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QA

April 17, 1990

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 -- Feedwater Isolation
Valve Bases Change Request Dated October 6, 1989

Gentlemen:

On May 18, 1988, the staff at Louisiana Power & Light (LP&L) held a conference call with the NRC to discuss Main Feedwater Isolation Valve (MFIV) closure times. The MFIVs at Waterford 3 were typically tested under no load conditions. A letter from the valve manufacturer indicated the closure time under full-flow conditions was longer than under no flow conditions and may exceed the Technical Specification requirement. An initial evaluation by LP&L indicated the delayed closure of the MFIVs caused the containment peak accident pressure to exceed the value calculated in the safety analysis. However, subsequent evaluation showed the Feedwater Regulating Valves would isolate the feedwater within the requirements of the Technical Specifications, providing the same function as the MFIVs.

LP&L assured the NRC that the MFIV closure time would be adjusted such that the Technical Specification would be valid at full-flow as well as zero-flow. For clarification, a statement would be added to the bases distinguishing the zero-flow test closure time criteria from the full-flow closure time specification for the MFIVs. A change to ~~Sections~~ 3/4.3.1 and 3/4.3.2 of the Waterford 3 Technical Specifications, Reactor Protective and Engineered Safety Features Actuation Systems Instrumentation, was submitted via W3P88-1810 on October 6, 1989. By letter dated October 18, 1989, the NRC requested additional information to support the proposed revision. This letter supplements W3P88-1810 and provides the requested information.

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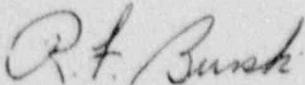
Table 3.3-5 of the Waterford 3 Technical Specifications, Engineered Safety Features Response Times, requires main feedwater isolation to occur in less than or equal to 6.0 seconds. This time limit exists to limit the mass and energy released to the containment during a postulated main steam line break accident. Assuming a 1.0 second signal processing time, valve closure must then be achieved within 5.0 seconds of receipt of the isolation signal. Closure time for the MFIVs is dependent on the resistance loads to which these valves are subjected. Greater resistance (i.e., increasing flow conditions) delays full closure. Since testing of the MFIVs is conducted under zero-flow conditions, closure time under accident conditions can be greater than the test value. The test acceptance criteria must take this into account and therefore must be less than the time quoted in Table 3.3-5 of the Technical Specifications.

MFIV closure time testing is performed while the plant is shutdown and with only one of two hydraulic actuators operating per valve. The MFIV vendor states that under these conditions and with the hydraulic actuator set as required, a zero-flow closure time of 2.75 seconds translates to a full-flow closure time of 4.3 seconds. Assuming a constant ratio between zero- and full-flow closure times (as recommended by the vendor), a zero-flow closure time of 3.0 seconds corresponds to a full-flow closure time of 4.7 seconds. Adding an additional 0.3 seconds for uncertainties (10% of measured time) brings the closure time for full-flow to the required 5.0 seconds. When the 1.0 second processing time is included in the criteria, a zero-flow test criteria of 4.0 seconds denotes a 6.0 second period to process the signal and achieve valve closure under full-flow, operating conditions.

The change to the bases defines three different time periods: 1) the acceptance criteria constituted by the sum of the signal processing time and the valve closure time for zero-flow, test conditions, 2) the required closure time constituted by the sum of the signal processing time and the corresponding valve closure time under full-flow, operating conditions, and 3) the signal processing time. This clearly defines what the value in Table 3.3-5 represents. Attachment A to W3P88-1810 is the current bases. Attachment B includes these changes.

This request involves neither a plant hardware change, nor a procedure change. If you have any further questions on this issue, please contact L.W. Laughlin at (504) 464-3499.

Very truly yours,



RFB/DAR/ssf

cc: Messrs. R.D. Martin (NRC Region IV), F.J. Hebdon (NRC-NRR),
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NRC Resident Inspectors Office