August 29, 2003

L-MT-03-066
10 CFR Part 50
Section 50.55a(a)(3)

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

MONTICELLO NUCLEAR GENERATING PLANT
DOCKET 50-263
LICENSE No. DPR-22

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION RELATED TO INSERVICE TESTING PROGRAM RELIEF REQUEST VR-01 (TAC NO. MB9736)

Reference 1: NMC Letter to NRC, "Response To Request For Additional Information Regarding Fourth 10-Year Interval Inservice Testing Program Relief Request Number No. VR-01 (TAC No. MB6807)," dated April 29, 2003

Reference 2: NRC Letter to NMC, "Monticello Nuclear Generating Plant - Request For Additional Information (RAI) Related To Inservice Testing Program Relief Request VR-01 (TAC No. MB9736)" dated August 7, 2003.

In Reference 1 Nuclear Management Company, LLC (NMC) requested NRC approval of the Monticello Nuclear Generating Plant Inservice Testing (IST) Fourth Ten-Year Interval relief request, Valve Relief (VR)-01, "Control Rod Drive-114 Closure Testing." Relief request VR-01 superceded a previous request and was submitted based on code edition and addenda changes in the IST Program Plan.

On August 7, 2003, a request for additional information (RAI) was received (Reference 2) concerning NMC's alternative proposing to not test the close function of the scram discharge header (CRD-114) check valves. A letter from General Electric (GE) dated July 25, 2003, provided in Attachments 2 and 4, clarifies requirements concerning the function of the scram discharge header check valves and states that they "do not have a safety related function in the closed direction." NMC's response to the RAI is provided in Attachment 1. Attachment 2 provides a non-proprietary version of the GE letter. Attachment 3 provides the affidavit for the proprietary version of this letter included in Attachment 4. Pursuant to 10 CFR 2.790, it is requested that Attachment 4 be withheld from public disclosure. Upon separation of Attachment 4 from this letter, the remainder of this letter may be decontrolled.

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This letter makes no new commitments.

If you have any questions regarding this submittal, please contact Mr. Rick Loeffler, Senior Regulatory Affairs Engineer at (763) 295-1247.

Thomas J. Palmisano
Site Vice President, Monticello Nuclear Generating Plant
Nuclear Management Company, LLC

CC: Regional Administrator, Region III, USNRC
Senior Project Manager, Monticello, USNRC
Senior Resident Inspector, Monticello, USNRC
State of Minnesota Boiler Inspector
Hartford Insurance

Attachment 1: NMC Response To Request For Additional Information, Relief Request VR-01
Attachment 2: Letter Dated July 25, 2003, from GE Nuclear Energy to NMC, and Non-Proprietary Enclosure 2, Control Rod Drive System Hydraulic Control Unit 114 Scram Discharge Check Valve
Attachment 3: Proprietary Affidavit Enclosure 3, to a Letter Dated July 25, 2003, from GE Nuclear Energy to NMC, Concerning the Control Rod Drive System Hydraulic Control Unit 114 Scram Discharge Check Valve
Attachment 4: Letter Dated July 25, 2003, from GE Nuclear Energy to NMC, and Proprietary Enclosure 1, Control Rod Drive System Hydraulic Control Unit 114 Scram Discharge Check Valve

ATTACHMENT 1

NUCLEAR MANAGEMENT COMPANY, LLC
MONTICELLO NUCLEAR GENERATING PLANT
DOCKET 50-263

NMC RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
RELIEF REQUEST VR-01

2 pages follow

ATTACHMENT 1
NMC RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
RELIEF REQUEST VR-01

NRC Request:

"The American Society of Mechanical Engineers *Code for Operation and Maintenance of Nuclear Power Plants*, 1996 addenda, paragraph ISTC 4.5.2(a), "Exercising Requirements," specifies that "Each check valve exercise test shall include open and closed tests." NMC proposed not testing the closed function of the control rod drive scram discharge header (CRD-114) check valves. Please provide additional information justifying not testing the CRD-114 valves in the closed position."

NMC Response:

A critical design consideration in the design and selection of the scram discharge header (CRD-114) check valves for the Control Rod Drive (CRD) System by General Electric (GE) was that they be extremely reliable. The simple ball-check design check valves chosen by GE for the scram discharge header check valves presents no internal parts that are susceptible to rapid degradation and sudden failure. This simplicity of design provides high assurance that the scram discharge header check valves will open as required to support their safety function. The close function of these valves is inherently reliable for the same reason discussed above for the open function. The scram discharge header check valves are required to be included within the Inservice Test (IST) Program since the 'open function' of the valves meets the applicability requirements of ISTC 1.1.

A GE letter dated July 25, 2003,[1, 2] clarified the function and verified that the scram discharge header check valves "do not have a safety related function in the closed direction." An extremely remote post-Loss of Coolant Accident (LOCA) inadvertent control rod withdrawal scenario was discussed in the GE letter having a very low probability of occurrence, where the functioning of the scram discharge header check valves in the closed direction would be desirable. However, it was also indicated that this post-LOCA inadvertent control rod withdrawal scenario was predicated upon a precise, synergistic, sequence of events that had to be established as the precursor condition. In addition, this sequence of events had to coincide with a control rod drive being in an unlatched position to potentially initiate an inadvertent post-LOCA withdrawal. The likelihood of an inadvertent control rod withdrawal to occur, due to this sequence of events, does not rise to the threshold to be considered a credible event.

The scram discharge header check valves are included in the IST Program because the 'open function' meets applicability requirements of ISTC 1.1. These valves would <u>not</u> be included in the IST Program (fail to meet the criteria of ISTC 1.1) if the secondary non-safety 'closure function' was the sole basis for evaluation. As previously discussed

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1 Letter from Mr. B. W. Joe, GE Nuclear Energy, to Mr. Thomas M. Parker, Nuclear Management Company, LLC, "CRD System HCU 114 Scram Discharge Check Valve, Monticello Nuclear Generating Plant," dated July 25, 2003, (proprietary information provided in Enclosure 1).

2 Non-proprietary version of the July 25, 2003, GE letter included in Attachment 2. Proprietary version of the July 25, 2003, GE letter included in Attachment 4.

due to the simple, reliable, design chosen, exercise testing in accordance with ISTC 4.5.2(a) in the close direction does not provide added benefit.

The scram discharge header check valves inherent design is highly reliable. Open exercise testing alone (performed during scram time testing every 18-months) is adequate to demonstrate the operational readiness of the valve to perform its required function, and close exercise testing will not provide a substantially greater degree of health and safety to the public than already results by performing open exercise testing alone. Extensive valve manipulations, system lineups, procedural controls, and installation/removal of temporary modifications would be required in order to individually, or in groups, or collectively test the scram discharge header check valves every 18-months during outages. The additional valve lineups and system reconfigurations necessary for testing would impose additional, unnecessary, dose to Operations and Maintenance personnel, contrary to ALARA considerations, due to the necessary manipulations of the CRD System. Based on this, NMC concludes that the additional resources required to test all of the 121 simple ball-check design scram discharge header check valves in the closed direction in accordance with ISTC 4.5.2 is not offset by a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(a)(3)(i), NMC proposes to perform alternative testing via internal inspection of the scram discharge header check valves when the associated outlet scram valve seat becomes accessible during refurbishment (i.e., when the outlet scram valve is disassembled or removed) and the internals of the check valve are accessible. This inspection will provide additional assurance that the scram discharge header check valve will continue to perform its functions in a highly reliable manner.

ATTACHMENT 2

NUCLEAR MANAGEMENT COMPANY, LLC
MONTICELLO NUCLEAR GENERATING PLANT
DOCKET 50-263

LETTER DATED JULY 25, 2003, FROM GE NUCLEAR ENERGY TO NMC

AND NON-PROPRIETARY ENCLOSURE 2

CONTROL ROD DRIVE SYSTEM
HYDRAULIC CONTROL UNIT 114 SCRAM DISCHARGE CHECK VALVE

6 pages follow

GE Nuclear Energy

175 Curtner Ave.
San Jose, CA 95125

July 25, 2003

cc:
L.Y. Chang
B.J. Erbes
E.Y. Gibo
J. Harrison
S.P. Moffitt
K.H. Narayan
G.B. Stramback

Mr. Thomas M. Parker
Nuclear Management Company, LLC
414 Nicollet Mall Ren Sq 10
Minneapolis, MN 55401-1927

Subject: CRD System HCU 114 Scram Discharge Check Valve, Monticello Nuclear Generating Plant

Reference: 1. GE proposal 523-JXBAH-EK1 dated May 21, 2003 and NMC Purchase Order P030247 dated May 21, 2003
2. B. W. Joe to T. M. Parker, "CRD System HCU 114 Scram Discharge Check Valve, Monticello Nuclear Generating Plant", May 21, 2003

Dear Mr. Parker,

This letter is provided per Reference 1 and replaces Reference 2, which was previously provided. Reference 2 should be destroyed, including any copies.

Enclosure 1 contains proprietary information as defined by 10CFR2.790. GE customarily maintains this information in confidence and withholds it from public disclosure. A non-proprietary version of the information is provided in Enclosure 2.

The affidavit contained in Enclosure 3 identifies that the information contained in Enclosure 1 has been handled and classified as proprietary to GE. GE hereby requests

that the information of Enclosure 1 be withheld from public disclosure in accordance with the provisions of 10 CFR 2.790 and 9.17.

If you have any questions regarding the content of this letter report, please contact me.

Regards,

for B Joe

B. W. Joe

CRD Lead System Engineer
(408) 925-6022

Enclosures:

1. Control Rod Drive System Hydraulic Control Unit 114 Scram Discharge Check Valve – Proprietary Information
2. Control Rod Drive System Hydraulic Control Unit 114 Scram Discharge Check Valve – Non-Proprietary Information
3. Affidavit, George B. Stramback, dated July 25, 2003

ENCLOSURE 2

Control Rod Drive System
Hydraulic Control Unit 114 Scram Discharge Check Valve

Non-Proprietary

The Control Rod Drive (CRD) System Hydraulic Control Unit (HCU) 114 Scram Discharge check valve must operate in the safe mode (i.e., open) during a scram to assure the complete insertion of the control rod within the Technical Specification scram time requirements. Once latched into its normal position following a scram, the CRD cannot be unlatched by inadvertently increasing the pressure under the collet piston assembly. The check valve serves to prevent reverse flow from the Scram Discharge Volume (SDV) to the CRD following a scram. The check valve provides an additional level of protection against the highly unlikely post-LOCA postulated CRD withdrawal scenario. Since the postulated scenario is highly unlikely, the HCU scram discharge check valves (V114) do not have a safety related function in the closed direction. Hence, routine surveillance testing of the scram discharge check valve to validate its closure capability is not warranted. However, it is recommended that the check valve be inspected during the routine outlet scram valve refurbishment when the check valve would be accessible.

1.0 BACKGROUND

1.1 Equipment Description

The CRD mechanism collet fingers and the index tube notches are designed with a lock angle that makes the collet unlocking and subsequent control rod withdrawal virtually impossible. In order to achieve unlatching, a precise sequence of operation must be accomplished. First, pressure under the drive piston must be momentarily applied to partially insert the CRD to relieve the collet finger axial load. Immediately thereafter, pressure must be simultaneously applied above the drive piston and below the collet piston to overcome the collet piston spring preload. The collet piston subsequently lifts causing the six collet fingers to be cammed opened to allow CRD withdrawal. Application of pressure above the drive piston and below the collet piston alone while the CRD is in a notch position will not unlatch the collet mechanism and will not allow control rod withdrawal.

Each HCU scram discharge line is equipped with a check valve (V114), which allows free flow in the direction towards the scram discharge volume (SDV) during a scram. The check valve and the 7/8 inch ball were designed and constructed specifically for the HCU. The functional reliability is assured by the high level of quality requirements used in the design and fabrication, and by the simplicity of the check valve design.

Immediately following a scram, the pressure in the SDV will increase due to the addition of displaced water from the CRDs. At the completion of the scram, the SDV pressure will continue to increase due to CRD seal leakages until its pressure eventually builds up to reactor pressure. As the pressure over and under the CRD drive piston approaches equalization, the weight of the control rod and CRD translating assembly causes the CRD

to settle into the full-in notch position following a scram. The SDV maintains this pressure until the scram is reset, thereby discharging the contained water into the equipment drain tank.

1.2 Postulated LOCA Scenario

The Reactor Protection System response to the loss of coolant accident (LOCA) causes a reactor scram, which is followed by a continued depressurization of the reactor pressure vessel. Water from the normal CRD post scram seal leakages enter into the SDV and increases its enclosed pressure. The post LOCA reactor vessel pressure continues to decrease, and eventually drops below the rising SDV pressure. With a higher SDV pressure, backleakage from the SDV into the CRD can occur if the HCU scram discharge check valve permits backleakage flow.

The resultant backpressure acts under the CRD collet piston (and over the drive piston) with reactor pressure above the collet piston. If the resulting upward pressure difference on the collet piston becomes large enough, the collet piston would lift for a CRD that is not already latched, camming open the collet fingers, and making subsequent CRD withdrawal possible. However, the unlikelihood of this event is further discussed in Section 2.0. Furthermore, CRDs which are already latched (normal condition) cannot be unlatched by the potentially increasing pressure under the CRD collet piston.

2.0 Discussion

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GE Service Information Letter (SIL) 292, Supplement 2, provides recommendations to minimize the occurrence of a postulated failure of a control rod to settle. Other failure

mechanisms (e.g., stuck collet) and recommendations are described in SIL 310 and SIL 292, Supplement 1. The latter conditions may lead to inadvertent withdrawal regardless of the SDV backleakage pressure. The recommendations documented in these SILs provide steps to further minimize the probability of an inadvertent control rod withdrawal.

3.0 Conclusion

The HCU scram discharge check valve (V114) has been designed and fabricated to assure that its function does not interfere with the safe plant shutdown by means of a scram. Routine surveillance and post maintenance scram testing also assure the proper functionality of the check valve. [[

]] The check valve provides an additional level of protection against the highly unlikely post-LOCA postulated CRD withdrawal scenario. Even if one CRD was to withdraw, the reactor would have substantial margin to remain shutdown. Therefore, the HCU scram discharge check valves (V114) do not have a safety related function in the closed direction.

ATTACHMENT 3

NUCLEAR MANAGEMENT COMPANY, LLC
MONTICELLO NUCLEAR GENERATING PLANT
DOCKET 50-263

PROPRIETARY AFFIDAVIT ENCLOSURE 3

TO A LETTER DATED JULY 25, 2003, FROM GE NUCLEAR ENERGY TO NMC

CONCERNING THECONTROL ROD DRIVE SYSTEM
HYDRAULIC CONTROL UNIT 114 SCRAM DISCHARGE CHECK VALVE

4 pages follow

ENCLOSURE 3

Proprietary Affidavit

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 Enclosure 1 to GE letter B. W. Joe (GE) to Thomas M. Parker (NMC), *CRD System HCU 114 Scram Discharge Check Valve, Monticello Nuclear Generating Plant,* dated July 25, 2003. The proprietary information in Enclosure 1, *Control Rod Drive System Hydraulic Control Unit 114 Scram Discharge Check Valve,* is delineated by a double underline inside double square brackets. In each case, the superscript notation{3} 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 2.790(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 2.790 (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 results and conclusions from Control Rod Drive System Hydraulic Control Unit testing and analyses performed by GE over many years studying and developing this equipment at many GE Boiling Water Reactor ("BWR") plants and test facilities. The development of this information was achieved at a significant cost to GE, on the order of several hundred thousand dollars.

The development of the evaluation process along with the interpretation and application of the analytical 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 25th day of July 2003.

George B. Stramback
General Electric Company