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SUBJECT: Application for amends to Licenses DPR-31 & DPR-41,
supporting util 911029 & 30 requests for temporary waiver of
compliance from Tech Spec 3.2.1, "Axial Flux Difference."

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OCT 31 1991

L-91-301
10 CFR 50.90

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

Gentlemen:

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Proposed Exigent License Amendment
Power Distribution Limits - Axial Flux Difference

By letter L-91-294, dated October 29, 1991, as revised by letter L-91-303, dated October 30, 1991, Florida Power and Light Company (FPL) requested a temporary waiver of compliance of Technical Specification 3.2.1, "Axial Flux Difference," to permit surveillance testing of the Power Range Neutron Flux Channel with the axial flux difference outside the target band. Attachment 1 to letter L-91-303 stated that FPL would submit a proposed license amendment to correct Technical Specification 3.2.1. In keeping with this commitment and in accordance with 10 CFR 50.90, FPL is submitting this request to amend Facility Operating Licenses DPR-31 and DPR-41 for Turkey Point Units 3 and 4, respectively.

The purpose of this amendment is to allow operation with the Axial Flux Difference (AFD) outside the $\pm 5\%$ target band without accruing penalty deviation time, solely for the purpose of calibrating the excore detectors, provided the AFD is within the Acceptable Operation Limits of Technical Specification (TS) Figure 3.2-1.

FPL is requesting that this submittal be processed as an exigent amendment, in accordance with 10 CFR 50.91(a)(6). The basis for this request is that the surveillance of the excore detectors is performed quarterly, thus providing inadequate time for the usual amendment process. The temporary waiver of compliance, which was granted by the NRC on October 30, 1991 in response to FPL letters L-91-294 and L-91-303, permits Turkey Point to perform the necessary surveillance and thus permits escalation of Unit 4 to 100% power. The next surveillance of the excore detectors on Unit 3 is scheduled in January, 1992. Though TS Table 4.3-1 requires the calibration to be performed monthly if a single point comparison of incore to excore values shows that the absolute difference is greater than or equal to 3% AFD, FPL does not expect to perform this calibration on a monthly basis because the quarterly calibration's accuracy is believed to be adequate to preclude the need for monthly recalibration.

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FPL has determined that the proposed license amendment does not involve a significant hazard pursuant to 10 CFR 50.92. A description of the amendment request and the bases for the conclusion that exigent circumstances exist are provided in Attachment 1. The no significant hazards determination in support of the proposed Technical Specification change is provided in Attachment 2. Attachment 3 provides the proposed revised Technical Specification changes.

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

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

Should there be any questions, please contact us.

Very truly yours,


W. H. Bohlke
Vice President
Nuclear Engineering and Licensing

WHB/RJT/rjt

Attachments

cc: Stewart D. Ebnetter, Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant
Mr. Jacob Daniel Nash, Florida Department of Health and
Rehabilitative Services

STATE OF FLORIDA)
) ss.
COUNTY OF PALM BEACH)

W. H. Bohlke being first duly sworn, deposes and says:

That he is Vice President, Nuclear Engineering and Licensing, 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.


W. H. Bohlke

Subscribed and sworn to before me this

31st day of October, 1991.



NOTARY PUBLIC, in and for the County of
Palm Beach, State of Florida

NOTARY PUBLIC STATE OF FLORIDA
MY COMMISSION EXP JULY 30, 1994
BONDED THRU GENERAL INS. UND.

My Commission expires _____



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ATTACHMENT 1

DESCRIPTION OF AMENDMENT REQUEST AND BASIS FOR EXIGENT REVIEW

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DESCRIPTION OF AMENDMENT REQUEST AND BASIS FOR EXIGENT REVIEW

(1) Discussion of the proposed Technical Specification Changes.

FPL proposes a change of Technical Specification 3.2.1, "Axial Flux Difference." The proposed change would allow operation with the Axial Flux Difference (AFD) outside the required $\pm 5\%$ target band without accruing penalty deviation time, but within the Acceptable Operation Limits of Figure 3.2-1. This would occur at power levels between 50% and 90% of Rated Thermal Power (RTP), for a time interval not to exceed 16 hours, for the sole purpose of performing the Technical Specification required incore/excore calibration of the Nuclear Instrumentation System detectors.

TS 3.2.1 contains a footnote which allows 16 hours of operation outside the referenced AFD target band, but within the Acceptable Operation Limit, for the purpose of performing the incore/excore calibration. In the Turkey Point Technical Specifications, this footnote applies only to ACTION statement (b)(2) of TS 3.2.1., which pertains solely to reducing the high trip setpoint for power range neutron flux. Because of the location of the footnote, the excore calibration can not be performed at the power level stated in Table 4.3-1 of Turkey Point's Technical Specifications. The accuracy of the calibration is dependent on the power level at which the test is performed, therefore, it is important to perform the incore/excore calibration test above 75% of rated thermal power. Calibration at less than 50% power or with a limited axial flux difference increases the uncertainty of the Overtemperature Delta-T setpoints at 100% power.

(2) Discussion of circumstances surrounding the situation including the need for prompt action, and a description of why the situation could not have been avoided.

a) Background:

Following calibration of the Turkey Point Unit 3 excore detectors at 100% power, FPL discovered an inconsistency in the surveillance requirements between Turkey Point's new standard Technical Specifications and the latest version of NUREG-0452, Rev. 5. FPL determined that Unit 3 was unable to concurrently satisfy the requirements of both TS 3.2.1 and 3/4.3.1. As a result, FPL is requesting approval of this amendment request prior to the performance of the next quarterly surveillance of the excore detectors (presently scheduled for January, 1992).

The proposed license amendment requests operation with the

Axial Flux Difference (AFD) outside the required target band of $\pm 5\%$ without accruing penalty deviation time, but within the Acceptable Operation Limits of Figure 3.2-1. This would occur at power levels between 50% and 90% of Rated Thermal Power (RTP), for a time interval not to exceed 16 hours, for the sole purpose of performing the Technical Specification required incore/excore calibration of the Nuclear Instrumentation System detectors.

TS 3.2.1 contains a footnote which allows 16 hours of operation outside the referenced AFD target band, but within the Acceptable Operation Limits of Figure 3.2-1, for the purpose of performing an incore/excore calibration of the Nuclear Instrumentation System detectors. In the Turkey Point Technical Specifications, this footnote applies to ACTION Statement (b) (2) of TS 3.2.1, which limits the power level for the incore/excore calibration to less than 50% RTP. This directly conflicts with TS Table 4.3-1, "Reactor Trip System Instrumentation Surveillance Requirements," Item 2.a "Power Range, Neutron Flux - High Setpoint Channel Calibration," which references footnote (6) and states that the incore/excore calibration must be performed above 75% of rated thermal power, unless sustained operation is below that power level.

In the case of performing this calibration at a power level of less than 50% RTP, the excore calibration is sensitive to core power level and as a result, calorimetric uncertainties below 50% RTP reduce confidence in the incore/excore calibration. At low powers calorimetric calculations are less accurate. This was documented in WCAP-12201, "Basis for Westinghouse Setpoint Methodology for Protection Systems - Turkey Point Units 3 and 4," March 1990.

Turkey Point may perform this calibration above 75% power. In that case, the Technical Specifications require that the AFD be maintained within the $\pm 5\%$ target band. However, Westinghouse has recommended in the NRC approved WCAP 8648-P-A, "Excore Detector Recalibration Using Quarter-Core Flux Maps" that the initial conditions for the incore/excore calibration procedure be established such that the AFD Technical Specification limits of Figure 3.2-1 (less about 1% margin on positive and negative limits) be available. The basis of this recommendation is that due to neutron diffusion, the AFD as seen by the excore detectors is significantly reduced from the AFD seen by the incore detectors. An adequate AFD must be induced in order to minimize excore detector uncertainties.

The calibration of excore detectors to incore axial shape is

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a linear relationship. Uncertainty in excore AFD is a function of the extrapolation uncertainties in the linear regression performed as part of the calibration process. Calibrations performed within a narrow AFD span will result in a higher uncertainty at AFD extremes than calibrations performed with a wider AFD swing. It is important that the calibration be performed with as wide a span as possible. This is necessary because the excore AFD uncertainty has a direct impact on the Overpower and Overtemperature delta-T penalty function.

b) Need for Prompt Action:

Because of the location of the footnote, the excore calibration can not be performed at the power level stated in Technical Specification Table 4.3-1, with the AFD outside the TS allowed target band. Following calibration of the excore detectors at 100% power of Turkey Point Unit 3, FPL recognized the inconsistency within the Technical Specifications. This inconsistency within the Technical Specifications serves as the basis for this proposed license amendment.

c) Description as to why this situation could not be avoided

On Friday, October 18, 1991, during the calibration of the Power Range Neutron Flux Detectors, FPL determined that the calibration could not be performed with the necessary flux difference at power levels above 50%, while at the same time complying with Technical Specifications.

Between October 18 and October 23, FPL evaluated two options. These were performance of the surveillance while maintaining the $\pm 5\%$ AFD target band, or performance of the surveillance with a more appropriate AFD, following NRR approval of a temporary waiver of compliance. By October 24, FPL concluded that the level of uncertainty associated with the setpoints obtained through performance of the surveillance within the $\pm 5\%$ AFD target band was not consistent with prudent plant operation or proper engineering judgement. FPL proceeded to immediately develop the request for a temporary waiver of compliance and a proposed license amendment to permanently correct the Technical Specifications. The initial request for the temporary waiver of compliance was issued by FPL on October 29, 1991, with NRC approval following on October 30, 1991.

(3) A discussion of compensatory actions (if any).

None.

(4) Evaluation of the safety significance and potential consequences of the proposed license amendment.

The Axial Flux Difference (AFD) is a measure of axial power distribution as measured by the excore power range channels. AFD is sensitive to control bank position, core power level, and burnup. Calorimetric uncertainties below 50% RTP can reduce confidence in the incore/excore calibration. To minimize extrapolation errors it is recommended that the data acquired for AFD calibration purposes be taken at power levels equal to or greater than 75% RTP. Per WCAP-8648-P-A, "Excore Detector Recalibration Using Quarter-Core Flux Maps", rodged power distributions are used to assure that compensation of rodged effects on AFD will be made. Bank insertion and a controlled xenon oscillation are mechanisms used to produce the change in the axial power distribution. To compensate for the burnup dependency, an incore/excore calibration is performed: 1) monthly, if a single point comparison of incore to excore shows that the absolute difference is greater than or equal to 3% AFD, or 2) at least once per quarter.

To perform a controlled xenon oscillation for incore/excore calibration, sufficient time must be available. As shown in WCAP-8648-P-A, eleven hours may be required to obtain an AFD configuration such that sufficient data is sampled. This WCAP also indicates that the initial conditions for the incore/excore calibration procedure should be established such that the AFD Technical Specification limits, less about 1% margin on positive and negative limits, should be available. Sixteen hours is viewed to be an adequate time interval to allow data retrieval within Technical Specification constraints.

The AFD for Turkey Point Units 3 and 4 is based on Constant Axial Offset Control (CAOC). CAOC involves maintaining the AFD within a $\pm 5\%$ tolerance band, around a burnup-dependent target to minimize the variation of the axial power distribution. This allowed range of AFD is used in the nuclear design reload process to confirm that operation within these limits produce power distributions that meet safety analysis requirements. AFD is monitored to assure that the FQ peaking factors are acceptable between incore measurement intervals. Note that the action required by Technical Specification 3.2.2, Heat Flux Hot Channel Factor - FQ, when FQ is exceeded, is to reduce thermal power 1% for every percent that FQ exceeds its limit. For the AFD calibration, the power reduction coupled with limits placed in the allowed AFD during the incore/excore test provides additional margin to the FQ limits.

Just as with Technical Specification Special Test Exceptions 3/4.10, Technical Specification 3/4.2.1 is less restrictive

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Attachment 1
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during surveillance testing and excore detector calibrations due to the low probability of accidents occurring during this operation.

The currently approved Technical Specifications for Comanche Peak Unit 1 correctly references this footnote with the applicable limiting condition of operation which discusses Acceptable Operation Limits and cumulative penalty deviation time. This erroneous footnote relationship in the Standard Technical Specifications was discovered while preparing the Comanche Peak Technical Specifications prior to their issuance. The error is also corrected in the January 9, 1991, draft edition of NUREG-1431, Westinghouse Owner's Group Methodically Engineered, Restructured, and Improved Technical Specifications (MERITS).

- (5) Discussion which justifies the duration of the request (if applicable).

None

- (5) The basis for the conclusion that the request does not involve a significant hazards consideration.

No significant hazards determination provided in Attachment 2.

- (6) The basis for the conclusion that the request does not involve irreversible environmental consequences.

This proposed license amendment does not result in any physical change to the plant. Issuance of this license amendment will not place the plant in a condition that compromises the health and safety of plant personnel or the general public. Due to the administrative nature of this request, issuance of this amendment does not involve irreversible environmental consequences.

ATTACHMENT 2

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

The commission has provided standards for determining whether a significant hazards consideration exists (10 CFR 50.92(c)). A proposed amendment to an operating license for a facility involves no significant hazards consideration, if operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create a possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety. FPL has determined that operation of the facility in accordance with the proposed amendment would not:

- (1) involve a significant increase in the probability or consequences of an accident previously evaluated.

This proposed license amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated. The proposed change does not affect any equipment whose malfunction is postulated to initiate an accident or prevent an accident from occurring. Changes in axial flux difference due to power changes and control rod motion, like that in the excore detector calibration, are part of normal and anticipated plant behavior. Therefore, this change does not cause a significant increase in the probability of occurrence of any previously evaluated accident.

Axial flux difference is used to assure that peaking factors and axial power distributions are within the limits used as input to various Condition II, III, and IV events. Analyses outside the AFD target band, but within the Accepted Operation Limits of Figure 3.2-1, for up to 1 hour, are included in the reload design and safety analyses. The proposed change permits operation outside of the AFD target band within the Accepted Operation Limits of Figure 3.2-1, for up to 16 hours while calibrating the excore detectors, rather than the 1 hour allowed during normal operation. Just as with Special Test Exceptions, Technical Specification 3/4.2.1 is less restrictive during excore calibration due to the low probability of accidents occurring during this calibration, (which will be performed at less than or equal to 90% power). Performance of this test at reduced power level and maintaining the Technical Specification requirements on rod insertion

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limits will not significantly increase the consequences of an accident previously evaluated.

- (2) create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed license amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated. The amendment does not change any plant equipment or operations. Therefore, no possibility of creating a new or different type of accident would result from this proposed license amendment.

- 3) involve a significant reduction in a margin of safety.

The proposed amendment does not involve a significant reduction in the margin of safety. The consequences of core accidents are based on the limiting assumptions for the core peaking factors. No changes to the peaking factors are required to support this proposed license amendment. The proposed change permits operation outside of the AFD target band, within the Accepted Operation Limits of Figure 3.2-1, for up to 16 hours while calibrating the excore detectors, rather than the 1 hour allowed during normal operation. Just as with Special Test Exceptions, Technical Specification 3/4.2.1 is less restrictive during excore calibration due to the low probability of accidents occurring during this calibration, (which will be performed at less than or equal to 90% power). In addition, excore calibration is a controlled plant evolution with enhanced operator and Reactor Engineering oversight. Therefore, the proposed change does not involve a significant reduction in the margin of safety.

Based on the above, FPL has determined that the proposed license amendment does not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; (2) create the probability of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety; and therefore does not involve a significant hazards determination as defined in 10 CFR 50.92.

