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August 4, 1994

Docket No. 50-423
B14918

Re: 10CFR50.90

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

Millstone Nuclear Power Station, Unit No. 3
Proposed Revision to Technical Specifications
Pressurizer Safety Valves and Main Steam Safety Valves
Lift Setting Tolerance Change

Introduction

Pursuant to 10CFR50.90, Northeast Nuclear Energy Company (NNECO) hereby proposes to amend Operating License NPF-49 by incorporating the proposed changes described in Attachments 1 and 2 into the Technical Specifications of Millstone Unit No. 3. NNECO is proposing to revise the Millstone Unit No. 3 Technical Specifications by relaxing the lift setting tolerance for the pressurizer safety valves (PSVs) and the main steam safety valves (MSSVs) from $\pm 1\%$ to $\pm 3\%$. This submittal supersedes our request made on December 17, 1993.⁽¹⁾

Background

Overpressure protection for the reactor coolant system (RCS) and the main steam system is provided in part by the PSVs and MSSVs located on the pressurizer and on the four main steam lines, respectively. For the RCS, there are a total of three PSVs set at 2485 psig. Each of the four main steam lines have five MSSVs, each set at 10 psig increments which range from 1185 psig to 1225 psig. The PSVs are Class 1 components, designed and manufactured to meet the 1971 Edition, through the Winter 1972 Addenda, of the ASME Code, Section III. The MSSVs are Class 2 components, designed and manufactured to meet the 1974 Edition, through the Summer 1974 Addenda, of the ASME Code, Section III. Currently, testing for the

(1) J. F. Opeka letter to the U.S. Nuclear Regulatory Commission, "Millstone Nuclear Power Station, Unit No. 3, Proposed Revision to Technical Specifications, Pressurizer Safety Valves and Main Steam Safety Valves Lift Setting Tolerance Change," dated December 17, 1993.

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PSVs and MSSVs is performed in accordance with ASME Section XI, every refueling outage, to assure a tolerance of $\pm 1\%$ of the valve setpoint.

Description of the Proposed Change

NNECO is proposing to revise Limiting Condition for Operations (LCOs) 3.4.2.1 and 3.4.2.2 and Table 3.7-3 of the Millstone Unit No. 3 Technical Specifications by relaxing the lift setting tolerance for the PSVs and MSSVs from $\pm 1\%$ to $\pm 3\%$. Additionally, a footnote will be added to LCOs 3.4.2.1 and 3.4.2.2 and Table 3.7-3 to require that the PSVs and MSSVs setpoint tolerances be restored to within $\pm 1\%$ whenever a lift setting is determined (e.g., via testing per Technical Specification 4.0.5) to be outside $\pm 1\%$, respectively. While we will restore the lift settings to a tolerance of $\pm 1\%$, the PSVs and MSSVs will remain operable with lift settings out of tolerance by as much as $\pm 3\%$.

The Millstone Unit No. 3 PSVs and MSSVs were designed in accordance with ASME Section III which requires valve actuation to be within $\pm 1\%$ of the valve's respective setpoint. However, over the course of an operating cycle, PSV and MSSV setpoints can drift. This condition has resulted in a number of Licensee Event Reports (LERs). Examples of these include LERs 91-002⁽²⁾ and 93-011⁽³⁾ for the MSSVs and LER 91-023⁽⁴⁾ for the PSVs. Each of these LERs indicate that a relaxation in PSV and MSSV setpoint tolerances be pursued to address "as-found" drift in excess of $\pm 1\%$. These proposed changes will revise the setpoint tolerance to assure both PSVs and MSSVs remain within technical specification tolerances and reduce the potential for filing subsequent LERs on the subject issue.

An operating history review indicates that setpoint drift of the PSVs and MSSVs is an industry-wide phenomenon not unique to Millstone Unit No. 3. Also, the NRC Staff has addressed the issue

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- (2) S. E. Scace letter to the U.S. Nuclear Regulatory Commission, "Licensee Event Report 91-002-00," dated March 4, 1991.
 - (3) S. E. Scace letter to the U.S. Nuclear Regulatory Commission, "Licensee Event Report 93-011-00," dated August 30, 1993.
 - (4) S. E. Scace letter to the U.S. Nuclear Regulatory Commission, "Licensee Event Report 91-023-00," dated September 30, 1991.

of PSV and MSSV setpoint drift through the Information Notice (IN) process; e.g., IN 86-56⁽⁵⁾ and IN 89-90⁽⁶⁾.

PSV and MSSV testing will continue to be performed in accordance with ASME Section XI. The $\pm 3\%$ tolerance will be used for the "as-found" test acceptance criterion in lieu of the current $\pm 1\%$ tolerance for setpoint drift. The lift setting of the PSVs and MSSVs will be restored to within $\pm 1\%$ whenever the lift settings are determined to outside of the $\pm 1\%$ tolerance.

NNECO notes that a similar amendment request on relaxing PSV and MSSV setpoint tolerances has been accepted by the NRC Staff for New Hampshire Yankee on behalf of the Seabrook Station, Unit No. 1.⁽⁷⁾ NNECO's proposal is similar to that previously found acceptable by the NRC Staff for New Hampshire Yankee on behalf of the Seabrook Station, Unit No. 1 docket.

Safety Assessment

This proposal will relax the "as-found" lift settings for the PSVs and MSSVs from $\pm 1\%$ to $\pm 3\%$. This relaxation is applicable for drift of the PSV and MSSV lift settings which occurs during the operating cycle. The PSVs and MSSVs setpoint tolerances will be restored to $\pm 1\%$ whenever it is determined (e.g., via testing per Technical Specification 4.0.5) to be outside $\pm 1\%$. While we will restore the lift settings to a tolerance of $\pm 1\%$, the PSVs and MSSVs will remain operable with lift settings found out of tolerance by as much as $\pm 3\%$.

The 1989 edition of the ASME Code Section III, Subarticle NB-7410/NC-7410 specifies "The set pressure of at least one of the pressure relief devices connected to the system shall not be greater than the design pressure of any component within the pressure retaining boundary of the protected system." The RCS design pressure is 2485 psig (2500 psia). This corresponds to the

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- (5) U.S. Nuclear Regulatory Commission Information Notice 86-56, "Reliability of Main Steam Safety Valves," dated July 10, 1986.
 - (6) U.S. Nuclear Regulatory Commission Information Notice 89-90 "Pressurizer Safety Valve Lift Setpoint Shift," dated December 28, 1990.
 - (7) G. E. Edison letter to T. C. Feigenbaum, "Issuance of Amendment No. 15 to Facility Operating License No. NPF-86 - Seabrook Station, Unit No. 1 (TAC No. M83346)," dated September 3, 1992.

setpoint for the PSVs. The main steam system design pressure is 1185 psig. This corresponds to the setpoint of the Group 1 MSSVs.

Additionally, the 1989 edition of the ASME Code, Section XI, requires that the PSVs and MSSVs be tested in accordance with ASME/ANSI OM-1987, Part 1, "Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices." This standard allows a testing lift pressure to vary from the stamped pressure by more than $\pm 3\%$, before declaring a test failure. This standard also includes guidelines for testing additional valves when a valve exceeds the $\pm 3\%$ tolerance. Therefore, increasing the PSV and MSSV setpoint tolerance to $\pm 3\%$ for the "as-found" test acceptance criterion is in compliance with the 1989 ASME Code, Section XI requirements.

The proposed changes have been reviewed to determine the impact on the PSVs and MSSVs inlet piping and discharge piping. The structural integrity review considered the impact on pipe stress analysis, pipe support analysis and nozzle load summaries. The review considered that the relationship between both the PSV and MSSV discharge pressure and the safety valve steam hammer discharge segment forces was linear. Therefore, a $+3\%$ increase in the setpoint (i.e., a $+3\%$ setpoint drift) results in the maximum (i.e., $+3\%$) increase in steam hammer discharge forces in PSV and MSSV discharge piping. The components reviewed have sufficient margin to accommodate a 3% increase in PSV or MSSV steam hammer discharge loads.

On November 1, 1990,⁽⁸⁾ NNECO submitted proposed technical specification changes for Millstone Unit No. 3 to incorporate the VANTAGE 5 Hybrid (5H) fuel design. This submittal included an evaluation of the transition to the VANTAGE 5H fuel design. The safety evaluation included mechanical, nuclear, thermal and hydraulic, and accident evaluations. As part of this analysis, use of a $\pm 3\%$ PSV and MSSV setpoint tolerance was examined. Specifically, Section 5.0.5 of the safety evaluation (Attachment 3) examined the impact of increased MSSV and PSV setpoint tolerance on the safety analysis. The following is a summary of the safety evaluation:

- The analyses for the non-loss of coolant accident (LOCA) transients performed for the VANTAGE 5H transition included revisions in the modeling of the PSVs and MSSVs. The PSVs were modeled so as not to open until the pressurizer pressure

(8) E. J. Mroczka letter to the U.S. Nuclear Regulatory Commission, "Millstone Nuclear Power Station, Unit No. 3, Proposed Changes to the Technical Specifications, Cycle 4, Reload Submittal," dated November 1, 1990.

reaches 2575 psia. Flow through the PSVs was modeled with 3% accumulation; i.e., it ramps up from zero to full rated flow over the range of 2575 to 2652 psia ($2500 \text{ psia} \times 1.03 \times 1.03$). Previously, the PSVs were modeled as opening with the pressurizer pressure at 2500 psia and full rated flow being reached at 2575 psia.

- For secondary system pressure protection, the non-LOCA analysis employed a model that allowed steam generator pressure to reach 1320 psia. At this pressure, it was assumed that sufficient MSSV capacity exists to stabilize pressure and prevent further increases. The 1320 psia figure was selected as a conservative bounding value (i.e., 1320 psia is equal to 110% of the steam generator design pressure). Prior analyses used a model that allowed steam generator pressure to reach 1236 psia. This represented design pressure with a 3% allowance for accumulation.

In a separate analysis, a steam generator pressure of 1257 psig (1272 psia) was assumed to determine auxiliary feedwater flowrates. This pressure is consistent with the setpoint of the lowest set MSSV including 3% for setpoint and 3% for accumulation ($1185 \text{ psig} \times 1.03 \times 1.03$).

- The current Millstone Unit No. 3 LOCA analyses are not affected by an increase in setpoint tolerance for the PSVs and MSSVs. A 3% MSSV drift from the setpoint was considered for both the large and small break LOCA analyses.

The NRC Staff approved the proposed changes regarding the VANTAGE 5H fuel and issued the license amendment on March 11, 1991.⁽⁹⁾

Significant Hazards Consideration

NNECO has reviewed the proposed changes in accordance with 10CFR50.92 and has concluded that the changes 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 increase the "as-found" setpoint tolerances for the PSVs and MSSVs from $\pm 1\%$ to $\pm 3\%$. The

(9) D. H. Jaffe letter to E. J. Mroczka, "Issuance of Amendment No. 60 (TAC No. 77924)," dated March 11, 1991.

proposed changes do not involve any hardware modifications to plant structures, systems, or components. An evaluation has determined that the proposed changes do not significantly affect the structural integrity of either the reactor coolant system or the main steam system.

The proposed setpoint tolerance of $\pm 3\%$ for the "as-found" condition was previously evaluated as part of the evaluation for the transition to VANTAGE 5H fuel. The evaluation was reviewed and approved by the NRC Staff as part of License Amendment No. 60 to Operating License NPF-49. Since the VANTAGE 5H fuel evaluation incorporated these proposed changes, the calculated radiological release associated with that evaluation is unaffected. Similarly, this applies to the radiological dose associated with a steam generator tube rupture.

Additionally, the proposed changes are consistent with the guidance provided by Section III and XI of the ASME Code.

Based on the above, the proposed changes do 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 accident previously evaluated.

Since the lift setting of a PSV or MSSV will be restored to $\pm 1\%$ whenever it is determined to be outside of $\pm 1\%$, the "as-left" setpoint tolerances for the PSVs and MSSVs are unchanged. The "as left" setpoint will continue to satisfy the current technical specification requirement on lift setting tolerance. As such, there is no change in plant operation or equipment performance. Since neither plant operation or equipment performance is affected by the proposed changes, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously analyzed.

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

Since the proposed changes are consistent with the guidance provided by Section III and XI of the ASME Code, and the proposed lift setting tolerance of $\pm 3\%$ has been incorporated into the design basis accident analyses, the proposed changes do not involve a significant reduction in the margin of safety.

The Commission has provided guidance concerning the application of the standards of 10CFR50.92 by providing certain examples

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(51 FR 7751, March 6, 1986) of amendments that are not considered likely to involve a SHC. NNECO's proposal to modify the tolerances for the lift settings of the PSVs and MSSVs is not enveloped by any of the examples. As discussed above, NNECO has concluded that the proposed changes do not involve a significant hazards consideration.

Environmental Considerations

NNECO has reviewed the proposed license amendment against the criteria of 10CFR51.22 for environmental considerations. The proposed changes do not increase the types and amounts of effluents that may be released offsite, nor significantly increase individual or cumulative occupational radiation exposures. Based on the foregoing, NNECO concludes that the proposed changes meet the criteria delineated in 10CFR51.22(c)(9) for a categorical exclusion from the requirements for an environmental impact statement.

Nuclear Review Board

The Millstone Unit No. 3 Nuclear Review Board has reviewed and concurred with the above determinations.

Notification of the State of Connecticut

In accordance with 10CFR50.91(b), we are providing the State of Connecticut with a copy of this amendment.

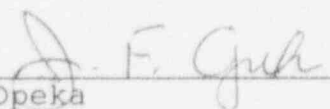
Schedule for NRC Approval and Issuance

While this request is not necessary to ensure continued safe operation of the unit, we are requesting that the NRC review and approve this proposal prior to the start of the next refueling outage. Currently, the next refueling outage is scheduled to begin in April 1995. The license amendment will be implemented within 30 days of the date of issuance.

Should you have any questions regarding this submittal, please contact Mr. R. G. Joshi at (203) 440-2080.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY



J. F. Opeka
Executive Vice President

cc: See Page 8

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

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Subscribed and sworn to before me

this 4th day of August, 1994

Lorraine J. D'Amico

Date Commission Expires: 3/31/98

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Attachment 1

Millstone Unit No. 3

Proposed Revision to Technical Specifications

Pressurizer Safety Valves and Main Steam Safety Valves
Lift Setting Tolerance Change

Marked-Up Pages

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