



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

July 7, 2011

L-MT-11-039  
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, "2010 Report of Changes and Errors in ECCS Evaluation Models," (L-MT-10-075), dated December 20, 2010

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 of changes or errors identified in the Emergency Core Cooling System (ECCS) evaluation models or their application for the Monticello Nuclear Generating Plant (MNGP). The most recent 10 CFR 50.46 report MNGP has provided was in 2010 (Reference 3). This 30-day report is being made due to several recent General Electric (GE) / Hitachi Nuclear Energy 10 CFR 50.46 notifications received that have resulted in a cumulative increase in Peak Cladding Temperature (PCT) exceeding 50°F.

The MNGP Loss of Coolant Accident (LOCA) analyses of record are contained in GE reports submitted for the MNGP rerate (Reference 1) and the LOCA analysis for the GE14 fuel type (Reference 2), adjusted for the estimated effect of errors subsequently discovered in the evaluation models or their application. The LOCA analyses for the Extended Power Uprate have not received approval via issuance of a license amendment, are therefore not part of the current licensing basis, and hence are not discussed herein.

The combined impact on PCT of the errors / changes described above is 65°F for the GE14 fuel, comprising the MNGP core. An evaluation to show compliance with 10 CFR 50.46 requirements is provided per 10 CFR 50.46(a)(3)(ii) as follows:

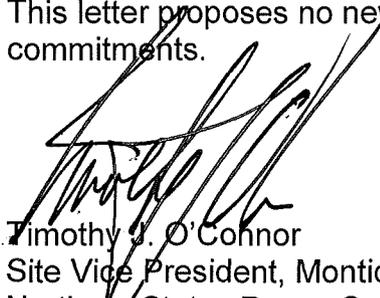
Considering all estimated effects of errors and changes, the adjusted PCT is 2040°F. This is 160°F below the 2200°F acceptance criterion of 10 CFR 50.46(b)(1). This is sufficient margin to justify taking no further action. No further reanalysis or other actions are planned.

Enclosure 1 provides additional information on the nature of the errors, and their effect on the limiting ECCS analysis. This information is submitted in accordance with the requirements of 10 CFR 50.46(a)(3)(ii) for the MNGP because the PCT increase is greater than 50°F and qualifies as a significant change according to 10 CFR 50.46(a)(3)(i).

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.



Timothy G. O'Connor  
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 1**

**MONTICELLO NUCLEAR GENERATING PLANT**

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

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

Applicable Analysis or Error Description	Ref.	Licensing Basis PCT(°F) GE14
<p>NEDC-32514P, Rev 1, Monticello SAFER/GESTR-LOCA Loss of Coolant Accident Analysis</p>	1	----
<p>GE-NE-J1103878-09-02P, Monticello ECCS-LOCA Evaluation for GE14</p>	2	<1960
<p>Impact of SAFER Level/Volume Table Error on PCT (Notification Letter 2003-01)</p> <p>Level and volume tables used by SAFER were not updated when a revised initial water level was implemented.</p>	3	- 15
<p>Impact of Top Peaked Power Shape for Small Break LOCA Analysis (Notification Letter 2006-01)</p> <p>Small Break LOCA analyses had assumed a mid-peaked axial power shape consistent with the DBA break analysis. It was determined that a top-peaked axial power shape can result in higher calculated PCT.</p>	4	+30
<p>Impact of database error for heat deposition on the PCT for 10x10 fuel bundles (Notification Letter 2011-02)</p> <p>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.</p>	5	+60
<p>Impact of updated formulation for gamma heat deposition to channel wall for 9x9 and 10x10 fuel bundles (Notification Letter 2011-03)</p> <p>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.</p>	6	+5

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

Sum of absolute value of changes since the last 10 CFR 50.46 report for 2010.	65
Sum of absolute value of changes since last AOR.	110
Algebraic sum of changes since the last 10 CFR 50.46 report for 2010.	+65
Algebraic sum of changes since last AOR.	+80
<b>Current Adjusted Peak Cladding Temperature</b>	<b>&lt;2040</b>

**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.