03/09

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)
BISTRIBUTION FOR INCOMING MATERIAL
50-250/251

NOTARIZED: YES

REC: STELLO V NRC

DOCTYPE: LETTER

ORG: UHRIG R E FL PWR & LIGHT DOCDATE: 03/06/67 DATE RCVD: 03/07/78

> COPIES RECEIVED LTR 3 ENCL 0

SUBJECT: LTR 3 LICENSEE NOS DPR-31 & 41 APPL FOR AMEND: TECH SPECS PROPSED CHANGE CONCERNING, INCORPORATING (ENCL) REVISED K(Z) CURVE RE THE ECCS REANALYSIS INTO UNITS 3 & 4 TECH SPECS.

PLANT NAME: TURKEY PT #3 TURKEY PT #3

REVIEWER INITIAL: XJM DISTRIBUTER INITIAL:

NRC PDR**LTR ONLY(1)

OELD**LTR ONLY(1)

CHECK**LTR ONLY(1)

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SHAO**LTR ONLY(1)

GENERAL DISTRIBUTION FOR AFTER ISSUANCE OF OPERATING LICENSE. (DISTRIBUTION CODE A001)

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J. MCGOUGH**LTR ONLY(1)

I-& EXALTR ONLY(2)

BAER**LTR ONLY(1)

LPDR1S

FOR ACTION:

BR CHIEF SCHWENCER**LTR ONLY(7)

INTERNAL:

EXTERNAL:

MIAMI, FL**LTR ONLY(1) TIC**LTR ONLY(1) NSIC**LTR ONLY(1) ACRS CAT B**LTR ONLY(16)

DISTRIBUTION: LTR 40 ENCL 0 SIZE: 1P+1P+10P

THE END

CONTROL NBR:

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Dear Mr. Stello:

Re: Turkey Point Units 3 and 4 Docket Nos. 50-250 and 50-251 Proposed Amendment to Facility Operating Licenses DPR-31 and DPR-41

On January 27, 1978, Florida Power & Light Company requested an amendment to Turkey Point Units 3 and 4 Facility Operating Licenses to authorize operation of the units with up to 19% of the steam generator tubes plugged. An ECCS reanalysis was submitted in support of this request.

We have subsequently determined that a revised K(Z) curve (Technical Specification Figure 3.2-3) should have been included in our submittal of January 27th. The revised figure is attached. We request that the revised figure be approved for incorporation in the Turkey Point Units 3 and 4 Technical Specifications.

Our vendor has informed us that the ECCS reanalysis which was performed to support operation with up to 19% of the steam generator tubes plugged did not include the parameters of three fuel assemblies, which are presently in the Unit 4 core. An additional ECCS analysis demonstrated that these 3 assemblies were limiting i.e. they have an allowable F_O less then 2.05 for a portion of the remainder of Turkey Point 4 Cycle 4.

Our NSSS vendor has completed analyses which justify operation at full power with the present Unit 4 core configuration. Results of these analyses and a description of the effect on our License Amendment request dated January 27, 1978 are included in the attachment.

This request has been reviewed by the Turkey Point Plant Nuclear Safety Committee and the Florida Power & Light Company Nuclear Review Board. They have concluded that operation in accordance with this requested amendment does not endanger the health and safety of the public.

Yours very truly, R.E. Uhrig

Vice President

REU/GDW:cs cc: Mr. J.P. O'Reilly, Region II Robert Lowenstein, Esq.

780660042

HELPING BUILD FLORIDA

.O. BOX 3100 MIAMI, FLORIDA 33101

.

STATE OF FLORIDA COUNTY OF DADE

ss.

Robert E. Uhrig, being first duly sworn, deposes and says:

That he is a Vice President of Florida Power & Light Company, the Licensee herein;

That he has executed the foregoing document; that the state- . ments made in this said 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.

Robert

Subscribed and sworn to before me this

6th day of Much , 19>8

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

My commission expires: Bonded Thru Maynard Bonding Agency



ATTACHMENT 1

ECCS analyses performed by Westinghouse, using standard methods reviewed and approved by the NRC as conforming to the requirements of 10CFR50, Appendix K, use as input to part of the calculation an envelope of fuel parameters which covers all Westinghouse fuel manufactured after 1973 and much of the fuel manufactured before that date. This envelope of generic fuel parameters was used in calculating the fuel heat up rates and resulting peak clad temperature in the analysis provided to you in January 1978.

A review of that analysis by Fuel Division personnel, after FPL's submittal of the analysis to NRC, revealed that there had been no consideration of three Region 3 fuel assemblies manufactured in 1972 and present in Unit 4, Cycle 4, whose parameters lie outside the generic envelope for some values of peak power density and for some values of fuel burnup.

The presence of this fuel was correctly accounted for in the Westinghouse Reload Safety Evaluation for Cycle 4 in which it was pointed out that Region 3 fuel had a limiting F_Q of 2.13 compared to the generic fuel limit of 2.22 (enveloping all other fuel in Cycle 4). For that RSE it was also determined that there was at least 8% margin between the peak calculated on Region 3 fuel and the 2.13 limit.

The new analysis, for 19% steam generator tube plugging requires an F_Q limit of 2.05 on generic fuel. Thus for any part of the fuel cycle for which Region 3 has higher calculated pellet average



temperatures at the kw/ft corresponding to an F_Q of 2.05 than the generic fuel curve, region 3 fuel parameters determine the F_Q limit. An analysis for Region 3 fuel parameters has been completed which results in an F_Q limit of 2.04 for that fuel, until it reaches a minimum cycle burnup of 7400 MWD/T when the limit becomes 2.05, the same as generic fuel.

A supplement to the analysis already submitted to the NRC is provided as Attachment 2.

Following the same approach as previously submitted at the beginning of Cycle 4, it has been verified that for the remaining part of the fuel cycle these Region 3 assemblies will meet their LOCA limit, if the remainder of the core meets the 2.05 LOCA limit, because of the following reasons:

1. The limiting elevation dependent peak-to-average powers, $F_{xy}(Z)$ do not occur in these Region 3 assemblies during Cycle 4 operation. It has been determined from 3-D calculations that at each elevation the ratio

 $P_{xy}(Z)/F_{xy}(Z) < 2.04/2.05$

is met where $P_{xy}(Z)$ and $F_{xy}(Z)$ are the elevation dependent radial factors for Region 3 fuel and the other fuel respectively.

2. The analysis showed about 13% margin to the 2.04 LOCA limit for these Region 3 assemblies using $P_{xy}(Z)$ from the 3-D calculations.

Page Two



Therefore, full power capability based on the $F_Q \times P_{rel}$ envelope of 2.05 x K(Z) is justifiable throughout the remainder of Cycle 4 operation of Turkey Point Unit 4.

The first two line segments of the $F_Q \propto K(Z)$ envelope changes by the ratio of the F_Q change; however, the third line segment does not change in units of power density. Thus the required function K(Z) is defined by the coordinates (1.0, 0 ft.), (1.0, 6 ft.), (.937, 11.1 ft.), (.488, 12 ft.).



FIGURE 2

Revised K(z) Function for FLA Cycle 4 Burnup $\gtrsim 5000$ MWD/MTU .





TABLE 2

LARGE BREAK

DECLG BREAK, $C_D = 0.4$

RESULTS:

Peak Clad Temperature=2194.°FPeak Clad Location=6.0 FtLocal Zirc/Water Reaction (max)=12.2 percentLocal Zirc/Water Location=6.0 FtTotal Zirc/Water Reaction=<0.3 percent</td>Hot Rod Burst Time=22.9 sec.Hot Rod Burst Location=6.0 Ft

CALCULATION:

Core Power (MW., 102% of)	2200.
Peak Linear Power (KW/FT, 102% of)	11.59
Peaking Factor (At License Rating)	2.04
Accumulator Water Volume (FT ³)	875 (per accumulator)

FUEL REGION, CYCLE ANALYZED

UNIT 4

CYCLE 4

REGION 3 -





FIGURE 15.4-1 FLUID QUALI

FLUED QUALETY, DELLA (CD=0.4)





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