

August 16, 1982

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Docket No. 50-29

Mr. James A. Kay
Senior Engineer-Licensing
Yankee Atomic Electric Company
1671 Worcester Road
Framingham, Massachusetts 01701

Dear Mr. Kay:

SUBJECT: TMI ACTION PLAN ITEMS II.E.1.2-
AUXILIARY FEEDWATER SYSTEM AUTOMATIC INITIATION
AND FLOW INDICATION, YANKEE NUCLEAR POWER STATION

The staff has completed its review of your submittals regarding this topic and has determined that the Yankee Nuclear Power Station (Yankee) need not have automatic initiation capability for the auxiliary feed-water system (AFWS). This determination is based on the fact that the Yankee steam generators contain a sufficient volume of secondary water to provide a dryout time of approximately one hour during which time manual actions could be taken to restore a water supply.

The staff has also evaluated the Yankee AFWS against the guidance given in Section II.E.1.2 of NUREG-0737, and has concluded that the Yankee AFWS manual initiation and flow indication systems comply with the staff's long-term safety grade requirements.

We note, however, that the Yankee Technical Specifications do not currently require that the starting capability of the two electric motor driven pumps be demonstrated monthly from the control room. We therefore request that within 90 days of your receipt of this letter you submit proposed changes to include this testing in the Technical Specifications. The issuance of this letter with the enclosed Safety Evaluation and contractor's report resolves the technical and schedular aspects of NUREG-0737 item II.E.1.2, and completes our review of this item.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten licensees; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

Original Signed By
Dennis M. Crutchfield, Chief
Operating Reactors Branch #5
Division of Licensing

J.R.
WRR/DSI
TSpeis 8/13/82

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DATE	See next page	8/16/82	8/16/82	8/16/82	8/16/82	8/16/82

Mr. James A. Kay

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August 16, 1982

cc

Mr. James E. Tribble, President
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Chairman
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SAFETY EVALUATION

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 AFWS at the Yankee plant does not have the capability to initiate automatically. The staff has determined that due to the unusually large steam generators, and their resultant long dryout time, that automatic initiation is not necessary. This position was formulated during the IEB 80-04 (Main Steam Line Break with Continued Feedwater Addition) review of the Yankee Rowe Plant.

The evaluation of the 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 - C5257-289).

Based on our review of the FRC TER and subsequent conversations with the licensee, we conclude that the AFWS manual initiation and flow indication designs are acceptable.

EVALUATION:

The attached TER provides a technical evaluation of the electrical, instrumentation and control aspects of the Yankee AFWS with regard to manual initiation and flow indication. As noted in the TER, the design of the system complies with the requirements of Sections 2.1.7.a and 2.1.7.b with regard to manual initiation and flow indication. Though not stated in the TER, it was determined that no single failure could prevent manual initiation of the AFWS.

The Yankee Technical Specifications currently contain requirements in Section 4.7.1.2 to test the AFWS pumps every 31 days. However, the specification allows the pumps to be started locally, so that the circuitry between the pumps and the control room is not necessarily tested. The steam-turbine driven pump cannot be started remotely, due to the design of the turbine and pump, but the remote controls for the electric motor driven pumps should be tested.

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 Evaluating Environmental Qualification of Class IE 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.

CONCLUSION

Based upon our review of the Franklin Research Center TER and the Yankee Technical Specifications, we conclude that the Yankee AFWS manual initiation and flow indication systems comply with the staff's long-term safety-grade requirements. However, the Technical Specifications should be revised to include periodic testing of the remote controls for the two electric motor driven AFWS pumps.