

APR 20 1983

Docket No. 50-309

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

SUBJECT: MAINE YANKEE FEEDWATER TRIP SYSTEM

We are continuing our post-implementation review of your feedwater trip system as referenced in our Safety Evaluation dated July 10, 1981 (Amendment No. 58 - Page 18). This review has resulted in identification of several concerns which were reflected in our letter dated November 24, 1982. That letter requested a meeting to respond to these concerns.

Recently, you provided us with an informal response to these concerns. We have reviewed your informal response and the subject system in formulating a revised set of concerns. These concerns and our positions are found in Enclosure 1.

We request that these concerns be reviewed by your staff and be a basis for a meeting with the NRC. This meeting should be scheduled with the NRC Project Manager within 45 days of your receipt of this letter.

You may elect to combine this meeting with the meeting requested in our letter of March 24, 1983 on the auxiliary feedwater system.

Sincerely,

Original signed by

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

Enclosure:
 As stated

cc: See next page

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INSTRUMENTATION AND CONTROL POSITIONS
ON MAINE YANKEE FEEDWATER
TRIP SYSTEM

1. **CONCERN:** Three batteries are used to power the logic and solenoid valves for the main and auxiliary feedwater isolation and pump trips and for the main steam line isolation. Each battery, such as Battery #1, is used in both Train A and Train B. The staff is concerned that separation and single failure criteria may not be met.

POSITION: Since the licensee has stated that this system is a safety-grade system and has taken credit for its protective actions in safety analyses, the staff's position is that separation and single failure criteria should be met in accordance with paragraphs 4.2 and 4.6 of IEEE-STD-279.

2. **CONCERN:** Two solenoid valves are used for each main steam line isolation valve, auxiliary and main feedwater control valve and main feedwater bypass control valve. Manual closure capability is provided only for one solenoid for each main steam line isolation valve. Manual closure capability is not provided for the remaining solenoid on each main steam line isolation valve and for any solenoid valves used for feedwater isolation.

POSITION: For this protection system, the staff's position is that manual closure (initiation) capability at the system level should be provided for this system in accordance with paragraph 4.17 of IEEE-STD-279 with guidance from R.G. 1.62.

3. CONCERN: Manual control switches, such as "SS EFC 1001A" and "1/SG1B BYPASS", can be left in positions which can inhibit main steam line, main feedwater and auxiliary feedwater isolation.

POSITION: For this protection system, the staff's position is that these bypasses should be indicated in accordance with paragraph 4.13 of IEEE-STD-279.

4. CONCERN: Bypass relays, such as "SG1 LPAX", can each block a train of main and auxiliary feedwater isolation to a specific steam generator. Only one bypass annunciator, "BYPASS FEEDWATER VALVE TRIP", is energized by contacts from these bypass relays.

POSITION: For this protection system, designed to isolate only a failed steam generator, the staff's position is that a separate bypass indication should be provided for each bypass relay in accordance with paragraph 4.13 of IEEE-STD-279 with guidance from R.G. 1.47.

5. CONCERN: Manual control switches and bypass switches, as mentioned above, can prevent this system from performing its protective action. There is no assurance provided that the specific contacts performing the block functions return to their normal positions.

POSITION: For this protection system, the staff's position is that positive indication should be provided to insure that each blocking contact returns to its normal position following testing or bypassing of the system. This position is based on the detectability of failures as applied to the single failure criterion in accordance with paragraph 4.2 of IEEE-STD-279 as amplified by IEEE-STD-379.

6. CONCERN: The logic formed from relays such as "SG1 LPA" and "SG1 LP" cannot be tested during plant operation since blocks are not provided to prevent main and auxiliary feedwater isolation, main steam line isolation, and main and auxiliary feedwater pump trips.

POSITION: For this protection system, the staff's position is that design should include the recommendations of R.G. 1.22 and IEEE-STD-338 which state that protection systems, including the actuation devices, should be designed to be testable during plant operation.

7. CONCERN: The low pressure trip of the auxiliary feed-water pumps can be blocked by control switches, such as "SS P-25A". If these switches are used during testing of relays such as "LPB X", the functional capability of these relays cannot be demonstrated.

POSITION: For this protection system, the staff's position is that the design should include the recommendations of IEEE-STD-338 which states that testing provisions shall demonstrate the full functional capability of the items under test and further that the protection system, including the actuation devices, should be designed to be testable during plant operation.

8. CONCERN: The current level of system surveillance may not provide an adequate assurance of system operation as designed.

POSITION: The Technical Specifications for system surveillance should be reviewed using the guidance provided by NUREG-0212, Standard Technical Specifications for Combustion Engineering Pressurized Water Reactors.

9. CONCERN: Based on the number of concerns as identified above, it is clear that a number of deviations exist with regard to conformance with regulatory requirements and guidance for protection systems.

POSITION: It is the staff's position that a thorough review of the design of this protection system should be conducted and deviations from regulatory requirements and guidance should be corrected or specific exceptions suitably justified.