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Monticello, MN 55362

September 16, 2019

L-MT-19-036  
10 CFR 50.46 (a)(3)(ii)

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

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

Update to 2018 Report of Changes in the Emergency Core Cooling System Evaluation Models Pursuant to 10 CFR 50.46

Pursuant to 10 CFR 50.46(a)(3)(ii), the Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, is providing this updated report concerning changes or errors identified in the Emergency Core Cooling System (ECCS) evaluation for the Monticello Nuclear Generating Plant (MNGP). This is an update to the 2018 report submitted as the Annual 10 CFR 50.46, L-MT-18-071.

This report pertains to the changes in the Monticello ECCS Evaluation Model for GNF GE14 Fuel described in GE Report 0000-0163-2998-R0 "Monticello ECCS LOCA Evaluation for Modified Low Pressure ECCS Injection Performance Curves (LPCS and LPCI)" dated July 25, 2013.

An evaluation that shows compliance with 10 CFR 50.46 requirements is provided per 10 CFR 50.46 (a)(3)(ii) with the following results:

The adjusted peak cladding temperature (PCT) is 2156°F as shown in Enclosure 1. This PCT is 44°F below the 2200°F acceptance criterion of 10 CFR 50.46(b)(1). This is sufficient margin to justify taking no further action. No further reanalysis or other actions are planned.

Should you have questions regarding this letter, please contact Mr. David Gerads at (763) 295-1046.

Summary of Commitments

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

Christopher R. Church  
Site Vice President, Monticello Nuclear Generating Plant  
Northern States Power Company – Minnesota

Enclosure (1)

cc: Administrator, Region III, USNRC  
Project Manager, Monticello, USNRC  
Resident Inspector, Monticello, USNRC

# ENCLOSURE 1

Monticello Nuclear Generating Plant

Table 1

SUMMARY OF MONTICELLO LOCA CHANGES AND ERRORS INVOLVING  
CHANGES IN PEAK CLADDING TEMPERATURE (PCT) FOR GE14 FUEL  
FOR AOR GE REPORT NEDC-33322(P) REVISION 3

**TABLE 1 – SUMMARY OF MONTICELLO LOCA CHANGES AND ERRORS INVOLVING CHANGES IN PEAK CLADDING TEMPERATURE (PCT) FOR GE14 FUEL**

Applicable Analysis or Error/Change Description	Ref.	Licensing Basis PCT(°F) 10XM
NEDC-33322P, Revision 3, Safety Analysis Report for Monticello Constant Pressure Power Uprate	G1 & G2	<2140
<p>PRIME Fuel Properties Implementation for Fuel Rod T/M Performance, replacing GESTR Fuel Properties (10 CFR 50.46 Notification Letter 2012-01, Revision 1)</p> <p>This change is due to the application of an NRC-approved procedure to estimate the change in Peak Clad Temperature (PCT) due to the change in fuel properties from GESTR to PRIME primarily to address inaccuracies in fuel pellet thermal conductivity as a function of exposure.</p>	G3	+10
<p>SAFER04A E4-Mass Non-Conservatism (10 CFR 50.46 Notification Letter 2014-02)</p> <p>This change is due to a logic error that occurs when upper plenum liquid mass and core spray flow rate are low. System mass is gradually lost due to core spray being discarded, resulting in marginally less ECCS flow credited as reaching the core.</p>	G4	+15
<p>SAFER04A E4-Minimum Core DP Model (10 CFR 50.46 Notification Letter 2014-03)</p> <p>This change is due to the use of a minimum <math>\Delta p</math> that could be non-conservative offering inappropriate steam cooling benefit above the core two-phase level.</p>	G5	+20
<p>SAFER04A E4-Bundle/Lower Plenum CCFL Head (10 CFR 50.46 Notification Letter 2014-04)</p> <p>This change is due to the counter current flow limitation (CCFL) calculation representing the pressure head slightly different from that of the calculated water level in the bundle.</p>	G6	-15
Modified performance characteristics of the RHR (LPCI) and core spray (LPCS) systems	G8	-14
Sum of absolute value of changes for the current reporting period, which includes all changes since the 10 CFR 50.46 report in Reference G7.		14
Sum of absolute value of changes since last AOR (Reference G1).		74
Algebraic sum of changes for the current reporting period, which includes all changes since the 10 CFR 50.46 report in Reference G7.		-14
Algebraic sum of changes since last AOR (Reference G1).		+16
<b>Current Adjusted Peak Cladding Temperature</b>		<2156

## References

- G1. GE Report: NEDC-33322P Revision 3, "Safety Analysis Report for Monticello Constant Pressure Power Uprate," dated October 2008 (Enclosure 5 of L-MT-08-052, dated November 5, 2008, ADAMS Accession No. ML083230111).
- G2. NSPM letter to NRC, "Monticello Extended Power Uprate and Maximum Extended Load Line Limit Analysis Plus License Amendment Requests: Supplement for Analytical Methods Used to Address Thermal Conductivity Degradation and Analytical Methods Limitations (TAC Nos. MD9990 and ME3145)," L-MT-13-053 dated July 8, 2013 (ADAMS Accession No. ML13191A568).
- G3. GEH 10 CFR 50.46 Notification Letter 2012-01, Revision 1, "PRIME Fuel Properties Implementation for Fuel Rod T/M Performance, replacing GESTR Fuel Properties," dated July 30, 2013.
- G4. GEH 10 CFR 50.46 Notification Letter 2014-02, "SAFER04A E4-Mass Non-Conservatism," dated May 21, 2014.
- G5. GEH 10 CFR 50.46 Notification Letter 2014-03, "SAFER04A E4-Minimum Core DP Model," dated May 21, 2014.
- G6. GEH 10 CFR 50.46 Notification Letter 2014-04, "SAFER04A E4-Bundle/Lower Plenum CCFL Head," dated May 21, 2014.
- G7. L-MT-18-071 letter from Christopher R. Church (NSPM) to NRC "2018 Annual Report of Changes in Emergency Core Cooling System Evaluation Models Pursuant to 10 CFR 50.46," December 12, 2018.
- G8. GE Report 0000-0163-2998 R0 "Monticello ECCS LOCA Evaluation for Modified Low Pressure ECCS Injection Performance Curves (LPCS and LPCI)" dated July 25, 2013.