determination is provided in Attachment 2. The revised Technical Specifications are provided in Attachment 3.

In accordance with 10 CFR §50.91 (b) (1), a copy of these proposed license amendments are being forwarded to the State Designee for the State of Florida.

The proposed amendments have been reviewed by the Turkey Point Plant Nuclear Safety Committee and the FPL Company Nuclear Review Board.

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

Very truly yours,


R. J. Hovey
Vice President
Turkey Point Plant

JAH

040009

Attachments

cc: L. A. Reyes, Regional Administrator, Region II, USNRC
T. P. Johnson, Senior Resident Inspector, USNRC, Turkey Point
W. A. Passetti, Florida Department of Health and Rehabilitative Services

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STATE OF FLORIDA)
) ss.
COUNTY OF 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;

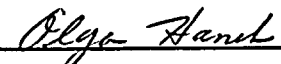
That he has executed the foregoing document; that the statements made in this document are true and
correct to the best of his knowledge, information and belief, and that he is authorized to
execute the document on behalf of said Licensee.



R. J. Hovey

Subscribed and sworn to before me this

24 day of February, 1997.



Olga Hanek
Name of Notary Public (Type or Print)



NOTARY PUBLIC, in and for the County of
Dade, State of Florida

My Commission expires June 18, 2000
Commission No. CC 562742

R. J. Hovey is personally known to me.

Introduction

Florida Power & Light Company (FPL) proposes to amend the Turkey Point Units 3 and 4 Technical Specifications (TS) Section 6.9.1.7, Core Operating Limits Report (COLR). This requested change will add Best Estimate Large Break Loss of Coolant Accident Analysis (BELOCA) to the list of approved analytical methods used in determining the Heat Flux Hot Channel Factor, $F_Q(Z)$; Nuclear Enthalpy Rise Hot Channel Factor, $F_{\Delta H}$; and the Normalized $F_Q(Z)$ as a function of core height, $K(Z)$ curve.

Discussion

In 1988, as a result of improved understanding of Loss of Coolant Accident (LOCA) thermal-hydraulic phenomena, the NRC amended the requirements of 10 CFR §50.46 and Appendix K "ECCS Evaluation Models." A realistic evaluation model may be used to analyze the performance of the Emergency Core Cooling System (ECCS) during a hypothetical LOCA. Under the amended rules, best estimate thermal-hydraulic models may be used in place of Appendix K models. The rule change requires an assessment of the uncertainty associated with the best estimate calculations and that this analysis uncertainty be included when comparing the results of the calculations to the prescribed acceptance limits. Guidance for the use of best estimate codes is provided in Regulatory Guide 1.157.

A plant specific analysis, WCAP-14159 Revision 0, "Best Estimate Analysis of the Large Break Loss of Coolant Accident for Turkey Point Units 3 & 4 Nuclear Plant for Power Uprate," dated October 1996, has been performed using the Westinghouse approved methodology. The approved methodology is documented in the following; (1) WCAP-12945-P, "Westinghouse Code Qualification Document For Best Estimate LOCA Analysis," Volumes I-V, (2) Letter from N.J. Liparulo (W) to R.C. Jones, Jr. (USNRC), "Revisions to Westinghouse Best-Estimate Uncertainty Methodology," NTD-NRC-95-4575, dated October 13, 1995, and (3) USNRC Safety Evaluation Report, Letter from R. C. Jones (USNRC) to N. J. Liparulo (W), "Acceptance for Referencing of the Topical Report WCAP-12945(P) 'Westinghouse Code Qualification Document for Best Estimate Loss of Coolant Analysis,' " dated June 28, 1996. All plant specific parameters used in the analysis are bounded by the models and correlations contained in the generic methodology. Therefore, the Turkey Point Units 3 and 4 specific BELOCA analyses conform to 10 CFR 50.46 and meets the intent of Regulatory Guide 1.157.



The conclusions of the analyses demonstrate there is a high level of probability that:

- 1) The calculated maximum fuel element cladding temperature will not exceed 2200°F.
- 2) The calculated total oxidation of the cladding will nowhere exceed 0.17 times the total cladding thickness before oxidation.
- 3) The calculated total amount of hydrogen generated from the chemical reaction of the cladding with water or steam will not exceed 0.01 times the hypothetical amount that would be generated if all of the metal in the cladding tubes surrounding the fuel, excluding the cladding surrounding the plenum volume, were to react.
- 4) The calculated changes in core geometry are such that the core remains amenable to cooling.
- 5) After successful initial operation of the ECCS, the calculated core temperature will be maintained at an acceptable low value and decay heat will be removed for the extended period of time required by the long-lived radioactivity remaining in the core.

Table 1 summarizes the results of the BELOCA analyses for Turkey Point Units 3 & 4. Table 2 shows the plant specific operating ranges for the main plant parameters used in the BELOCA analysis for Turkey Point Units 3 & 4. The range of variation of the operating parameters has been accounted for in the uncertainty evaluation.

Table 1
TURKEY POINT UNITS 3 & 4
BEST ESTIMATE LARGE BREAK LOCA RESULTS

	<u>Value</u>	<u>Criteria</u>
95th Percentile PCT (°F) *	2067	≤2200
Maximum Cladding Oxidation (%)	< 17	≤17
Maximum Hydrogen Generation (%)	< 1	≤1
Coolable Geometry	Core Remains Coolable	Core Remains Coolable
Long Term Cooling	Core Remains Cool In Long Term	Core Remains Cool In Long Term

* Includes a +27 °F PCT penalty for a potentially lower containment backpressure due to flow of air and steam out of the containment prior to the closure of the purge isolation valves (2067=2040+27).

Table 2
TURKEY POINT UNITS 3 & 4
BELOCA ANALYSIS
MAJOR PLANT PARAMETER ASSUMPTIONS

Parameter	Allowable Range
Fuel Type	15X15 OFA DRFA
Steam Generator Tube Plugging (%)	≤ 20
Core Power (MWt)	≤ 2346
$F_Q (Z)$	≤ 2.50
$F_{\Delta H}$	≤ 1.73
Peak Assembly Burnup (MWD/MTU)	$\leq 75,000$
MTC	≤ 0 at HFP
$T_{avg} (^\circ F)$	$562.7 \leq T_{avg} \leq 585.7$
Pressurizer Pressure (psia)	$2180 \leq P_{RCS} \leq 2320$
Loop Flow (gpm)	$\geq 85,000$
Accumulator Temperature ($^\circ F$)	≤ 130
Accumulator Pressure (psia)	$590 \leq P_{acc} \leq 715$
Accumulator Volume (gallons)	$6007 \leq V_{acc} \leq 7338$
Minimum ECC Boron (ppm)	≥ 1950
SI Temperature ($^\circ F$)	≤ 105
SI Delay (seconds)	≤ 23 (with offsite power) ≤ 35 (without offsite power)
Offsite Power	ON or OFF

Determination of No Significant Hazards Consideration

Description of the Proposed License Amendments

The Technical Specification Administrative Controls Section 6.9.1.7, Core Operating Limits Report will be modified to reflect the use of Westinghouse BELOCA methodology for large break LOCA analysis.

The following references will be added to Section 6.9.1.7 of Turkey Point Units 3 and 4 Technical Specifications.

WCAP-12945-P, "Westinghouse Code Qualification Document For Best Estimate LOCA Analysis," Volumes I-V.

USNRC Safety Evaluation Report, Letter from R. C. Jones (USNRC) to N. J. Liparulo (W), "Acceptance for Referencing of the Topical Report WCAP-12945(P) 'Westinghouse Code Qualification Document for Best Estimate Loss of Coolant Analysis,' " June 28, 1996.

Consistent with the requirements of 10 CFR §50.92, the enclosed application involves no significant hazards as demonstrated by the answers to the following questions.

Question 1 Does the proposed license amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

The plant conditions assumed in the analysis are bounded by the design conditions for all equipment in the plant. Therefore, there will be no increase in the probability of a Loss of Coolant Accident (LOCA). The consequences of a LOCA are not being increased. That is, it is shown that the emergency core cooling system is designed so that its calculated cooling performance conforms to the criteria contained in 10 CFR §50.46 paragraph (b). No other accident is potentially affected by this change. Therefore, neither the probability nor the consequences of an accident previously evaluated is increased due to the proposed change.

Question 2 Does the proposed license amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

No new modes of plant operation are being introduced. The parameters assumed in the analysis are within the design limits of existing plant equipment. All plant systems will perform as designed in response to a potential accident. Therefore, the proposed license amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated.

Question 3 Does the proposed amendment involve a significant reduction in the margin of safety?

The analysis in support of the proposed license amendment realistically models the expected response of the Turkey Point Units 3 & 4 nuclear core during a postulated LOCA. Uncertainties have been accounted for as required by 10 CFR §50.46. A sufficient number of loss of coolant accidents with different break sizes, different break locations and other variations in properties have been calculated to provide assurance that the most severe postulated loss of coolant accidents were analyzed. It has been shown by the analysis that there is a high level of probability the criteria contained in 10 CFR §50.46 paragraph (b) would not be exceeded. Therefore, the proposed amendment does not involve a significant reduction in the margin of safety.

Based on the above, it can be concluded that the incorporation of the proposed changes: a) will not involve a significant increase in the probability or consequences of an accident previously evaluated; b) will not create the possibility of a new or different kind of accident from any accident previously evaluated; and c) will not involve a significant reduction in a margin of safety.