



Monticello Nuclear Generating Plant
2807 W County Road 75
Monticello, MN 55362

April 19, 2013

L-MT-13-030
10 CFR 50.90

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Monticello Nuclear Generating Plant
Docket No. 50-263
Renewed Facility Operating License No. DPR-22

License Amendment Request: Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-535, Revision 0, "Revise Shutdown Margin Definition to Address Advanced Fuel Designs"

Pursuant to 10 CFR 50.90, Northern States Power Company – Minnesota (NSPM), doing business as Xcel Energy, Inc., proposes to revise Monticello Nuclear Generating Plant (MNGP) Technical Specification (TS) 1.1, "Definitions," to modify the definition of "Shutdown Margin (SDM)" to require calculation of the SDM at a reactor moderator temperature of 68°F or a higher temperature that represents the most reactive state throughout the operating cycle. The proposed change is in accordance with TSTF-535, Revision 0, "Revise Shutdown Margin Definition to Address Advanced Fuel Designs." This modification of the SDM definition is needed for newer Boiling Water Reactor (BWR) fuel designs which may be more reactive at shutdown temperatures above 68°F. The availability of this TS improvement was announced in the Federal Register (FR) published on February 26, 2013 [78 FR 13100] as part of the Consolidated Line Item Improvement Process (CLIIP).

Enclosure 1 provides a description of the proposed changes and includes the technical evaluation and associated no significant hazards determination and environmental evaluation. Enclosure 2 provides a marked-up copy of the existing TS pages showing the proposed changes. There are no TS Bases changes required.

Approval of this license amendment request is not necessary within the six month timeframe typically associated with NRC reviews under the CLIIP, and the standard one year review timeframe from the date of submittal, with a 90 day implementation period is requested. This will allow NRC and NSPM personnel to concentrate on completion of review activities associated with the Extended Power Uprate (EPU) / Maximum Extended Load Line Limit Analysis – Plus (MELLLA+) amendments.

In accordance with 10 CFR 50.91(a)(1), the analysis about the issue of no significant hazards consideration using the standards in 10 CFR 50.92 is being provided to the Commission.

The MNGP Plant Operations Review Committee has reviewed this application. In accordance with 10 CFR 50.91, a copy of this application, with enclosures, is being provided to the designated Minnesota Official.

This license amendment request has been evaluated and has no impact on the pending Extended Power Uprate and Maximum Extended Load Line Limit Analysis Plus (MELLLA+) license amendment requests currently under NRC review.

Should you have questions regarding this letter, please contact Mr. Richard Loeffler at (763) 295-1247.

Summary of Commitments

This letter proposes no new commitments and does not revise any existing commitments.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on April 18, 2013.



Mark A. Schimmel
Site Vice President, Monticello Nuclear Generating Plant
Northern States Power Company - Minnesota

Enclosures (2)

cc: Administrator, Region III, USNRC
Project Manager, Monticello, USNRC
Resident Inspector, Monticello, USNRC
Minnesota Department of Commerce

ENCLOSURE 1

MONTICELLO NUCLEAR GENERATING PLANT

LICENSE AMENDMENT REQUEST

**ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE (TSTF) TRAVELER
TSTF-535, REVISION 0, "REVISE SHUTDOWN MARGIN DEFINITION
TO ADDRESS ADVANCED FUEL DESIGNS"**

DESCRIPTION OF CHANGES

(7 pages follow)

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DESCRIPTION OF CHANGES

ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE (TSTF) TRAVELER TSTF-535, REVISION 0, "REVISE SHUTDOWN MARGIN DEFINITION TO ADDRESS ADVANCED FUEL DESIGNS"

1.0 DESCRIPTION

Pursuant to 10 CFR 50.90, Northern States Power Company – Minnesota (NSPM), doing business as Xcel Energy, Inc., proposes to revise the Monticello Nuclear Generating Plant (MNGP) Technical Specifications (TS) 1.1 definition of "Shutdown Margin (SDM)" to require calculation of the SDM at a reactor moderator temperature of 68°F or a higher temperature that represents the most reactive state throughout the operating cycle. This change is needed for newer Boiling Water Reactor (BWR) fuel designs which may be more reactive at shutdown temperatures above 68°F.

The proposed change is consistent with TSTF-535, Revision 0, "Revise Shutdown Margin Definition to Address Advanced Fuel Designs," (Reference 1).

2.0 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

The availability of this TS improvement was announced in the Federal Register published on February 26, 2013 [78 FR 13100] as part of the Consolidated Line Item Improvement Process (CLIIP) (Reference 2).

NSPM has reviewed the model safety evaluation dated February 19, 2013 (Reference 3) as part of the Federal Register Notice of Availability. This review included a review of the NRC staff's evaluation, as well as the information provided in TSTF-535, Revision 0. As described in the following paragraphs, NSPM has concluded that the justifications presented in TSTF-535, Revision 0, and the model safety evaluation prepared by the NRC staff are applicable to MNGP, and justify this amendment for incorporation of the changes into the MNGP TS.

2.2 Optional Changes and Variations

NSPM is not proposing any variations or deviations from the TS changes described in the TSTF-535, Revision 0, or the applicable parts of the NRC staff's model safety evaluation dated February 19, 2013.

TSTF-535, Revision 0, references NEDE-24011-P-A-17, "General Electric Standard Application for Reactor Fuel (GESTAR II)," dated September 2010, where the model safety evaluation references Revision 18, dated April, 2011. This difference does not affect the justifications presented in TSTF-535, Revision 0, and model safety evaluation.

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Determination

In accordance with the requirements of 10 CFR 50.90, Northern States Power Company – Minnesota (NSPM), doing business as Xcel Energy, Inc., proposes to revise Monticello Nuclear Generating Plant Technical Specifications (TS) 1.1 definition of "Shutdown Margin (SDM)" to require calculation of the SDM at a reactor moderator temperature of 68°F or a higher temperature that represents the most reactive state throughout the operating cycle. This change is needed for newer Boiling Water Reactor (BWR) fuel designs which may be more reactive at shutdown temperatures above 68°F.

As required by 10 CFR 50.91(a), an analysis of the issue of no significant hazards consideration is presented below:

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

Response: No.

The proposed change revises the definition of SDM. SDM is not an initiator to any accident previously evaluated. Accordingly, the proposed change to the definition of SDM has no effect on the probability of any accident previously evaluated. SDM is an assumption in the analysis of some previously evaluated accidents and inadequate SDM could lead to an increase in consequences for those accidents. However, the proposed change revises the SDM definition to ensure that the correct SDM is determined for all fuel types at all times during the fuel cycle. As a result, the proposed change does not adversely affect the consequences of any accident previously evaluated.

Therefore, it is concluded that these changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Response: No.

The proposed change revises the definition of SDM. The change does not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a change in the methods governing normal plant operations. The change does not alter assumptions made in the safety analysis regarding SDM.

Therefore, it is concluded that these changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

Response: No.

The proposed change revises the definition of SDM. The proposed change does not alter the manner in which safety limits, limiting safety system settings or limiting conditions for operation are determined. The proposed change ensures that the SDM assumed in determining safety limits, limiting safety system settings or limiting conditions for operation is correct for all BWR fuel types at all times during the fuel cycle.

Therefore, it is concluded that these changes do not involve a significant reduction in a margin of safety.

Based on the above, NSPM concludes that the proposed changes present no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

3.2 Applicable Regulatory Requirements

TSTF-535, Revision 0, and the model safety evaluation discuss the applicable regulatory requirements and guidance, including the 10 CFR 50, Appendix A, General Design Criteria (GDC). MNGP was designed largely before the publishing of the 70 GDC for Nuclear Power Plant Construction Permits proposed by the Atomic Energy Commission (AEC) for public comment in July 1967, and constructed prior to the 1971 publication of the 10 CFR 50, Appendix A, GDC. As such, MNGP was not licensed to the Appendix A, GDC.

The MNGP USAR, Section 1.2, lists the Principal Design Criteria (PDC) for the design, construction and operation of the plant. MNGP USAR Appendix E provides a plant comparative evaluation to the 70 proposed AEC design criteria. It was concluded that the plant conforms to the intent of the GDC. The applicable GDC and PDC associated with reactivity control are discussed below.

- PDC 1.2.2 – Reactor Core

- e. The reactor core is designed so that control rod action, with the maximum worth control rod fully withdrawn and unavailable for use, is capable of bringing the reactor core subcritical and maintaining it so from any power level in the operating cycle.
- i. The reactor core and associated systems are designed to accommodate plant operational transients or maneuvers which might be expected without compromising safety and without fuel damage.

The applicable 70 Draft AEC General Design Criteria (AEC-GDC) are:

- Criterion 28 - Reactivity Hot Shutdown Capability (Category A)

At least two of the reactivity control systems provided shall independently be capable of making and holding the core subcritical from any hot standby or hot operating condition, including those resulting from power changes, sufficiently fast to prevent exceeding acceptable fuel damage limits.

- Criterion 29 - Reactivity Shutdown Capability (Category A)

At least one of the reactivity control systems provided shall be capable of making the core subcritical under any condition (including anticipated operational transients) sufficiently fast to prevent exceeding acceptable fuel damage limits. Shutdown margins greater than the maximum worth of the most efficient control rod when fully withdrawn shall be provided.

- Criterion 30 - Reactivity Holddown Capability (Category B)

At least one of the reactivity control systems provided shall be capable of making and holding the core subcritical under any conditions with appropriate margins for contingencies.

As discussed in the model safety evaluation for TSTF-535, Revision 0, the following 10 CFR 50, Appendix A, General Design Criteria are applicable.

- General Design Criterion 26 - Reactivity control system redundancy and capability.

Two independent reactivity control systems of different design principles shall be provided. One of the systems shall use control rods, preferably including a positive means for inserting the rods, and shall be capable of reliably controlling reactivity changes to assure that under conditions of normal operation, including anticipated operational occurrences, and with appropriate margin for malfunctions such as stuck rods, specified acceptable fuel design limits are not exceeded. The second reactivity control system shall be capable of reliably controlling the rate of reactivity changes resulting from planned, normal power changes (including xenon burnout) to assure acceptable fuel design limits are not exceeded. One of the systems shall be capable of holding the reactor core subcritical under cold conditions.

- General Design Criterion 27- Combined reactivity control systems capability

The reactivity control systems shall be designed to have a combined capability, in conjunction with poison addition by the emergency core cooling system, of reliably controlling reactivity changes to assure that under postulated accident conditions and with appropriate margin for stuck rods the capability to cool the core is maintained.

In accordance with the model safety evaluation, GDC 26 and 27 require that reactivity within the core be controllable to ensure subcriticality is achievable and maintainable under cold conditions, with appropriate margin for stuck rods; and that reactivity within the core be controllable to assure that under postulated accident conditions and with appropriate margin for stuck rods the capability to cool the core is maintained. The proposed revisions are acceptable and will provide a conservative and improved approach to the calculation of SDM that ensures use of the appropriate limiting conditions for all fuel types at any time in the life of the core, and ensure compliance with GDC 26 and GDC 27.

NSPM has evaluated the proposed changes against the applicable regulatory requirements and acceptance criteria. The technical analysis concludes that the proposed TS changes will continue to assure that the design requirements and acceptance criteria for MNGP are met. Based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the approval of the proposed change will not be inimical to the common defense and security or to the health and safety of the public.

4.0 ENVIRONMENTAL EVALUATION

The proposed changes would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed changes do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed changes meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed changes.

5.0 REFERENCES

1. NRC Approved Revision 0 to Technical Specification Task Force (TSTF) Improved Standard Technical Specification Change Traveler, TSTF-535, "Revise Shutdown Margin Definition to Address Advanced Fuel Designs."
2. Federal Register Notice published on February 26, 2013 [78 FR 13100], NRC Notice of Availability for 'Models for Plant-Specific Adoption of Technical Specifications Task Force Traveler TSTF-535, Revision 0, "Revise Shutdown Margin Definition to Address Advanced Fuel Designs," Using the Consolidated Line Item Improvement Process.'
3. 'Model Safety Evaluation for Plant-Specific Adoption of Technical Specifications Task Force Traveler TSTF-535, Revision 0, "Revise Shutdown Margin Definition to Address Advanced Fuel Designs," Using the Consolidated Line Item Improvement Process,' dated February 19, 2013 (Adams Accession No. 12355A772)

ENCLOSURE 2

MONTICELLO NUCLEAR GENERATING PLANT

LICENSE AMENDMENT REQUEST

**ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE (TSTF) TRAVELER
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MARKED-UP TECHNICAL SPECIFICATION PAGE

(1 page follows)

1.1 Definitions

OPERABLE – OPERABILITY	A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 1775 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from initiation of any RPS channel trip to the de-energization of the scram pilot valve solenoids. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
SHUTDOWN MARGIN (SDM)	SDM shall be the amount of reactivity by which the reactor is subcritical or would be subcritical throughout the operating cycle assuming that: <ul style="list-style-type: none"> a. The reactor is xenon free; b. The moderator temperature is $\geq 68^{\circ}\text{F}$ corresponding to the most reactive state; and c. All control rods are fully inserted except for the single control rod of highest reactivity worth, which is assumed to be fully withdrawn. With control rods not capable of being fully inserted, the reactivity worth of these control rods must be accounted for in the determination of SDM.
STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during n Surveillance Frequency intervals, where n is the total number of systems, subsystems, channels, or other designated components in the associated function.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.