



December 16, 2005

L-MT-05-121  
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

Supplement to Responses 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 November 9, 2005, Between the U.S. Nuclear Regulatory Commission (NRC) and Nuclear Management Company, LLC, Concerning Information Pertaining to the Monticello Nuclear Generating Plant License Renewal Application," November 18, 2005 (ADAMS Accession No. ML053250489)
- 3) Response to Requests for Additional Information Regarding the Monticello Nuclear Generating Plant License Renewal Application dated October 28, 2005 (ADAMS Accession No. ML053070217)

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).

In a telephone conference call between the NRC Staff and NMC held on November 9, 2005 (Reference 2), the NRC requested supplemental information related to two previous Requests for Additional Information (RAIs) responded to on October 28, 2005 (Reference 3) concerning:

**Enclosure 3 Contains Proprietary Information  
Submitted Under 10 CFR 2.390  
Withhold From Public Disclosure**

A113

- Stress corrosion cracking as an aging mechanism for the reactor vessel top head dollar plate, top head flange, and top head torus (RAI 3.1.2-1)
- Lateral movement of the core plate and adequacy of core plate hold-down bolts (RAI 4.8-2)

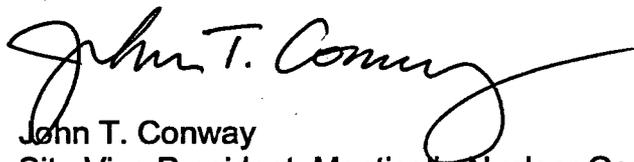
Enclosure 1 provides the NMC response to this NRC request. Enclosures 3 and 4 are the proprietary and non-proprietary versions, respectively, of a General Electric (GE) research report supporting the supplemental response to RAI 4.8-2 in Enclosure 1.

Enclosure 3 contains proprietary information as defined by 10 CFR 2.390. GE, as the owner of the proprietary information, has executed an enclosed affidavit (Enclosure 2), which identifies that the enclosed proprietary information has been handled and classified as proprietary, is customarily held in confidence, and has been withheld from public disclosure. GE requested via the affidavit that the enclosed proprietary information be withheld from public disclosure in accordance with the provisions of 10 CFR Parts 2.390 and 9.17.

This letter contains no new commitments or changes any previous commitments.

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

Executed on December 16, 2005.



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

Enclosures (4):

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

### MONTICELLO NUCLEAR GENERATING PLANT LICENSE RENEWAL APPLICATION SUPPLEMENTAL RESPONSE TO REQUESTS FOR ADDITIONAL INFORMATION RAI 3.1.2-1 and RAI 4.8-2

- A. **NRC RAI 3.1.2-1:** Stress Corrosion Cracking as an Aging Mechanism for the Reactor Vessel Top Head Dollar Plate, Top Head Flange, and the Top Head Torus

The NRC staff requested the applicant provide the basis for determining stress corrosion cracking (SCC) was an aging mechanism for the top head dollar plate, top head flange, and the top head torus as described in Table 3.1.2-2 of the license renewal application (LRA). It is the staff's position that this aging mechanism does not exist for the material and environment combination described in the LRA. The applicant was requested to provide a technical reference, operating experience, or remove SCC as an aging mechanism for these components.

#### **NMC Response**

As described in the response to RAI 3.1.2-1, these components were conservatively included in LRA Table 3.1.2-2 for the SCC aging mechanism due to industry experience with SCC in the cladding of these components. We agree with the staff that this is not an aging mechanism for the low alloy base material and will revise the LRA accordingly as part of the annual update.

- B. **NRC RAI 4.8-2:** Lateral Movement of the Core Plate and Adequacy of Core Plate Hold-Down Bolts

In the applicant's response to RAI 4.8-2, it stated that sliding of the core plate was not expected to occur due to frictional resistance. Boiling Water Reactor Vessel and Internals Project-25 (BWRVIP-25) makes no reference to frictional resistance in analyzing the presence of bending stresses in the rim hold-down bolts. BWRVIP-25 recommends licensees either install wedges to prevent lateral movement of the core plate, or provide an analysis to demonstrate that the core plate hold-down bolts can withstand all normal, emergency, and faulted loads considering the effects of stress relaxation, until the end of the period of extended operation.

#### **NMC Response**

In accordance with our telephone conference call on November 9, 2005, summarized in the NRC letter to Nuclear Management Company, (NMC) LLC dated November 18, 2005, "Summary of a Telephone Conference Call Held on November 9, 2005, Between the U.S. Nuclear Regulatory Commission and Nuclear Management Company, LLC Concerning Information Pertaining to the

## ENCLOSURE 1

Monticello Nuclear Generating Plant License Renewal Application," the following additional information is provided.

During the November 9, 2005, conference call the friction coefficient used in the analysis of the core plate rim hold-down bolts was discussed. NMC noted that the friction coefficient used (0.5) was based on test data that included both wet and dry conditions, which is documented in a proprietary General Electric (GE) Report 60GL20, "Investigation of the Sliding Behavior of a Number of Alloys Under Dry and Water Lubricated Conditions" provided as Enclosure 3. A non-proprietary version of this report is provided as Enclosure 4.

Further substantiation of the friction coefficient used in the Monticello Nuclear Generating Plant (MNGP) analysis was identified by the Staff as necessary for review of the conclusion provided in the NMC response to RAI 4.8-2 that states, "sliding of the core plate is not expected to occur."

In accordance with that request, the enclosed proprietary report (Enclosure 3) describes the test program that resulted in the conservative designation of this friction coefficient. Several alloys were included in the test program, including Type 304 stainless steel, which is representative of the materials used in the MNGP core plate/shroud support shelf design. The value of 0.5 was conservatively chosen based on the test results identified in Table 3, (page 8, 304 Stainless Steel to 304 Stainless Steel @ 200°F & deoxygenated water lubricant) of the proprietary report.

In addition to this conservatism, further review of the MNGP specific evaluation supporting the response to RAI 4.8-2 indicates a "limiting" friction coefficient of approximately 0.30, above which sliding of the core plate would not be expected due to the fact that resistance to sliding exceeds the maximum postulated horizontal load for the MNGP core plate.

While it is true that the analysis contained in BWRVIP-25 did not include frictional resistance to core plate sliding, the primary intent of the BWRVIP-25 analysis was to determine an inspection strategy for the core plate components. As such, a finite element model was prepared that is generally conservative for the General Electric BWR product line and even more conservative for Mark I plants like the MNGP.

The conservative nature of the BWRVIP analysis is due in large part to the incorporation of "loads for a BWR/4 with a large core, particularly high seismic accelerations and, as a Mark II plant, hydrodynamic loads" that are more severe than those postulated for Mark I plants. In addition to these conservatisms, the BWRVIP-25 analysis also identifies substantial fuel lift loads. For MNGP, the potential for fuel lift was evaluated as part of the power rerate project implemented in 1998. That evaluation concluded that the potential for fuel lift was negligible due to the net positive hold-down force maintained on the fuel assemblies under all postulated accident conditions. The power rerate

## ENCLOSURE 1

evaluation was also conservatively completed using 1880 MWt versus the actual rerate power level of 1775 MWt.

The conservative analysis described in BWRVIP-25, in conjunction with the conservative evaluation of bolt relaxation and the potential for core plate sliding performed for MNGP, provides sufficient evidence that the MNGP core plate hold-down bolts can withstand all normal, emergency, and faulted loads considering the effects of stress relaxation until the end of the period of extended operation (e.g. core plate vertical and lateral stability is maintained).

### References:

- Enclosure 2 General Electric (GE) Affidavit Supporting Withholding Of Proprietary Version of GE Report 60GL20, "Investigation of the Sliding Behavior of a Number of Alloys Under Dry and Water Lubricated Conditions"
- Enclosure 3 Proprietary Version: GE Report 60GL20, "Investigation of the Sliding Behavior of a Number of Alloys Under Dry and Water Lubricated Conditions"
- Enclosure 4 Non-Proprietary Version: GE Report 60GL20, "Investigation of the Sliding Behavior of a Number of Alloys Under Dry and Water Lubricated Conditions"

**ENCLOSURE 2**

**General Electric (GE) Affidavit Supporting Withholding Of Proprietary Version  
of GE Report 60GL20, "Investigation of the Sliding Behavior of a Number of  
Alloys Under Dry and Water Lubricated Conditions"**

# General Electric Company

## AFFIDAVIT

I, **George B. Stramback**, state as follows:

- (1) I am Manager, Regulatory Services, General Electric Company ("GE") 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 the GE proprietary report 60GL20, *Investigation of the Sliding Behavior of a Number of Alloys Under Dry and Water Lubricated Conditions*, (GE Proprietary Information), dated January 22, 1960. The proprietary information is contained in an enclosed box around the text, tables, and figures. The header on the pages includes the designation *GE Proprietary Information*<sup>(3)</sup>. In each case, the superscript notation<sup>(3)</sup> refers to Paragraph (3) of this affidavit, which provides the basis for the proprietary determination.
- (3) In making this application for withholding of proprietary information of which it is the owner, GE 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 qualify 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, 975F2d871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704F2d1280 (DC Cir. 1983).
- (4) Some examples of categories of information which 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 General Electric's competitors without license from General Electric constitutes a competitive economic advantage over other companies;
  - b. Information which, if used by a competitor, would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product;
  - c. Information which reveals aspects of past, present, or future General Electric customer-funded development plans and programs, resulting in potential products to General Electric;

- d. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraphs (4)a., and (4)b, above.

- (5) To address 10 CFR 2.390 (b) (4), the information sought to be withheld is being submitted to NRC in confidence. The information is of a sort customarily held in confidence by GE, 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 GE, no public disclosure has been made, and it is not available in public sources. All disclosures to third parties including any required transmittals to NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements which provide for maintenance of the information in confidence. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.
- (6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge. Access to such documents within GE is limited on 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, by the manager of the cognizant marketing function (or his delegate), and by the Legal Operation, for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside GE 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 agreements.
- (8) The information identified in paragraph (2), above, is classified as proprietary because it contains detailed results and conclusions from testing the sliding behavior of alloys under dry and water lubricated conditions. The development and application of this information for BWR applications was achieved at a significant cost to GE, on the order of tens of thousands of dollars.

The development of the evaluation process along with the interpretation and application of the results is derived from the extensive experience database that constitutes a major GE asset.

- (9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to GE's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of GE'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 GE.

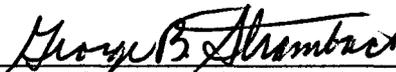
The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

GE's competitive advantage will be lost if its competitors are able to use the results of the GE 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 GE 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 GE of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing 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 17<sup>th</sup> day of November 2005.

  
\_\_\_\_\_  
George B. Stramback  
General Electric Company

**ENCLOSURE 4**

**Non-Proprietary Version  
General Electric Report 60GL20, "Investigation of the Sliding Behavior of a  
Number of Alloys Under Dry and Water Lubricated Conditions"**

This was printed  
from the best copies  
we could get from  
GB.