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Docket No. 50-309

Mr. John H. Garrity, Senior Director  
 Nuclear Engineering and Licensing  
 Maine Yankee Atomic Power Company  
 83 Edison Drive  
 Augusta, Maine 04336

Dear Mr. Garrity:

SUBJECT: SAFETY EVALUATION - MAINE YANKEE AUXILIARY FEEDWATER SYSTEM  
 AUTOMATIC INITIATION AND FLOW INDICATION (TMI ACTION PLAN  
 ITEM II.E.1.2)

We have reviewed your submittals dated October 18, 1979, November 20, 1979, October 17, 1980, April 28, 1981 and May 4, 1982 on the Maine Yankee Auxiliary Feedwater System (AFWS). Enclosed is our Safety Evaluation Report (SER) on the electrical, instrumentation, and control aspects of the Maine Yankee AFWS. The SER is based on our review of the Technical Evaluation Report prepared by Franklin Research Center (FRC). The FRC review consisted of an evaluation of the Maine Yankee AFWS design against the long-term safety grade requirements of NUREG-0578, Section 2.1.7.a and 2.1.7.b and subsequent clarifications developed by the staff with regard to conformance to IEEE Standard 279-1971. These clarifications are listed in NUREG-0737 (Clarifications of TMI Action Plan Requirements), Section II.E.1.2.

Based on our review of the FRC TER, we conclude that the Maine Yankee auxiliary feedwater automatic initiation and flow indication systems comply with the staff's long-term safety grade requirements with the following exception:

The testing of the AFWS automatic initiation actuation logic should be upgraded and included in the Maine Yankee Technical Specifications. The AFWS automatic initiation logic is presently tested at each refueling outage. This should be upgraded to require each logic channel be tested every 62 days on a staggered basis, as per the Standard Technical Specifications.

In earlier correspondence related to AFWS (WMY 79-138 dated November 20, 1979) Maine Yankee committed to diversifying the power source to the three AFW flow control valves and one of the steam admission valves to the turbine-driven pump. Advise us of the current status of this modification and your schedule for its completion.

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Mr. John Garrity

- 2 -

Your response to this letter should include a request for proposed Technical Specifications as identified in our SER and should be submitted within 120 days of the receipt of this letter.

A copy of our Safety Evaluation Report (with attached FRC Technical Evaluation Report) is enclosed.

The requested information affects fewer than 10 respondents, therefore OMB clearance is not required under P.L. 96-511.

Sincerely,

Original signed by

Robert A. Clark, Chief  
Operating Reactors Branch #3  
Division of Licensing

Enclosures:  
As stated

cc: See next page

OFFICE ▶	ORB#3:DL	ORB#3:DL <sup>9/3</sup>	ORB#3:DL			
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Maine Yankee Atomic Power Company

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION

MAINE YANKEE - AUXILIARY FEEDWATER  
AUTOMATIC INITIATION AND FLOW INDICATION  
TMI ACTION PLAN ITEM II.E.1.2

INTRODUCTION AND SUMMARY

To improve the reliability of Auxiliary Feedwater Systems (AFWS) at pressurized water reactor (PWR) facilities, the staff is requiring licensees to upgrade the system where necessary to ensure safety grade automatic initiation and flow indication. The criteria for this upgrading are contained in NUREG-0737 (Clarifications of TMI Action Plan Requirements), Section II.E.1.2.

The evaluation of the Maine Yankee AFWS design was performed for the NRC by Franklin Research Center (FRC) as part of a technical assistance contract program. The results of the FRC evaluation are reported in the attached Technical Evaluation Report (TER - C5257 - 304).

Based on our review of the FRC TER and subsequent conversations with the licensee, we conclude that AFWS automatic initiation and flow indication designs are acceptable. However, the Maine Yankee Technical Specifications should be modified to reflect periodic testing of the AFWS automatic initiation actuation logic.

## EVALUATION

The attached TER provides a technical evaluation of the electrical instrumentation and control design aspects of the Maine Yankee AFWS with regard to automatic initiation and flow indication. As noted in the TER, the turbine-driven pump is not part of the automatic initiation scheme. Thus, upon loss of all AC power, sufficient flow to the steam generators will require manual operation. Though this is a concern, it falls under the II.E.1.1 (Auxiliary Feedwater System Evaluation) review and not the II.E.1.2 review and as such will be addressed by Auxiliary Systems Branch.

A review of the current Maine Yankee Technical Specifications indicates that surveillance of the automatic initiation actuation logic of the AFWS is not included. Flow Indication is presently covered in Table 4.1-3 (Minimum Frequencies for Checks, Calibrations and Testing of Miscellaneous Instrumentation and Controls) of the Maine Yankee Technical Specifications.

The three AFWS flow control valves and one of the steam admission valves to the turbine-driven pump are presently covered by the Division IV vital bus. The licensee has committed in a November 20, 1979 letter from D. Moody to D. Eisenhut to diversify the power source for these valves. Maine Yankee should commit

to a design and implementation schedule for these modifications, though it should be noted that this concern falls under the II.E.1.1 review.

The environmental qualification of safety related systems including AFWS circuits and components is being reviewed by the Environmental Qualification Branch as part of their review of licensee responses to "Guidelines for Environmental Qualification of Class 1E Electrical Equipment in Operating Reactors" issued to the licensee in NRR letter dated March 5, 1980.

In order to adequately determine from the control room the performance of the AFWS, steam generator level instrumentation is used, in addition to flow indication. The requirements for this steam generator level instrumentation are specified in Regulatory Guide 1.97 Revision 2 (R.G. 1.97 - "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident"). The steam generator level instrumentation at Maine Yankee should be in conformance with these requirements and implemented in accordance with the schedule indicated in the referenced regulatory guide.

#### CONCLUSION

Based on our review of the Franklin Research Center TER, we conclude that the Maine Yankee AFWS automatic initiation and flow indication systems comply with the staff's long-term safety goals.

requirements.

The Maine Yankee Technical Specifications should include periodic testing of the Auxiliary Feedwater System automatic initiation actuation logic.

Attachment:  
FRC Technical Evaluation  
Report