

April 10, 2002

Mr. G. R. Peterson
Site Vice President
Catawba Nuclear Station
Duke Energy Corporation
4800 Concord Road
York, South Carolina 29745-9635

SUBJECT: CATAWBA NUCLEAR STATION, UNITS 1 AND 2 RE: RELIEF REQUEST
CN-GRV-04 (TAC NOS. MB3795 AND MB3796)

Dear Mr. Peterson:

By letter dated January 9, 2002, you submitted Relief Request CN-GRV-04 for the use of the Appendix II, "Check Valve Condition Monitoring Program," of the American Society Mechanical Engineers Code for the Operation and Maintenance of Nuclear Power Plants, 1995 Edition, 1996 Addenda (OMa-1996 Code), in advance of incorporating the OMa-1996 Code as the code of record for the Catawba Nuclear Station, Units 1 and 2 check valve inservice testing program.

The NRC staff has evaluated Relief Request CN-GRV-04 as documented in the enclosed Safety Evaluation. The staff finds that your request to use the OMa-1996 Code and related regulatory requirements with regard to implementation of Appendix II, and your phased-in implementation of OMa-1996 Code requirements will provide an acceptable level of quality and safety. Therefore, Relief Request CN-GRV-04 is authorized pursuant to 10 CFR 50.55a(f)(4)(IV) and 10 CFR 50.55a(a)(3)(i) for the Catawba Nuclear Station, Units 1 and 2.

Sincerely,

/RA/

Richard J. Laufer, Acting Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-413 and 50-414

Enclosure: As stated

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE INSERVICE TESTING PROGRAM

DUKE ENERGY'S CATAWBA NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-413 AND 50-414

1.0 INTRODUCTION

Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a, requires that inservice testing (IST) of certain American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 pumps and valves be performed in accordance with Section XI of the ASME *Boiler and Pressure Vessel* (B&PV) *Code* (the Code) and applicable addenda, except where alternatives have been authorized or relief has been requested by the licensee and granted by the Commission pursuant to 10 CFR 50.55a(a)(3)(i), 50.55a(a)(3)(ii), or 50.55a(f)(6)(i). In proposing alternatives or requesting relief, the licensee must demonstrate that: (1) the proposed alternatives provide an acceptable level of quality and safety; (2) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety; or (3) conformance is impractical for its facility. 10 CFR 50.55a authorizes the Commission to approve alternatives and to grant relief from ASME code requirements upon making the necessary findings. 10 CFR 50.55a(f)(4)(iv) provides requirements for the use of IST provisions set forth in subsequent editions and addenda that are incorporated by reference in paragraph (b), subject to Commission approval. Portions of editions or addenda may be used provided that all related requirements of the respective editions and addenda are met.

By letter dated January 9, 2002, the Duke Energy Corporation (the licensee) requested, pursuant to 10 CFR 50.55a(f)(4)(iv), that NRC approve Relief Request CN-GRV-04, for implementation of the Appendix II, "Check Valve Condition Monitoring Program," of the ASME *Code for the Operation and Maintenance of Nuclear Power Plants*, 1995 Edition, through the 1996 Addenda (OMa-1996 Code), at its Catawba Nuclear Station, Units 1 and 2.

The current code of record for the Catawba Nuclear Station IST program is the ASME B&PV *Code*, Section XI, 1989 Edition, which references the check valve requirements of ASME/ANSI OMa-1988, Part 10. The licensee's proposed alternative is requested for use during their second 10-year interval IST program for the purpose of preparing the check valve IST program for transition into its third 10-year interval IST program code update required in June 2005.

The NRC staff's findings with respect to the licensee's request to implement a portion of the OMa-1996 Code in advance of incorporating the OMa-1996 Code as its code of record, pursuant to 10 CFR 50.55a(f)(4)(iv), at its Catawba Nuclear Station, Units 1 and 2, are contained in this Safety Evaluation.

Enclosure

2.0 LICENSEE'S RELIEF REQUEST

The licensee requested NRC approval of Relief Request CN-GRV-04, Revision 26, dated January 9, 2002, pursuant to 10 CFR 50.55a(f)(4)(iv), to implement the Appendix II, "Check Valve Condition Monitoring Program," consistent with the OMa-1996 Code and related regulatory requirements, in advance of incorporating the OMa-1996 Code as the code of record for the Catawba Nuclear Station, Units 1 and 2 IST program. Implementation of the Appendix II portion of OMa-1996 Code per Relief Request CN-GRV-04 is requested as an alternative to the requirements contained in ASME/ANSI OMa-1988, Part 10, Section 4.3.2, "Exercising Tests for Check Valves."

2.1 LICENSEE'S BASIS FOR RELIEF

The licensee's reason for the relief request is to establish a condition monitoring program for the IST of certain check valves in preparation for the Catawba Nuclear Station's transition to their next 120-month required code update. The licensee proposes to take advantage of the improvements provided in the performance-based alternative of the OMa-1996 Code. The licensee indicates that (1) the required bi-directional testing improves the IST capability of detecting valve degradation prior to valve failure, and (2) the proposed alternative provides an acceptable level of quality and safety.

At the Catawba Station there are 192 Unit 1 and 212 Unit 2 check valves that are not currently tested in both the open and closed direction. The plan for implementing the Appendix II Condition Monitoring Program includes a time period for testing and acquiring information needed to adequately evaluate the performance of candidate program valves, such as, check valves not currently bi-directionally tested. This activity will allow sufficient time to establish the process and procedures, and evaluate valve groupings which are necessary for the transition to incorporate Appendix II of the OMa-1996 Code as the Catawba Station's code of record. The initial Appendix II implementation and evaluation activities performed will include those valves not currently tested in a bi-directional manner.

3.0 PROPOSED ALTERNATIVE

As an alternative to the requirements of ASME/ANSI OMa-1988, Part 10, Section 4.3.2, the licensee proposes to implement Appendix II, in accordance with all the related check valve requirements of the OMa-1996 Code, pursuant to 10 CFR 50.55a(f)(4)(iv).

The testing and examination of the check valves will be managed consistent with Relief Request CN-GRV-04 by adopting the requirements of the "Condition Monitoring Program" of the OMa-1996 Code subject to the three modifications identified in 10 CFR 50.55a(b)(3)(iv). During the transition to the ASME OMa-1996 Code, if the Appendix II program is discontinued for a valve or group of valves, the requirements of all applicable check valve portions of ASME OM Code-1995 through 1996 Addenda will be implemented.

The licensee's request proposes to implement the Appendix II check valve alternative IST requirements of the OMa-1996 Code over a 2-year time period that will commence in the Spring 2002 End-of-Cycle 13 Refueling Outage for Unit 1 and be completed in 2004. This code update for check valves only, is in advance of the required June 2005 10-year IST Program Code update.

4.0 EVALUATION

The licensee proposes to use a portion of the OMa-1996 Code at Catawba Nuclear Station, Units 1 and 2, for the purpose of preparing its check valve IST program for transition to their third 10-year IST interval code update required in June 2005. Specifically, the licensee proposes to implement the Appendix II, Condition Monitoring Program portion of OMa-1996 Code pursuant to 10 CFR 50.55a(f)(4)(iv) per Relief Request CN-GRV-04. The licensee references the NRC statement of consideration contained in the 10 CFR 50.55a regulation amendment of September 22, 1999, in Relief Request CN-GRV-04. The statement of consideration addresses the application of portions of later code editions in advance of the licensee incorporating the later edition or addenda as their code of record.

The licensee indicates that the testing and examination of the check valves will be managed by adopting the requirements of the Appendix II condition monitoring program in the OMa-1996 Code subject to the three modifications identified in 10 CFR 50.55a(b)(3)(iv). Further, the licensee indicates that the initial Appendix II implementation and evaluations activities performed will include those valves not currently bi-directional tested, and if the condition monitoring program is discontinued for a valve or group of valves during the transition to the OMa-1996 Code, the requirements of all applicable check valve portions of OMa-1996 Code will be implemented.

The NRC amended its regulations in 10 CFR 50.55a (64 FR 51370) to incorporate by reference the OM Code 1995 Edition through the 1996 Addenda in 10 CFR 50.55a(b)(3), with certain modifications required when implementing Appendix II as stated in 10 CFR 50.55a(b)(3)(iv). In its statement of consideration of the final rule, the NRC stated it would "favorably consider a request by a licensee under paragraph 50.55a(f)(4)(iv) to apply Appendix II in advance of incorporating the 1995 Edition with 1996 Addenda of the ASME OM Code as its code of record if the licensee's request justifies: (1) the modifications to Appendix II contained in the rule have been satisfied, and (2) all portions of the 1995 Edition with the 1996 Addenda of the OM Code that apply to check valves are implemented for the remaining check valves not included in the Appendix II program."

Two significant changes were introduced in OMa Code-1996: (1) a requirement for bi-directional exercise testing of the disc movement of check valves, and (2) a voluntary provision to use the Condition Monitoring Program as an alternative to IST exercise testing for certain check valves. This integral two-part improvement to the Code provides interrelated requirements. Bi-directional testing improves the IST capability of detecting valve degradation prior to valve failure. The condition monitoring program allows the licensee certain IST flexibility in establishing the types of test, examination, and preventive maintenance activities and their associated intervals, when justified based on the valve's performance and operating condition. These Code changes were developed so licensees, who elect not to implement condition monitoring in their IST program, would be required to bi-directionally test check valves as a default set of testing and examination requirements.

The NRC staff considers the Condition Monitoring Program approach of OMa Code-1996 Appendix II, for check valve IST with the modifications in 10 CFR 50.55a(b)(3)(iv), to be an improvement over present Code requirements, and encourages licensees to implement the condition monitoring alternative. The use of the alternative IST program provides the licensee

with knowledge of the valve's operating condition, informed and verified expectations of the valve's performance over extended intervals, and a process to reduce the burden of unnecessary IST.

The licensee requested to implement its Condition Monitoring program over an extended schedule of approximately 2 years. As previously noted above, the Statement of Considerations for the September 22, 1999, rule-making (64 FR 51370) stated that the licensee should justify that all portions of the 1995 Edition with the 1996 Addenda of the OM Code that apply to check valves are implemented for the remaining check valves not included in the Appendix II program. For those check valves not currently bi-directionally tested, this extended period would allow the licensee to establish the process, procedures, and valve groupings to implement Appendix II requirements. Thus, there may be a period when certain check valves not currently tested in a bi-directional manner might not meet all testing requirements in the 1995 Edition with the 1996 Addenda. For these check valves, the licensee will meet testing requirements of its Code of record (i.e., 1989 ASME Code, Section XI) until the Appendix II program is fully implemented. At that time, all ASME Code Class 1, 2, and 3 check valves in the IST program will be included in the Appendix II program or will meet the check valve requirements in the 1995 Edition with the 1996 Addenda for those check valves not included in the Appendix II program. On the basis that during the phased-in implementation period those check valves that are not bi-directionally tested will meet IST requirements of the current Code of record, the staff finds that the alternative provides an acceptable level of quality and safety.

Therefore, the staff finds that the licensee's request to use the check valve portion of the OMa-1996 Code and to apply Appendix II in advance of incorporating the 1995 Edition with 1996 Addenda of the ASME OM Code as its code of record at the Catawba Nuclear Station, Units 1 and 2 as described in Relief Request CN-GRV-04, is authorized pursuant to 10 CFR 50.55a(f)(4)(iv). The staff further finds that the licensee's proposed implementation sequence to phase in its condition monitoring program over a time period in order to obtain performance data is authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative provides an acceptable level of quality and safety.

5.0 CONCLUSION

The staff concludes that the licensee's request to use the OMa-1996 Code and related regulatory requirements with regard to implementation of Appendix II is authorized pursuant to paragraph 10 CFR 50.55a(f)(4)(iv). In addition, the staff finds that licensee's proposed phased-in implementation of OMa-1996 Code Appendix II requirements at the Catawba Nuclear Station, Units 1 and 2, as described in the relief request, is authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative provides an acceptable level of quality and safety.

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Date: April 10, 2002

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