



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
OF THE SECOND 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN

REQUEST FOR RELIEF

FOR

DUKE POWER COMPANY

MCGUIRE NUCLEAR STATION, UNIT 1

DOCKET NO. 50-369

1.0 INTRODUCTION

The Technical Specifications for McGuire Nuclear Station, Unit 1 state that the inservice inspection (ISI) of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by Title 10 of the Code of Federal Regulations (10 CFR) Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). Section 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if: (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 difficulties without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall 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 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) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The applicable edition of Section XI of the ASME Code for the McGuire Nuclear Plant, Unit 1 second 10-year ISI interval is the 1986 Edition. The components (including supports) may meet the requirements set forth in

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subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein and subject to Commission approval.

Pursuant to 10 CFR 50.55a(g)(5), if the licensee determines that conformance with an examination requirement of Section XI of the ASME Code is not practical for its facility, information shall be submitted to the Commission in support of that determination and a request made for relief from the ASME Code requirement. After evaluation of the determination, pursuant to 10 CFR 50.55a(g)(6)(i), the Commission may grant relief and may impose alternative requirements that are determined to be authorized by law, will not endanger life, property, or the common defense and security, and are otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed. In a letter dated January 20, 1995, the licensee submitted to the NRC its second 10-year interval ISI program plan, request for relief regarding frequency requirements of examination Category B-N-1, Item No. B13.10, visual examination of reactor pressure vessel inside surfaces for McGuire Nuclear Station, Unit 1.

2.0 EVALUATION AND CONCLUSIONS

The NRC staff, with technical assistance from its contractor, the Idaho National Engineering Laboratory (INEL), has evaluated the information provided by the licensee in support of its second 10-year interval ISI program plan, request for relief regarding frequency requirements of examination Category B-N-1, Item No. B13.10, visual examination of reactor pressure vessel inside surfaces for McGuire Nuclear Station, Unit 1.

Based on the information submitted, the staff adopts the contractor's conclusions and recommendations presented in the attached Technical Letter Report. The staff concluded that for request for relief regarding frequency requirements of examination Category B-N-1, Item No. B13.10, visual examination of reactor pressure vessel inside surfaces requiring the licensee to perform a VT-3 visual examination prior to the next scheduled refueling outage will result in a burden without a compensating increase in the level of quality and safety. Therefore, the licensee's proposed alternative, to perform the Code-required VT-3 visual examination of the reactor pressure vessel interior at the next scheduled refueling outage, currently planned for December 1995, is authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

Attachment: Technical Letter Report

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Date: February 8, 1996

TECHNICAL LETTER REPORT
ON THE SECOND 10-YEAR INSERVICE INSPECTION INTERVAL
REQUEST FOR RELIEF
FOR
MCGUIRE NUCLEAR PLANT, UNIT 1
DUKE POWER COMPANY
DOCKET NO: 50-369

1.0 INTRODUCTION

By letter dated January 20, 1995, Duke Power Company submitted a request for relief from the Code examination frequency requirements of Examination Category B-N-1, Interior of Reactor Vessel, Item Number B13.10. The Idaho National Engineering Laboratory (INEL) staff has evaluated the request for relief in the following section.

2.0 EVALUATION

The Code of record for the McGuire Nuclear Plant, Unit 1, second 10-year inservice inspection interval, which began December 1, 1992, is the *American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code*, Section XI, 1986 Edition. The information provided by the licensee in support of the proposed alternative to Code requirements has been evaluated and the basis for disposition is documented below.

Request for Relief From Examination Frequency Requirements of Examination Category B-N-1, Item Number B13.10, Visual Examination of Reactor Pressure Vessel Inside Surfaces

Code Requirement: Examination Category B-N-1, Item Number B13.10, requires a VT-3 visual examination of the accessible areas of the reactor vessel interior each inspection period.

Licensee's Code Relief Request: The licensee requested relief from performing the Code-required VT-3 visual examination of the accessible areas of the reactor pressure vessel interior at the required frequency.

ATTACHMENT

Licensee's Basis for Requesting Relief (as stated):

"The reactor vessel interior, VT-3 visual examination, Examination Category B-N-1, Item Number B13.10, was scheduled to be performed at refueling outage IEOC9, the last scheduled refueling outage of the first period of the second interval. After the unit had been started and during final review of inspection data, it was discovered the examination had not been performed. A problem investigation report, 1-M94-1467, was written to document the violation of first period requirements and provide methods to prevent future reoccurrence.

"The first period of the Unit 1 Second inspection interval ends on December 1, 1994. The next refueling outage, IEOC10, is scheduled for December 9, 1995 and is the first outage of the second period.

"The last VT-3, visual, examination of the Unit 1 reactor vessel interior surface took place on November 11, 1991 during refueling outage IEOC7. Outage IEOC7 was the final outage of the first interval. The VT-3, visual, examination during IEOC7 covered 100% of the interior surface of the vessel and no discrepancies were indicated. This examination was more extensive than the partial inspection performed during a normal refueling outage. Also during IEOC7, the vessel welds were ultrasonically inspected with no discrepancies noted. Prior to closure of the vessel during IEOC9, a general visual examination of the vessel interior was conducted by craftsmen and site engineering personnel and no discrepancies were found.

"The 1986 Edition of ASME Section XI, table IWB-2500-1, Examination Category B-N-1 calls for examinations to be performed each inspection period after the first interval. Since the periods are normally three, four, and three years, the time span between examinations can be up to four years and still meet the once per period requirement in IWB-2500-1.

"Delay of B-N-1 examinations until the next scheduled outage in December of 1995 will mean that the duration between examinations will be 4 years. Although the inspection will not be within the first period, it will not exceed the maximum time span allowed by Section XI for the second and succeeding intervals. Successive inspection will be performed during the last outage of the second period and coincidental with the ultrasonic inspection of the shell welds during the last period of the interval. Because the first inspection interval for McGuire Unit 1 used the one year extension allowed by IWA-2430(d), the second interval for McGuire Unit 1 is scheduled to be 9 years duration versus 10 years. To accommodate the 9 year interval, the first period of the second interval was set at two years duration instead of the usual three years. Thus the second interval first, second and third periods are two, four and three years duration respective. The interval schedule is as follows:*[The table submitted by the licensee is not included with this evaluation.]*

"An unscheduled outage solely for the execution of this examination would be an unnecessary economic hardship. Minimum downtime for the unit would be 16 days. The labor and equipment cost would be approximately \$150,000 and lost revenues during the 16 days would be approximately \$6,500,000.

Licensee's Proposed Alternative Examination (as stated):

"The B-N-1 inspection of the Reactor vessel interior surface will be performed at the next scheduled refueling outage, IEOC10, which is presently scheduled for 12/09/95. Successive examinations will be performed at outage IEOC12 for the second period and coincidental with the ultrasonic examination of the reactor shell welds for the third period."

Evaluation: The Code requires a VT-3 visual examination of the accessible areas of the reactor pressure vessel interior each inspection period. However, for the first period of the McGuire Nuclear Plant, Unit 1, second 10-year inspection interval, the Code-required VT-3 visual examination of the reactor pressure vessel interior was not performed.

The last VT-3 visual examination performed by the licensee was on November 11, 1991 during the IEOC7 refueling outage. That examination of 100% of the reactor pressure vessel interior found no reportable conditions. The licensee has committed to perform a VT-3 visual examination during the next refueling outage, scheduled for December 9, 1995. Based on these dates, the duration between examinations would be approximately four years. Considering that an examination period can be as long as four years, the length of time between the last and planned examinations is considered acceptable. In this case, it can be concluded that the visual examination performed during outage IEOC7 provides reasonable assurance of operational readiness until the next scheduled examination.

Based on this evaluation, the INEL staff believes that the licensee's proposed alternative to perform a VT-3 visual examination at the next refueling outage and performing subsequent VT-3 visual examinations at the end of the second period and coincident with the third period reactor vessel shell examinations, is acceptable. Requiring the licensee to perform a VT-3 visual examination prior to the next scheduled refueling outage will require unnecessary cycling of equipment and additional radiation exposure associated with the removal and replacement of the reactor pressure vessel head, causing a burden without a compensating increase in the level of quality and safety.

3.0 CONCLUSION

The INEL staff has reviewed Duke Power Company's request for relief from the VT-3 visual examination of the accessible areas of the vessel interior, required for the first period of the second 10-year interval. Based on this evaluation, it has been determined that requiring the licensee to perform a VT-3 visual examination prior to the next scheduled refueling outage will result in a burden without a compensating increase in the level of quality and safety. Therefore, it is recommended that the licensee's proposed alternative, to perform the Code-required VT-3 visual examination of the reactor pressure vessel interior at the next scheduled refueling outage, currently planned for December 1995, be authorized pursuant to 10 CFR 50.55a(a)(3)(ii).