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Waterford 3

W3F1-96-0048
A4.05
PR

April 11, 1996

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
Request For Additional Information Regarding Technical
Specification Change Request NPF-38-173

Gentlemen:

By letter dated November 7, 1995, Waterford 3 proposed a change to the Technical Specifications that would increase the specified range associated with the Safety Injection Tank water level and nitrogen cover pressure of Technical Specification 3/4.5.1. In a subsequent conversation, the NRC review staff requested additional information to aid in the approval of the subject proposed change. Attached please find the requested information.

This submittal provides additional details related to the subject proposed change. This additional information has no affect on the previously provided no significant hazards determination.

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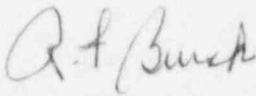
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Request For Additional Information Regarding Technical Specification Change
Request NPF-38-173
W3F1-96-0048
Page 2
April 11, 1996

If you should have any questions concerning the above, please contact
Paul Caropino at (504) 739-6692.

Very truly yours,



R.F. Burski
Director
Nuclear Safety

RFB/PLC/ssf
Attachment

cc: L.J. Callan, NRC Region IV
C.P. Patel, NRC-NRR
R.B. McGehee
N.S. Reynolds
NRC Resident Inspectors Office
Administrator Radiation Protection Division
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American Nuclear Insurers

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Technical Specification Change Request NPF-38-173

Question 1

The licensee asserted that the maximum level and minimum pressure are the limiting SIT conditions for the LBLOCA analysis. Discuss why the minimum level and maximum pressure are not more limiting considering early emptying of the SITs during Blowdown phase following a LBLOCA.

Response 1

The maximum level and minimum pressure are the most limiting conditions for the range of SIT level and pressure considered in the proposed Technical Specification change. If a wider range of conditions were considered, the most limiting conditions would be different. For example, if a minimum SIT level of 10% was analyzed, then this would be the worst case because the SIT would empty before reflood, resulting in a slow reflood rate and high peak clad temperatures. The analysis showed that there is a threshold below the 40% level where there is not enough water to rapidly fill the downcomer sufficiently to ensure an adequate reflood rate. With the SIT level above 40%, there is enough SIT water to assist the reflood. Over the SIT level range considered, the dominate affect of the initial level is on the discharge pressure as described in the Technical Specification change request.

Question 2

Sensitivity study should be provided for all cases of the combination of the SIT level and pressure to support the conclusion regarding the limiting conditions.

Response 2

The results of the sensitivity study are given below. Four cases representing the different combinations of SIT level and pressure were run. These analyses were performed using the NRC approved ABB/CE Large Break LOCA Evaluation Model for ECCS performance.

	<u>Case 1</u>	<u>Case 2</u>	<u>Case 3</u>	<u>Case 4</u>
SIT Level	Min	Max	Min	Max
SIT Pressure	Min	Min	Max	Max
Peak Clad Temperature, °F	2137	2175	2096	2147
Maximum Clad Oxidation, %	7.44	8.49	6.58	7.85

Question 3

If the maximum level and minimum pressure is indeed a limiting case, the results of the analysis will remain unchanged from the current assumptions. Why is there a higher PCT for the new conditions?

Response 3

The previous analyses had been performed with the minimum SIT level and minimum SIT pressure. This was the standard ABB/CE evaluation model assumption as to the most limiting SIT condition. This was not considered a major assumption because the difference between the minimum and maximum allowed SIT level was typically very small (only 6% at Waterford 3). This small difference was not expected to impact the LBLOCA results significantly. However, a bigger impact was expected with the expanded range of SIT conditions being considered at Waterford 3. The sensitivity study performed for Waterford 3 showed that the most limiting condition for the range being considered was maximum level and minimum pressure.

Question 4

If the maximum level and minimum pressure is a limiting case, what will be the consequences for the near empty SITs with very high nitrogen pressure?

Response 4

The maximum SIT level and minimum pressure is the limiting case for the range of conditions being considered in the proposed change. With a SIT level much less than 40% (near empty) and a high pressure, the SIT would empty quickly and would not provide sufficient water to reflood the core. This would likely result in unacceptable peak clad temperatures. Thus, the Technical Specification establishes limits on the SIT level and pressure conditions.