Xcel Energy®

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

WITHHOLD ATTCHMENT 2 OF ENCLOSURE 1 FROM PUBLIC DISCLOSURE UNDER 10 CFR 2.390

March 4, 2010

L-MT-10-017
10 CFR 50.90

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

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

Subject: Monticello MELLLA +: Supplemental Information Needed to Complete The Acceptance Review, (TAC ME3145)

References: 1) Letter from Northern States Power Company, a Minnesota corporation (NSPM), d/b/a Xcel Energy to Document Control Desk, "License Amendment Request: Maximum Extended Load Line Limit Analysis Plus," L-MT-10-003, dated January 21, 2010, TAC ME3145, Accession No. ML100280558.

2) Email from Peter Tam (NRC) to Lynne Gunderson, Gabor Salamon, Kurt Schaefer (Xcel), "Monticello MELLLA+ - Supplemental Information Needed to Complete Acceptance Review," February 17, 2010, Accession No. ML100490043.

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 to allow operation within the Maximum Extended Load Line Limit Analysis Plus (MELLLA+) operating domain.

In Reference 2, the Nuclear Performance & Code Review Branch (SNPB) of the Nuclear Regulatory Commission (NRC) requests additional information in order to complete the acceptance review of the Reference 1 MELLLA+ submittal.

Attachment 1 provides the responses to acceptance review requests for additional information (RAIs) 2, 5 and 6 from Reference 2, and refers to Attachment 2 for the responses to acceptance review RAIs 1, 3 and 4.

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Attachment 2 contains responses provided by GE Hitachi Nuclear Energy (GEH) and has three enclosures. Enclosure 1 provides the responses for acceptance review RAIs 1, 3 and 4, and contains GEH proprietary information. NSPM requests that the proprietary information be withheld from public disclosure in accordance with 10 CFR 2.390(a)4, as authorized by 10 CFR 9.17(a)4.

Enclosure 2 is a redacted non-proprietary version of Enclosure 1 with the GEH proprietary information removed, and is suitable for public disclosure. An affidavit supporting the request to withhold Enclosure 1 is provided in Enclosure 3. Any comments with respect to the affidavit should be directed to James F. Harrison, GE Hitachi Nuclear Energy, 3901 Castle Hayne Road, Wilmington, NC 28401.

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: March 4, 2010

3/4/10

Timothy J. O'Connor
Site Vice President
Monticello Nuclear Generating Plant
Northern States Power Company-Minnesota

Attachments (2)

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

ATTACHMENT 1

SUPPLEMENTAL INFORMATION NEEDED TO COMPLETE THE ACCEPTANCE REVIEW FOR THE PROPOSED MELLLA+ AMENDMENT

NRC Acceptance Review RAI 1

Limitation 12.8 from the NRC staff's safety evaluation report (SER) for licensing topical report (LTR) NEDC-33006P, "General Electric Boiling Water Reactor Maximum Extended Load Line Limit Analysis Plus," (hereafter the M+LTR) requires submittal of the reactor pressure vessel fluence evaluation. Section 3.2.1 of NEDC-33435P, "Safety Analysis Report for Monticello Maximum Extended Load Line Limit Analysis Plus," (hereafter the M+SAR) briefly describes the vessel and shroud fluence evaluation. Please provide a detailed description of the analysis including a list of assumptions, justification for the assumptions, and numerical results.

Response:

The response to RAI 1 is contained within Attachment 2.

NRC Acceptance Review RAI 2

Section 3.3.6 of the M+SAR states that moisture carryover (MCO) will increase during operation at low flow in the MELLLA+ domain. For it to evaluate the applicability of several generic M+LTR dispositions, the NRC staff needs detailed information regarding the current MCO, the assumed MCO in the MNGP extended power uprate (EPU) licensing basis, and the sensitivity of the MCO to MELLLA+ operation, as evaluated. Describe the process by which steam separator-dryer test results are used to ensure acceptable operation. Please also include a discussion in terms of increased MCO and its impact on environmental qualification and turbine gamma shine.

Response:

The original steam dryer MCO design cycle average value was 0.1% prior to Extended Power Uprate (EPU). The EPU analysis conservatively assumed a ten-fold increase in MCO to a cycle average value of 0.5% over the typical 0.05% cycle average value that existed at power levels prior to EPU. The EPU analysis is considered the current MCO, because the MELLLA+ application is based on the assumption that EPU is implemented. MCO will be monitored, and plant operation controlled to maintain the plant within 0.5% cycle average value for MCO during both EPU and MELLLA+ operation. The potential MCO increases under MELLLA+ will be controlled to maintain MCO within the evaluated cycle average value of 0.5%.

MCO performance is evaluated by plant procedure. The procedure determines the moisture content in reactor steam based on comparison of Sodium-24 concentrations in reactor water and condensate demineralizer inlet. Section 2.12 of NEDC-33322P, Safety Analysis Report for Monticello Constant Pressure Power Uprate, provides a required EPU startup test to confirm steam separator-dryer performance is within limits by determining MCO during power ascension testing. Section 10.4.1 of NEDC-33435P, Rev 1, Safety Analysis Report for Monticello Maximum Extended Load Line Limit Analysis, discusses testing for MCO with MELLLA+. Plant procedures will control plant operation to maintain cycle average values within the limit of 0.5% MCO.

In a conference call with the NRC on February 19, 2010, NSPM agreed to provide further information on the assessments completed for EPU and MELLLA+ and point to locations where MCO information is located. Locations are provided below.

EPU Evaluation

L-MT-08-041 dated June 3, 2008, Acceptance Review Supplemental Information Package 4, Accession No. ML081550640 provided a response with respect to the impact of EPU on MCO. Operating, shutdown and sky shine dose impacts were based on an evaluation that considered a ten-fold increase in MCO to an assumed value of 0.5% MCO for EPU. The letter notes that typical MCO values

for operation at 1775 MWt are approximately 0.05%. This response was augmented by responses provided in L-MT-09-042, dated June 16, 2009, Monticello Extended Power Uprate: Response to NRC Reactor Inspection Branch Request for Additional Information (RAI) dated March 20, 2009 (TAC No. MD9990), Accession No. ML091671787. This response clarified the impact on turbine gamma shine, or sky shine. Sky shine is predominantly impacted by changes in steam velocity and N-16 concentrations at turbine components. The response to NRC RAI No. 3 in this letter provided more detail on how MCO is evaluated.

The impact of MCO on environmental qualification is provided in Task Report T1004 which was provided as part of Enclosure 17 of NSPM letter to NRC, License Amendment Request: Extended Power Uprate (L-MT-08-052) dated November 5, 2008 Accession No. ML083230111. The MCO assumptions (see Section 3.3, Item 2 of Task Report T1004), used for environmental qualification are consistent with the information provided in L-MT-08-041 as augmented by L-MT-09-042 described above.

MELLLA+ Evaluation

NEDC-33435P Rev 1, Safety Analysis Report for Monticello Maximum Extended Load Line Limit Analysis Plus provided information regarding MCO and determined that "the Monticello cycle average value will be monitored and controlled within the existing analytical assumption of 0.5 wt%." This ensures that there will be no change from the values assumed for current operation, i.e. EPU operation.

The evaluation of steam separator and dryer performance at MELLLA+ conditions indicates an increase in MCO will occur. The effect of increasing steam moisture content has been analyzed and is discussed in the following sections of NEDC-33435P:

a. 3.5.1.1 Main Steam and Feedwater Piping Inside Containment
b. 8.1.2 Waste Volumes
c. 8.4.2 Fission and Activation Corrosion Products
d. 8.5.1 Normal Operational Radiation Levels
e. 8.5.2 Post-Shutdown Radiation Levels
f. 10.4.1 Steam Separator-Dryer Performance
g. 10.7.2 Flow Accelerated Corrosion

NRC Acceptance Review RAI 3

Sections 4.1.3 and 4.1.4 of the M+SAR refer to the containment dynamic loads. Please provide information regarding the plant-specific analyses that were performed to assess the containment dynamic loads. This information should include details regarding the analysis, including: (1) the methods used, (2) assumptions made, and (3) numerical results. Since comparisons are made between MELLLA+ and EPU operation please provide equivalent information for both. For the safety relief valve analysis, please include discussion of postulated, limiting design-basis accident conditions. The discussion should address vessel pressurization under certain loss-of-coolant accident (LOCA) scenarios.

Response:

The response to RAI 3 is contained within Attachment 2.

NRC Acceptance Review RAI 4

Section 4.3.5 of the M+SAR discusses the core wide metal water reaction. This section states that the limiting LOCA scenario is calculated to result in 1 percent core wide metal water reaction. This value is equal to the 10 CFR 50.46 acceptance criterion of 1 percent. Since the calculated value is equal to the acceptance criterion, the NRC staff needs more detailed information regarding the [plant-specific LOCA calculations to begin its review.

Response:

The response to RAI 4 is contained within Attachment 2.

NRC Acceptance Review RAI

Section 5.1.5 of the M+SAR does not fully address Limitation 12.15 from Section 5.1.1.5.3 of the SER for the M+LTR. Provide the operator actions and procedures that will mitigate the impact of the bypass voiding on the TIPs and the core simulator used to monitor the fuel performance. Provide discussion on what impact the bypass voiding greater than 5 percent will have on the neutron monitoring system.

Response:

The impact of the bypass voiding, including voiding greater than 5%, on the transversing incore probes (TIPs) and the core simulator used to monitor fuel performance is mitigated by the existing capability of Monticello's GARDEL-BWR core monitor, which uses SIMULATE-3 to explicitly model the impact of local bypass voiding.

The impact of local bypass voiding on both the predicted power distribution and the predicted detector response is modeled by SIMULATE-3 to calculate thermal limit margins adapted to the measured TIP and local power range monitor (LPRM) detector signals. The reduced signals for the TIP and LPRM fission detectors in the presence of bypass voiding are taken into account. No special plant operator actions or procedures are required to address bypass voiding. The core monitor will automatically adjust thermal limits with appropriate penalties for plant operating conditions such as MELLLA+ and single loop operation (SLO).

Monticello's core monitor uncertainty is bounded by the original General Electric thermal analysis basis (GETAB) uncertainty study (NEDO-10958-A). Monticello's core monitor thermal limits will include the uncertainties and assessments and conform to the limitations and conditions specified in the interim methods licensing topical report (IMLTR) and MELLLA+ LTR NRC SERs. Any penalties on the critical power ratio (CPR) operating limit that depend on core flow can be specified in the standard input defining the thermal limits for SIMULATE-3.

NRC Acceptance Review RAI 6

Sections 10.9.1 and 10.9.2 discuss the emergency operating procedures (EOPs) and the abnormal operating procedures (AOPs), respectively. Section 10.9 of the staff's SER for the M+LTR states that licensees are expected to indicate any EOP and AOP changes related to MELLLA+ operation in their applications for amendment. Your application states that EOPs and AOPs will be reviewed and revised. Review the EOPs and AOPs, revise as necessary, and provide the revisions as part of the LAR.

Response:

In discussions held with the NRC on February 19, 2010, NSPM described to the NRC that procedure revisions are not available at this time. Procedure revisions will be completed after approval of the license amendment request and prior to implementation of MELLLA+. Below is a brief description of the EOP and AOP changes that are planned at this time:

Emergency Operating Procedures (EOPs)

At MELLLA+ operating conditions, the Anticipated Transient Without SCRAM (ATWS) event has the potential to affect EOP actions, and confirmation that the ATWS calculation is consistent with plant-specific operator actions is discussed in Section 12.23.4 of the staff's safety evaluation of the M+ LTR dated October 15, 2008.

Accordingly, NSPM has confirmed that the MELLLA+ ATWS analysis is consistent with the current EPU EOP operator actions and does not require a new EOP operator action or a change to an existing EOP operator action to demonstrate successful event mitigation. In addition, the Heat Capacity Temperature Limit (HCTL), which will be changed to accommodate EPU accident scenarios, will not require additional changes for MELLLA+ operation.

The Monticello Nuclear Generating Plant (MNGP) ATWS analysis does not predict hot shutdown prior to reaching the HCTL. Because of the modeling limitations of the licensing-basis ODYN code with respect to ATWS depressurization and certain EOP actions, a best-estimate TRACG analysis of the limiting ATWS event with depressurization was performed. The TRACG analysis included all plant-specific MNGP EOP actions. The analysis demonstrated that reactor, containment, and fuel integrity acceptance criteria are satisfied at MELLLA+ operating conditions. This approach is in accordance with Section 9.3.1.3 of the staff's safety evaluation of the M+ LTR dated October 15, 2008.

In addition to the ATWS analyses above, a TRACG analysis of the ATWS event with core instability was performed at MELLLA+ operating conditions. This analysis demonstrated that MNGP EOP actions, including boron injection and

water level strategy, will mitigate an ATWS with a core instability event at MELLLA+ operating conditions.

Abnormal Operating Procedures (AOPs)

NSPM determined that various AOPs are impacted by MELLLA+ and DSS-CD operation. In general, the affected AOPs are those that involve power reductions and/or recirculation pump trips and those that involve actions for mitigation of potential thermal hydraulic instability consistent with the MELLLA+ changes to the Power/Flow Map and DSS-CD implementation.

The AOPs subject to revision identified at this time include the following:

- C.4-B.01.04.A, Trip of One Recirculation Pump
- C.4-B.01.04.B, Trip of Two Recirulation Pumps
- C.4-B.05.01.02.A, Control of Neutron Flux Oscillations
- C.4.-B.06.05.A, Feedwater Pump Trip
- C.4-F, Rapid Power Reduction
- C.4-K, Immediate Power Reduction

In addition, C.4-B.03.03.A, Stuck Open Relief Valve, will be revised to address the effect of a single inoperable safety/relief valve (S/RV) on the ability to limit the predicted peak ATWS pressure.

ATTACHMENT 2

SUPPLEMENTAL INFORMATION NEEDED TO COMPLETE THE ACCEPTANCE REVIEW FOR THE PROPOSED MELLLA+ AMENDMENT, REQUESTS FOR ADDITIONAL INFORMATION 1, 3 AND 4

Enclosure 1 - GE-MNGP-AEP-1687, Rev. 1, "GEH Responses to NRC Supplemental Requests 1, 3, and 4," GEH Proprietary Information

Enclosure 2 - GE-MNGP-AEP-1687, Rev. 1, "GEH Responses to NRC Supplemental Requests 1, 3, and 4," Non-proprietary

Enclosure 3 - GE-MNGP-AEP-1687, Rev. 1, "Affidavit"

58 pages follow

ENCLOSURE 3

GE-MNGP-AEP-1687, Rev. 1

Affidavit

GE-Hitachi Nuclear Energy Americas LLC

AFFIDAVIT

I, Edward D. Schrull, state as follows:

(1) I am the Vice President of Regulatory Affairs, Services Licensing, GE-Hitachi Nuclear Energy Americas LLC (GEH), and have been delegated the function of reviewing the information described in paragraph (2) which is sought to be withheld, and have been authorized to apply for its withholding.

(2) The information sought to be withheld is contained in Enclosure 1 of GEH letter, GE-MNGP-AEP-1687, Revision 1, B. Hagemeier, GEH, to A. Williams, Northern States Power - Minnesota, "GEH Responses to NRC Supplemental Requests 1, 3, and 4," dated March 4, 2010. The proprietary information in Enclosure 1 of that letter, which is entitled, "GEH Responses to NRC Supplemental Requests 1, 3, and 4," is identified by a dotted underline inside double square brackets. [[This sentence is an example.{3}]]. In each case, the superscript notation {3} refers to Paragraph (3) of this affidavit that provides the basis for the proprietary determination.

(3) In making this application for withholding of proprietary information of which it is the owner or licensee, GEH relies upon the exemption from disclosure set forth in the Freedom of Information Act (FOIA), 5 USC Sec. 552(b)(4), and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10 CFR 9.17(a)(4), and 2.390(a)(4) for trade secrets (Exemption 4). The material for which exemption from disclosure is here sought also qualifies under the narrower definition of trade secret, within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission, 975 F2d 871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704 F2d 1280 (DC Cir. 1983).

(4) The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraphs (4)a. and (4)b. above. Some examples of categories of information that fit into the definition of proprietary information are:

a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by GEH's competitors without license from GEH constitutes a competitive economic advantage over GEH and/or other companies.

b. Information that, if used by a competitor, would reduce their expenditure of resources or improve their competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product.

c. Information that reveals aspects of past, present, or future GEH customer-funded development plans and programs, that may include potential products of GEH.

d. Information that discloses trade secret and/or potentially patentable subject matter for which it may be desirable to obtain patent protection.

(5) To address 10 CFR 2.390(b)(4), the information sought to be withheld is being submitted to the NRC in confidence. The information is of a sort customarily held in confidence by GEH, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by GEH, not been disclosed publicly, and not been made available in public sources. All disclosures to third parties, including any required transmittals to the NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary and/or confidentiality agreements that provide for maintaining the information in confidence. The initial designation of this information as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure are as set forth in the following paragraphs (6) and (7).

(6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, who is the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge, or who is the person most likely to be subject to the terms under which it was licensed to GEH. Access to such documents within GEH is limited to a "need to know" basis.

(7) The procedure for approval of external release of such a document typically requires review by the staff manager, project manager, principal scientist, or other equivalent authority for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside GEH are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary and/or confidentiality agreements.

(8) The information identified in paragraph (2) above is classified as proprietary because it contains results of an analysis performed by GEH to support Monticello's Maximum Extended Load Line Limit Analysis Plus (MELLLA+) license application. This analysis is part of the GEH MELLLA+ methodology. Development of the MELLLA+ methodology and the supporting analysis techniques and information, and their application to the design, modification, and processes were achieved at a significant cost to GEH. The development of the evaluation methodology along with the interpretation and application of the analytical results is derived from the extensive experience database that constitutes a major GEH asset.

(9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to GEH's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of GEH's comprehensive BWR safety and technology base, and its commercial value extends beyond the original development cost. The value of the technology base goes beyond the extensive physical database and analytical methodology and includes development of the expertise to determine and apply the appropriate evaluation process. In addition, the technology base includes the value derived from providing analyses done with NRC-approved methods.

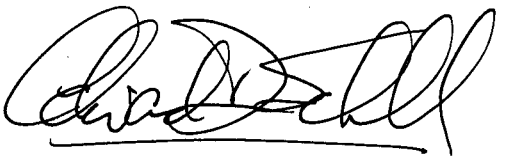
The research, development, engineering, analytical and NRC review costs comprise a substantial investment of time and money by GEH. The precise value of the expertise to

devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial. GEH's competitive advantage will be lost if its competitors are able to use the results of the GEH experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions.

The value of this information to GEH would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive GEH of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing and obtaining these very valuable analytical tools.

I declare under penalty of perjury that the foregoing affidavit and the matters stated therein are true and correct to the best of my knowledge, information, and belief.

Executed on this 3rd day of March 2010.



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