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Licensee No. NPF-3

Docket No. 50-346

Serial No. 895

March 11, 1983

Mr. John F. Stolz, Chief
Operating Reactors Branch No. 4
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Stolz:

This is in response to your letter dated January 10, 1983 relating to Auxiliary Feedwater System automatic initiation and flow indication (NUREG-0737, Item II.E.1.2). Your letter identified two concerns pertaining to this NUREG-0737 item. Toledo Edison's response to these concerns as relating to Davis-Besse Nuclear Power Station Unit 1 is provided in the attachment to this letter.

Very truly yours,

RPC:FYC:HA

cc: DB-1 Resident NRC Inspector

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Attachment to Toledo Edison Letter on
Auxiliary Feedwater System (AFWS) Automatic Initiation
and Flow Indication

Concern:

1. Only one AFW system flow channel per steam generator is provided. A minimum of two AFW system flow rate indicators is required by NUREG-0737, Item II.E.1.2. These must met the requirements of Section 4.2 of IEEE Standard 279-1971.

Response:

1. We believe that the specified need for a redundant safety grade flow indication stipulated in NUREG-0737, Item II.E.1.2 is not warranted for Davis-Besse Unit 1. The normal intent of a redundant safety grade indicator is to assure that single failure does not prevent proper protective action by an operator when required. For Davis-Besse Unit 1 the flow indicator only provides the auxiliary feedwater (AFW) flow indication, it does not initiate any manual safety function and it is not used for any manual control. The auxiliary feedpump speed is controlled automatically by the safety graded steam generator level instruments. These instruments will maintain the steam generator level within a deadband of 12.5 inches over the low setpoint. When the steam generator level is over the deadband the AFW pump speed will be reduced to standby speed where no AFW will enter the steam generator. Depending on the amount of decay heat, it may take 1 minute to a few minutes to boil the steam generator level down by 12.5 inches, and the AFW pump will come to full speed again. If the automatic level instruments failed, there are safety grade manual level controls and indications in the control/cabinet room to allow the operators to manually control the AFW to achieve the desired steam generator level. At no time will the operator rely on AFW flow indication to perform any safety related functions.

The safety function of the Auxiliary Feedwater System is to provide decay heat removal from the steam generators. The primary and most significant means of heat removal is the steam generator secondary side water inventory which is verified by the level indication rather than the flow indication. Davis-Besse Unit 1 utilizes a safety grade dual setpoint steam generator level control system. These setpoints have been determined to ensure adequacy of decay heat removal during both natural and forced flow conditions. No reliance need be placed on the auxiliary feedwater flow indication to achieve the safety function as long as adequate steam generator levels are maintained.

Based on the above, we reaffirm that the relative insensitivity of the overall AFWS reliability to a second AFWS flow indicator; the inclusion of the truly diverse indication of the primary performance parameter (steam generator level), and unfavorable cost-benefit considerations of installation of such flow indicators, negate the

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provision of a second flow indicator in each train. Furthermore, compliance with the requirements of General Design Criteria 34, that the safety function of the designed system, that is, the residual heat removal by the AFW system be accomplished even in the case of a single failure, remains unaltered.

Concern:

2. The Davis-Besse Technical Specifications should be revised to include monthly testing of the AFW system automatic actuation logic and manual initiation circuits.

Response:

2. The automatic initiation circuit for the AFWS (Steam and Feedwater Rupture Control System - SFRCS) is in full compliance with NUREG-0737, Item II.E.1.2, Part 1. A monthly Channel Functional Test is performed on this system as required by Davis-Besse Unit 1 Technical Specification surveillance requirement 4.3.2.2.1, Table 4.3-11. During this test all components in the automatic and manual portions of this control system are functionally tested except for the following items:
 1. The output relay contacts in the valve control circuit are not tested on a monthly basis. The relays operation is tested monthly and the output contacts are tested during the 18 month integrated SFRCS test.
 2. The Manual Actuation buttons are not tested monthly. If they were actuated, they would cause a full trip of one channel of SFRCS, which would cause the secondary side of both steam generators to be isolated and one auxiliary feedpump would be started. These buttons are tested every 18 months. All other logic for these Manual Actuation buttons is tested during the monthly functional test.

However, the surveillance requirements specified in the existing Davis-Besse Unit 1 Technical Specifications, Table 4.3-11 will be revised by April 30, 1983, so that the output relay contacts will receive a channel functional test on a monthly basis. This will adequately ensure the system's functional capability to its design standards.

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