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W3F1-98-0175
A4.05
PR

October 6, 1998

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

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
Technical Specification Change Request NPF-38-212

Gentlemen:

The attached description and safety analysis support a change to the Waterford 3 Technical Specifications (TS).

The proposed change modifies the requirement to perform a Moderator Temperature Coefficient (MTC) test near the end of each cycle.

This request constitutes a lead-plant submittal, submitted by Waterford 3 on behalf of the Combustion Engineering Owners Group (CEOG). CE NPSD-911, "Analysis of Moderator Temperature Coefficients in Support of a Change in the Technical Specifications End of Cycle Negative MTC Limit" was submitted previously to the Staff for review. This CE report was dated May, 1993. This document has been revised by CE NPSD-911, Amendment 1, dated January, 1998 and is provided as Attachment C to this Technical Specification Change Request (TSCR). A Bases change is included to support this TS.

Waterford 3 originally submitted this TSCR by Letter dated December 9, 1994. The Staff requested additional information by Letter dated February 26, 1997. Waterford 3 withdrew the original submittal until such time as these questions could be answered. This Letter provides a resubmittal of this TSCR with the Staff's questions and the CEOG responses provided as Attachment C to this Letter.

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The proposed change has been evaluated in accordance with 10CFR50.91(a)(1) using criteria in 10CFR50.92(c), and it has been determined that the proposed change involves no significant hazards considerations. The Plant Operations Review and Safety Review Committees have reviewed and accepted the proposed change based on the evaluation mentioned above.

The circumstances surrounding this change do not meet the NRC's criteria for exigent or emergency review. However, due to the significant impact on plant operations, we respectfully request review prior to December 1999 in order to take advantage of this change for Cycle 10. Entergy Operations requests the effective date for this change be within 60 days of approval.

Should you have any questions or comments concerning this request, please contact Early Ewing at (504) 739-6242.

Very truly yours,



C.M. Dugger
Vice President, Operations
Waterford 3

CMD/CWT/rtk

Attachments: Affidavit
NPF-38-212

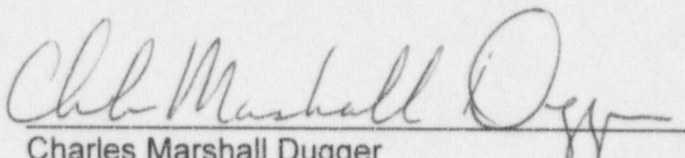
cc: E.W. Merschoff, NRC Region IV
C.P. Patel, NRC-NRR
J. Smith
N.S. Reynolds
NRC Resident Inspectors Office
Administrator Radiation Protection Division
(State of Louisiana)
American Nuclear Insurers

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of)
)
Entergy Operations, Incorporated) Docket No. 50-382
Waterford 3 Steam Electric Station)

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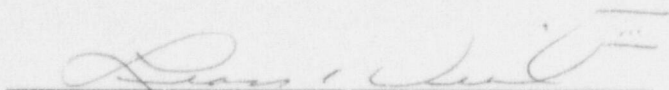
Charles Marshall Dugger, being duly sworn, hereby deposes and says that he is Vice President Operations - Waterford 3 of Entergy Operations, Incorporated; that he is duly authorized to sign and file with the Nuclear Regulatory Commission the attached Technical Specification Change Request NPF-38-212; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information and belief.



Charles Marshall Dugger
Vice President Operations - Waterford 3

STATE OF LOUISIANA)
) ss
PARISH OF ST. CHARLES)

Subscribed and sworn to before me, a Notary Public in and for the Parish and State above named this 6th day of October, 1998.



Notary Public

My Commission expires at death.

DESCRIPTION AND NO SIGNIFICANT HAZARDS EVALUATION
OF PROPOSED CHANGE NPF-38-212

The proposed change modifies Technical Specification (TS) 4.1.1.3.2c by adding a provision that eliminates the need to determine the Moderator Temperature Coefficient (MTC) upon reaching two-thirds of core burnup if the results of the MTC tests required in TS 4.1.1.3.2a and 4.1.1.3.2b are within a tolerance of $\pm 0.16 \times 10^{-4}$ delta k/k/°F. In addition, the footnote identified by #(1) under Surveillance 4.1.1.3.2c has been deleted. A plus/minus (+) is being added prior to the "7 EFPD" of SR 4.1.1.3.2c. The annotations for the footnotes are also being changed. A Bases change is included to support this TS.

Existing Specification

See Attachment A

Proposed Specification

See Attachment B

CE NPSD-911, Amendment 1

See Attachment C

Background

TS 3.1.1.3 provides limitations on the MTC to ensure that the assumptions used in the accident and transient analysis remain valid through each fuel cycle. The requirements to measure the MTC at the beginning-of-cycle and near end-of-cycle (i.e., 2/3 expected core burnup) provide confirmation that the measured MTC value is within its limits and will remain in its limits throughout each cycle.

The proposed change modifies the MTC TS to eliminate the 2/3 cycle MTC surveillance if the results of the first two MTC surveillances fall within $\pm 0.16 \times 10^{-4}$ delta k/k/°F of the calculated MTC (design value). However, if the results of the first two tests are not within that limit, then performance of the 2/3 cycle surveillance will be required.

The MTC relates a change in reactor coolant temperature to a change in core reactivity. A negative MTC means that an increase in coolant temperature causes a decrease in reactivity; a positive MTC means that an increase in coolant temperature causes an increase in reactivity. As such, the accident analysis looks at both overheating and overcooling of the reactor core. In doing the analysis both the negative and positive MTC must be bounded. The positive MTC is used when considering overheating accidents with the limiting event being a control element assembly (CEA) withdrawal accident from zero power. The negative MTC is used when considering overcooling accidents with the limiting event being the Steam Line Break (SLB) event.

Description and Safety Considerations

In an effort to improve the TS, the Combustion Engineering Owners Group (CEOG) sponsored a task to analyze MTC data from CE plants. The reports, CE NPSD-911 (dated May, 1993) and Amendment 1 (dated January, 1998), document the results of that task and provide the justification for this proposed TS change. The analysis shows that if the MTC at the beginning-of-cycle is within $\pm 0.16 \times 10^{-4}$ delta k/k/°F of the design value then the MTC at the end-of-cycle will also be within $\pm 0.16 \times 10^{-4}$ delta k/k/°F of the design value.

In the analysis, isothermal temperature coefficients (ITC) are used since they are measured quantities. The measured ITC is assumed to represent the true value. The impact of systematic errors in the measurements is reduced by combining the values obtained on several plants by several utilities using different techniques. The best estimate ITC is then equal to the calculated value plus the bias (as established by the mean of the distribution of differences between measured and calculated values). The same bias and uncertainty is assigned to the MTC. Using the relationship $ITC = MTC + FTC$ and assuming that MTC and FTC (Fuel Temperature Coefficient) are statistically independent, it is conservative to assign the same uncertainty to the MTC and to assume that no additional uncertainty is introduced by the FTC.

The analysis used measured MTC data from several plants and compared that data to the calculated MTC. This was done to evaluate the methodology used in calculating the MTC. Evaluation of the data showed that if the MTC measured at the beginning-of-cycle is within $\pm 0.16 \times 10^{-4}$ delta k/k/°F of the calculated MTC, then the near end-of-cycle calculated MTC will be within $\pm 0.16 \times 10^{-4}$ delta k/k/°F of the true MTC. Thus, the method adequately models the MTC for the entire cycle, and the near end-of-cycle MTC surveillance is not required. As such, Waterford 3 is requesting a change to Technical Specification 3.1.1.3 that states that the 2/3 cycle MTC test need only be performed when the beginning-of-cycle MTC is not within $\pm 0.16 \times 10^{-4}$ delta k/k/°F of the design value.

Waterford 3 anticipates the following benefits as a result of eliminating the 2/3 cycle MTC surveillance:

1. The surveillance requires operation at 93% power for 20 hours. The reduction in generation is approximately 1500 MWhr(e).
2. The surveillance occupies an operating shift and 2 Reactor Engineers for approximately 6 hours during off-peak demand times.
3. The surveillance requires support from the Nuclear Engineering and Analysis Department in Jackson, Mississippi for test predictions and plant support to process the work package.
4. The surveillance requires cycling the primary and secondary plants - possibly reducing equipment life and increasing required maintenance.

Based on the above, elimination of the 2/3 cycle MTC surveillance would provide for better use of current resources while still maintaining the bounds of the safety analysis and reduce cycling of the plant which may have an adverse affect on plant performance.

In addition, the footnote currently identified by #(1) under Surveillance Requirement (SR) 4.1.1.3.2c has been deleted. This provision was applicable only during Cycle 7. Removal of this footnote is purely administrative. A plus/minus (+) is being added prior to the "7 EFPD" of SR 4.1.1.3.2c for clarity. This change is editorial in nature. The annotations for the footnotes are also being changed.

A Bases change is included to support this TS.

No Significant Hazards Evaluation

The proposed change described above shall be deemed to involve a significant hazards consideration if there is a positive finding in any of the following areas:

1. Will operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

Under the proposed change, compliance with the TS Limiting Condition for Operation is achieved through a surveillance program consisting of beginning-of-cycle (BOC) measurements, plant parameter monitoring, and end-of-cycle (EOC) MTC predictions. This change eliminates the performance of the 2/3 Cycle MTC Surveillance when the BOC MTC Surveillances are within a required tolerance of the design value.

The probability and consequences of an accident previously evaluated will not be increased because this change does not modify any assumptions used in the input to the safety analyses. The current safety calculations will remain valid because the allowed range of MTC values will not change.

The Combustion Engineering analysis CE NPSD-911 and CE NPSD-911 Amendment 1, demonstrate that if the startup test program has established that the core is operating as intended, and if the isothermal temperature coefficients measured at zero power during the cycle startup program, and at power prior to 40 EFPD, fall within the design value of $\pm 0.16 \times 10^{-4}$ delta k/k/°F, then the end-of-cycle best estimate prediction will also be within $\pm 0.16 \times 10^{-4}$ delta k/k/°F of true MTC.

Removing the footnote that was applicable during Cycle 7 and providing a plus/minus (+) for SR 4.1.1.3.2c is purely an administrative change.

Therefore, the proposed change will not involve a significant increase in the probability or consequences of any accident previously evaluated.

2. Will operation of the facility in accordance with this proposed change create the possibility of a new or different type of accident from any accident previously evaluated?

Response: No.

Plant operation and plant parameter TS limits will remain unchanged. There are no new changes in plant design nor are any new failure modes introduced. CE NPSD-911 analysis determined that if the MTC at the beginning-of-cycle is within $\pm 0.16 \times 10^{-4}$ delta k/k/°F of the design value then the MTC at the end-of-cycle will also be within $\pm 0.16 \times 10^{-4}$ delta k/k/°F of the design value.

Removing the footnote that was applicable during Cycle 7 and providing a plus/minus (+) for SR 4.1.1.3.2c is purely an administrative change.

Therefore, the proposed change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Will operation of the facility in accordance with this proposed change involve a significant reduction in a margin of safety?

Response: No

The margin of safety will not be reduced because the range of allowed temperature coefficients will not be changed. The surveillance program consisting of beginning-of-cycle measurements, plant parameter monitoring, and end-of-cycle MTC predictions will ensure that the MTC remains within the range of acceptable values.

Removing the footnote that was applicable during Cycle 7 and providing a plus/minus (+) for SR 4.1.1.3.2c is purely an administrative change.

Therefore, the proposed change will not involve a significant reduction in a margin of safety.

Safety and Significant Hazards Determination

Based on the above No Significant Hazards Evaluation, it is concluded that: (1) the proposed change does not constitute a significant hazards consideration as defined by 10CFR50.92; and (2) there is a reasonable assurance that the health and safety of the public will not be endangered by the proposed change; and (3) this action will not result in a condition which significantly alters the impact of the station on the environment as described in the NRC final environmental statement.

NPF-38-212

ATTACHMENT A

EXISTING SPECIFICATIONS