NMC
Committed to Nuclear Excellence

Monticello Nuclear Generating Plant
Operated by Nuclear Management Company, LLC

March 31, 2006

L-MT-06-019
10 CFR Part 54

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

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

Supplemental Information and Response to Requests for Additional Information Regarding the Monticello Nuclear Generating Plant License Renewal Application (TAC No. MC6440)

References: 1) NMC letter to NRC, "Application for Renewed Operating License," dated March 16, 2005 (ADAMS Accession No. ML050880241)

2) NRC letter to NMC, "Summary of a Telephone Conference Call Held On December 21, 2005," dated January 10, 2006 (ADAMS Accession No. ML060130004)

3) NRC letter to NMC, "Summary of a Telephone Conference Call Held On January 9, 2006," dated January 30, 2006 (ADAMS Accession No. ML060310635)

4) NMC letter to NRC, "Supplement to Responses to Requests for Additional Information Regarding the Monticello Nuclear Generating Plant License Renewal Application," dated February 27, 2006 (ADAMS Accession No. ML060610583)

Pursuant to 10 CFR Part 54, the Nuclear Management Company, (NMC) LLC submitted a License Renewal Application (LRA) (Reference 1) to renew the operating license for the Monticello Nuclear Generating Plant (MNGP).

The purpose of this letter is to provide supplemental information and response to an NRC request for additional information regarding the NRC review of the Monticello LRA.

In telephone conference calls between the NRC Staff and NMC held on December 21, 2005 (Reference 2), and January 9, 2006 (Reference 3), the NRC requested supplemental information related to previous Requests for Additional Information (RAI's) responded to on October 28, 2005, and December 16, 2005, regarding core plate hold-down bolt adequacy. NMC provided a response to the NRC request by letter dated February 27, 2006 (Reference 4).

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NMC stated in Reference 4 that the evaluation performed by General Electric, included as Enclosure 1 of that submittal, was performed for the MNGP core plate rim hold-down bolts using the BWRVIP-25 analysis approach and MNGP specific data.

The BWRVIP-25 core plate finite element analysis was originally performed to help utilities determine a strategy for core plate inspections, wherein conservative geometric conditions and bounding, postulated worst-case scenarios were considered.

Due to the similarities in the MNGP core plate design and the one used in BWRVIP-25, this conservative evaluation was performed using the BWRVIP-25 analysis as the baseline and reconciling the results based on comparison to MNGP specific core plate geometry and loads. All three scenarios evaluated in the BWRVIP were also evaluated for the MNGP.

The results of this comparative evaluation showed that the core plate bolt stresses were bounded by the BWRVIP results or the ASME code allowables or both. Due to the conservatisms used in the BWRVIP analysis approach and this comparative evaluation, it is expected that an MNGP-specific finite element analysis would show even greater margins when compared to the BWRVIP results and/or the ASME code allowables.

Enclosure 1 provides the NRC Staff's RAI 4.8-2c and NMC's response for RAI. Enclosure 2 provides the NMC's clarification regarding the NRC Staff position with respect to the MNGP Core Plate Hold-Down Bolt Inspection.

This letter makes the following new commitment:

> NMC commits to adhere to BWRVIP inspection guidelines for core plate hold-down bolts by implementation of one or more of the following prior to the period of extended operation:
>
> 1. Develop an alternative to the inspections identified in the BWRVIP which will, at a minimum, satisfy the intent of the BWRVIP in terms of assuring core plate functional integrity throughout the period of extended operation, NMC will provide the alternative to the inspection program to the NRC staff for their review and approval at least one year prior to entering the period of extended operations,
>
> 2. Inspect the core plate bolts using either UT, some other volumetric inspections, EVT-1 from below the core plate, or other approved inspections in accordance with BWRVIP-25, to assure an adequate number of the core plate bolts are intact to prevent lateral displacement of the core plate, or
>
> 3. Install core plate wedges to structurally replace the lateral load resistance provided by the rim hold-down bolts and perform no inspections.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on March 31, 2006.

John T. Conway
Site Vice President, Monticello Nuclear Generating Plant
Nuclear Management Company, LLC

Enclosures: (2)

cc: Administrator, Region III, USNRC
Project Manager, Monticello, USNRC
License Renewal Project Manager, Monticello, USNRC
Resident Inspector, Monticello, USNRC
Minnesota Department of Commerce
Pillsbury, Winthrop, Shaw, Pittman; LLP (David Lewis)

ENCLOSURE 1

Response to NRC Request for Additional Information Regarding the Monticello Nuclear Generating Plant Core Plate Hold-Down Bolts

The total horizontal and vertical faulted loads used in the Monticello Nuclear Generating Plant (MNGP) core plate hold down bolt analysis are considerably smaller from the corresponding loads used in the BWRVIP-25 Appendix A calculation.

1. **NRC RAI 4.8-2c(1)**

   The loads in Section 3.4 that were used in the MNGP core plate analysis do not correspond completely to those listed in Appendix A of BWRVIP-25. Provide justification for the loads that appear to have been excluded in the MNGP analysis, for example, fuel shear loads and fuel lift loads.

   NMC Response

   The loads that are considered in the MNGP core plate analysis are MNGP-specific design basis Loads. The design basis loads for the MNGP core plate are deadweight, RIPD (Differential Pressure Loads), and Seismic loads. The design basis calculations performed for power uprate and increased core flow conditions concluded that the potential for fuel lift during Operational Basis Earthquake (OBE) or Safe Shutdown Earthquake (SSE) does not exist since the net vertical seismic, RIPD, and the deadweight load is acting downward on the fuel supports. Therefore, the Fuel Lift Load is not a design basis load for the MNGP core plate (Reference MNGP USAR, Section 3.6.3.2.2).

   BWRVIP-25 Appendix A provides an example of a prototypical analysis to help utilities determine a strategy for core plate inspection, which is conservatively based on the loads associated with a BWR/4 Mark II containment design. This analysis incorporated bounding values of design basis loads, conservative geometric conditions and postulated worst-case scenarios. It also considered hydrodynamic loads such as Safety Relief Valve (SRV), Loss-Of-Coolant-Accident (LOCA), Annulus Pressurization (AP), etc. in addition to seismic (OBE, SSE) loads. These loads, typically known as the "*New-Loads*", are not applicable to the MNGP vessel and internals since the MNGP is a BWR/3 MARK I design.

   In the MARK I design, the Torus is structurally isolated from the containment by the use of flexible bellows. Therefore, the hydrodynamic loads (SRV and LOCA) that originate from the Torus are not transmitted to the containment. Hence, the RPV and internals do not experience any of the so-called "*New-Loads*".

2. NRC RAI 4.8-2c(2)

Provide the horizontal and vertical accelerations used in the analysis.

NMC Response

Seismic acceleration values at the core plate location are as follows.

Parameter	Seismic Acceleration, MNGP	Seismic Acceleration, BWRVIP-25
OBE - Horizontal	0.3 g	0.23 g
OBE - Vertical	0.04 g	0.09 g
SSE - Horizontal	0.6 g	0.38 g
SSE - Vertical	0.08 g	0.16 g

3. NRC RAI 4.8-2c(3)

Provide the dynamic load factor that was applied to the dynamic loads in the MNGP equivalent static analysis of the core plate. Provide justification if such a factor was not applied in the analysis.

NMC Response

The core plate is considered a rigid structure since its natural frequency is well above the Zero Period Acceleration (ZPA) frequency for seismic response spectra. The g values in response number 2 correspond to the acceleration response at the core plate location at the ZPA frequency. These accelerations are obtained from a coupled dynamic analysis of the RPV and the primary structure. Since the MNGP core plate is considered a rigid structure, the use of the ZPA value in the static evaluation of the core plate is justified without applying any additional factors. This is consistent with the BWRVIP-25 Appendix A analysis.

ENCLOSURE 2

Clarification Regarding the NRC Staff Position With Respect to the Monticello Nuclear Generating Plant Core Plate Hold-Down Bolt Inspection

In the MNGP LRA Section A.5 (Commitment No. 57), the NMC stated the following:

> The NMC is an active member of the BWRVIP and will continue to follow applicable inspection guidelines and recommendations, which have been reviewed and approved by the executive committee of the BWRVIP, throughout the period of extended operation for MNGP.

NMC determined that this includes the requirements contained in BWRVIP-25, BWR Core Plate Inspection and Flaw Evaluation Guidelines.

The BWRVIP does recognize that there may be justification for a member utility to take an exception to the BWRVIP inspection guidelines. Administration of these activities is described in BWRVIP-94, BWR Vessel and Internals Project Program Implementation Guide.

Consequently, NMC commits to adhere to BWRVIP inspection guidelines for core plate rim hold-down bolts by implementation of one or more of the following, prior to the period of extended operation:

1. Develop an alternative to the inspections identified in the BWRVIP which will, at a minimum, satisfy the intent of the BWRVIP in terms of assuring core plate functional integrity throughout the period of extended operation, NMC will provide the alternative to the inspection program to the NRC staff for their review and approval at least one year prior to entering the period of extended operations,

2. Inspect the core plate bolts using either UT, some other volumetric inspections, EVT-1 from below the core plate, or other inspections in accordance with approved revisions of BWRVIP-25, to assure an adequate number of the core plate bolts are intact to prevent lateral displacement of the core plate, or

3. Install core plate wedges to structurally replace the lateral load resistance provided by the rim hold-down bolts and perform no inspections.