



Northeast
Nuclear Energy

Rope Ferry Rd. (Route 156), Waterford, CT 06385

Millstone Nuclear Power Station
Northeast Nuclear Energy Company
P.O. Box 128
Waterford, CT 06385-0128
(866) 447-1791
Fax (860) 444-4277

The Northeast Utilities System

OCT 22 1998

Docket No. 50-336
B16951

Re: 10CFR50.90

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

Millstone Nuclear Power Station, Unit No. 2
Proposed Revision to Technical Specifications
Shutdown Cooling System Overpressurization

Introduction

Pursuant to 10CFR50.90, Northeast Nuclear Energy Company (NNECO) hereby proposes to amend Operating License DPR-65 by incorporating the attached proposed changes into the Technical Specifications of Millstone Unit No. 2. NNECO is proposing to change Technical Specifications 3.3.2.1, "Instrumentation – Engineered Safety Feature Actuation System Instrumentation;" 3.4.9.3, "Reactor Coolant System – Overpressure Protection Systems;" and 3.5.3, "Emergency Core Cooling Systems – ECCS Subsystems - Tavg < 300 °F." Information will be added to the Bases of the associated Technical Specifications to address the proposed changes.

Attachment 1 provides a discussion of the proposed changes and the Safety Summary. Attachment 2 provides the Significant Hazards Consideration. Attachment 3 provides the marked-up version of the appropriate pages of the current Technical Specifications. Attachment 4 provides the retyped pages of the Technical Specifications.

The proposed change to Technical Specification 3.3.2.1 is on the same page, 3/4 3-16, which has been proposed to be changed in separate letters dated May 14, 1998⁽¹⁾ and July 21, 1998.⁽²⁾ The proposed changes contained in this letter do not assume approval of any of the previously submitted changes.

(1) M. L. Bowling letter to the NRC, "Millstone Nuclear Power Station, Unit No. 2 Proposed Revision to Technical Specifications Reactor Protective and Engineered Safety Feature Actuation System Instrumentation," dated May 14, 1998.

(2) M. L. Bowling letter to the NRC, "Millstone Nuclear Power Station, Unit No. 2 Proposed Revision to Technical Specifications Reactor Protection and Engineered Safety Features Trip Setpoints," dated July 21, 1998.

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Environmental Considerations

NNECO has reviewed the proposed License Amendment Request against the criteria of 10CFR51.22 for environmental considerations. The proposed change will no longer require the high pressure safety injection (HPSI) pump required to be operable in Mode 4 to start automatically on a safety injection actuation signal. This change does not increase the type and amounts of effluents that may be released off site. In addition, this amendment request will not significantly increase individual or cumulative occupational radiation exposures. Therefore, NNECO has determined the proposed change will not have a significant effect on the quality of the human environment.

Conclusions

The proposed changes were evaluated utilizing the criteria of 10CFR50.59 and were determined not to involve an unreviewed safety question. Additionally, we have concluded the proposed changes are safe.

The proposed changes do not involve a significant impact on public health and safety (see the Safety Summary provided in Attachment 1) and do not involve a Significant Hazards Consideration pursuant to the provisions of 10CFR50.92 (see the Significant Hazards Consideration provided in Attachment 2).

Plant Operations Review Committee and Nuclear Safety Assessment Board

The Plant Operations Review Committee and Nuclear Safety Assessment Board have reviewed and concurred with the determinations.

Schedule

We request issuance at your earliest convenience, with the amendment to be implemented within 60 days of issuance.

State Notification

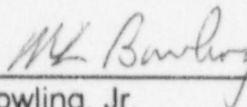
In accordance with 10CFR50.91(b), a copy of this License Amendment Request is being provided to the State of Connecticut.

There are no regulatory commitments contained within this letter.

If you should have any questions on the above, please contact Mr. Ravi Joshi at (860) 440-2080.

Very truly yours,

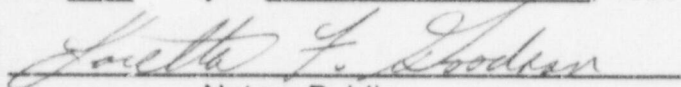
NORTHEAST NUCLEAR ENERGY COMPANY



M. L. Bowling, Jr.
Recovery Officer - Technical Services

Sworn to and subscribed before me

this 22 day of October, 1998



Notary Public

My Commission expires LORETTA F. GOODSON
NOTARY PUBLIC
Commission Expires November 30, 2001

Attachments (4)

cc: H. J. Miller, Region I Administrator
D. G. McDonald, Jr., NRC Senior Project Manager, Millstone Unit No. 2
D. P. Beaulieu, Senior Resident Inspector, Millstone Unit No. 2
W. M. Dean, Director, Millstone Project Directorate
W. D. Lanning, Director, Millstone Inspections
J. P. Durr, Chief, Inspections Branch
E. V. Imbro, Director, Millstone ICAVP Inspections
S. Dembek, NRC Project Manager, Millstone Unit No. 1

Director
Bureau of Air Management
Monitoring and Radiation Division
Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

Attachment 1

Millstone Nuclear Power Station, Unit No. 2
Proposed Revision to Technical Specifications
Shutdown Cooling System Overpressurization
Discussion of Proposed Changes

October 1998

**Proposed Revision to Technical Specifications
Shutdown Cooling System Overpressurization
Discussion of Proposed Changes**

Introduction

Northeast Nuclear Energy Company (NNECO) hereby proposes to amend Operating License DPR-65 by incorporating the attached proposed changes into the Technical Specifications of Millstone Unit No. 2. NNECO is proposing to change Technical Specifications 3.3.2.1, "Instrumentation – Engineered Safety Feature Actuation System Instrumentation;" 3.4.9.3, "Reactor Coolant System – Overpressure Protection Systems;" and 3.5.3, "Emergency Core Cooling Systems – ECCS Subsystems - Tavg < 300 °F." Information will be added to the Bases of the associated Technical Specifications to address the proposed changes.

The proposed changes will allow Millstone Unit No. 2 to prevent an automatic start of any high pressure safety injection (HPSI) pump when the Shutdown Cooling System (SDCS) is in operation (Mode 4 and below). An inadvertent start of a HPSI pump could result in overpressurization of the SDCS.

Background

The Millstone Unit No. 2 SDCS is used for decay heat removal after the Reactor Coolant System (RCS) has been cooled down to < 300 °F and depressurized to < 265 psia. It is necessary to establish these RCS conditions to prevent exceeding the design limits of the SDCS. Specifically, the design pressure of the SDCS inlet piping up to the SDCS pumps is 300 psig, while the design pressure of the outlet piping and most of the SDCS components is 500 psig.

The SDCS Autoclosure Interlock (ACI) was designed to isolate the inlet to the SDCS if RCS pressure increased to above 280 psia by closing the two inlet motor operated valves (MOV). The purpose of the ACI was to protect the SDCS during an RCS heatup and pressurization if the inlet MOVs were inadvertently left open. The ACI was not designed to protect the SDCS from rapid RCS pressurization transients. The closure time of the inlet MOVs is too long to provide rapid pressurization protection.

In response to Generic Letter 88-17, "Loss of Decay Heat Removal," NNECO submitted a license amendment request in a letter dated January 30, 1992,⁽¹⁾ to delete the SDCS ACI from the Millstone Unit No. 2 Technical Specifications and amend Operating License DPR-65. Removal of the ACI was recommended to reduce the probability of a

⁽¹⁾ J.F. Opeka letter to the U.S. Nuclear Regulatory Commission, "Millstone Nuclear Power Station, Unit No. 2 Shutdown Cooling System Autoclosure Interlock Deletion," dated January 30, 1992.

loss of decay heat removal capability due to isolation of the SDCS as a result of inadvertent actuation of the ACI. This request was approved by the NRC in a letter dated July 24, 1992.⁽²⁾

In the license amendment request to remove the ACI, Attachment 2 contained a plant specific analysis to support the ACI removal. The introduction for this plant specific analysis (page 2) stated the following:

"The ACI is designed to minimize the likelihood of failing to close the SDC isolation valves during plant heatup. In addition, the ACI prevents the SDCS, whose design pressure is approximately 500 psi, from being overpressurized due to transients during shutdown."

The statement concerning SDCS design pressure of approximately 500 psi was misinterpreted in the subsequent analysis when it was concluded that the pressurizer power operated relief valves (PORVs), when operated in the low temperature overpressure protection (LTOP) mode, will prevent SDCS overpressurization. In the LTOP mode of operation the PORV lift setpoint of ≤ 450 psig (the setpoint at the time of the original submittal) would actuate the PORVs prior to exceeding a pressure of 500 psi. However, this conclusion did not consider that the SDCS inlet piping up to the SDC pumps is rated at 300 psig, nor did it look at the impact of SDCS pump discharge pressure on outlet piping.

The SDCS piping, inlet and outlet, is made of the same material, which is rated for 500 psig. The design pressure of the SDCS inlet piping up to the SDCS pumps is 300 psig. The design pressure of the rest of the SDCS is 500 psig. If an overpressure transient occurs that results in RCS pressure increasing to 400 psig (the current LTOP setpoint), the design pressure of the SDCS inlet piping will be exceeded. In addition the discharge pressure piping design pressure of 500 psig will also probably be exceeded due to the pressure added by the SDCS pumps (approximately 150 psi). Therefore, pressurizer PORV actuation will not prevent SDCS overpressurization.

Section 4.3 of the plant specific analysis evaluated overpressure transients and the impact of ACI removal on them. The only overpressure transient that took credit for PORV operation was the inadvertent start of a safety injection pump (Section 4.3.11) since the capacity of the safety injection pump (HPSI pump) exceeds the SDCS relief valve capacity.

⁽²⁾ G.S. Vissing letter to NNECO, Issuance of Amendment No. 161 to Facility Operating License No. DPR-65 for Millstone Nuclear Power Station, Unit No. 2, dated July 24, 1992.

In the original submittal the sequence frequency (PDS 19) where the SDCS piping is subjected to a pressure that exceeds its design pressure increases from $9.61E-10$ to $9.61E-8$ when the ACI is deleted. After revising PDS 19 to eliminate PORV actuation, the sequence frequency increases from $9.61E-8$ to $9.61E-6$ when the ACI is deleted.

The removal of the ACI has resulted in a negligible increase in risk which will not lead to core damage. Exceeding the SDCS design pressure as a result of an inadvertent start of a safety injection pump should not result in a catastrophic rupture of the SDCS. The addition of the alarm and operator actions should allow mitigation of this transient prior to exceeding SDCS design pressure.

However, NNECO believes taking credit for the alarm, and subsequent operator action, is not sufficient to prevent SDCS overpressurization. This was identified in Licensee Event Report (LER) 98-013-00.⁽³⁾ Therefore additional measures should be taken to reduce the potential for SDCS overpressurization due to an inadvertent start of a HPSI pump. The proposed changes to the Millstone Unit No. 2 Technical Specifications, in combination with the replacement of the HPSI breaker control switches with switches that have the pull-to-lock capability, will reduce the potential for SDCS overpressurization.

The proposed Technical Specification changes will no longer require a HPSI pump to start automatically following the generation of a safety injection actuation signal (SIAS) when the plant is operating in Mode 4 or below. This will allow the control room operator to place the HPSI pump breaker control switch in the pull-to-lock position prior to aligning the SDCS to the RCS. With the breaker control switch in the pull-to-lock position, the pump is not capable of starting automatically, but can be manually started by the control room operator.

Technical Specification Changes

Changes to the Technical Specifications are necessary to allow the use of the pull-to-lock feature associated with the HPSI pump control switches. These changes are discussed below.

Technical Specification 3.3.2.1

1. Table 3.3-3, "Engineered Safety Feature Actuation System Instrumentation," will be revised by replacing Table Notation (d). This change will state that it is acceptable in Mode 4 for the HPSI pumps not to start automatically on a Safety Injection Actuation Signal (SIAS). (The automatic SIASs on low pressurizer pressure and high containment pressure are not required to be operable in

⁽³⁾ J. A. Price letter to the NRC, Millstone Nuclear Power Station, Unit No. 2 Licensee Event Report 98-013-00, "Shutdown Cooling System Could be Over Pressurized by Inadvertent High Pressure Safety Injection Pump Start," dated June 25, 1998.

Mode 4. However the manual safety injection pushbuttons are required in Mode 4.) This will allow the operable HPSI pump control switch to be placed in the pull-to-lock position without affecting the operability of that pump.

2. Page 3/4 3-12 was previously revised by License Amendment No. 15⁽⁴⁾ and License Amendment No. 63.⁽⁵⁾ These amendment numbers will be added to the bottom of the page.

Technical Specification 3.4.9.3

1. The wording of Surveillance Requirement (SR) 4.4.9.3.2 will be modified for clarity. This is an editorial change only.
2. SR 4.4.9.3.3 will be modified to allow the use of the new pull-to-lock feature of the HPSI pump control switches to satisfy low temperature overpressure protection mass input requirements. In addition, the wording will be modified to be consistent with the modified wording of SR 4.4.9.3.2.

Technical Specification 3.5.3

1. A new footnote (****) will be added to this specification. The footnote will state that the HPSI pump required in Mode 4 is not required to start automatically on a SIAS. (The automatic SIASs on low pressurizer pressure and high containment pressure are not required to be operable in Mode 4. However the manual safety injection pushbuttons are required in Mode 4.) This will allow the operable HPSI pump control switch to be placed in the pull-to-lock position without affecting the operability of that pump.

Technical Specification Bases

The Bases of the applicable Technical Specifications will be revised to reflect the proposed changes.

Safety Summary

The proposed changes to Technical Specifications 3.3.2.1 and 3.5.3 will no longer require the HPSI pump required to be operable in Mode 4 to start automatically on a SIAS. (The automatic SIASs on low pressurizer pressure and high containment pressure are not required to be operable in Mode 4. However the manual safety injection pushbuttons are required in Mode 4.) This will allow the operable HPSI pump

⁽⁴⁾ G. Lear, letter from the NRC, Millstone Nuclear Power Station, Unit No. 2, License Amendment No. 15, dated September 2, 1976.

⁽⁵⁾ T. M. Novak, letter from the NRC, Millstone Nuclear Power Station, Unit No. 2, License Amendment No. 63, dated January 14, 1981.

control switch to be placed in the pull-to-lock position without affecting the operability of that pump. All HPSI pumps will be prevented from automatically starting when the plant is in Mode 4 and the SDCS is aligned to the RCS to prevent an inadvertent start of a HPSI pump which could overpressurize the SDCS. These changes will not reduce the requirement for at least one HPSI pump to be operable in Mode 4. In Mode 5, no HPSI pumps are required to be operable to meet Technical Specification requirements. However, the management of shutdown risk will ensure sufficient inventory makeup capability is available. The proposed changes will have no adverse effect on plant operation. Therefore, there will be no adverse impact on public health and safety.

The proposed change to Technical Specification 3.4.9.3, SR 4.4.9.3.3, will allow the use of the new pull-to-lock feature of the HPSI pump control switches to satisfy low temperature overpressure protection mass input requirements. This will not affect either the LTOP HPSI pump mass input restrictions or the level of control to ensure the HPSI pumps are not capable of injecting into the RCS. The proposed changes will have no adverse effect on plant operation. Therefore, there will be no adverse impact on public health and safety.

The proposed minor editorial and non-technical changes to add amendment numbers to Page 3/4 3-12 and to revise the wording of SRs 4.4.9.3.2 and 4.4.9.3.3 will not result in any technical changes to the Millstone Unit No. 2 Technical Specifications. The proposed changes will have no adverse effect on plant operation. Therefore, there will be no adverse impact on public health and safety.

The proposed changes to the Bases reflect the proposed changes to the applicable Technical Specifications. The proposed changes will have no adverse effect on plant operation. Therefore, there will be no adverse impact on public health and safety.

Attachment 2

Millstone Nuclear Power Station, Unit No. 2
Proposed Revision to Technical Specifications
Shutdown Cooling System Overpressurization
Significant Hazards Consideration

October 1998

**Proposed Revision to Technical Specifications
Shutdown Cooling System Overpressurization
Significant Hazards Consideration**

Significant Hazards Consideration

In accordance with 10CFR50.92, NNECO has reviewed the proposed changes and has concluded that they do not involve a significant hazards consideration (SHC). The basis for this conclusion is that the three criteria of 10CFR50.92(c) are not compromised. The proposed changes do not involve an SHC because the changes would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed changes to Technical Specifications 3.3.2.1 and 3.5.3 will no longer require the HPSI pump, required to be operable in Mode 4, to start automatically on a Safety Injection Actuation Signal (SIAS). (The automatic SIASs on low pressurizer pressure and high containment pressure are not required to be operable in Mode 4. However the manual safety injection pushbuttons are required in Mode 4.) This will allow the operable HPSI pump control switch to be placed in the pull-to-lock position without affecting the operability of that pump. All HPSI pumps will be prevented from automatically starting when the plant is in Mode 4 and the Shutdown Cooling System (SDCS) is aligned to the RCS to prevent an inadvertent start of a HPSI pump which could overpressurize the SDCS. These changes will not reduce the requirement for at least one HPSI pump to be operable in Mode 4. The changes will require an additional operator action to remove the operable HPSI pump breaker control switch from the pull-to-lock position, in addition to initiating safety injection by use of the manual pushbuttons, if Safety Injection System actuation is needed in Mode 4. The requirement to manually initiate a HPSI pump, in addition to manually initiating a SIAS, does not involve complicated equipment manipulations nor require extensive time for performing the required operator actions. The HPSI pump control switches are located in the Control Room on the same panels as the manual SIAS pushbuttons. The additional step required to start a HPSI pump will not add any appreciable time for initiating HPSI flow while in Mode 4. In addition, considering the lower probability of a significant loss of coolant accident in Mode 4, and the slower plant response to a loss of coolant accident in Mode 4, the time required for the additional operator action will have no significant effect on the consequences of the accident. Therefore, there will be no significant increase in the probability or consequences of an accident previously evaluated.

The proposed change to Technical Specification 3.4.9.3, Surveillance Requirement (SR) 4.4.9.3.3, will allow the use of the new pull-to-lock feature of

the HPSI pump control switches to satisfy low temperature overpressure protection mass input requirements. This will not affect either the LTOP HPSI pump mass input restrictions or the level of control to ensure the HPSI pumps are not capable of injecting into the RCS. The proposed changes will have no adverse effect on plant operation. Therefore, there will be no significant increase in the probability or consequences of an accident previously evaluated.

The proposed minor editorial and non-technical changes to add amendment numbers to Page 3/4 3-12 and to revise the wording of SRs 4.4.9.3.2 and 4.4.9.3.3 will not result in any technical changes to the Millstone Unit No. 2 Technical Specifications. The proposed changes will have no adverse effect on plant operation. Therefore, there will be no significant increase in the probability or consequences of an accident previously evaluated.

The proposed changes to the Bases reflect the proposed changes to the applicable Technical Specifications. The proposed changes will have no adverse effect on plant operation. Therefore, there will be no significant increase in the probability or consequences of an accident previously evaluated.

2. Create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes will allow the use of the HPSI pump breaker control switch pull-to-lock feature. Operation of the HPSI pump in Mode 4 will change since the operator will have to start the HPSI pump, in addition to manually initiating safety injection. However, HPSI pump operation is not an accident initiator. Therefore, the proposed changes will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Involve a significant reduction in a margin of safety.

The proposed Technical Specification changes will no longer require the HPSI pump, required to be operable in Mode 4, to start automatically on a SIAS, will allow the use of the new pull-to-lock feature of the HPSI pump control switches to satisfy low temperature overpressure protection mass input requirements, and will make minor editorial and non-technical changes. These changes will have no adverse effect on equipment important to safety. The equipment will continue to function as assumed in the design basis accident analysis. Therefore, there will be no significant reduction in the margin of safety as defined in the Bases for the Technical Specifications affected by these proposed changes.

The only adverse impact of the proposed changes is that an additional operator action will be necessary to initiate HPSI flow in Mode 4, if needed. However, considering the lower probability of a significant loss of coolant accident in Mode 4, and the slower plant response to a loss of coolant accident in Mode 4, the time required for the

additional operator action will have no significant effect on the consequences of the accident. Therefore, based on the responses above, the proposed changes are deemed safe.

The NRC has provided guidance concerning the application of standards in 10CFR50.92 by providing certain examples (March 6, 1986, 51 FR 7751) of amendments that are considered not likely to involve an SHC. The minor editorial and non-technical changes proposed herein to add page amendment numbers and clarify wording are enveloped by example (i), a purely administrative change to Technical Specifications. All of the other changes proposed herein are not enveloped by any specific example.

As described above, this License Amendment Request does not impact the probability of an accident previously evaluated, does not involve a significant increase in the consequences of an accident previously evaluated, does not create the possibility of a new or different kind of accident from any accident previously evaluated, and does not result in a significant reduction in a margin of safety. Therefore, NNECO has concluded that the proposed changes do not involve an SHC.

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Attachment 3

Millstone Nuclear Power Station, Unit No. 2
Proposed Revision to Technical Specifications
Shutdown Cooling System Overpressurization
Marked Up Pages

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