Xcel Energy®

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

October 30, 2012

L-MT-12-091
10 CFR 50.90

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

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

Monticello Extended Power Uprate: Supplement to Revise Technical Specification Setpoint for the Automatic Depressurization System Bypass Timer (TAC MD9990)

References: 1) Letter from T J O'Connor (NSPM) to Document Control Desk (NRC), "License Amendment Request: Extended Power Uprate (TAC MD9990)," L-MT-08-052, dated November 5, 2008. (ADAMS Accession No. ML083230111)

2) Letter from T J O'Connor (NSPM) to Document Control Desk (NRC), "License Amendment Request: Maximum Extended Load Line Limit Analysis Plus," L-MT -10-003, dated January 21, 2010. (ADAMS Accession No. ML 100280558)

Pursuant to 10 CFR 50.90, the Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, requested in Reference 1 an amendment to the Monticello Nuclear Generating Plant (MNGP) Renewed Operating License (OL) and Technical Specifications (TS) to increase the maximum authorized power level from 1775 megawatts thermal (MWt) to 2004 MWt. This is called an extended power uprate (EPU).

Pursuant to 10 CFR 50.90, NSPM requested in Reference 2 an amendment to the MNGP Renewed OL and TS to allow operation within the Maximum Extended Load Line Limit Analysis Plus (MELLLA+) operating domain.

The NRC has permitted the linking of these two applications by letter dated November 23, 2009.

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The purpose of this letter is to request a revision to the TS changes proposed under the EPU license amendment request provided in Reference 1. This proposed TS change will modify TS 3.3.5.1, "Emergency Core Cooling System (ECCS) Instrumentation." Specifically, this proposed change will revise the allowable value limit for Functions 1.e and 2.e, "Reactor Steam Dome Pressure Permissive - Bypass Timer (Pump Permissive)," in Table 3.3.5.1-1 of Specification 3.3.5.1. This function was added to the MNGP TS in response to Three Mile Island NUREG-0737 action items, Item II.K.3.18 – Modification of Automatic Depressurization System [ADS] Logic – Feasibility for Increased Diversity for Some Event Sequences. The requested revision is necessary due to changes required in the analyses used to support operating at EPU and MELLLA+ conditions for MNGP.

Enclosure 1 provides a description of the proposed changes and includes the technical evaluation and associated no significant hazards determination and environmental evaluations. Enclosure 2 provides a marked-up copy of the TS pages showing the proposed changes. Enclosure 3 provides a marked-up copy of the TS Bases pages showing the proposed changes.

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

Summary of Commitments

This letter makes no new commitments and no revisions to existing commitments.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: October 30, 2012

For MAS

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

Enclosures (3)

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

ENCLOSURE 1

PROPOSED TECHNICAL SPECIFICATION CHANGES TO REVISE THE ALLOWABLE VALUE FOR THE AUTOMATIC DEPRESSURIZATION SYSTEM BYPASS TIMER

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PROPOSED TECHNICAL SPECIFICATION CHANGES TO REVISE THE ALLOWABLE VALUE FOR THE AUTOMATIC DEPRESSURIZATION SYSTEM BYPASS TIMER

1.0 SUMMARY DESCRIPTION

Pursuant to 10 CFR 50.90, the Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, requested in Reference 1 an amendment to the Monticello Nuclear Generating Plant (MNGP) Renewed Operating License (OL) and Technical Specifications (TS) to increase the maximum authorized power level from 1775 megawatts thermal (MWt) to 2004 MWt, called an extended power uprate (EPU).

Pursuant to 10 CFR 50.90, NSPM requested in Reference 1.1 an amendment to the MNGP Renewed OL and TS to allow operation within the Maximum Extended Load Line Limit Analysis Plus (MELLLA+) operating domain.

The NRC has permitted the linking of these two applications by letter dated November 23, 2009 (Reference 1.2).

While performing reviews in support of the proposed EPU, NSPM discovered that MNGP Technical Specification (TS) 3.3.5.1, "Emergency Core Cooling System (ECCS) Instrumentation" required revision to support EPU and MELLLA+ operation. Specifically, NSPM found that the analytical limit for Functions 1.e and 2.e, "Reactor Steam Dome Pressure Permissive - Bypass Timer (Pump Permissive)," (hereafter referred to as the Automatic Depressurization System (ADS) bypass timer) in Table 3.3.5.1-1 of Specification 3.3.5.1 must decrease to support plant operation during EPU and MELLLA+ conditions. After setpoint calculations were performed, NSPM proposes to revise the allowable value limit of "≤ 22 minutes" to "≤ 18 minutes". .

This function was added to the MNGP TS in response to Three Mile Island (TMI) Action Plan, Item II.K.3.18, which concerns logic modifications to eliminate manual ADS actuation for some postulated event sequences.

This evaluation includes the effects of both the EPU and MELLLA+ LARs. However, due to the linked amendment status of these two LARs, NSPM has chosen to place the TS changes under the EPU LAR only, as it is not necessary to duplicate the TS changes for the MELLLA+ LAR. Therefore, only the EPU LAR is supplemented and the MELLLA+ LAR is not required to be supplemented.

2.0 BACKGROUND

In response to NUREG-0737, Item II.K.3.18, "Modification of Automatic Depressurization System Logic - Feasibility for Increased Diversity for Some Event Sequences" (Reference 2), Northern States Power (NSP)[1] participated in a Boiling Water Reactor (BWR) Owners Group program to study ADS logic alternatives which would eliminate the need for manual actuation to assure adequate core cooling for some postulated event sequences. The TMI Action Plan Item II.K.3.18 position states:

> *The automatic depressurization system (ADS) actuation logic should be modified to eliminate the need for manual actuation to assure adequate core cooling. A feasibility and risk assessment study is required to determine the optimum approach. One possible scheme that should be considered is ADS actuation on low reactor-vessel water level provided no high-pressure coolant injection (HPCI) or high-pressure coolant system (HPCS) flow exists and a low-pressure emergency core cooling (ECC) system is running.*

This logic was designed to complement, not replace, the then existing ADS actuation logic. In 1982, the BWR Owners Group proposed ADS logic modifications to satisfy NUREG-0737, Item II.K.3.18 requirements (Reference 3). The NRC Staff reviewed the ADS logic alternatives and transmitted to NSP their evaluation in a letter dated June 13, 1983 (Reference 4) indicating the NRC approved choices. For BWR/3 plants, such as MNGP, to implement the options found acceptable by the Staff, further work was required to develop modifications to the start logic for the low pressure ECCS pumps.

By letter dated October 24, 1984, "Implementation of NUREG-0737, Item II.K.3.18, ADS Logic Modifications", (Reference 5), NSP indicated that Option 2B from a GE report, "Modification of ECCS Pump Start Logic," (Reference 6), had been selected for implementation at MNGP. In support of Option 2B a detailed analysis to determine the ADS bypass timer setting was performed by General Electric (GE) for NSP (Reference 7). Both GE reports were provided to the NRC in the October 24, 1984, NSP letter. The NRC Staff found the proposed modifications acceptable (Reference 8) and the modifications were installed during the 1986 refueling outage. Subsequently, TS changes to incorporate the ADS bypass timer function in the MNGP TS were submitted and approved by the NRC on March 31, 1989, as Amendment 62 to the MNGP Facility Operating License (Reference 9).

In Amendment 170 dated September 7, 2012 (Reference 10), NSPM received approval from the NRC to remove the lower allowable value limit for TS Functions 1.e and 2.e, "Reactor Steam Dome Pressure Permissive -Bypass Timer (Pump Permissive)," in Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation."

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[1] Northern States Power was a predecessor licensee to Northern States Power Company - Minnesota.

3.0 DETAILED DESCRIPTION

The proposed TS change revises the allowable value for Functions 1.e and 2.e, "Reactor Steam Dome Pressure Permissive - Bypass Timer (Pump Permissive), in Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation." The proposed change to the allowable value for the Core Spray and Low Pressure Coolant Injection (LPCI) Systems is shown below:

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1.	Core Spray System					
	e. Reactor Steam Dome Pressure Permissive - Bypass Timer (Pump Permissive)	1, 2, 3	2	C	SR 3.3.5.1.7 SR 3.3.5.1.8	≤ ~~22~~ 18 minutes
		4[(a)], 5[(a)]	2	B	SR 3.3.5.1.7 SR 3.3.5.1.8	≤ ~~22~~ 18 minutes
	...					
2.	LPCI System					
	e. Reactor Steam Dome Pressure Permissive - Bypass Timer (Pump Permissive)	1, 2, 3	2	C	SR 3.3.5.1.7 SR 3.3.5.1.8	≤ ~~22~~ 18 minutes
		4[(a)], 5[(a)]	2	B	SR 3.3.5.1.7 SR 3.3.5.1.8	≤ ~~22~~ 18 minutes

(a) When associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2, "ECCS - Shutdown."

The TS changes (mark-ups) are provided in Enclosure 2.

The corresponding TS Bases changes (markups) are provided in Enclosure 3, for information only. The TS Bases changes will be issued in accordance with the MNGP TS section 5.5.9, "Technical Specification (TS) Bases Control Program," following approval of the EPU license amendment request (LAR).

4.0 ADS DESCRIPTION AND DESIGN/LICENSING FUNCTIONS SUMMARY

The ADS, a part of the ECCS network, is an automatic actuation logic system that through operation of selected safety/relief valves (S/RVs) provides a backup to the high pressure injection systems, e.g., High Pressure Coolant Injection (HPCI), feedwater, and Reactor Core Isolation Cooling (RCIC) systems. Three S/RVs (RV-2-71A, C and D) perform the ADS function. The ADS is designed to depressurize the reactor during a small break Loss of Coolant Accident (LOCA) so the low pressure systems[2] can inject if HPCI fails or is unable to maintain Reactor Pressure Vessel (RPV) water level. ADS logic monitors the discharge pressures of the four LPCI and two Core Spray pumps. These signals are used as a permissive for ADS actuation, indicating there is a source of coolant available once ADS has depressurized the vessel.

Prior to the addition of the ADS logic modifications (includes the ECCS pump start modifications) for MNGP, ADS activated automatically upon coincident signals of reactor low-low water level, high drywell pressure, and a low pressure ECCS (Core Spray or LPCI) pump running.

Following the ADS (and ECCS pump start) logic modifications, ADS activates upon signals indicating:

1) Reactor low-low water level (TS Allowable Value $\geq$ -48 inches), and

2) At least one LPCI or Core Spray pump running with a nominal discharge pressure of 100 psig (blowdown permissive interlock)

   The LPCI and Core Spray pumps automatically start on high drywell pressure (TS Allowable Value $\leq$ 2.0 psig) alone or reactor low-low water level sustained for approximately 20 minutes (ADS bypass timer).

This logic arrangement maintains the original design philosophy of minimizing the potential for unnecessary ECCS pump starts at high reactor pressure. A time delay of approximately 2 minutes after receipt of the signals allows the operator to reset the logic and prevent an automatic blowdown if the water level in the RPV is being restored or if the signals are erroneous. A manual inhibit switch was added to the ADS initiation logic to provide the operator sufficient time to assess the situation and inhibit ADS actuation if reactor water level is expected to be recovered (e.g., injection systems are being restored), the event does not require rapid reactor depressurization, or depressurization by ADS should not be performed.

ADS operation precludes the operator from being able to direct events and control the rate of blowdown. Slower depressurization is desirable in that it reduces the possibility of exceeding vessel integrity limits by rapid cooldown. Also, in many Emergency Operating Procedure (EOP) scenarios, action is taken by an operator to inhibit ADS.

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[2] The low pressure systems are the LPCI mode of Residual Heat Removal (RHR) and Core Spray.

Additionally, depressurization is not prudent in some scenarios, such as during some Anticipated Transients without Scram (ATWS) events and should be avoided.

The additional logic does not affect the high drywell pressure-reactor low-low water level initiation sequence insofar as it responds to pipe breaks inside the drywell. The addition of a manual inhibit switch to the ADS initiation logic does not affect the automatic ADS response to isolation or LOCA events.

Recently, a revised analysis was performed taking into account EPU conditions and parameters (see section 5.0 for details). The results of this analysis revised the analytical limit to 19.3 minutes. The analytical limit accounts for relay delays and some margin to accommodate lower acceptance criteria. After application of the MNGP setpoint methodology NSPM is requesting that the TS allowable value change to ≤18 minutes.

The time delay of approximately 18 minutes for the ADS bypass timer allowable value setpoint was chosen to be long enough so that HPCI has sufficient time to recover RPV water level to above low-low, yet not so long that LPCI and Core Spray are unable to adequately cool the core (limit Peak Cladding Temperature (PCT) to less than 2200°F) if HPCI fails to maintain level.

5.0 TECHNICAL EVALUATION

In response to NUREG-0737, Item II.K.3.18, "Modification of Automatic Depressurization System Logic - Feasibility for Increased Diversity for Some Event Sequences" (Reference 2), various ADS actuation alternatives were developed by the BWR Owner's Group, approved by the NRC, and selected by licensees to meet TMI Action Plan requirements. To implement the option chosen by MNGP (Option 2B), modifications were required to the low pressure ECCS pump start logic, and analysis was required to determine the analytical limit for the ADS bypass timer setting. From this analytical limit the instrument setpoint determination process establishes the TS allowable value.

The allowable value for the ADS bypass timer, also known as the "Reactor Steam Dome Pressure Permissive - Bypass Timer (Pump Permissive)," Functions 1.e and 2.e in Table 3.3.5.1-1, is currently expressed in the Monticello TS as an allowable value of "$\leq$ 22 minutes."

5.1 Revised ADS Bypass Timer Analysis for EPU and MELLLA+ Conditions

Two specific calculations were performed at EPU and MELLLA+ power conditions to determine the revised setpoint for the ADS bypass timer. First, a calculation was performed to determine the limiting break and the time for the PCT to reach 2200°F[3]. Then the output of this calculation was used to determine the plant specific settings for the MNGP ADS bypass timer relay. Below are the results of those calculations.

5.1.1 Calculation of Limiting Break and Time for PCT to reach 2200°F

A plant specific calculation was performed at EPU and MELLLA+ power conditions for the Reactor Water Cleanup (RWCU) and Main Steam line break outside containment events to determine the time for the PCT to reach 2200°F.

Approved ECCS evaluation models were used for the calculation of limiting break. The time for PCT to reach 2200°F is the total time from the start of the LOCA event and includes the time delay from the break occurrence to the ADS bypass timer initiation, the ADS bypass timer, the ECCS pump start time and the ADS actuation timer.

Based on the calculation, the limiting time for the PCT to reach 2200°F was determined by the RWCU line break event outside containment utilizing the following parameters in Table 5.1.1-1:

[3] The 10CFR50.46 limit for PCT.

Table 5.1.1-1 – Inputs for RWCU Line Break Outside Containment

Parameter	Input Value
Initial reactor water level	scram level – low water level
break size*	0.05 ft^2
break flow	478 lb/sec
RWCU isolation valves closure initiation	15 second delay
RWCU isolation valve closure stroke time	40 seconds
RWCU isolation valve closure profile^	gate valve closure profile
Feedwater flow	lost within one second after the break occurs
HPCI and RCIC systems	unavailable
LPCI and CS systems	available for inventory makeup when the reactor is depressurized

* Break size is reduced from 0.08 ft^2 due to flow resistance. This is acceptable because the calculation uses system resistance to define the limiting break flow. Therefore the circumferential break area is reduced to match the break flow rate that results from use of system resistance.

^ The gate valve closure profile assumes the break flow area to have no reduction until the RWCU isolation valve is fully closed where the linear valve closure profile assumes a linear break flow area reduction from 0 to 40 seconds.

The RWCU line break limiting scenario determined from this calculation was 1579 seconds (26.3 minutes)[4] to meet a PCT of 2200°F. The limiting scenario used MELLLA+ conditions (EPU flows with MELLLA+ conditions applied). A limiting value of ≤ 26.3 minutes meets the acceptance criteria for the calculation, e.g. meets a PCT of ≤ 2200°F. See Figure 1. The limit provides sufficient margin to assure that the events outside containment can be mitigated and do not become limiting events for plant safety analyses.

5.1.2 Plant Specific Settings for the MNGP ADS Bypass Timer Relay

NSPM completed a calculation to determine the effects of EPU and MELLLA+ conditions on the ADS Bypass timer setpoint. The setpoint calculation was performed in accordance with General Electric Setpoint Methodology. The General Electric Setpoint Methodology is a statistically based methodology. It recognizes that most of the uncertainties that affect instrument performance are subject to random behavior, and utilize statistical (probability) estimates of the various uncertainties to achieve conservative, but reasonable, predictions of instrument channel uncertainties. The objective of the statistical approach to

[4] The limiting Main Steam line break outside containment took 1935 seconds (32.3 minutes) to reach 2200°F.

setpoint calculations is to achieve a workable compromise between the need to ensure instrument trips when appropriate, and the need to avoid spurious trips that may unnecessarily challenge safety systems or disrupt plant operation. Use of this methodology for MNGP TS setpoints was approved by the NRC in Reference 11.

The setpoint and instrument settings were established such that there is a 95% probability that the constructed Analytical Limit will envelop 95% of the instrument population of interest when all applicable instrumentation uncertainties are considered.

From above, it was determined that the bounding scenario (a RWCU break under MELLLA+ conditions using a gate valve closing profile) yielded a time of 1579 seconds (26.3 minutes) to reach 2200°F. From data provided with the above calculation it is also shown that it takes approximately 1350 seconds (22.5 minutes) to reach 1500°F (See Figure 1). In order to provide additional conservatism in the time to cool the core, it was decided that the actuation of ADS should occur prior to reaching 1500°F. Thus 22.5 minutes becomes the bounding limit for the scenario based on not exceeding 1500°F.

In the setpoint calculation, the 1350 seconds (22.5 minutes) bounding limit for the scenario is further reduced based on consideration for the following delays listed in Table 5.1.2-1 – ADS Function Initiation Delays.

Table 5.1.2-1 – ADS Function Initiation Delays

Delay	Value
Time to reach low-low Reactor Water level signal	36 seconds from event initiation
Time required for ECCS pumps to reach rated speed	18 seconds
ADS timer delay	138 seconds

Removing these delays from the 1350 seconds limit yielded 1158 seconds (19.3 minutes). This value became the Analytical Limit used for calculation of the ADS bypass timer setting.

From the ADS bypass timer analytical limit, through application of the General Electric Setpoint Methodology, the ADS bypass timer setting calculation determined the following values listed in Table 5.1.2-2 – ADS Bypass Timer Settings:

Table 5.1.2-2 – ADS Bypass Timer Settings

Limit/Setting	Value
Allowable Value (TS limit)	18.13 minutes (18 minutes was used)
Nominal Trip Setpoint	18.14 minutes (18 minutes was used)
Operating Setpoint	15.92 minutes rounded down to 15 minutes for conservatism
As-Found Tolerance	13.46 minutes to 16.61 minutes
As-Left limits	±1.0 minute

Based on these results, NSPM has established a proposed trip setting (TS limit) of ≤ 18 minutes for the ADS bypass timer setpoint. This will ensure peak cladding temperature (PCT) remains well below the 10 CFR 50.46 limit for PCT of 2200°F during EPU and MELLLA+ operating conditions.

5.2 TSTF-493 Considerations

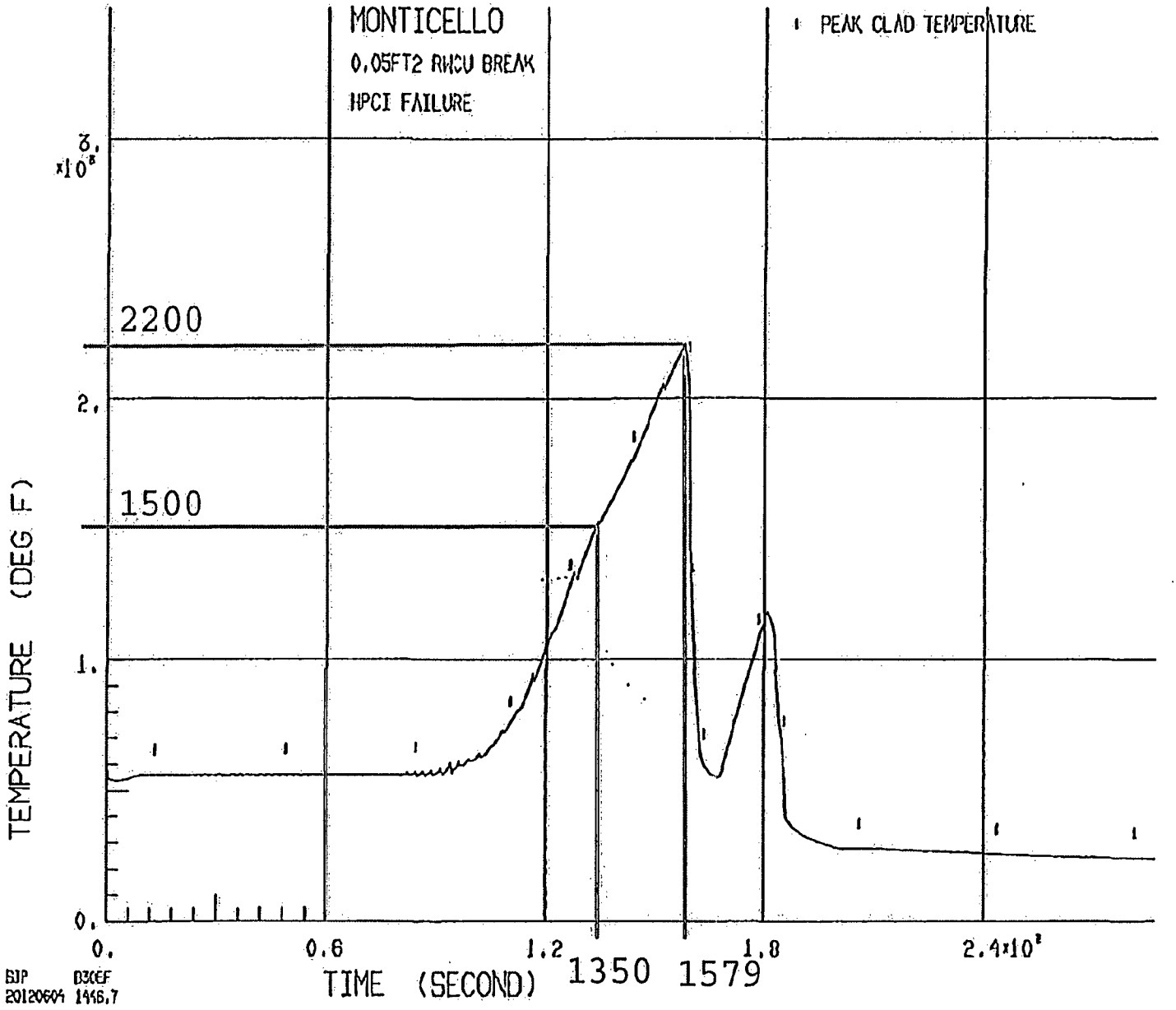
NSPM is aware of the NRC position to encourage TSTF-493 (Reference 12), adoption by requiring licensees to provide a determination for each instrumentation function proposed for revision, as to whether the function is a Limiting Safety System Setting (LSSS) that protects a safety limit. It has been indicated in several previous instrumentation related submittals that NSPM intended to adopt TSTF-493 for MNGP, once approved.

A review of the TSTF-493 traveler for this particular instrument function indicates that this function is not an LSSS that protects a safety limit. Attachment A to TSTF-493, Revision 4, entitled "Identification of Functions to be Annotated with TSTF-493 Footnotes," identifies those functions that are LSSS. Under the Attachment A listing for NUREG-1433 (BWR/4 plants), Specification 3.3.5.1, "Emergency Core Cooling System Instrumentation," for the corresponding function, "Automatic Depressurization System Low Water Level Actuation Timer," it is stated that it is "Actuation logic excluded from footnotes." Consequently, this function is not a LSSS and no change to the TS is required with respect to this function.

5.3 Conclusion

From the analytical limit, the instrument setpoint determination process establishes an acceptable TS allowable value. Maintaining an allowable value below this limit ensures that the PCT will remain less than 2200°F, the safety basis for this function in the safety analyses. Hence, the TS allowable value should be changed to "≤ 18 minutes" to meet the safety analysis performed above.

Figure 1 –RWCU Break Scenario PCT Results



Peak Clad Temperature
EPU, Reactor Water Clean Up Line Break Outside Containment, HPCI Single Failure
GE14 Fuel, (2 CS + 4 LPCI + 3 ADS) Available, Appendix K Assumptions

6.0 REGULATORY ANALYSIS

The applicable regulatory requirements, together with the no significant hazards determination and environmental evaluations are provided in the following sections.

6.1 No Significant Hazards Determination

In accordance with the requirements of 10 CFR 50.90, the Northern States Power Company - Minnesota (NSPM) requests an amendment to facility Renewed Operating License DPR-22, to revise the Monticello Nuclear Generating Plant (MNGP) Technical Specifications (TSs). Specifically, NSPM proposes to revise the allowable value for Functions 1.e and 2.e, "Reactor Steam Dome Pressure Permissive - Bypass Timer (Pump Permissive)," in Table 3.3.5.1-1 of Specification 3.3.5.1, "Emergency Core Cooling System (ECCS) Instrumentation."

This proposed change is associated with the extended power uprate (EPU) application previously documented in a letter to the NRC dated November 5, 2008 and the maximum extended load line limit plus (MELLLA+) application dated January 21, 2010. The NRC has permitted the linking of these applications by letter dated November 23, 2009.

NSPM has evaluated the proposed change to the TS in accordance with 10 CFR 50.91 against the standards in 10 CFR 50.92 and has determined that the operation of the MNGP in accordance with the proposed amendment presents no significant hazards. NSPM's evaluation against each of the criteria in 10 CFR 50.92 follows. Since a No Significant Hazards Determination (NSHD) was previously proposed for the EPU LAR, this NSHD is a supplement to that previously provided to the NRC. Likewise, the NSHD for the MELLLA+ LAR is not affected, and need not be supplemented because the proposed TS changes (and associated evaluations) need only one NSHD, which is provided 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 does not alter any design or functional requirements of the Automatic Depressurization System (ADS). The proposed change only modifies the setpoint of the Reactor Steam Dome Pressure Permissive - Bypass Timer (Pump Permissive) to account for EPU and MELLLA+ conditions. The proposed change does not degrade the performance or increase the challenges to any safety systems assumed to function in the accident analysis. There is no effect on the probability of any event initiators. There is no change to normal plant operating parameters or accident mitigation performance.

Therefore, there is not 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

   There are no changes in the method by which plant systems perform a safety function. The proposed change only modifies the setpoint of the Reactor Steam Dome Pressure Permissive - Bypass Timer (Pump Permissive) to account for EPU and MELLLA+ conditions. This request does not affect the normal method of plant operation. No new equipment is introduced which could create a new or different kind of accident. No new equipment failure modes are created. No new accident scenarios, transient precursors, failure mechanisms, or limiting single failures are introduced.

   Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

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

   Response: No

   The proposed change does not affect the assumptions of the safety analysis or the availability or operability of any plant equipment. The proposed change only modifies the setpoint of the Reactor Steam Dome Pressure Permissive - Bypass Timer (Pump Permissive) to account for EPU and MELLLA+ conditions. There is no reduction in the margin of safety because the criteria for the performance of the ADS are not changed and there are no changes to those plant systems necessary to assure the accomplishment of protection functions.

   For these reasons, the proposed amendment does not involve a significant reduction in a margin of safety.

Based on the above, NSPM has determined that operation of the facility in accordance with the proposed change does not involve a significant hazards consideration as defined in 10 CFR 50.92(c), in that it does not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

6.2 Applicable Regulatory Requirements

10 CFR 50.36, "Technical Specifications," provides the regulatory requirements for the content required in the TSs. As stated in 10 CFR 50.36, the TSs will include Surveillance Requirements (SRs) to assure that the limiting conditions for operation (LCO) (and associated remedial actions) are met.

The MNGP was designed largely before the publishing of the 70 General Design Criteria (GDC) for Nuclear Power Plant Construction Permits proposed by the Atomic Energy Commission for public comment in July 1967, and constructed prior to the 1971 publication of Appendix A, "General Design Criteria for Nuclear Power Plants," to, 10 CFR Part 50. As such, the MNGP was not licensed to the Appendix A, General Design Criteria (GDC).

The EPU LAR (Reference 1) provided detailed evaluations of the MNGP applicable GDCs and is not reproduced in this supplement. NSPM has evaluated the proposed changes against the applicable regulatory requirements and acceptance criteria provided in the EPU LAR and determined that this setpoint change does not affect the design of the ADS, and that its use is consistent with the applicable regulatory criteria described in the EPU LAR. In addition, the technical analysis in Section 5.0 above concludes that, with the proposed changes, the system will continue to assure that the design requirements and acceptance criteria of the ECCS are met. Based on this, there is reasonable assurance that the health and safety of the public, following approval of this change, is unaffected.

7.0 ENVIRONMENTAL EVALUATION

NSPM has determined that the proposed change would not revise a requirement with respect to installation or use of a facility or component located within the restricted area, as defined in 10 CFR 20, nor would it change an inspection or surveillance requirement. The proposed amendment does not involve (i) a significant hazards consideration, or (ii) authorize a significant change in the types or a significant increase in the amounts of any effluent that may be released offsite, or (iii) result in a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for a categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, NSPM concludes that pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment. The proposed change does not alter the environmental assessment performed in support of the EPU LAR.

8.0 REFERENCES

1. Letter from T J O'Connor (NSPM) to Document Control Desk (NRC), "License Amendment Request: Extended Power Uprate (TAC MD9990)," L-MT-08-052, dated November 5, 2008. (ADAMS Accession No. ML083230111)

1.1 Letter from T J O'Connor (NSPM) to Document Control Desk (NRC), "License Amendment Request: Maximum Extended Load Line Limit Analysis Plus," L-MT - 10-003, dated January 21, 2010. (ADAMS Accession No. ML100280558)

1.2 Letter from J G Giitter (NRC) to T J O'Connor (NSPM), "Subject: Monticello Nuclear Generating Plant – Linking of the Proposed Extended Power Uprate Amendment and the MELLLA+ Amendment (TAC Nos. MD9990 and ME2449)," dated November 23, 2009. (ADAMS Accession No. ML093160816)

2. NUREG-0737, "Clarification of TMI Action Plan Requirements", November 1980.

3. Letter from T J Dente (BWROG) to D G Eisenhut (NRC), "Subject: NUREG-0737 Item II.K.3.18, 'Modification of Automatic Depressurization System Logic' ", BWR Owners Group, BWROG-8260, October 28, 1982.

4. Letter from D B Vassallo (NRC) to D M Musolf (NSP), "NUREG-0737, Item II.K.3.18, "ADS Logic Modifications", dated June 13, 1983.

5. Letter from D M Musolf (NSP) to D B Vassallo (NRC), "Implementation of NUREG-0737, Item II.K.3.18, ADS Logic Modifications", dated October 24, 1984.

6. General Electric Report AE-06-0184, Revision 1, "Modification of ECCS Pump Start Logic", dated July 1984.

7. General Electric Report AE-79-0884, "Bypass Timer Calculation for the ADS/ECCS Modification for Monticello," dated August 29, 1984.

8. Letter from D B Vassallo (NRC) to D M Musolf (NSP), "Subject: NUREG-0737, Item II.K.3.18, ADS Logic Modification", dated January 29, 1985.

9. Letter from J J Stefano (NRC) to D M Musolf (NSP), "Subject: Amendment No. 62 to Facility Operating License No. DPR-22 (TAC No. 65572)," dated March 31, 1989.

10. Letter from P S Tam (NRC) to M A Schimmel (NSPM), "Subject: Monticello Nuclear Generating Plant – Issuance of Amendment Regarding the Automatic Depressurization System Bypass Timer (TAC No. ME8345)," dated September 7, 2012. (ADAMS Accession No. ML12220A280)

11. Letter from J F Stang (NRC) to J T Conway (NSPM), "Subject: Monticello Nuclear Generating Plant – Issuance of Amendment RE: Implementation of 24-Month Fuel Cycles (TAC No. MC3692)," dated September 30, 2005. (ADAMS Accession No. ML052700252)

12. Technical Specification Taskforce Traveler Improved Standard Technical Specifications Change Traveler, TSTF - 493, Revision 4, "Clarify Application of Setpoint Methodology for LSSS Functions."

L-MT-12-091

ENCLOSURE 2

SUPPLEMENT TO
EXTENDED POWER UPRATE LICENSE AMENDMENT REQUEST

REVISE ALLOWABLE VALUE FOR THE
AUTOMATIC DEPRESSURIZATION SYSTEM BYPASS TIMER

MARKED-UP TECHNICAL SPECIFICATION PAGES

3.3.5.1-6
3.3.5.1-8

2 pages follow

Table 3.3.5.1-1 (page 1 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Vessel Water Level - Low Low	1, 2, 3, 4[a], 5[a]	4[b]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.7 SR 3.3.5.1.8	≥ -48 inches
b. Drywell Pressure - High	1, 2, 3	4[b]	B	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.8	≤ 2 psig
c. Reactor Steam Dome Pressure - Low (Injection Permissive)	1, 2, 3	2	C	SR 3.3.5.1.2 SR 3.3.5.1.4[c][d] SR 3.3.5.1.8	≥ 397 psig and ≤ 440 psig
	4[a], 5[a]	2	B	SR 3.3.5.1.2 SR 3.3.5.1.4[c][d] SR 3.3.5.1.8	≥ 397 psig and ≤ 440 psig
d. Reactor Steam Dome Pressure Permissive - Low (Pump Permissive)	1, 2, 3	2	C	SR 3.3.5.1.2 SR 3.3.5.1.4[c][d] SR 3.3.5.1.8	≥ 397 psig
	4[a], 5[a]	2	B	SR 3.3.5.1.2 SR 3.3.5.1.4[c][d] SR 3.3.5.1.8	≥ 397 psig
e. Reactor Steam Dome Pressure Permissive - Bypass Timer (Pump Permissive)	1, 2, 3	2	C	SR 3.3.5.1.7 SR 3.3.5.1.8	≤ ~~22~~ minutes
	4[a], 5[a]	2	B	SR 3.3.5.1.7 SR 3.3.5.1.8	≤ ~~22~~ minutes

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(a) When associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2, "ECCS - Shutdown."

(b) Also required to initiate the associated emergency diesel generator (EDG).

(c) If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

(d) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the nominal trip setpoint; otherwise, the channel shall be declared inoperable. The nominal trip setpoint and the methodology used to determine the as-found tolerance and the as-left tolerance are specified in the Technical Requirements Manual (TRM).

Table 3.3.5.1-1 (page 3 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System					
e. Reactor Steam Dome Pressure Permissive - Bypass Timer (Pump Permissive)	1, 2, 3	2	C	SR 3.3.5.1.7 SR 3.3.5.1.8	≤ ~~22~~ minutes
	4[a], 5[a]	2	B	SR 3.3.5.1.7 SR 3.3.5.1.8	≤ ~~22~~ minutes
f. Low Pressure Coolant Injection Pump Start - Time Delay Relay	1, 2, 3, 4[a], 5[a]	4 per pump	B	SR 3.3.5.1.7 SR 3.3.5.1.8	
Pumps A, B					≤ 5.33 seconds
Pumps C, D					≤ 10.59 seconds
g. Low Pressure Coolant Injection Pump Discharge Flow - Low (Bypass)	1, 2, 3, 4[a], 5[a]	1 per pump	E	SR 3.3.5.1.2 SR 3.3.5.1.7 SR 3.3.5.1.8	≥ 360 gpm and ≤ 745 gpm
h. Reactor Steam Dome Pressure - Low (Break Detection)	1, 2, 3	4	B	SR 3.3.5.1.2 SR 3.3.5.1.7 SR 3.3.5.1.8	≥ 873.6 psig and ≤ 923.4 psig
i. Recirculation Pump Differential Pressure - High (Break Detection)	1, 2, 3	4 per pump	C	SR 3.3.5.1.2 SR 3.3.5.1.7 SR 3.3.5.1.8	≥ 63.5 inches wc
j. Recirculation Riser Differential Pressure - High (Break Detection)	1, 2, 3	4	C	SR 3.3.5.1.2 SR 3.3.5.1.7[c][d] SR 3.3.5.1.8	≤ 100.0 inches wc

(a) When associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2.

(c) If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

(d) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance of the nominal trip setpoint; otherwise, the channel shall be declared inoperable. The nominal trip setpoint and the methodology used to determine the as-found tolerance and the as-left tolerance are specified in the TRM.

L-MT-12-091

ENCLOSURE 3

SUPPLEMENT TO
EXTENDED POWER UPRATE LICENSE AMENDMENT REQUEST

REVISE ALLOWABLE VALUE FOR THE
AUTOMATIC DEPRESSURIZATION SYSTEM BYPASS TIMER

MARKED-UP TECHNICAL SPECIFICATION BASES PAGE

B 3.3.5.1-12

1 page follows

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The Allowable Value is high enough to ensure that the ECCS injection prevents the fuel peak cladding temperature from exceeding the limits of 10 CFR 50.46.

Two channels of CS Reactor Steam Dome Pressure - Low (Pump Permissive) Function are only required to be OPERABLE when the CS is required to be OPERABLE to ensure that no single instrument failure can preclude CS initiation. Two channels of LPCI Reactor Steam Dome Pressure - Low (Pump Permissive) Function are only required to be OPERABLE when the LPCI is required to be OPERABLE to ensure that no single instrument failure can preclude LPCI initiation. Per Footnote (a) to Table 3.3.5.1-1, these ECCS Functions are only required to be OPERABLE in MODES 4 and 5 whenever the associated ECCS is required to be OPERABLE per LCO 3.5.2. Refer to LCO 3.5.1 and LCO 3.5.2 for Applicability Bases for the low pressure ECCS subsystems.

1.e, 2.e. Reactor Steam Dome Pressure - Bypass Timer (Pump Permissive)

a less than or equal to 18

Low reactor steam dome pressure signals are used as permissives for the low pressure ECCS subsystems. The Bypass Timer channels allow the CS and LPCI pumps to start on Reactor Vessel Water Level - Low Low after the time delay times out, even if the reactor steam dome pressure is above its permissive setpoint. This ensures that, starting the pumps of the low pressure ECCS subsystems will occur on a Reactor Vessel Water Level - Low Low signal after ~~an approximately 20~~ minute time delay. The Reactor Steam Dome Pressure - Time Delay (Pump Permissive) is one of the Functions assumed to be OPERABLE and capable of permitting initiation of the ECCS during the transients analyzed in References 1 and 3. The core cooling function of the ECCS, along with the scram action of the RPS, ensures that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46.

The Reactor Steam Dome Pressure - Bypass Timer (Pump Permissive) signals are initiated from four time delay relays.

The Allowable Value is long enough to provide sufficient time for the operator to inhibit any unnecessary ADS actuation, yet short enough to limit the peak cladding temperature to less than 2200°F (Ref. 7).

Two channels of CS Reactor Steam Dome Pressure - Bypass Timer (Pump Permissive) Function are only required to be OPERABLE when the CS is required to be OPERABLE to ensure that no single instrument failure can preclude CS initiation. Two channels of LPCI Reactor Steam Dome Pressure - Bypass Timer (Pump Permissive) Function are only required to be OPERABLE when the LPCI is required to be OPERABLE