

NORTHEAST UTILITIES



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February 11, 1991

Docket No. 50-423

B13736

Re: 10CFR50.90

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Reference: E. J. Mroczka letter to the U.S. Nuclear Regulatory Commission,
"Proposed Revision to Technical Specifications RHR System
Autoclosure Interlock," dated October 25, 1990.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 3
Proposed Revision to Technical Specifications
Residual Heat Removal System Autoclosure Interlock (TAC No. 77924)

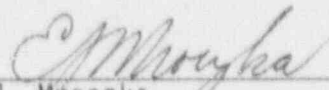
By letter dated October 25, 1990 (reference), Northeast Nuclear Energy Company (NNECO) submitted a proposed revision to the Technical Specifications for Millstone Unit No. 3. The proposed Technical Specification change will delete the surveillance requirements (Section 4.5.2.d.1) associated with the residual heat removal (RHR) autoclosure interlock (ACI) concurrent with the removal of the ACI circuitry planned for the third refueling outage.

In a subsequent discussion with the NRC Staff, additional information was requested to clarify the responses to plant-specific items regarding the RHR system ACI function (Attachment 2 to reference). The purpose of this submission is to provide the Staff with the requested information (see Attachment 1 to this letter). It is also noted that there are no additional Technical Specification changes related to removal of the RHR system ACI required other than already included in the referenced letter (Attachment 1 to reference).

We trust the Staff finds this information helpful. Should you have any additional questions, please contact our licensing representative directly.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY



E. J. Mroczka
Senior Vice President

cc: See next page

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Attachment 1

Millstone Nuclear Power Station, Unit No. 3

Additional Response to Plant-Specific Items
Regarding the Removal of the
Residual Heat Removal System Autoclosure Interlock Function

February 1991

Item 1

An alarm will be added to each residual heat removal (RHR) suction valve which will actuate if the valve is open and pressure is greater than the open permissive set point and less than the RHR system design pressure minus the RHR pump head pressure (justified by WCAP-11736).

Additional Response

As stated in Reference (1), an alarm will be added to each valve (3RHS*MV8701A and B and 3RHS*MV8702A and B) which will actuate if the valve is open and if reactor coolant system (RCS) pressure is above a value set between 375 and 450 psig. The alarm set point will be at 440 psig. The third valve in each train is located inside containment and is closed and de-energized at the motor control center (MCC) during power operation, but the indication is still available to the operator on the main board in the control room. The plant procedure currently directs the operator to close all six of the RHR suction valves, then to open the breakers for the 'C' valves. The valve closure indication will be verified prior to the breakers being opened (de-energized).

Item 2

Valve position indication to the alarm must be provided from the stem-mounted limit switches (SMLS) and power to the SMLS must not be affected by power lockout of the valve (justified by WCAP-11736).

Additional Response

o Limitorque Limit Switches

The Limitorque limit switches, valves, and motors have been tested and qualified for Class 1E use at Millstone Unit No. 3. The four inside containment actuators are Limitorque Models SMB-3, and the two outside containment actuators are SMB-1. There have been no Part 21 concerns to date on these Limitorque actuators or limit switches. Thus, we consider them reliable.

o System and Valve Design

The inboard Valves 3RHS*MV8701C and 3RHS*MV8702C are leak tested and power is removed prior to power operation. The indicating lights are powered from a separate source so that valve position indication will remain available. In addition, independently powered computer points are provided for valve position. These valves do not receive an ACI; thus there will be no alarm.

Valves 3RHS*MV8701A and 3RHS*MV8702B are leak-checked closed and key locked in that position during power operation. Power is maintained to the valve motor and also provides control power for indicating lights. In addition, independently powered computer points are provided for valve position. Open block interlocks are provided for these valves, and ACI will be converted to a valve open and RCS pressure high alarm.

Valves 3RHS*MV8701B and 3RHS*MV8702A are closed and locked during power operation. Power is maintained to the valve motor and also provides control power for indicating lights. In addition, independently powered computer points are provided for valve position. Open block interlocks are provided for these valves, and ACI will be converted to a valve open and RCS pressure high alarm.

o Position Statement

Considering that the Limitorque limit switches are reliable based on these Category 1E requirements and the system and valve design described above, we conclude that there are adequate features to ensure RHR system protection. In addition, the cost-benefits of adding stem-mounted limit switches inside containment of four valves is not justifiable.

Item 3

The procedural improvements described in WCAP-11736 should be implemented. Procedures themselves are plant-specific.

Additional Response

Item 3 discusses the procedural modification that will be made. They are as follows: the alarm response portion of the procedure will direct the operator to close or check closed 3RHS*MV8701A, B, and C (3RHS*MV8702A, B, and C for Train B) if the plant is in Modes 1, 2, or 3. In Modes 4, 5, or 6, upon receipt of the alarm, the operator will be directed to initially investigate and correct the cause of the high RCS pressure. This action will include checking:

1. Pressurizer heaters and level
2. Charging/letdown mismatch
3. Reactor coolant pump status
4. RHR cooling flow

Subsequent action for the operators will be to:

1. Arm or check armed the cold overpressure protection system (COPS)
2. Monitor the PRT pressure, temperature, and level to determine if power-operated relief valves (PORV) or the RHR suction relief valves have lifted.

3. Open the PORVs, if necessary, to reduce the RCS pressure.
4. Close 3RHS*MV8701B and 3RHS*8702A if RCS pressure reaches 750 psig, which is the current autoclosure set point. By only closing these two valves, which are the two that are farthest from the RCS, the RHR relief valves are still available to act as overpressure protection for the RCS.

There are other procedure changes to remove reference to the ACI and to add reference to the added alarm, but they do not direct the operators to act. An Instrumentation and Controls (I&C) surveillance procedure will be written (or an addition made to an existing procedure) to periodically test the alarm. These are all the procedure changes planned as a result of the ACI deletion.

Item 4

Where feasible, power should be removed from RHR suction valves prior to their being leak-checked (plant-specific).

Additional Response

In Reference (1), NNECO provided a justification for not removing power from the RHR suction valves (3RHS*8701A and 3RHS*8702B) prior to their being leak-checked. The following table shows which valves are tested and the status of the valves during testing.

<u>Valve Number</u>	<u>Power Locked Out During Normal Operations</u>	<u>Leak Tested</u>	<u>RCS Conditions During Leak Test</u>	<u>Other Valve Status for Leak Test</u>
3RHS*MV8701A	N	Y	RHR train not in service. RCS P > 350 psia.	B--Closed C--Open
3RHS*MV8701C	Y	Y	RHR train not in service. RCS P > 350 psia.	A--Closed B--Closed
3RHS*MV8702B	N	Y	RHR train not in service. RCS P > 350 psia.	A--Closed C--Open
3RHS*MV8702C	Y	Y	RHR train not in service. RCS P > 350 psia.	A--Closed B--Closed
3RHS*MV8701B	N	N	N/A	N/A
3RHS*MV8702A	N	N	N/A	N/A

Item 5

The RHR suction valve operator should be sized so that the valves cannot be opened against full system pressure.

Additional Response

In Reference (1), NNECO stated that NNECO could not confirm that the motor-operated actuators are incapable of opening the valves against an RCS pressure. However, based on our recent review of SOER 84-7 which identified both the potential for bonnet overpressurization leading to hydraulic lock and also the potential for thermal binding due to temperature change, these valves can be opened against full system pressure. However, it can be stated that these valves (3RHS*MV8701A and B and 3RHS*8702A and B) cannot be opened with the RCS at pressure due to the existence of the open permissive interlock.

In addition to the open permissive interlock, removal of power from RHR Suction Valves 3RHS*MV8701C and 3RHS*MV8702C minimizes the likelihood of an ISLOCA scenario owing to an inadvertent open signal.

For the undesirable ISLOCA scenario to occur, five events (failure of open permissive interlock, failure of operator to remove power from Valve 3RHS*MV8701C [or 3RHS*MV8702C], inadvertent open signal to 3RHS*MV8701C [or 3RHS*MV8702C], inadvertent signal or other failure to 3RHS*MV8701A [or 3RHS*8702B], and opening of Valves 3RHS*MV8701C [or 3RHS*MV8702C] against full RCS pressure) must occur. Therefore, the likelihood of such a scenario is extremely low and it is negligible from a public risk point of view.

Reference (1): E. J. Mroczka letter to the U.S. Nuclear Regulatory Commission, "RHR ACI Removal," dated October 25, 1990.