



A Centenor Energy Company

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United States Nuclear Regulatory Commission
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Subject: Retention of the Auxiliary Feedwater Pump Low Suction Pressure Interlock

Gentlemen:

In Serial No. 1182, dated September 10, 1985, Toledo Edison (TED) provided its Course of Action document in response to Mr. H. R. Denton's (Director, Office of Nuclear Reactor Regulation, NRC) letter of August 14, 1985 (Log No. 1798). Within this document, in Appendix IV.C.2.1, a commitment was made to remove the interlock on the steam inlet valves to the Auxiliary Feedwater Pump Turbines (AFPTs). This interlock causes securing of the turbines in the event of a low suction pressure condition to the Auxiliary Feedwater Pumps (AFPs). Additionally, a Technical Specification change was cited as being required to be submitted to implement this change, and was committed to be submitted to support implementation of the change prior to the beginning of Cycle 6 for the Davis-Besse Nuclear Power Station (DBNPS), Unit No. 1.

Further review of this item has revealed that the deletion of the AFP low suction pressure interlock would invalidate the acceptance provided by the NRC Staff presented in the Safety Evaluation Report (SER) issued to address NUREG-0737, Item II.E.1.1, Auxiliary Feedwater Evaluation (Log No. 1455, dated February 21, 1984). During 1982, based on a review of the DBNPS Auxiliary Feedwater (AFW) system design per NUREG-0737, Item II.E.1.1, the NRC issued a set of recommendations (Log No. 1052, dated August 3, 1982) to TED. One of these recommendations, GS-4, was related to the AFP suction transfer to an alternate AFW supply in the event the primary AFW supply was not available. This recommendation also addressed NRC's concern regarding the possibility of pump degradation during such a transfer. In response to this NRC recommendation TED stated that the automatic transfer of AFW pump suction from the condensate storage tank to the service water system was designed to prevent any degradation of the pump performance due to loss of the primary water supply (Serial No. 857, dated September 20, 1982). If the automatic transfer system failed to transfer to the alternate source, the transfer could

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be achieved manually. If the suction pressure dropped below 1 psig before the transfer was completed, the inlet steam to the AFPT would be isolated following a 2.5 second delay and, thereby, any pump degradation would be prevented. The NRC addressed this interlock design in the aforementioned SER. The SER accepted the interlock configuration in that the low suction pressure interlock provides protection against the degradation of AFP performance in the event of an inadvertent loss of AFP suction pressure.

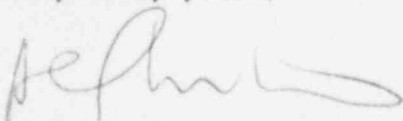
Further review of this item has also identified that the concern associated with inadvertent securing of the AFPTs is adequately precluded in the current DBNPS design. In the DBNPS design, steam to drive the AFPTs can be supplied from both steam generators. One steam inlet valve to each AFPT is kept open during normal operation, and, during transients that require AFW initiation, the remaining steam inlet valve receives an open signal. Therefore, in order to stop the pump it is necessary for both of the steam inlet valves to an AFPT to be closed. There are two low-low suction pressure switches in each AFP suction line. When a low-low suction pressure (<1 psig) is detected at the AFP suction, each pressure switch provides a closure signal to the steam inlet valve corresponding to that pressure switch. Since both steam inlet valves need to be closed to isolate steam to the AFPT and stop the AFP, a single failure (e.g. spurious actuation) of a pressure switch would not result in an inadvertent isolation of motive steam to an AFPT.

During the extended outage following the June 9, 1985 event at Davis-Besse, the time delay associated with the pressure switch trip function was evaluated and increased to 60 seconds. This design modification ensures that a momentary low suction pressure condition that may be caused by pressure oscillations during pump startup or during an automatic or manual transfer of AFP suction to an alternate supply will not result in an unnecessary isolation of steam to an AFPT. However, if the low suction pressure persists, confirming existence of an actual low suction pressure condition, the AFPT steam supply will be isolated to effect stopping of the AFP and thereby protecting the pump from damage. Therefore, protection against a single failure which could degrade both AFPs is maintained.

Based on the above, Toledo Edison rescinds its commitment as stated in Appendix IV.C.2.1 of the Course of Action document related to the deletion of this interlock.

If you have any questions, please contact Mr. R. W. Schrauder, Nuclear Licensing Manager, at (419) 249-2366.

Very truly yours,



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cc: DB-1 Resident Inspector
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