Xcel Energy®

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

December 22, 2015

L-MT-15-091
10 CFR 50.46(a)(3)(ii)

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

2015 Annual Report of Changes in Emergency Core Cooling System Evaluation Models Pursuant to 10 CFR 50.46

Reference: 1) NRC to NSPM, "Monticello Nuclear Generating Plant–Issuance of Amendment No. 176 to Renewed Facility Operating License Regarding Extended Power Uprate (TAC No. MD9990)," dated December 9, 2013.

2) NRC to NSPM, "Monticello Nuclear Generating Plant–Issuance of Amendment No. 180 to Renewed Facility Operating License Regarding Maximum Extended Load Line Limit Analysis Plus (TAC No. ME3145)," dated March 28, 2014.

3) NSPM to NRC, "2014 Annual Report of Changes in Emergency Core Cooling System Evaluation Models Pursuant to 10 CFR 50.46", (L-MT-14-101) dated December 30, 2014.

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 annual report concerning changes or errors identified in the Emergency Core Cooling System (ECCS) evaluation models for the Monticello Nuclear Generating Plant (MNGP). This report is for the period between July 2014 and July 2015.

The MNGP Loss of Coolant Accident (LOCA) analyses of record (AOR) are contained in the General Electric Hitachi (GEH) reports submitted for the MNGP Extended Power Uprate and the Maximum Extended Load Line Limit Analysis Plus (MELLLA+) license amendments (Reference 1 and 2). One GE fuel type has been used over this time period, the GE14 fuel type. The current operation cycle (Monticello Cycle 28) core loading consists solely of the GE14 fuel design type.

During this period covered, no notification of any changes or errors resulting in a change to the calculated Peak Clad Temperature (PCT) were received from GE. Therefore, the licensing basis PCTs and the PCT Summary provided in Table 1 of Enclosure 1 are unchanged from the last annual report (Reference 3).

The current adjusted licensing basis PCT for the fuel type used at the MNGP during the period covered by this report is:

Fuel Type	Licensing Basis PCT (°F)
GE14	<2170

Enclosure 1 provided an updated summary table of the applicable changes and errors in the LOCA analyses from when the last analyses of record were performed.

Summary of Commitments

This letter makes no new commitments or changes any existing commitments.
If you have any questions please contact Mr. Stephen Sollom, at 763-295-1611.

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

Enclosure

Regional Administrator, Region III, USNRC
Project Manager, Monticello Nuclear Generating Plant, USNRC
Resident Inspector, Monticello Nuclear Generating Plant, USNRC

ENCLOSURE 1

MONTICELLO NUCLEAR GENERATING PLANT

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

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Applicable Analysis or Error/Change Description	Ref.	Licensing Basis PCT(°F) GE14
NEDC-33322P, Revision 3, Safety Analysis Report for Monticello Constant Pressure Power Uprate	1 & 2	<2140
PRIME Fuel Properties Implementation for Fuel Rod T/M Performance, replacing GESTR Fuel Properties (10 CFR 50.46 Notification Letter 2012-01, Revision 1) 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.	3	+10
SAFER04A E4-Maintenance Update Changes (10 CFR 50.46 Notification Letter 2014-01) This change is for a new version (E4) of SAFER04A that resolves several accumulated observations that are code maintenance items. Sensitivity calculations show these items have an insignificant effect on calculated PCT.	4	+0
SAFER04A E4-Mass Non-Conservatism (10 CFR 50.46 Notification Letter 2014-02) 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.	5	+15
SAFER04A E4-Minimum Core DP Model (10 CFR 50.46 Notification Letter 2014-03) This change is due to the use of a minimum Δp that could be non-conservative offering inappropriate steam cooling benefit above the core two-phase level.	6	+20

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Applicable Analysis or Error/Change Description	Ref.	Licensing Basis PCT(°F) GE14
SAFER04A E4-Bundle/Lower Plenum CCFL Head (10 CFR 50.46 Notification Letter 2014-04) 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.	7	-15
Sum of absolute value of changes for the current reporting period, which includes all changes since the 10 CFR 50.46 report in Reference 8.		0
Sum of absolute value of changes since last AOR (Reference 1).		60
Algebraic sum of changes for the current reporting period, which includes all changes since the 10 CFR 50.46 report in Reference 8.		+0
Algebraic sum of changes since last AOR (Reference 1).		+30
Current Adjusted Peak Cladding Temperature		<2170

References

1. 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)
2. 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).
3. 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.
4. GEH 10 CFR 50.46 Notification Letter 2014-01, "SAFER04A E4-Maintenance Update Changes," dated May 21, 2014.
5. GEH 10 CFR 50.46 Notification Letter 2014-02, "SAFER04A E4-Mass Non-Conservatism," dated May 21, 2014.
6. GEH 10 CFR 50.46 Notification Letter 2014-03, "SAFER04A E4-Minimum Core DP Model," dated May 21, 2014.

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

7. GEH 10 CFR 50.46 Notification Letter 2014-04, "SAFER04A E4-Bundle/Lower Plenum CCFL Head," dated May 21, 2014.
8. L-MT-14-101, letter from K. Fili (NSPM) to NRC "2014 Annual Report of Changes in Emergency Core Cooling System Evaluation Models Pursuant to 10 CFR 50.46," December 30, 2014.