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# YANKEE ATOMIC ELECTRIC COMPANY



20 Turnpike Road Westborough, Massachusetts 01581

June 20, 1979

United States Nuclear Regulatory Commission  
Region I  
631 Park Avenue  
King of Prussia, Pennsylvania 19406

Attention: Boyce H. Grier, Director

- Reference:
- (a) License No. DPR-3 (Docket No. 50-29)
  - (b) Letter YAEC to USNRC dated April 26, 1979;  
Response to I & E Bulletin No. 79-06a
  - (c) Letter YAEC to USNRC dated May 24, 1979;  
Additional Information Regarding I & E Bulletin 79-06a  
(WYR 79-63)

Dear Sir:

Subject: Additional Information and Responses Relative to I & E Bulletin 79-06a

It has been brought to our attention that in order to complete your reviews of our responses to I & E Bulletin 79-06a (Ref. (b) & (c)) additional information is needed by your staff. As a result of the completion of reviews which were in progress at the time of the previous responses Yankee is now able to expand on the information given to date. The following information is provided as supplemental to our two previous responses and any review must include an integration of material from all three sources.

Item 2

As discussed in reference (b), the primary indication of void formation in the reactor coolant system is loss of system overpressure. In the event that overpressure is lost and extensive voiding occurs cooling will be lost. This will be true whether forced flow or natural circulation is being used for core heat removal. Loss of cooling would be indicated to the operator by a  $\Delta T$  across the core in excess of 40°F. Additionally, the operator would be alerted to the situation by rapid increases in the core exit thermocouple temperatures. The emergency procedures at Yankee Rowe have been revised to address the symptoms of loss of cooling (void formation) and also direct the operator to consult the saturation pressure curve which has been made a part of the affected procedures.

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Although the emergency operating procedures identify the actions for dealing with loss of core cooling they are designed primarily to prevent the formation of voids which would lead to a loss of cooling.

In the instance where the operator may be unable to prevent voiding, specific instructions are included in those emergency procedures for such contingencies. These instructions establish alternate cooling modes.

Item 4

All lines having automatic trip valves are isolated simultaneously on a containment isolation actuation signal of 5 psig (Refer to Technical Specification Table 3.6-1 for a complete listing of these lines). The Yankee Rowe emergency operating procedures have been revised to instruct the operator to manually initiate a limited containment isolation following a safety injection actuation due to a low pressure condition. This manual initiation is limited only in the fact that two valves, TV-205 (component cooling from Reactor Coolant Pumps) and TV-405 (auxiliary steam to the Emergency Boiler Feed Pump), are not tripped in order to maintain operability of the Reactor Coolant Pumps and the Emergency Boiler Feed Pump.

Procedures incorporating these changes have been revised. Operations personnel received training on the revised procedures at sessions held on May 17 and 18, 1979.

Item 6

Procedural changes, necessary to accomplish the actions described in Item 6 of reference (b) were transmitted to the operating personnel on May 11, 1979, via a Special Operating Order. Formal procedure changes were approved on May 14, 1979. All operators have been trained in these changes during training sessions held on May 17 and 18, 1979.

Item 7a

Operating procedures and training instructions have been reviewed to ensure that the operators will not override automatic actions of safety features, unless continued operation of the engineered safety features will result in unsafe plant conditions. The importance of this concern was stressed to licensed operations personnel during training held on May 17 and 18, 1979.

Item 7b

Due to the design of the ECCS at Yankee Rowe, safety injection is initiated in trains i.e. one low pressure pump and one high pressure pump. The ECCS utilizes three trains to provide emergency core cooling. Current operating procedures have been reviewed and revised to ensure that very specific criteria are met before removing a train or any part of a train of safety injection pumps. These criteria have been addressed in detail in reference (c). Item 7b.

Item 7c

Reactor coolant pump operation during transients has been addressed in detail in reference (c), Item 7c. Furthermore, work is currently being performed by Yankee and Westinghouse which may alter pump operation during severe transients.

Item 7d

Emergency Operating Procedures have been revised to ensure that the operator utilizes a combination of plant parameters in evaluating primary plant conditions. The procedures in fact, have actually been modified to de-emphasize any reliance on pressurizer level as the sole indication of main coolant system conditions. The use of as many primary plant parameters as are available in assessing transients has been stressed to licensed operators during training sessions held on May 17 and 18, 1979.

Item 8

Plant procedures have been reviewed to insure that alignment requirements and controls for all safety related valves, necessary for proper operation of engineered safety features, are satisfied. Procedures were reviewed for compliance with the Technical Specifications as well as plant P & ID's. No procedure revisions were necessary as a result of this review.

Yankee Rowe Technical Specifications do not require periodic surveillance of locked valves. Therefore, procedures were also reviewed to ensure that locked safety related valves were being subjected to periodic inspections. With the exception of one valve, all the locked safety related valves were included in existing surveillance schedules. This one valve was added to the appropriate procedure for periodic surveillance.

The plant's, switching and tagging procedure was revised to stress the "Return to Service" requirements. Also plant maintenance, testing and surveillance procedures involving Engineered Safety Features have been reviewed and revised as necessary to ensure that they include specific "Return to Service" requirements in the Final Conditions. This effort has been completed.

All licensed operators were trained on the procedure changes and informed of revisions made to maintenance, testing and surveillance procedures to address this requirement during training sessions on May 17 and 18, 1979.

Item 9

All licensed operators have been instructed of the consequences of resetting engineered safety features and the effect of this action on valves controlling the release of radioactivity. This training was performed on May 17 and 18, 1979. Furthermore, procedure revisions are in progress to ensure that prior to resetting of engineered safety features, that valves closed to prevent a transfer of potentially

radioactive fluids from containment will remain closed. The operators will be directed to align the containment isolation system so that any reset of ESF will not cause the opening of trip valves which have closed on the lines mentioned in Item 9 of reference (b). Referenced procedure changes will be completed by July 15, 1979.

Item 10

All maintenance and test procedures involving ESF have been reviewed and revised to incorporate the requirements that (a) redundant systems are operable before a system is taken out of service, (b) systems are operable when returned to service, and (c) operators are made aware of the status of these systems. These procedures identify the Shift Supervisor as the authority required for removing and returning safety related systems to service. For the majority of procedures this requirement was already in effect. This effort has been completed and licensed operators have been informed of the procedural change during training sessions held on May 17 and 18, 1979.

Item 11

Installation of direct and dedicated telephone lines between Yankee Rowe and NRC headquarters has been initiated by the NRC in accordance with the letter, USNRC to YAEC of 5/22/79. Of the two direct and dedicated lines proposed for Yankee Rowe, the one for communicating operational information has been installed. The second, slated for communicating radiological and environmental information during an emergency is scheduled to be installed by September 1, 1979.

A plant operational memo has been issued instructing operators on the use of this communications system and of the requirement of notifying the NRC within one hour from the time the reactor is not in a controlled or expected condition of operation.

Item 12

An emergency Operating Procedure, dealing with the control of hydrogen in the main coolant system has been revised. All licensed operators have been trained in these changes during training sessions on May 17 and 18, 1979.

We trust that this information is satisfactory; however, should you have any additional questions, please contact Mr. J. K. Thayer of this office.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

*E. Jackson for*  
D. E. Moody  
Manager of Operations