Xcel Energy®

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

December 26, 2012

L-MT-12-117
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 Facility Operating License No. DPR-22

10 CFR 50.46 Thirty-Day Report

References: 1) GE Report, NEDC-32514P, Revision 1, "Monticello SAFER/GESTR LOCA Loss of Coolant Accident Analysis," dated October 1997

2) GE Report, GE-NE-J1103878-09-02P, "Monticello ECCS-LOCA Evaluation for GE14," dated August 2001

3) NSPM to NRC letter, "2012 Report of Changes and Errors in Emergency Core Cooling System Evaluation Models," (L-MT-12-099), dated December 20, 2012

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 30-day report concerning a change in the Emergency Core Cooling System (ECCS) evaluation model for the Monticello Nuclear Generating Plant (MNGP). The MNGP Loss of Coolant Accident (LOCA) analyses of record (AORs) are contained in General Electric (GE) reports submitted for the MNGP rerate to the current licensed thermal power (1775 MWt) (Reference 1) and the LOCA analysis for the GE14 fuel type comprising the MNGP core (Reference 2), adjusted for the estimated effects of errors or changes subsequently discovered in the evaluation models or their application.

This 30-day report is being made due to a recent General Electric Hitachi (GEH) Nuclear Energy 10 CFR 50.46 notification concerning a change in the approved LOCA evaluation model due to the effects of fuel properties changes based on the PRIME fuel thermal-mechanical model. GEH Notification Letter 2012-01 requires addition of 45°F to the current adjusted Licensing Basis Peak Cladding Temperature (PCT) (see Enclosure 1). This results in an Adjusted PCT of 2085°F. This modeling change has resulted in a cumulative increase in PCT exceeding the 50°F threshold of the regulation.

As prescribed by the regulation a proposed reanalysis schedule or an evaluation is needed to demonstrate the facility remains in compliance with 10 CFR 50.46 requirements. In accordance with 10 CFR 50.46(a)(3)(ii) the following evaluation is provided. The Adjusted PCT is 115°F below the 2200°F acceptance criterion of 10 CFR 50.46(b)(1). This provides sufficient margin to justify taking no further action. No further reanalysis or other actions are planned.

Enclosure 1 provides additional information on the nature of the change, and the previous changes and errors, and their effects on the MNGP LOCA analysis. This information is being submitted in accordance with the requirements of 10 CFR 50.46(a)(3)(ii) for the MNGP.

If you have any questions or require additional information, 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.

for MAS 12/26/12

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

Enclosure

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

ENCLOSURE

MONTICELLO NUCLEAR GENERATING PLANT

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

(3 Pages Follow)

Table 1 - Summary of Monticello LOCA Changes and Errors Involving Changes in Peak Cladding Temperature

Applicable Analysis or Error Description	Ref.	Licensing Basis PCT(°F) GE14
NEDC-32514P, Rev 1, Monticello SAFER/GESTR-LOCA Loss of Coolant Accident Analysis	1	----
GE-NE-J1103878-09-02P, Monticello ECCS-LOCA Evaluation for GE14	2	< 1960
Impact of SAFER Level/Volume Table Error on Peak Cladding Temperature (PCT) (Notification Letter 2003-01) Level and volume tables used by SAFER were not updated when a revised initial water level was implemented.	3	- 15
Impact of Top Peaked Power Shape for Small Break LOCA Analysis (Notification Letter 2006-01) Small Break LOCA analyses had assumed a mid-peaked axial power shape consistent with the DBA break analyses. It was determined that a top-peaked axial power shape can result in higher calculated PCT.	4	+ 30
Impact of database error for heat deposition on the PCT for 10x10 fuel bundles (Notification Letter 2011-02) The input coefficients used to direct the deposition of gamma radiation energy produced by the fuel caused the heat deposited in the fuel channel (post scram) to be over-predicted and the corresponding heat in the fuel to be under-predicted. (continued)	5	+ 60

Applicable Analysis or Error Description	Ref.	Licensing Basis PCT(°F) GE14
Impact of updated formulation for gamma heat deposition to channel wall for 9x9 and 10x10 fuel bundles (Notification Letter 2011-03) In the input formulation for SAFER, the method for the contribution of heat from gamma ray absorption by the channel had been simplified so that initially all energy was deposited in the fuel rods prior to the LOCA and then adjusted to the correct heat deposition after the scram. Not accounting for this small fraction of power generation outside the fuel rod tends to suppress the hot bundle power required to meet the initial operating Peak LHGR. Also, there is a small effect on the initial conditions for the rest of the core as these are set in relation to the hot bundle condition.	6	+ 5
PRIME Fuel Properties Implementation for Fuel Rod T/M Performance, replacing GESTR Fuel Properties (Notification Letter 2012-01) This change is due to the application of an NRC-approved procedure to estimate the change in 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.	7	+ 45
Sum of absolute value of changes during the current reporting period.		45
Sum of absolute value of changes since last AOR.		155
Algebraic sum of changes during the current reporting period.		+ 45
Algebraic sum of changes since last AOR.		+ 125
Current Adjusted Peak Cladding Temperature		< 2085

References

1. GE Report: NEDC-32514P, Revision 1, "Monticello SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis," dated October 1997.

2. GE-NE-J1103878-09-02P, "Monticello ECCS-LOCA Evaluation for GE14," dated August 2001.

3. 10 CFR 50.46 Notification Letter 2003-01, "Impact of SAFER Level/Volume Table Error on the Peak Cladding Temperature (PCT)," dated May 6, 2003.

4. 10 CFR 50.46 Notification Letter 2006-01, "Impact of Top Peaked Power Shape for Small Break LOCA Analysis," dated July 28, 2006.

5. 10 CFR 50.46 Notification Letter 2011-02, "Impact of database error for heat deposition on the Peak Cladding Temperature (PCT) for 10x10 fuel bundles," dated June 10, 2011.

6. 10 CFR 50.46 Notification Letter 2011-03, "Impact of updated formulation for gamma heat deposition to channel wall for 9x9 and 10x10 fuel bundles," dated June 10, 2011.

7. 10 CFR 50.46 Notification Letter 2012-01, "PRIME Fuel Properties Implementation for Fuel Rod T / M Performance, replacing GESTR Fuel Properties," dated November 29, 2012.