Nebraska Public Power District

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NSD920302
May 4, 1992

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

Gentlemen:

Subject: Proposed Change No. 100 to Technical Specifications
Elimination of Main Steam Line Radiation Monitor
Scram and Isolation Functions
Cooper Nuclear Station
NRC Docket No. 50-298, DPR-46

In accordance with the applicable provisions specified in 10 CFR 50, the Nebraska Public Power District (District) requests that the Cooper Nuclear Station (CNS) Technical Specifications be revised as specified in the attachment. The proposed changes remove the operability requirements, action statements, and associated surveillance requirements for the Main Steam Line Radiation Monitor (MSLRM) scram and Group 1 Containment Isolation functions. Removal of these MSLRM functions have been determined to be acceptable by the NRC Staff based on their review of NEDO-31400, "Safety Evaluation for Eliminating the Boiling Water Reactor Main Steam Line Isolation Valve Closure Function and Scram Function of the Main Steam Line Radiation Monitor."

The District has determined that the analysis described in NEDO-31400 conservatively bounds the CNS accident analysis, and therefore is applicable. The District will coordinate with the CNS NRC Project Manager implementation of the corresponding plant design change to ensure it coincides with approval of this license amendment.

Accordingly, the attached contains a description of the proposed change, the attendant 10 CFR 50.92 evaluation, and the CNS Technical Specification pages revised by the institution of this change. This proposed change has been reviewed by the necessary Safety Review Committees and incorporates all amendments to the CNS Facility Operating License through Amendment 152 issued March 11, 1992.

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By copy of this letter and attachment, the appropriate State of Nebraska official is being notified in accordance with 10 CFR 50.91(b)(1). Copies to the NRC Region IV Office and the CNS Resident Inspector are also being sent in accordance with 10 CFR 50.4(b)(2).

Should you have any questions or require any additional information, please contact me.

Sincerely,

G. R. Horn
Nuclear Power Group Manager

GRH/MJB

Attachment

cc: H.R. Borchert
Department of Health
State of Nebraska

NRC Regional Administrator
Region IV
Arlington, TX

NRC Resident Inspector
Cooper Nuclear Station

STATE OF NEBRASKA)
)
PLATTE COUNTY )

G. R. Horn, being first duly sworn, deposes and says that he is an authorized representative of the Nebraska Public Power District, a public corporation and political subdivision of the State of Nebraska, that he is duly authorized to submit this request on behalf of Nebraska Public Power District; and that the statements contained herein are true to the best of his knowledge and belief

G. R. Horn

Subscribed in my presence and sworn to before me this 5th day of May, 1992.

GENERAL NOTARY-State of Nebraska
ALOIS J. HUBL
My Comm. Exp. Aug. 21, 1995

NOTARY PUBLIC

REVISED TECHNICAL SPECIFICATIONS
ELIMINATION OF MAIN STEAM LINE RADIATION MONITOR
REACTOR SCRAM AND MSIV CLOSURE FUNCTIONS

Revised Pages

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## I. INTRODUCTION

The Nebraska Public Power District (District) requests that the NRC approve the proposed changes to the Cooper Nuclear Station (CNS) Technical Specifications described below. The proposed changes remove the requirements associated with the Main Steam Line Radiation Monitor (MSLRM) reactor scram and Group 1 Containment Isolation functions. The Group 1 isolation consists of the Main Steam Isolation Valves (MSIVs) and the Main Steam Line Drain Valves. These Technical Specification changes reflect the removal of those functions as discussed in licensing topical report NEDO-31400[1] which was accepted by the NRC staff in its safety evaluation addressing the proposed modifications.[2]

The plant modifications associated with this proposed change will provide a number of operational benefits, while improving radiological release management associated with the Control Rod Drop Accident (CRDA). Removal of the Group 1 Containment Isolation and reactor scram from the MSLRM will eliminate inadvertent MSIV closures and reactor scrams associated with spurious MSLRM actuations. Eliminating the MSIV closure will also retain the availability of the condenser for decay heat removal following a scram. Finally, following the unlikely occurrence of a CRDA, maintaining steam flow to the condenser would enable some of the activity to be processed through the Augmented Off Gas (AOG) System, thereby reducing the offsite dose consequences with respect to the design basis CRDA analysis.

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1 NEDO-31400, "Safety Evaluation for Eliminating the Boiling Water Reactor Main Steam Line Isolation Valve Closure Function and Scram Function of the Main Steam Line Radiation Monitor," General Electric Company, May 1987.

2 Letter from A. C. Thadani (NRC) to G J. Beck (BWROG) dated May 15, 1991, "Acceptance for Referencing of Licensing Topical Report NEDO-31400, 'Safety Evaluation for Eliminating the Boiling Water Reactor Main Steam Line Isolation Valve Closure Function and Scram Function of Main Steam Line Radiation Monitor.'"

III. DISCUSSION

As a result of the Boiling Water Reactor Owners' Group (BWROG) Main Steam Line Radiation Monitor Committee efforts, the BWROG transmitted NEDO-31400 to the NRC. This topical report provided the results of an evaluation of the consequences of a CRDA assuming 1) the MSIVs close on high steam line radiation following a CRDA as presently assumed in the CNS CRDA analysis, and 2) the MSIVs do not close on high steam line radiation following a CRDA. Following further information exchange between the BWROG and NRC Staff, the Staff issued its Safety Evaluation accepting reference to NEDC-31400 in license amendment applications seeking to eliminate the reactor scram and Group 1 Containment Isolation closure functions from the MSLRM.

The NRC Safety Evaluation concluded that removal of the MSLRM Reactor Scram and Group 1 Containment Isolation closure functions is acceptable. The NRC Safety Evaluation further concluded that participating BWR utilities listed in Table 1 therein may reference NEDO-31400 in support of their license amendment applications provided:

1. The applicant demonstrates that the assumptions with regard to input values (including power per assembly, Chi/Q, and decay times) that are made in the generic analysis bound those for the plant.

2. The applicant includes sufficient evidence (implemented or proposed operating procedures, or equivalent commitments) to provide reasonable assurance that increased significant levels of radioactivity in the main steam lines will be controlled expeditiously to limit both occupational doses and environmental releases.

3. The applicant standardizes the MSLRM and the Steam Jet Air Ejector offgas radiation monitor alarm setpoint at 1.5 times the nominal full-power nitrogen-16 background dose rate at the monitor locations, and commits to promptly sample the reactor coolant to determine possible contamination levels in the plant reactor coolant and the need for additional corrective actions, if the MSLRM or offgas radiation monitors or both exceed their alarm setpoints.

The District is a participating member in the BWROG MSLRM Committee, and is identified accordingly in Table 1 of the SER. The District has also evaluated the CRDA analysis for CNS and concludes that the assumptions used in NEDO-31400 bound those used in the CNS CRDA accident analysis. In addition, the District commits to revise its procedures as necessary to ensure that adequate controls exist to provide prompt control of significant increases in Main Steam Line activity and to promptly sample the reactor coolant upon a MSLRM alarm which will be retained at 1.5 times the nominal background.

III. DESCRIPTION OF CHANGES

The changes to the CNS Technical Specifications consist of removing the operability and surveillance requirements associated with the MSLRM reactor scram and Group 1 Containment Isolation functions while retaining the operability requirements associated with the MSLRM Group 7 isolation (Reactor Water Sample Valves) and the Mechanical Vacuum Pump Trip.

Currently, the CNS Technical Specifications contain distinct operability requirements and associated action statements applicable to each of the MSLRM functions. However, the surveillance and calibration requirements for the MSLRM Group 7 and Mechanical Vacuum Pump isolations reference the Reactor Protection System (reactor scram) surveillance and calibration requirements, which are the most restrictive. Therefore, this proposed change adds the surveillance and calibration requirements to the containment isolation instrumentation table, and changes the references for the Mechanical Vacuum Pump Isolation surveillance requirements to direct operators to the corresponding MSLRM surveillance requirements in the containment isolation instrumentation table. The specific changes proposed to the CNS Technical Specifications are detailed below, and the revised CNS Technical Specification pages are provided at the end of this attachment.

Page 29 - Main Steam Line Radiation Monitor RMP-RM-251 A,B,C & D is removed from Table 3.1.1, "Reactor Protection System Instrumentation Requirements." This reflects removal of the MSLRM scram function.

Page 30 - The corresponding Action Statement "D" is removed from the notes for Table 3.1.1 as this statement addressed inoperability of the MSLRM scram function.

Page 33 - Main Steam Line Radiation Monitor RMP-RM-251 A,B,C & D is removed from Table 4.1.1, "Reactor Protection System (Scram Instrumentation) Functional Tests, Minimum Functional Test Frequencies For Safety Instrumentation and Control Circuits." This deletes the surveillance requirements associated with the MSLRM scram function.

Page 34 - Note "4" is deleted, as this note applied only to the surveillance associated with RMP-RM-251 A,B,C & D. This information is relocated as a new note to Table 4.2.A, "Primary Containment and Reactor Vessel Isolation System Test and Calibration Frequencies."

Page 35 - The MSLRM is removed from Table 4.1.2, "Reactor Protection System (Scram) Instrument Calibration Minimum Calibration Frequencies For Reactor Protection Instrument Channels." This deletes the calibration requirements associated with the MSLRM scram function.

Page 36 - Note "3" is deleted, as this note applies only to the calibration associated with RMP-RM-251 A,B,C & D. This information is relocated as a new note to Table 4.2.A, "Primary Containment and Reactor Vessel Isolation System Test and Calibration Frequencies."

Page 39 - The discussion in the Bases section for Specification 3.1 that relates to the reactor scram on a high MSLRM signal is deleted.

Page 50 - New Action Statement "E" is referenced to reflect the inoperability of the Group 7 isolation on high Main Steam Line radiation, as discussed further in the discussion for page 52 below.

Page 52 - New Action Statement "E" is provided to direct isolation of the Reactor Water Sample Valves (Group 7) if the MSLRM becomes inoperable. In addition, the MSLRM is removed from the Group 1 Containment Isolation signal list.

Page 63a - An editorial change is made to Action Statement "E".

Page 68 - The surveillance requirements for the MSLRM have been added to Table 4.2.A, "Primary Containment and Reactor Vessel Isolation System Test and Calibration Frequencies." The MSLRM surveillance requirements were previously provided in Tables 4.1.1 and 4.1.2 which provided the surveillance requirements for the MSLRM associated with the Reactor Protection System function, but are being removed from those tables as discussed above. Additionally, the functional test frequency has been changed from once/week to once/month which reflects removal of the Reactor Protection System function of the MSLRM, and provides a surveillance frequency consistent with the balance of the Primary Containment Isolation System instrument channels. In addition, references to new Notes (13) and (14) were added to address unique surveillance requirements associated with the MSLRM as discussed in more detail below.

Page 78 - Previously Table 4.2.D, "Minimum Test and Calibration Frequencies For Radiation Monitoring Systems," referenced Tables 4.1.1 and 4.1.2 for the surveillance requirements associated with the Mechanical Vacuum Pump Isolation (provided by the MSLRM). This is revised to reference relocation of these surveillance requirements to Table 4.2.A as discussed above.

Page 81 - Note 5 is revised to delete reference to the MSLRM. New notes (13) and (14) have been added to address unique surveillance requirements associated with the MSLRM. This information was previously provided in notes to Tables 4.1.1 and 4.1.2.

Page 84 - The Bases Section for Specification 3.2 has been revised to correspond with the removal of the MSIV closure function from the MSLRM. Additional discussion was added to address the MSLRM alarm and Group 7 (Reactor Water Sample Valves) isolation functions.

IV. SIGNIFICANT HAZARDS DETERMINATION

10 CFR 50.91(a)(1) requires that licensee requests for operating license amendments be accompanied by an evaluation of significant hazards posed by the issuance of the amendment. This evaluation is to be performed with respect to the criteria given in 10 CFR 50.92(c). The following analysis meets these requirements.

Evaluation of this Amendment with Respect to 10 CFR 50.92

The enclosed Technical Specifications change is judged to involve no significant hazards based on the following:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Evaluation

The proposed Technical Specification changes associated with removal of the Group 1 Containment Isolation and reactor scram functions from the Main Steam Line Radiation Monitor (MSLRM) do not constitute a significant increase in the probability or consequences of an accident previously evaluated. Removal of these functions does not involve any hardware changes which could increase the frequency of occurrence of any accident previously evaluated, as no new failure modes will be introduced. For all previously analyzed accidents except the Control Cod Drop Accident (CRDA), reactor scram and Main Steam Line isolation are expected to occur through other single failure proof means prior to actuation of the MSLRMs. Therefore, no credit is taken in any accident analysis for these functions occurring as the result of actuation of the MSLRMs, with the exception of the CRDA, which is discussed in more detail below. Therefore, the proposed changes to the CNS Technical Specifications, and the associated plant hardware changes do not constitute a significant increase in the probability or consequences of an accident previously evaluated.

Although a Control Rod Drop Accident assumes that Main Steam Line Isolation Valve (MSIV) isolation would occur as the result of increased coolant activity due to a failure of fuel rods, the CRDA analysis conservatively assumes that all activity calculated to be available for transport to the condenser is transported to the condenser prior to closing of the MSIVs. Further, in accordance with the analysis provided in NEDO-31400 which the District has determined conservatively bounds the CRDA analysis for CNS,

maintaining the MSIVs in the open position following a CRDA does not involve a significant increase in the consequences of the CRDA. In fact, it has been determined as documented in NEDO-31400 that processing a portion of the activity resulting from a CRDA through the CNS Augmented Offgas System (AOG) would reduce the potential offsite exposures resulting from the accident by reducing the amount of activity available for leakage from the condenser directly to the environment. In addition, maintaining the MSIVs open would also retain availability of the condenser for decay heat removal following such an event.

Additionally, while the analysis conducted for the BWROG as described in NEDO-31400 indicates an insignificant increase in reactivity control failure ($1.4 \times 10^{-9}$ events/year) as a result of removing the MSLRM scram function, this is offset by a reduction in transient initiating events caused by spurious reactor scrams from the MSLRMs which results in an approximate 0.3% reduction in core damage frequency. This represents an overall net improvement in safety. Therefore, based on this and the above discussion, the District concludes that this proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility for a new or different kind of accident from any accident previously evaluated?

Evaluation

This proposed change does not involve any plant hardware changes which could introduce any new equipment failure modes or effects, nor does it institute any new mode of operation other than that discussed above and in NEDO-31400, which has been accepted by the NRC Staff. The new mode of operation discussed above constitutes improved processing of potential activity following the unlikely event of a CRDA, and does not impart the potential for any new accident modes. Therefore, this proposed change does not create the possibility for a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change create a significant reduction in the margin of safety?

Evaluation

As discussed above, the reduction in reactivity control reliability resulting from elimination of the MSLRM scram function has been shown to be negligible ($1.4 \times 10^{-9}$ events/year). This is offset by a reduction in the frequency of transient initiating events caused by spurious scrams associated with the MSLRM, with a calculated decrease in core damage frequency of 0.3%. This represents an overall net increase in safety; therefore, this proposed change does not create a significant reduction in the margin of safety.

V. CONCLUSION

The District has evaluated the proposed changes described above against the criteria given in 10 CFR 50.92(c) in accordance with the requirements of 10 CFR 50.91(a)(1). This evaluation has determined that this proposed change will not 1) involve a significant increase in the probability or consequences of an accident previously evaluated, 2) create the possibility for a new or different kind of accident from any accident previously evaluated, or 3) create a significant reduction in the margin of safety. Therefore, for the reasons detailed above, the District requests NRC approval of this Proposed Change No. 100.