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The Northeast Utilities System

MAY 15 1997
Docket No. 50-245
B16407

Re: 10CFR50.90

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

Millstone Nuclear Power Station, Unit No. 1
Proposed Technical Specification Revision - Neutron Monitoring

Pursuant to 10CFR50.90, Northeast Nuclear Energy Company (NNECO) hereby proposes to amend its Facility Operating License, DPR-21, by incorporating the attached proposed changes into the Technical Specifications of Millstone Nuclear Power Station, Unit No. 1.

The proposed Technical Specification changes contained herein represent revisions to TS Sections 3.1/4.1 Reactor Protection System and the associated bases to remove the RUN Mode IRM High Flux/Inoperative with the associated APRM downscale scram Trip Function (IRM RUN Mode SCRAM), and incorporate editorial revisions to conform the Technical Specifications to the actual design. The proposed changes were developed using GE design requirements and the guidance of the improved Standard Technical Specifications (STS), NUREG 1433, "Standard Technical Specification General Electric Plants, BWR/4," Revision 1.

This amendment will enhance operational safety by clarifying neutron instrumentation requirements, thereby ensuring proper testing of safety related components.

Attachment 1 of this letter provides supporting information and the safety assessment of the proposed changes. Attachment 2 is the determination of no significant hazards considerations. Attachment 3 is the marked-up version of the current Technical Specifications. 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 proposed 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 proposed changes will not increase the types and amounts of effluents that may be released offsite, and will not significantly increase the individual or cumulative occupational radiation exposures. Thus, NNECO concludes that the proposed

changes are eligible for categorical exclusion from the requirements for an environmental impact statement in accordance with 10CFR51.22(c)(9).

The Plant Operations Review Committee and the Nuclear Safety Assessment Board have reviewed the proposed changes to the Technical Specifications and concur with the above determinations. Pursuant to 10 CFR 50.91(b)(1), Millstone Unit No. 1 has provided a copy of this license amendment request and the associated analysis regarding a no significant hazards consideration to the appropriate State of Connecticut representative. NNECO requests that the NRC issue a license amendment to support Millstone Unit No. 1 startup which will be effective upon issuance and shall be implemented within 60 days of issuance.

TS Bases pages B 3/4 1-9 and B 3/4 1-2 do not reflect changes in the Millstone Unit No. 1 Technical Specification submittal for Response Time Testing dated February 7,1997 and Allowable Outage Time dated March 6,1997.

If you have any questions or comments on this transmittal, please contact Mr. R. Walpole at (860) 440-2191.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

John P. McElwain
Millstone Unit No. 1 Recovery Officer

Subscribed and sworn to before me

this 15 day of MAY, 1997

Notary Public

Date Commission expires Nov 30, 2001

Attachments

cc: See Page 3

cc: H. J. Miller, Regional Administrator, Region 1
T. A. Easlick, Senior Resident Inspector, Millstone Unit No.1
S. Dembek, Project Manager, Millstone Unit No. 1
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Attachment 1

Millstone Nuclear Power Station, Unit No. 1

Proposed Technical Specification Revision
Neutron Monitoring
Supporting Information and Safety Assessment of Proposed Changes

May 1997

Millstone Nuclear Power Station, Unit No. 1

Proposed Technical Specification Revision
Neutron Monitoring
Supporting Information and Safety Assessment of Proposed Changes

INTRODUCTION

As a result of a self assessment performed on Millstone Unit No. 1 Technical Specifications (TS), it was determined that the neutron monitoring requirements needed to be modified. Amendment 34 dated November 19, 1976 added an APRM startup High Flux reactor scram but did not remove the unnecessary RUN Mode IRM High Flux/Inoperative with the associated APRM downscale scram Trip Function (IRM RUN Mode SCRAM). The IRM RUN Mode SCRAM existed on several early BWR plants including Millstone Unit No. 1. It was deleted by General Electric (GE) on later BWRs because it was not seen to be performing any function commensurate with its required surveillance. In consideration of this surveillance difficulty, and the doubtful contribution which was made to the overall neutron monitoring protection system, GE decided to eliminate the IRM RUN Mode SCRAM on later plants. GE has performed a Millstone Unit No. 1 evaluation and has concluded it is a logical step to remove the requirement for this scram function from TS at Millstone Unit No. 1, consistent with the action taken at other contemporary plants. Finally, miscellaneous changes are proposed involving editorial revisions and clarifications.

The proposed amendment is designed to eliminate the above identified weaknesses by using appropriate GE design requirements pertaining to neutron monitoring and adopting appropriate improved Standard Technical Specifications (STS), NUREG 1433, "Standard Technical Specification General Electric Plants, BWR/4," Revision 1.

DESCRIPTION OF PROPOSED CHANGES

- Revise LCO 3.1 Reactor Protection System Table 3.1.1 and associated Table Notes 5 and 10 to remove the RUN Mode IRM High Flux/Inoperative with the associated APRM downscale scram Trip Function (IRM RUN Mode SCRAM).

- Clarify APRM trip function (Flow Biased High Flux/Reduced High Flux) Mode requirements and delete Action B for Reduced High Flux on LCO 3.1 Reactor Protection System Table 3.1.1.

- Add new Note 5 to Surveillance Requirement 4.1 Reactor Protection System Table 4.1.2 to perform an overlap surveillance for SRM/IRM/APRM.

- Revise and clarify associated TS Bases 3.1 Reactor Protection System.

SAFETY ASSESSMENT

The preface to NUREG 1433 describes the development of the improved Standard Technical Specifications (STS) for General Electric (GE) BWR/4 plants. This NUREG is the result of extensive public technical meetings and discussions between the Nuclear Regulatory Commission (NRC) staff and nuclear power plant Licensees, Nuclear Steam Supply System (NSSS) Owners' Groups, specifically the GE Owners' Group and the Nuclear Energy Institute (NEI). NNECO proposes to adopt related requirements, as applicable to the licensing basis of the facility, to achieve a high degree of standardization and consistency.

These proposed Technical Specification (TS) changes are consistent with the above recommendations and applicable to Millstone Unit No. 1 licensing basis. Minor word additions/differences from STS are required to provide consistency with current TS wording and support the current licensing basis. These minor word additions/differences do not alter the meaning of neutron monitoring requirements from the STS or change the current licensing basis. Exceptions to STS principles were necessary to meet the current licensing basis and current format of existing TS.

Although the IRM High Flux and Inoperative Trip Functions in RUN are listed as an RPS scram (RPS LCO Table 3.1.1), they do not directly initiate a reactor scram. The trip performs an interlock function associated with the APRM downscale trip initiation. The interlock prevents the IRM High Flux/Inoperative scram function from being defeated in the RUN Mode until the APRM downscale setpoint has cleared ($\geq$ 3/125 full scale).

The bases for removing the RUN Mode IRM High Flux/Inoperative with the associated APRM downscale scram Trip Function (IRM RUN Mode SCRAM) from TS is presented in a General Electric (GE) evaluation performed for Millstone Unit No. 1. This function existed on several early plants but was deleted from later plant designs. UFSAR and reload safety analyses do not take any credit for the IRM RUN Mode SCRAM. It is no longer required by the STS and has been deleted from Technical Specifications of several plants that originally included it in their design.

Removal of the IRM RUN Mode SCRAM from TS will permit available combinations of inoperable IRM and APRM channels to be simultaneously bypassed, as intended by the plant design (UFSAR 7.2.1.1.1). Due to a differing number of APRM and IRM instrument channels (six vs. eight), some IRM channels share the same APRM channel in the APRM downscale logic. Consequently, some bypass combinations of inoperable IRM and APRM channels would result in less than the minimum number of required operable IRM RUN trip functions, precluding bypass capability for one of the inoperable channels. Under these circumstances, the plant must remain in a "half scram" condition. Removal of this trip function from TS will avoid the need to operate the

plant in the "half scram" condition, with the associated risk of a plant transient, for certain inoperable IRM/APRM combinations.

Removal of the IRM RUN Mode SCRAM function and associated Notes from the Technical Specifications is not a safety concern for the following reasons:

a) The design basis accident in this region of operation (RUN Mode) is the control rod drop accident (CRDA). The only scram function that the UFSAR takes credit for in the mitigation of the CRDA is the APRM 120% power scram.

b) A Continuous Control Rod Withdrawal error (CWE) in RUN is terminated by the Rod Block Monitor (UFSAR 15.5.1). The APRM Reduced High Flux scram in conjunction with the IRM scram limits the consequences of the CWE during the STARTUP Mode.

c) If the mode switch is changed to the RUN Mode prematurely during a hot or cold startup, the control rod block associated with the APRM downscale trip will activate, precluding further control rod withdrawal. The control rod block feature is required by the TS Table 3.2.3, and is not altered by the requested change.

d) If the reactor power is reduced too far before changing the mode switch to the STARTUP Mode, the control rod block associated with the APRM downscale trip will activate, precluding control rod withdrawal. Also, procedures require IRMs to be fully inserted prior to changing modes from RUN to STARTUP and if the IRMs are not fully inserted, a control rod withdrawal block would be activated after the mode switch was placed in STARTUP.

e) In addition, during a cold plant startup, prematurely changing to the RUN mode will result in MSIV closure due to insufficient steam pressure and subsequent scram if the reactor vessel pressure is $\leq$ 825 psig.

Further revisions were made to LCO 3.1 Reactor Protection System Table 3.1.1 and associated TS Bases to clarify APRM Trip Functions and align the Table with TS Section 2.2.1. These revisions do not alter the intent for neutron monitoring requirements.

The RUN requirement and associated Action B for Reduced High Flux trip function requirement is an editorial error introduced when Amendment 34, dated November 19, 1976, was issued. Amendment 34 revised TS to reflect a hardware modification to install an APRM Reduced High Flux scram trip function in the REFUEL, SHUTDOWN, and STARTUP/HOT STANDBY Modes. This trip function is not required and is automatically bypassed in the RPS logic with the mode switch in the RUN position.

Also, the requirement for the APRM Flow Biased High Flux trip function to be operable in the REFUEL, SHUTDOWN, and STARTUP/HOT STANDBY Modes was not required

because the required neutron trip functions in these modes are provided by the APRM Reduced High Flux and IRM scram functions (which actuate at a lower power than the Flow Biased High Flux trip). TS Section 2.1.2, Fuel Cladding Integrity APRM Limiting Safety System Settings, correctly identifies mode requirements for these settings which are described in the associated bases.

Adding a new surveillance requirement to RPS Table 4.1.2 and corresponding description to the associated TS Bases to verify SRM/IRM/APRM overlap is being proposed to ensure that no gaps in neutron flux indication exist from subcritical to power operations. The overlap between SRMs and IRMs is required to be demonstrated during reactor startup, to ensure that reactor power will not be increased into a neutron flux monitoring region without adequate indication. On power increases, the system design will prevent further increases (by initiating a rod block) if adequate overlap is not maintained. The overlap between IRMs and APRMs is of concern when reducing power into the IRM range. Overlap between IRMs and APRMs exists when sufficient IRMs and APRMs concurrently have onscale readings such that the transition between the RUN and STARTUP/HOT STANDBY Modes can be made without either APRM downscale rod block, or IRM upscale rod block. This proposed change is consistent with STS requirements.

As discussed above, Northeast Nuclear Energy Company (NNECO) concludes that the proposed changes to a) remove the RUN Mode IRM High Flux/Inoperative with the associated APRM downscale scram Trip Function; and b) incorporate editorial revisions to conform the Technical Specifications to the actual design is safe and justified. These changes will enhance general understanding of neutron monitoring TS surveillance requirements for Millstone Unit No. 1. The proposed changes clarify the requirements already existing in the Millstone Unit No. 1 current Technical Specifications for surveillance, and adoption of appropriate improved STS wording ensures standardization and consistency with industry practices.

Consistent with these factors, the NRC has approved similar amendments incorporating the above changes. Amendment No. 50 dated August 26, 1987 to Facility Operating License No. DPR-22 for the Monticello Nuclear Generating Plant deleted the IRM RUN Mode SCRAM. Also, Amendment No. 227 dated September 11, 1995 for the James A. FitzPatrick Nuclear Power Plant removes the IRM RUN Mode SCRAM.

Docket No. 50-245
B16407

Attachment 2

Millstone Nuclear Power Station, Unit No. 1

Proposed Technical Specification Revision
Neutron Monitoring
Determination of No Significant Hazards Consideration

May 1997

Millstone Nuclear Power Station, Unit No. 1

Proposed Technical Specification Revision
Neutron Monitoring
Determination of No Significant Hazards Consideration

Pursuant to 10CFR50.92, NNECO has reviewed the proposed changes and concludes that the changes do not involve a significant hazards consideration since the proposed changes satisfy the criteria in 10CFR50.92(c).

1. The operation of Millstone Nuclear Power Station, Unit No. 1, in accordance with the proposed amendment, will not involve a significant increase in the probability or consequences of an accident previously evaluated.

   No physical change is being made to any systems or components that are credited in the safety analysis, therefore there is no change in the probability or consequences of any accident analyzed in the UFSAR.

   The design basis accident applicable to the startup power region is the Control Rod Drop Accident (CRDA). The UFSAR does not credit the RUN Mode IRM High Flux/Inoperative with the associated APRM downscale scram Trip Function (IRM RUN Mode SCRAM) in the termination of this accident. Accident mitigation is provided by the APRM 120% power scram. Therefore, elimination of the IRM RUN Mode SCRAM function has no adverse affect on previously evaluated accidents.

   The Continuous Control Rod Withdrawal Error (CWE) transient is terminated by the Rod Block Monitor (RBM) in the RUN Mode. The APRM Reduced High Flux Scram provides the primary STARTUP Mode protection in conjunction with the IRMs and limits the consequences of this transient. Therefore, elimination of the IRM RUN Mode SCRAM function has no effect on the consequences of this transient.

   Clarification of the LCO RPS Table aligns requirements with Limiting Safety System Settings. Further revisions to LCO 3.1 Reactor Protection System Table 3.1.1 and associated TS bases to clarify APRM Trip Functions do not alter the required trip functions. Deletion of RUN requirement and associated Action B for Reduced High Flux fixes an editorial error introduced in a previous amendment. This trip function is not effective with the mode switch in the RUN position and removal does not alter the neutron monitoring requirements credited in the accident analyses.

   Adding a new surveillance to verify SRM/IRM/APRM overlap will enhance neutron monitoring during startups and shutdowns and does not have an adverse affect on previously evaluated accidents.

None of the proposed changes will affect any of the rod blocks or other precursor events to either the CRDA or CWE. Therefore, there is no change in the probability of any accident previously analyzed.

2. The operation of Millstone Nuclear Power Station, Unit No. 1, in accordance with the proposed amendment, will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes affect only the operations of neutron monitoring and protective systems (IRM and APRM) which provide indication and mitigation actions only. Operation of these systems does not create the possibility for new precursors (such as reactivity) which would introduce a new or different kind of accident from any accident previously evaluated.

Additionally, the proposed changes do not affect the ability of those systems required to mitigate previously evaluated accidents during the modes they are credited.

3. The operation of Millstone Nuclear Power Station, Unit No. 1, in accordance with the proposed amendment, will not involve a significant reduction in a margin of safety.

The only scram function that the UFSAR takes credit for in the mitigation of the limiting accident (control rod drop accident) is the APRM 120% power scram which is not affected by this change . Only the IRM RUN Mode SCRAM, for which the UFSAR takes no credit in the termination of any analyzed event, is removed by this change. Removal of the IRM RUN Mode SCRAM will avoid the need to operate the plant in a "half scram" condition with the potential for an inadvertent plant transient. For these reasons, the change does not involve a significant reduction in a margin of safety.

The Continuous Control Rod Withdrawal Error (CWE) transient is terminated by the Rod Block Monitor (RBM) in the RUN Mode. When initiated from the STARTUP Mode, the consequences of a CWE are limited by the APRM Reduced High Flux scram in conjunction with the IRM scram function. Therefore eliminating the TS requirement for the IRM RUN Mode SCRAM will not reduce the margin of safety for this transient.

Clarification of the LCO RPS Table aligns requirements with Limiting Safety System Settings. Further revisions to LCO 3.1 Reactor Protection System Table 3.1.1 and associated TS bases to clarify APRM Trip Functions do not alter the required trip functions. Deletion of the RUN requirement and associated Action B for Reduced High Flux corrects an editorial error introduced in a previous amendment. This trip function is not effective with the mode switch in the RUN

position and removal does not alter the neutron monitoring requirements credited in the accident analyses.

Adding a new surveillance to verify SRM/IRM/APRM overlap will enhance neutron monitoring during startups and shutdowns and consequently does not involve a significant reduction in a margin of safety.

Therefore, based on the above evaluation, NNECO has concluded that these changes do not involve a significant hazards consideration.

Docket No. 50-245
B16407

Attachment 3

Millstone Nuclear Power Station, Unit No. 1

Proposed Technical Specification Revision
Neutron Monitoring
Marked-up Version of Current Technical Specifications

May 1997