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December 19, 1996

2CAN129603

U. S. Nuclear Regulatory Commission
Document Control Desk
Mail Station P1-137
Washington, DC 20555

Subject: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
Technical Specification Change Regarding Power Calibration Requirements

Gentlemen:

Attached for your review and approval is a proposed Arkansas Nuclear One-Unit 2 (ANO-2) Technical Specification amendment request that revises specification 3.3.1.1, Table 4.3-1, Notation (2). The proposed amendment will change the power calibration requirements for the linear power level, the Core Protection Calculator (CPC) delta T power, and the CPC nuclear power signals between 15 and 80% power. The new requirements are more conservative than the tolerances that currently exist. This change will ensure that the power indications are conservative relative to the safety analyses.

The Nuclear Regulatory Commission has previously approved a similar amendment request on September 1, 1995, for the Palo Verde Nuclear Generating Station, Units 1, 2, and 3.

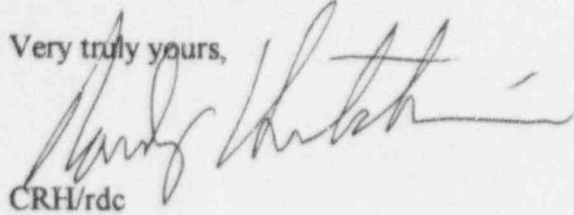
The proposed change has been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c) and it has been determined that this change involves no significant hazards considerations. The bases for these determinations are included in the attached submittal.

Entergy Operations requests that the effective date for this change be within 30 days of issuance. Although this request is neither exigent nor emergency, your prompt review is requested prior to the next ANO-2 refueling outage (R12) which is currently scheduled to begin April 25, 1997.

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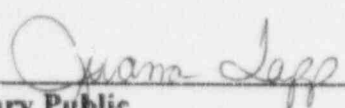
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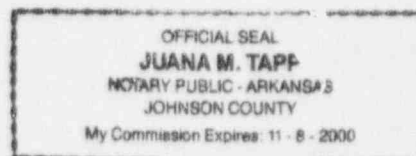
Very truly yours,


CRH/rdc
Attachments

To the best of my knowledge and belief, the statements contained in this submittal are true.

SUBSCRIBED AND SWORN TO before me, a Notary Public in and for Johnson
County and the State of Arkansas, this 19 day of December, 1996.


Notary Public
My Commission Expires 11-8-2000



cc: Mr. Leonard J. Callan
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ATTACHMENT

TO

2CAN129603

PROPOSED TECHNICAL SPECIFICATION

AND

RESPECTIVE SAFETY ANALYSES

IN THE MATTER OF AMENDING

LICENSE NO. NPF-6

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT TWO

DOCKET NO. 50-368

DESCRIPTION OF PROPOSED CHANGES

Technical Specification (TS) 3.3.1.1, Table 4.3-1, Notation (2) was revised to modify the power calibration requirements for the linear power level, the Core Protection Calculator (CPC) delta T power, and the CPC nuclear power signals between 15 and 80% power. The new tolerance (-0.5% to 10%) will require calibration of the power indications if they differ from the calorimetric calculation by more than the allowed tolerance.

BACKGROUND AND DISCUSSION OF CHANGE

The CPC system is part of the Reactor Protection System (RPS). It is designed to provide automatic protective action to assure that the specified acceptable fuel design limits are not exceeded during anticipated operational occurrences. The CPC system ensures the departure from nucleate boiling ratio (DNBR) of the most limiting fuel assembly in the reactor core is not less than 1.25 and the local power density (LPD) of the most limiting fuel assembly in the core does not exceed 21 KW/ft.

The CPC system monitors the reactor parameters via the four redundant CPCs and the two redundant control element assembly calculators. Independent calculations of DNBR and LPD are performed by each CPC. Each of the CPCs is associated with one of the four RPS protection channels. If an unsafe condition is found to exist by the CPC, it sends a reactor trip signal to the RPS. The RPS circuitry will shut down the reactor upon receiving trip signals from any two of the four CPC channels.

Each CPC receives signals from the excore subchannels and then corrects the power measurement for shape annealing, CEA shadowing, and temperature shadowing factors. This calibrated power measurement is then referred to as CPC nuclear power. The CPCs also calculate a primary calorimetric calculation (CPC delta T power) from its reactor coolant system inputs. The CPCs then internally auctioneer the higher of the nuclear power and delta T power to determine which is to be used in the DNBR and LPD algorithms.

Each of the PPS channels receive an additional power level signal from the excore detection system (linear power level). All three of these power calculations (linear power level, CPC delta T power, and CPC nuclear power) must be periodically checked (daily) to be within a specified tolerance of the calorimetric power calculation. The calorimetric power calculation is performed by the Core Operating Limit Supervisory System. If either of the linear power level, the CPC delta T power, or the CPC nuclear power signals are outside the allowed tolerance, they are required to be calibrated to the calorimetric power.

These signals are calibrated to the calorimetric power at full power to within the TS tolerance band of $\pm 2\%$. When the plant is down powered, the CPC nuclear power indication generally indicates lower than the calorimetric power. This results in the CPCs reading as much as 2% lower than the calorimetric power before the calibration is required. The proposed amendment request will require a calibration when the CPCs are indicating as little as 0.5% lower than the calorimetric power. During power increases, the CPCs will tend to lead the calorimetric or conservatively indicate a higher power level.

The proposed changes to Table 4.3-1, Notation 2, expands the tolerance band so the power signals are calibrated only if they fall outside a band of -0.5% to +10% between 15% and 80% power, and $\pm 2\% \geq 80\%$ except as required during physics testing. These changes ensure that the power indications are conservative relative to safety analyses, while reducing the required number of changes to these indications. The -0.5% power limit will provide thermal margin relative to the current value of -2%. This additional margin will be credited for the upcoming cycle of operation following the 2R12 outage. The +10% tolerance was chosen as an upper limit to minimize the power adjustments needed when the CPCs are conservatively indicating a higher power level.

The change in CPC power calibration outlined above will provide assurance that the CPCs will be conservative following a power reduction and subsequent power increase. By allowing the CPC to indicate a higher than actual power, the CPC will conservatively determine LPD and DNBR. The proposed TS change would assure that the CPCs are conservative through the entire evolution.

The NRC has previously issued Amendment Numbers 98, 86, and 69 to the Palo Verde Nuclear Generating Station, Units 1, 2, and 3 respectively for this change.

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

An evaluation of the proposed change has been performed in accordance with 10 CFR 50.91(a)(1) regarding no significant hazards considerations using the standards in 10 CFR 50.92(c). A discussion of these standards as they relate to this amendment request follows:

Criterion 1 - Does Not Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated.

The proposed change will redefine the tolerance band allowed for linear power level, the Core Protection Calculator (CPC) delta T power, and CPC nuclear power signals. Changing the tolerance range from $\pm 2\%$ to between -0.5% and 10% between 15% and 80% rated thermal power, will require more conservative tolerances than are currently allowed. This change will ensure that the power indications are more conservative relative to the existing safety analyses. Therefore, this change does not involve a significant increase in the probability or consequences of any accident previously evaluated.

Criterion 2 - Does Not Create the Possibility of a New or Different Kind of Accident from any Previously Evaluated.

The proposed change to Technical Specification power calibration tolerance limits are conservative relative to the current requirements. This amendment request does not change the design or operation of any plant systems or components. Therefore, this change does not create the possibility of a new or different kind of accident from any previously evaluated.

Criterion 3 - Does Not Involve a Significant Reduction in the Margin of Safety.

The allowed tolerance band for the linear power level, the CPC delta T power, and CPC nuclear power signals between 15% and 80% power has been redefined. The new requirements are more conservative than the tolerances that currently exist in the Technical Specifications. This change will ensure that the power indications are more conservative relative to the existing safety analyses. Therefore, this change does not involve a significant reduction in the margin of safety.

Therefore, based upon the reasoning presented above and the previous discussion of the amendment request, Entergy Operations has determined that the requested change does not involve a significant hazards consideration.