

August 22, 2001

Mr. James R. Morris
Site Vice President
Monticello Nuclear Generating Plant
Nuclear Management Company, LLC
2807 West County Road 75
Monticello, MN 55362-9637

SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT - EVALUATION OF RELIEF
REQUEST NUMBER 13 FOR THE THIRD 10-YEAR INTERVAL INSERVICE
INSPECTION PROGRAM (TAC NO. MB1833)

Dear Mr. Morris:

By letter dated May 2, 2001, Nuclear Management Company, LLC (NMC), submitted Relief Request No. 13 related to the Third 10-Year Interval Inservice Inspection (ISI) Program. NMC requested relief for the third ISI 10-year interval to use the root mean square error calculations of Subparagraph 3.2(a) and 3.2(b) of Supplement 4 of the 1995 edition, 1996 addenda, of Section XI, Appendix VIII, of the American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel Code* in lieu of the statistical parameters of Subparagraph 3.2(c).

Based on the information provided in the Relief Request No. 13, the NRC staff concludes that the alternative proposed for the third 10-year ISI interval will provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the NRC staff authorizes the ISI program alternative proposed in Relief Request No. 13 for the third 10-year ISI interval.

The detailed results of the staff's review are provided in the enclosed safety evaluation. If you have any questions concerning this action, please call Mr. F. Lyon of my staff at (301) 415-2296.

Sincerely,

/RA by Tae Kim for/

Claudia M. Craig, Chief, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-263

Enclosure: Safety Evaluation

cc w/encl: See next page

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Monticello Nuclear Generating Plant

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

OF THE THIRD 10-YEAR INTERVAL INSERVICE INSPECTION

RELIEF REQUEST NO. 13

NUCLEAR MANAGEMENT COMPANY, LLC

MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

1.0 INTRODUCTION

The inservice inspection (ISI) of the American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel Code* (Code) Class 1, Class 2, and Class 3 components is to be performed in accordance with Section XI of the ASME Code and applicable edition and addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). The regulation at 10 CFR 50.55a(a)(3) states in part that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if the licensee demonstrates that: (i) the proposed alternatives would provide an acceptable level of quality and safety or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, Class 2, and Class 3 components (including supports) will meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year inspection interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) twelve months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The ISI code of record for the Monticello Nuclear Generating Plant third 10-year ISI interval is the 1986 edition of Section XI of the ASME Code.

By letter dated May 2, 2001, the Nuclear Management Company, LLC (NMC, the licensee), submitted Relief Request No. 13, which requested relief from the flaw sizing and characterization requirements of Appendix VIII, Supplement 4 of the ASME Code.

ENCLOSURE

2.0 EVALUATION OF RELIEF REQUEST NO. 13

2.1 Code Requirements for which Relief is Requested

ASME Code, Section XI, 1995 edition, 1996 addenda, Appendix VIII, Supplement 4, subparagraph 3.2(c), requires performance demonstration results reported by the candidate when plotted on a two-dimensional plot (Fig. VIII-S4-1) with the depth estimated by ultrasonics plotted along the ordinate and the true depth plotted along the abscissa, satisfy the following statistical parameters: (1) slope of the linear regression line is not less than 0.7; (2) the mean deviation of flaw depth is less than 0.25 inches; and (3) correlation coefficient is not less than 0.70.

2.2 Licensee's Proposed Alternative to Code (as stated)

"Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested to use the RMSE [root mean square error] calculations of Subparagraph 3.2(a) and 3.2(b) of Supplement 4 of the 1995 Edition 1996 Addenda of ASME Section XI Appendix VIII in lieu of the statistical parameters of Subparagraph 3.2(c)."

2.3 Licensee's Basis for Relief (as stated)

"In a public meeting on October 11, 2000 at NRC offices in White Flint, MD, the PDI [Performance Demonstration Initiative] identified the discrepancy between Subparagraph 3.2(c) and the PDI program. The NRC agrees that Paragraph 10 CFR 50.55a(b)(2)(xv)(c)(1) should have excluded Subparagraph 3.2(c) as a requirement.

The solution for resolving the differences between the PDI program and the Code was for PDI to participate in the development of a Code case that reflected PDI's program. The Code case was presented to ASME for discussion and consensus building. NRC representatives participated in this process. ASME approved the Code case and published it as Code Case N-622, "Ultrasonic Examination of RPV and Piping, Bolts and Studs, Section XI, Division 1." The NRC approved the use of Code Case N-622 for Florida Power and Light Company's St. Lucie Plant Unit 2 (TAC No. MA5041).

Operating in parallel with the actions of PDI, the staff incorporated most of Code Case N-622 criteria in the rule published in the *Federal Register*, 64 FR 51370. Appendix IV to Code Case N-622 contains the proposed alternative sizing criteria which has been authorized by the Staff. The staff agrees that the omission of the length sizing tolerance of 0.75 inch RMS [root mean square] in 3the rule and the inclusion of the statistical parameters of Paragraph 3.2(c) of Supplement 4 to Appendix VIII was an oversight. The staff will correct the error in an upcoming rule."

2.4 Evaluation

Pursuant to 10 CFR 50.55a(a)(3)(i), NMC requested relief on the basis that the proposed alternative provides an acceptable level of quality and safety. NMC proposes eliminating the use of ASME Code, Section XI, Appendix VIII, Supplement 4, subparagraph 3.2(c), which imposes three statistical parameters for depth sizing, in lieu of Supplement 4, subparagraph 3.2(b).

Supplement 4, subparagraph 3.2(c) imposes three statistical parameters for depth sizing. The first parameter, 3.2(c)(1), pertains to the slope of a linear regression line. The linear regression line is the difference between actual versus true value plotted along a through-wall thickness. For Supplement 4 performance demonstrations, a linear regression line of the data is not applicable because the performance demonstrations are performed on test specimens with flaws located in the inner 15-percent through-wall. The differences between actual versus true value produce a tight grouping of results which resemble a shotgun pattern. The slope of a regression line from such data is extremely sensitive to small variations, thus, making the parameter of subparagraph 3.2(c)(1) a poor and inappropriate acceptance criterion.

The second parameter, 3.2(c)(2), pertains to the mean deviation of flaw depth. The value used in the code is too lax with respect to evaluating flaw depths with the inner 15 percent of wall thickness. Therefore, the licensee proposed to use the more appropriate criterion of 0.15-inch RMS of 10 CFR 50.55a(b)(2)(xv)(C)(1), which modifies subparagraph 3.2(a), as the acceptance criterion. The third parameter, 3.2(c)(3), is inappropriate for this application since it is based on the linear regression from subparagraph 3.2(c)(1).

PDI was aware of the inappropriateness of subparagraph 3.2(c) early in the development of their program. PDI brought the issue before the appropriate ASME committee which formalized eliminating the use of Supplement 4, subparagraph 3.2(c) in Code Case N-622. NRC staff representatives participated in the discussions and consensus process of the code case. Based on the above, the NRC staff believes that the use of the subparagraph 3.2(c) requirements in this context is inappropriate and that the proposed alternative to use the RMS value of 10 CFR 50.55a(b)(2)(xv)(C)(1), which modifies the criterion of Appendix VIII, Supplement 4, subparagraph 3.2(a), in lieu of subparagraph 3.2(c) will provide an acceptable level of quality and safety.

2.5 Conclusion

Based on the discussion above, the staff has concluded that the alternative proposed in Relief Request No. 13 for the third 10-year ISI interval at the Monticello Nuclear Generating Plant will provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the staff authorizes the proposed alternative for the third 10-year ISI interval.

Principal Contributor: T. Steingass

Date: August 22, 2001