

September 5, 2001

Mr. Oliver D. Kingsley, President
Exelon Nuclear
Exelon Generation Company, LLC
1400 Opus Place, Suite 500
Downers Grove, IL 60515

SUBJECT: CLINTON POWER STATION, UNIT 1 - ALTERNATIVE TO 10 CFR 50.55a(f),
INSERVICE TESTING REQUIREMENTS (TAC MB2532)

Dear Mr. Kingsley:

By letter dated July 17, 2001, AmerGen Energy Company, LLC, submitted Relief Request 2205 for authorization to use an alternative to the requirements of Title 10 of the *Code of Federal Regulations* (CFR) Section 50.55a(f) for the Clinton Power Station (CPS) in accordance with the provisions of 10 CFR 50.55a(a)(3)(i). In particular, you request relief from the provisions of American Society of Mechanical Engineers (ASME)/American National Standards Institute (ANSI) OM-1987, Part 1, "Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices," Paragraph 3.3, for periodic testing of ASME Class 2 and 3 relief valves. You propose to implement the provisions of Code Case OMN-2, "Thermal Relief Valve Code Case, OM Code-1995, Appendix I," which allows either testing or replacement of certain relief valves every 10 years.

The Nuclear Regulatory Commission (NRC) staff has determined that the proposed alternative, described in Relief Request 2205, provides an acceptable level of quality and safety, and is authorized for the remainder of the second 10-year interval of the Inservice Test Program for pumps and valves pursuant to 10 CFR 50.55a(a)(3)(i).

The NRC is evaluating Code Case OMN-2 for possible endorsement through rulemaking or in a regulatory guide. Relief Request 2205 is approved, as stated above, until such time as the NRC staff's generic position on OMN-2 is issued. At that time, if you intend to continue to implement this relief request, you are to follow the provisions of OMN-2 with any limitations or conditions specified in the NRC staff endorsement.

Sincerely,

/RA/

Anthony J. Mendiola, Chief, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-461

Enclosure: Safety evaluation

cc w/encl.: See next page

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Distribution:

	PUBLIC	THarris	GGrant, RIII
Enclosure: Safety evaluation	PD3/2 r/f	OGC	GHill(2)
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cc w/encl.: See next page	JHopkins	APark	

ADAMS Accession No.: ML012320237 *See previous concurrence

OFFICE	PM:PD3-2	LA:PD3-2	OGC	SC:PD3-2
NAME	JHopkins	THarris	RHoefling*	AMendiola
DATE	09/5/01	09/5/01	08/28/01	09/5/01

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Oliver D. Kingsley

Clinton Power Station, Unit 1
AmerGen Energy Company, LLC

cc:

John Skolds
Chief Operating Officer
Exelon Generation Company, LLC
1400 Opus Place, Suite 900
Downers Grove, IL 60515

R. M. Krich
Director-Licensing
Mid-West Regional Operating Group
Exelon Generation Company, LLC
1400 Opus Place, Suite 900
Downers Grove, IL 60515

William Bohlke
Senior Vice President Nuclear Services
Exelon Generation Company, LLC
1400 Opus Place, Suite 900
Downers Grove, IL 60515

Robert Helfrich
Senior Counsel, Nuclear
Mid-West Regional Operating Group
Exelon Generation Company, LLC
1400 Opus Place, Suite 900
Downers Grove, IL 60515

John Cotton
Senior Vice President - Operations
Support
Exelon Generation Company, LLC
1400 Opus Place, Suite 900
Downers Grove, IL 60515

Document Control Desk-Licensing
Exelon Generation Company, LLC
1400 Opus Place, Suite 900
Downers Grove, IL 60515

Christopher Crane
Senior Vice President - Mid-West
Regional Operating Group
Exelon Generation Company, LLC
1400 Opus Place, Suite 900
Downers Grove, IL 60515

Illinois Department of Nuclear Safety
Office of Nuclear Facility Safety
1035 Outer Park Drive
Springfield, IL 62704

Jeffrey Benjamin
Vice President - Licensing and
Regulatory Affairs
Exelon Generation Company, LLC
1400 Opus Place, Suite 900
Downers Grove, IL 60515

J. M. Heffley
Vice President
Clinton Power Station
RR 3, Box 228
Clinton, IL 61727-9351

H. Gene Stanley
Operations Vice President
Mid-West Regional Operating Group
Exelon Generation Company, LLC
1400 Opus Place, Suite 900
Downers Grove, IL 60515

M. J. Pacilio
Plant Manager
Clinton Power Station
RR 3, Box 228
Clinton, IL 61727-9351

W. S. Iliff
Regulatory Assurance Manager (Acting)
Clinton Power Station
RR 3, Box 228
Clinton, IL 61727-9351

Oliver D. Kingsley

Clinton Power Station, Unit 1
AmerGen Energy Company, LLC

cc:

Resident Inspector
U.S. Nuclear Regulatory Commission
RR#3, Box 229A
Clinton, IL 61727

R. T. Hill
Licensing Services Manager
General Electric Company
175 Curtner Avenue, M/C 481
San Jose, CA 95125

Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
801 Warrenville Road
Lisle, IL 60532-4351

Chairman of DeWitt County
c/o County Clerk's Office
DeWitt County Courthouse
Clinton, IL 61727

J. W. Blattner
Project Manager
Sargent & Lundy Engineers
55 East Monroe Street
Chicago, IL 60603

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE INSERVICE TESTING PROGRAM

AMERGEN ENERGY COMPANY, LLC

CLINTON POWER STATION, UNIT NO. 1

DOCKET NO. 50-461

1.0 INTRODUCTION

Title 10 of the *Code of Federal Regulations*, 50.55a (10 CFR 50.55a) requires that inservice testing 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 Code* (the Code), except where alternatives have been authorized or relief has been requested by the licensee and granted by the Commission pursuant to paragraphs (a)(3)(i), (a)(3)(ii), or (f)(6)(i) of 10 CFR 50.55a. 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 with the requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety; or (3) conformance with the requirements is impractical for its facility. Section 50.55a authorizes the Commission to authorize alternatives and to grant relief from ASME Code requirements upon making the necessary findings. Nuclear Regulatory Commission (NRC) guidance contained in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," provides alternatives to the Code requirements which the staff finds acceptable. Further guidance is given in GL 89-04, Supplement 1, and NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants."

By letter dated July 17, 2001, AmerGen Energy Company, LLC (the licensee), submitted Relief Request 2205 for the remaining duration of the second 10-year interval Inservice Test (IST) program for pumps and valves. The second 10-year IST program interval began on April 24, 1997, and is scheduled to end on April 23, 2007.

2.0 RELIEF REQUEST 2205

The licensee has requested relief from the Class 2 and 3 pressure relief valve test frequency requirements of ASME/American National Standards Institute (ANSI) OM-1987, Part 1, "Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices," Paragraph 3.3. The licensee has proposed to implement Code Case OMN-2, "Thermal Relief Valve Code Case, OM Code-1995, Appendix I," which allows either testing or replacement of certain relief valves every 10 years.

2.1 Licensee's Basis for Requesting Relief

The licensee states:

Thermal relief valves are potentially challenged during train or component shutdowns when the component is isolated. In the event that the component is exposed to a prolonged external heat source, or due to in-leakage of high temperature/pressure fluid past an isolation boundary, the thermal relief valve will provide over pressure protection due to thermal expansion. Since the affected trains or components are not providing a safety function while they are isolated, the thermal relief valves have limited safety significance during this condition. While these components or trains are in service, the thermal relief safety function is to remain closed as part of the system pressure boundary. This function is periodically verified during normal operation or system flow testing. Based on the above, failure of these valves to relieve an over pressure condition had minimal safety significance.

As found bench testing of Class 2 and 3 pressure relief valves used in thermal applications present an undue administrative burden to Clinton Power Station (CPS) without a commensurate gain in safety. CPS presently schedules valve tests on a sample basis per the OM-1987 Part 1 requirements. In the event of a failure a sample expansion of two additional valves, from the same group, are selected for testing. Further failures necessitate testing of all remaining valves in the group. In many cases this approach creates scheduling difficulties in finding appropriate "windows" of opportunity to test expanded samples without incurring additional system unavailability. CPS is also forced to revise the scope of planned system outages to include contingent valve tests due to sample expansions.

2.2 Alternative Testing

The licensee proposes:

As an alternative, CPS will adopt Code Case OMN-2 of the 1995 OM Code Appendix I which states, "that in lieu of the requirements specified in ASME OM Code-1995, paras. I 1.3.5(a),(b), and (c) testing for Class 2 and Class 3 pressure relief devices whose only over pressure protection function is to protect isolated components from fluid expansion caused by changes in fluid temperature shall be performed once every ten years on each device unless performance data indicates that more frequent testing is needed to assure device function. In lieu of testing, the Owner may replace these devices every ten years unless performance data indicates more frequent replacement is needed to assure device function."

2.3 Evaluation

The 1989 Edition of the ASME Boiler and Pressure Vessel (BPV) Code specifies that valve testing shall be performed in accordance with ASME/ANSI OM, Part 10 (OM-10). OM-10, Paragraph 1.1, requires pressure relief devices that provide over pressure protection for systems which perform a required function in shutting down a reactor to the cold shutdown condition, maintaining the cold shutdown condition, or mitigating the consequences of an

accident, to be included within the scope of the IST program. OM-10, Paragraph 4.3.1, requires that safety and relief valve testing be conducted in accordance with Part 1 of the ASME OM Code (OM-1). The requirements for the test frequency of Class 2 and 3 pressure relief devices are included in Paragraph 1.3.4.1 of OM-1. The requirements include: (1) in Paragraph 1.3.4.1(a) specific test frequency requirements for the initial 10-year period; (2) specific action in Paragraph 1.3.4.1(b) that all valves of each type shall be tested in each subsequent 10-year period with a minimum of 20 percent of the valves tested within any 48-month period which have not been previously tested, if such valves exist; (3) requirements for pretested valves in Paragraph 1.3.4.1(c); (4) acceptance criteria in Paragraph 1.3.4.1(d); and action to be taken where acceptance criteria are not met in Paragraph 1.3.4(e).

In lieu of the provisions of OM-1, the licensee has proposed to implement the provisions of Code Case OMN-2, "Thermal Relief Valve Code Case, OM Code-1995, Appendix I." Thermal relief valves are defined in the Code Case as relief valves whose only over pressure protection function is to protect isolated components from fluid expansion caused by changes in fluid temperature. Code Case OMN-2 states that relief valves that are considered to be thermal relief valves shall be tested or replaced once every 10 years unless performance data indicates more frequent testing or replacement is needed to assure device function. Paragraph 1.3.5(a) of Appendix I, ASME OM Code-1995 specifies that each Class 2 and 3 relief valve be tested every 10 years with a minimum of 20 percent of the valves tested within a 48-month period which have not been tested. Paragraph 1.3.5(b) specifies requirements for replacing valves with pretested valves. Paragraph 1.3.5(c) establishes provisions for test acceptance criteria and provisions for testing additional valves.

Code Case OMN-2 was intended to be used at facilities where their IST program was developed in accordance with ASME OM Code-1995. It was not specifically prepared for use with the licensee's current Code of record (1989 ASME BPV Code, Section XI). The Code Case was published in the 1998 addenda of the ASME OM Code.

Two issues need to be addressed in order to authorize the alternative: (1) the acceptability of the Code Case OMN-2 on its own merits; and (2) the applicability of the Code Case to be used in lieu of the provisions of OM-1 that are applicable to CPS.

With regard to acceptability of the Code Case OMN-2, the staff reviewed activities of the Code Committee related to the development of this Code Case. In making their determination to reduce the testing requirements for thermal relief valves, the Code Committee performed a review of the Nuclear Plant Reliability Data System (NPRDS) database to assess the quantity and type of thermal relief valve failures. The Code Committee determined that the failure rates of thermal relief valves are limited. The Code Committee concluded that the low number of failure rates support the 10-year test or replacement frequency, and the elimination of sample expansion if the failure was discovered during testing. The staff is not currently aware of any outstanding issues with the testing for thermal relief valves.

With regard to the acceptability of applying Code Case OMN-2 in lieu of the provisions of OM-1, the staff compared the requirements of OM-1 and OM Code-1995. Thermal relief valves are not separately defined in these documents, but fall within the provisions for Class 2 and 3 relief valves as described above. In comparing the two documents, the OM Code-1995, Appendix I, represents a relaxation of OM-1 in the following areas: (1) elimination of the specific testing

schedule for relief valves in the first 10-year interval; and (2) elimination of the provisions for repair or replacement of all valves which exceed their stamp set pressure by 3 percent or greater. The remaining provisions between the two are technically identical.

In this plant specific application, the staff has evaluated the proposed testing requirements for relief valves identified as thermal reliefs. The evaluation did not identify any limitations or modifications necessary for the acceptability of the proposed testing requirements. Thermal relief valves are not defined in either OM Code-1995, Appendix I nor OM-1. No related requirements have been identified in either OM Code-1995 or OM-1 that would be related to thermal relief valves. Therefore, there does not appear to be any conflict in applying the provisions for thermal relief valve testing or replacement in Code Case OMN-2 to OM-1. The proposed testing requirements provide a reasonable method for ensuring the operational readiness of thermal relief valves. On this basis, the staff finds that the licensee's alternative provides an acceptable level of quality and safety.

3.0 CONCLUSION

The proposed alternative to use the provisions of Code Case OMN-2 in lieu of the requirements of OM-1 Paragraphs 1.3.4.1(a) through 1.3.4.1(c), for testing or replacement of Class 2 and 3 thermal relief valves is authorized for the remainder of the second 10-year interval of the IST program for pumps and valves pursuant to 10 CFR 50.55a(a)(3)(i) based on the alternative providing an acceptable level of quality and safety.

The NRC is evaluating Code Case OMN-2 for possible endorsement through rulemaking or in a regulatory guide. Relief Request 2205 is approved, as stated above, until such time as the NRC staff's generic position on OMN-2 is issued. At that time, if the licensee intends to continue to implement this relief request, the licensee is to follow the provisions of OMN-2 with any limitations or conditions specified in the NRC staff endorsement.

Principal Contributor: A. Park

Date: September 5, 2001