TOLEDO EDISON

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Subject: Response to NRC Generic Letter Number 89-19; Request for Action Related to Resolution of Unresolved Safety Issue A-47 "Safety Implication of Control Systems in LWR Nuclear Power Plants"

Gentlemen:

This letter is submitted pursuant to 10CFR50.54(f) in response to NRC Generic Letter Number 89-19, "Request for Action Related to Resolution of Unresolved Safety Issue A-47" (Log Number 3091 dated September 20, 1989). Generic Letter Number 89-19 discusses that as a result of technical resolution of Unresolved Safety Issue (USI) A-47 it was determined that protection should be provided for certain control system failures and that selected emergency procedures should assure that plant transients resulting from control system failures do not compromise public safety. As a result of this technical resolution, the NRC concluded that all Pressurized Water Reactor (PWR) plants should provide automatic steam generator overfill protection and that plant procedures and technical specifications should include provisions to verify periodically the operability of the overfill protection and to assure that automatic overfill protection is available to mitigate main feedwater (MFW) overfeed during reactor power operation. The NRC also concluded that certain Babcock & Wilcox plants should provide automatic initiation of auxiliary feedwater on low steam generator level, or another acceptable design, to prevent steam generator dryout on a loss of power to the control system.

The NRC provided specific control system design and procedure modification guidance in Enclosure 2 to Generic Letter Number 89-19. Toledo Edison hereby provides the following in response to Generic Letter Number 89-19, Enclosure 2, Item 3, Babcock and Wilcox - Designed PWR Plants. It should be noted that, within the context of Generic Letter Number 89-19, Davis-Besse Nuclear Power Station, Unit 1 is a Group I plant and the response is based on this group categorization.

Enclosure 2, Item 3(a), NRC Recommendation

It is recommended that all Babcock and Wilcox plant designs have automatic steam generator overfill protection to mitigate MFW overfeed events.

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The design for the overfill protection system should be sufficiently separate from the MFW control system to ensure that the MFW pump will trip on a steam generator high-water-level signal (or other equivalent signals) when required, even if a loss of power, a loss of ventilation, or a fire in the control portion of the MFW control system should occur. Common failure modes that could disable overfill protection and the feedwater-control system, but still result in a feedwater pump trip, are considered acceptable failure modes.

Response

Davis-Besse Nuclear Power Station Unit 1 has in place a Steam and Feedwater Rupture Control System (SFRCS) trip on high Steam Generator (SG) level which closes the MFW isolation valves and the MFW control valves, and the Main Steam Isolation Valves (MSIV's), and initiates auxiliary feedwater (AFW). This is a safety-grade trip using two actuation channels with a 2-out-of-2 per actuation channel initiating logic. The closure of the MSIV's removes the Steam Supply to the Main Feedwater Pump Turbines (MFPT's) and results in their shutdown. The MFPT's are not tripped separately.

The design for the overfill-protection system is sufficiently separate from the MFW control system to ensure that MFW isolation occurs on a steam generator high-water-level signal when required, even if a loss of power, a loss of ventilation, or a fire in the control portion of the MFW control system should occur.

Enclosure 2, Item 3(b), NRC Recommendation

It is recommended that plant procedures and technical specifications for all B&W plants include provisions to periodically verify the operability of overfill protection and ensure the automatic MFW overfill protection is operable during reactor power operation. The instrumentation should be demonstrated to be operable by the performance of a channel check, channel functional testing, and channel calibration, including setpoint verification. Technical specifications should include appropriate Limiting Conditions for Operation (LCOs). These technical specifications should be commensurate with the requirements of existing technical specifications for channels that initiate protective actions.

Response

As stated in the Generic Letter, the intent of this recommendation is to modify the plant procedures to provide periodic testing of overfill protection and to consider inclusion of these requirements in future Technical Specification improvements. At Davis-Besse the SFRCS high-level trip is subjected to surveillance testing similar to the safety-grade SFRCS low-level trip which includes channel check, channel functional test and channel calibration (including setpoint verification). However, the high-level trip is not included in the Davis-Besse Technical Specifications. The Technical Specification issue for this trip has been referred to the B&W Owners Group Technical Specification Committee for review against the criteria specified in the NRC Interim Policy Statement on Technical Specification Improvements. Toledo Edison will evaluate the result of the B&W Owners Group Technical

Specification Committee's review and, if necessary, will consider incorporating the recommended Technical Specification changes during a future upgrade.

Enclosure 2, Item 3(c), NRC Recommendation

It is recommended that plant designs with no automatic protection to prevent steam generator dryout upgrade their design and the appropriate technical specifications and provide an automatic protection system to prevent steam generator dryout on loss of power to the control system. Automatic initiation of auxiliary feedwater on steam generator low-water level is considered an acceptable design. Other corrective actions identified in Section 4.3 (4) of NUREG-1218 could also be taken to avoid a steam generator dryout scenario on loss of power to the control system. The staff believes that only three B&W plants, i.e., Oconee 1, 2, and 3, do not have automatic auxiliary feedwater initiation on steam generator low water level.

Response

Davis-Besse has the SFRCS which provides automatic protection to prevent SG dryout by automatically initiating AFW on low SG level. Technical Specifications Section 3/4.3.2.2 contains operability and surveillance requirements. Therefore, this recommendation does not apply to Davis-Besse.

In conclusion, Davis-Besse has in place a safety-grade SG overfill protection system that isolates MFW and the steam source for the MFPT's. Toledo Edison believes that this most closely satisfies the Group I design criteria for overfill protection as delineated in Generic Letter Number 89-19. The overfill protection system is included within the existing surveillance and operating procedures for the SFRCS low-level trip, which assures proper operation. Toledo Edison has no plans to include a MFW pump trip circuit in the overfill scheme because the closure of MSIV's on an overfill event accomplishes shutdown of the MFW pumps by removing the steam to the MFPT's. Inclusion of the high-level trip in the Technical Specifications is pending review and recommendation by the B&W Owners Group Technical Specification Committee.

Should you have any questions or require additional information, please contact Mr. R. W. Schrauder, Manager - Nuclear Licensing, at (419) 249-2366.

Very truly yours,

JSL/ssg

Enclosure

cc: P. M. Byron, DB-1 NRC Senior Resident Inspector
A. B. Davis, Regional Administrator, NRC Region III
T. V. Wambach, DB-1 NRC Senior Project Manager

RESPONSE TO NRC GENERIC LETTER
"REQUEST FOR ACTION RELATED TO RESOLUTION OF UNRESOLVED SAFETY ISSUE A-47"
FOR
DAVIS-BESSE NUCLEAR POWER STATION
UNIT NUMBER 1

This letter is submitted in conformance with Section 182a, Atomic Energy Act of 1954, as amended, and 10CFR50.54(f) in response to Generic Letter Number 89-19 "Request for Action Related to Resolution of Unresolved Safety Issue A-47."

By: _____
D. C. Shelton, Vice President Nuclear

Sworn and subscribed before me this 20th day of March, 1990

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Notary Public, State of Ohio

EVELYN L. DRESS
NOTARY PUBLIC, STATE OF OHIO
My Commission Expires July 28, 1994