

Northeast
Utilities System

107 Selden Street, Berlin, CT 06037

Northeast Utilities Service Company
P.O. Box 270
Hartford, CT 06141-0270
(203) 665-5000

November 3, 1995

Docket No. 50-336
B15335

Re: 10CFR50.90

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

Millstone Nuclear Power Station, Unit No. 2
Proposed Technical Specification Revision
Emergency Core Cooling Subsystem Allowed Outage Time Extension

Pursuant to 10CFR50.90, Northeast Nuclear Energy Company (NNECO) hereby proposes to amend its Operating License DPR-65, for Millstone Unit No. 2 by incorporating the attached technical specification revisions to Section 3.5.2 and the Bases for Sections 3/4.5.2 and 3/4.5.3.

The proposed amendment will extend the allowed outage time (AOT) from 48 hours to 7 days for an emergency core cooling system train that is declared inoperable as a result of an inoperable low pressure safety injection (LPSI) subsystem. This change is part of a joint Combustion Engineering Owners Group (CEOG) effort to obtain flexibility in the performance of corrective and preventive maintenance activities during power operation. The CEOG has prepared a report which details the methodology used to justify the AOT extension for the LPSI subsystem. A copy of this CEOG report (CE NPSD-995, "Joint Applications Report of Low Pressure Safety Injection System AOT Extension," May 1995) is provided with this letter.

Attachment 1 to this letter provides a Safety Assessment of the proposed change. Attachment 2 is the determination of no significant hazards considerations. Attachment 3 is a copy of the marked-up version of the current Technical Specifications, and Attachment 4 is the retyped technical specification pages.

NNECO has reviewed the proposed technical specification changes in accordance with 10CFR50.92 and concludes that the changes do not involve a significant hazards consideration. NNECO has also reviewed the proposed license amendment against the criteria of 10CFR51.22 for environmental considerations and concludes that the changes do not increase the types and amounts of effluents that may be released offsite, nor significantly increase individual or

Aoc
11/11

U.S. Nuclear Regulatory Commission
B15335/Page 2
November 3, 1995

cumulative occupational radiation exposures. Thus, NNECO concludes that the proposal satisfies 10CFR51.22(c)(9) for categorical exclusion from the requirements for an environmental impact statement.

The Nuclear Safety Assessment Board has reviewed and concurs with the determinations. In accordance with 10CFR50.91(b), NNECO is providing the State of Connecticut with a copy of this proposed license amendment.

This request is considered a cost beneficial licensing action by NNECO. The extension of the AOT for an inoperable LPSI pump from 48 hours to seven days is anticipated to save more than \$100,000 guideline identified by the Staff without adversely affecting public health and safety.

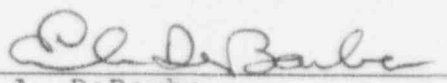
Additionally, this request is part of a combined CEOG effort, requesting a single NRC technical review of similar technical specification changes for several CEOG plants. Accordingly, this request should be reviewed as part of that effort at your earliest convenience. There are no commitments contained within this letter.

If there are any questions regarding this submittal, please contact Mr. Mario Robles at (203) 440-2073.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

FOR: J. F. Opeka
Executive Vice President

BY: 
E. A. DeBarba
Vice President

cc: See Page 3

U.S. Nuclear Regulatory Commission
B15335/Page 3
November 3, 1995

cc: T. T. Martin, Region I Administrator
G. S. Vissing, NRC Project Manager, Millstone Unit No. 2
P. D. Swetland, Senior Resident Inspector, Millstone Unit
Nos. 1, 2, and 3

Mr. Kevin T.A. McCarthy, Director
Bureau of Air Management
Monitoring and Radiation Division
Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

Subscribed and sworn to before me

this 3rd day of November, 1995

Gerald P. van Noorden

Date Commission Expires: 12/31/97

Docket No. 50-336
B15335

Attachment 1

Millstone Nuclear Power Station, Unit No. 2
Safety Assessment of Proposed Change

November 1995

Attachment 1

Millstone Nuclear Power Station, Unit No. 2
Safety Assessment of Proposed Change

Background

The emergency core cooling system (ECCS) at Millstone Unit No. 2 is comprised of the safety injection system and a portion of the chemical volume and control system which contains three high pressure safety injection pumps (HPSI), two low pressure safety injection pumps (LPSI), four safety injection tanks (SIT), and three charging pumps. This proposed change will extend the allowed outage time (AOT) when an LPSI subsystem is inoperable.

The LPSI subsystem at Millstone Unit No. 2 provides a dual function, one of which is to provide at power operation large quantities of reactor coolant system (RCS) quality water in the event of a loss of coolant accident (LOCA). The second function of the LPSI subsystem is to provide for decay heat removal during normal shutdown.

Each LPSI train contains a high volume, low head, centrifugal pump designed to supplement the SIT inventory in reflooding the reactor vessel with borated water during the early stages of a large break LOCA. The LPSI system is actuated by an automatic or manually initiated safety injection actuation signal, which starts the associated pump and causes the LPSI flow control valves to open. The LPSI pumps transfer borated water from the refueling water storage tank, through the LPSI header(s), and into the safety injection penetrations in the RCS cold legs. During the recirculation phase of a LOCA, the LPSI pumps can be stopped automatically or manually.

The LPSI system is also used for decay heat removal during normal shutdown cooling operations in Modes 4, 5, and 6. In the shutdown cooling configuration, the LPSI pumps circulate reactor coolant from the RCS hot legs, through shutdown cooling heat exchangers, and into the RCS cold leg penetrations.

Limiting Condition of Operation (LCO) 3.5.2 requires two separate and independent ECCS subsystems to be operable in Modes 1 and 2, and in Mode 3 when RCS pressure is ≥ 1750 PSIA. This redundancy provides assurance that sufficient emergency core cooling capability will be available in the event of a LOCA, assuming the loss of one subsystem through any single-failure consideration. In the event one of the ECCS subsystems becomes inoperable, LCO 3.5.2 requires that subsystem to be restored to an operable status within 48 hours or the plant must transition to Mode 4 (Hot Shutdown)

within the next 12 hours. The 48 hour AOT prescribed by LCO 3.5.2 is based on an NRC study, circa 1975, "using a reliability evaluation [of ECCS components] and is a reasonable amount of time to effect many repairs." (Ref: NUREG-1432, Standard Technical Specifications for Combustion Engineering Plants, Rev. 0; 9/28/92).

Description of Proposed Change

The proposed change will modify Technical Specification 3.5.2, "ECCS Subsystems $T_{avg} \geq 300^{\circ}\text{F.}$ " Specifically, the action statements have been modified to differentiate the LPSI subsystem from the ECCS train. With the LPSI separated, the AOT for an inoperable LPSI subsystem has been increased from 48 hours to 7 days. If an ECCS train is not available, due to the inability of an HPSI pump, flow path, or charging pump, the inoperable component(s) must be restored to an operable status within 48 hours. Action Statement "C" has been added which indicates that if the required actions are not met or if the completion times are not met, the plant must be in Mode 4 in the next 12 hours.

Safety Assessment

The Combustion Engineering Owners Group performed an integrated review and assessment of the design basis, plant operations, and plant risk for the AOT extension for an inoperable LPSI subsystem (i.e., 48 hours to 7 days). The AOT extension was evaluated and justified using Probabilistic Risk Assessment (PRA) techniques. The methodology and results used for Millstone Unit No. 2 are detailed in CE NPSD-995, "Joint Application Report for Low Pressure Safety Injection System AOT Extension," May 1995.

In summary, CE NPSD-995 recognizes that when an ECCS train is inoperable due to a LPSI subsystem being unavailable, due either to being declared inoperable (by failing a surveillance requirement) or is intentionally taken out-of-service (for corrective or preventive maintenance), the core damage frequency (CDF) during power operation increases. The results of the PRA presented in CE NPSD-995 show that the proposed increase in the ECCS AOT (due to LPSI unavailability) from 48 hours to 7 days does not cause a significant increase in the overall CDF of Millstone Unit No. 2.

The analyses indicate that continued plant operation with a single LPSI subsystem out-of-service may result in a small increase in "at power risk;" however, that risk increase will be negligibly small and controlled effectively via the Maintenance Rule and the risk monitor program that minimizes the actual outage time and prevents entering into an unacceptable risk configuration. In addition, the proposed AOT extension for the LPSI subsystem is evaluated as having negligible impact on the large early radiological release

U.S. Nuclear Regulatory Commission
B15335/Attachment 1/Page 3
November 3, 1995

probability for Combustion Engineering pressurized water reactors in the event of a design basis accident.

Consistent with NRC evaluations in NUREG-1366, "Improvements to Technical Specifications Surveillance Requirements," CE NPSD-995 also shows that the proposed increase in the ECCS AOT (due to an inoperable LPSI subsystem) from 48 hours to 7 days is acceptable. This conclusion is based on the availability of redundant components to replenish inventory and meet 10CFR50 Appendix K criteria.

The integrated assessment reported in CE NPSD-995 generally conforms to guidance provided in NUREG/CR-6141, "Handbook of Methods for Risk Based Analyses of Technical Specifications," December 1994. The relative contribution of the proposed AOT of the LPSI subsystem to average CDF is acceptably low. Northeast Nuclear Energy Company believes the proposed 7 day AOT qualifies as a beneficial risk-based AOT and that the proposed amendment is acceptable.

Docket No. 50-336
B15335

Attachment 2

Millstone Nuclear Power Station, Unit No. 2

Determination of No Significant Hazards Considerations

November 1995

Attachment 2

Millstone Nuclear Power Station, Unit No. 2 Determination of No Significant Hazards Considerations

Pursuant to 10CFR50.32, Northeast Nuclear Energy Company (NNECO) has reviewed the proposed change to extend the allowed outage time (AOT) for an inoperable low pressure safety injection (LPSI) subsystem from the existing limit of 48 hours to 7 days. In addition, the change to modify the completion time for the Action Statement and the criteria for the Surveillance Requirements were also reviewed. NNECO concludes that these changes do not involve a significant hazards consideration (SHC) since the proposed change satisfies the criteria in 10CFR50.92(c). That is, the proposed change does not:

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

The proposed amendments for Millstone Unit No. 2 will extend the action completion AOT for a single inoperable LPSI train from 48 hours to 7 days. A LPSI subsystem is designed as a part of each emergency core cooling system (ECCS) train to supplement safety injection tank inventory during the early stages of mitigating a design basis accident (DBA). As such, components of the LPSI subsystem are not accident initiators, and an extended AOT to restore operability of an inoperable LPSI subsystem would not increase the probability of occurrence of accidents previously analyzed.

The safety analyses for Millstone Unit No. 2 demonstrates that ECCS performance acceptance criteria are satisfied with only one of the two redundant ECCS trains operating during the postulated DBA. The proposed technical specification revisions involve the AOT for a single inoperable LPSI subsystem, and do not change the conditions assumed for the minimum amount of operating equipment needed for accident mitigation. Therefore, the consequences of an accident previously evaluated will not be significantly increased.

In addition, CE NPSD-995 recognizes that when an ECCS train is inoperable due to a LPSI subsystem being unavailable, due either to being declared inoperable (by failing a surveillance requirement) or is intentionally taken out-of-service (for corrective or preventive maintenance), the core damage frequency (CDF) during power operation increases. The results of the PRA presented in CE NPSD-995 show that the proposed increase in the ECCS AOT (due to LPSI unavailability) from 48 hours to 7 days does not cause a significant increase in the overall CDF of Millstone Unit No. 2.

The analyses indicate that continued plant operation with a single LPSI subsystem out-of-service may result in a small increase in "at power risk;" however, that risk increase will be negligibly small and controlled effectively via the Maintenance Rule and the risk monitor program that minimizes the outage time and prevents entering into an unacceptable risk configuration. In addition, the proposed AOT extension for the LPSI subsystem is evaluated as having negligible impact on the large early radiological release probability for Combustion Engineering pressurized water reactors in the event of a design basis accident.

Therefore, operation in accordance with the proposed amendment would not involve a 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 previously analyzed.

The proposed amendment will not change the physical plant or the modes of plant operation defined in the technical specifications. The changes do not involve the addition or modification of equipment nor do they alter the design of plant systems. Therefore, operation of Millstone Unit No. 2 in accordance with its proposed amendment would not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

The margin of safety associated with the ECCS train is established by acceptance criteria for system performance defined in 10CFR50.46. The proposed amendment will not change this acceptance criteria nor the operability requirements for equipment that is used to achieve such performance as demonstrated in the Millstone Unit No. 2 safety analyses. Moreover, an integrated assessment of the risk impact of extending the AOT for a single inoperable LPSI train has concluded that the risk contribution is small. Therefore, operation of Millstone Unit No. 2 in accordance with its proposed amendment would not involve a significant reduction in a margin of safety.

Moreover, the Commission has provided guidance concerning the application of standards in 10CFR50.92 by providing certain examples (51 FR 7751, March 6, 1986) of amendments that are considered not likely to involve an SHC. Although the proposed change is not enveloped by a specific example, it has been shown that an increase in the AOT for an inoperable ECCS train cause by an inoperable LPSI subsystem is safe and is not an SHC.

Docket No. 50-336
B15335

Attachment 3
Millstone Nuclear Power Station, Unit No. 2
Marked-Up Pages

November 1995