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An Exelon/British Energy Company

10 CFR 50.55a

RS-03-018

February 3, 2003

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Clinton Power Station, Unit 1
Facility Operating License No. NPF-62
NRC Docket No. 50-461

SUBJECT: Proposed Alternative Testing Requirements for Containment Isolation Check Valves 1C11-F122 and 1IA175 for the Second 10-Year Inservice Testing Program

Pursuant to 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(i), AmerGen Energy Company (AmerGen), LLC, hereby requests NRC approval of a request for a proposed alternative to the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," ASME/ANSI OMa-1988, "Operations and Maintenance of Nuclear Power Plants," 1987 Edition through the 1988 Addenda, Part 10, Section 4.3.2.2 for Clinton Power Station (CPS).

ASME/ANSI OMa-1988, Part 10, Section 4.3.2.2, requires Category A and B check valves to be tested nominally every 3 months (i.e., quarterly), unless the conditions specified by Section 4.3.2.2 are used to justify an alternate testing frequency. This request proposes to exercise valves 1C11-F122 and 1IA175 at the same interval as the 10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," Option B, " Performance-Based Requirements." Option B allows a variable testing frequency, based on component performance, and allows test intervals for valves with acceptable performance to be extended to once per three refueling outages.

The subject valves are currently tested once per refueling outage and are currently planned to be tested during the next CPS refueling outage (C1R09), scheduled for February 2004. If the NRC approves the proposed alternative testing, the next performance of the test will be in the tenth refueling outage (C1R10). We are requesting approval of this proposed request by November 30, 2003, so that the outage scope and plans can be finalized sufficiently in advance of the start of the outage.

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If you have any questions concerning this matter, please contact Mr. Jim Peterson at (217) 937-2810.

Respectfully,

Keith R. Jury

Keith R. Jury
Director – Licensing and Regulatory Affairs
Mid-West Regional Operating Group
AmerGen Energy Company, LLC

Attachment: 10 CFR 50.55a Request Number 2207

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Clinton Power Station

Proposed Alternative In Accordance With 10 CFR 50.55a(a)(3)(1)

1. ASME Code Components Affected

Component: 1C11-F122
Description: Control Rod Drive (CRD) Water Supply Header Containment Isolation Check Valve
Category: A
Code Class: 2

Component: 1IA175
Description: Instrument Air (IA) Header Containment Isolation Check Valve
Category: A
Code Class: 2

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers (ASME)/American National Standards Institute (ANSI) OMa-1988, "Operations and Maintenance of Nuclear Power Plants," 1987 Edition through the 1988 Addenda

3. Applicable Code Requirement

ASME/ANSI OMa-1988, Part 10, requires Category A and B check valves to be tested nominally every three months (i.e., quarterly), except as provided by Section 4.3.2.2.

Section 4.3.2.2 indicates that valves shall be tested as follows:

(a) During plant operation, each check valve shall be exercised or examined in a manner that verifies obturator travel to the closed, full-open or partially open position required to fulfill its function.

(b) If full-stroke exercising during plant operation is not practicable, it may be limited to part-stroke during plant operation and full-stroke during cold shutdowns.

(c) If exercising is not practicable during plant operation, it may be limited to full-stroke exercising during cold shutdowns.

(d) If exercising is not practicable during plant operation and full-stroke during cold shutdowns is also not practicable, it may be limited to part-stroke during cold shutdowns, and full-stroke during refueling outages.

(e) If exercising is not practicable during plant operation or cold shutdowns, it may be limited to full-stroke during refueling outages.

(f) Valves full-stroke exercised at shutdowns shall be exercised during each shutdown, except as specified in (g) below. Such exercise is not required if the time period since the previous full-stroke exercise is less than three months.

(g) Valve exercising shall commence within 48 hours of achieving cold shutdown, and continue until all testing is complete or the plant is ready to return to power. For extended outages, testing need not be commenced in 48 hours provided all valves required to be tested during cold shutdown will be tested prior to plant startup. However, it is not the intent of this Part to keep the plant in cold shutdown in order to complete cold shutdown testing.

(h) All valve testing required to be performed during a refueling outage shall be completed prior to returning the plant to operation.

4. Reason for Request

The CRD Water Supply Header Containment Isolation Check Valve, 1C11-F122, is currently exercised in the closed position during each refueling outage. Valve 1C11-F122 is a two-inch diameter, simple check valve which provides drive water, cooling water and charging water to the CRD Hydraulic Control Units and seal water flow to the Reactor Recirculation Pumps, and serves as the inboard isolation valve for the containment isolation function. Testing this valve in the closed position requires that the CRD system be shut down. Shutting down the system for an extended period of time will introduce air into the system, requiring venting of individual CRDs which is a very time consuming activity. Entrained air in the CRD system can also cause damage to the Reactor Recirculation Pump seals. High purity water continuously flows through the check valve, minimizing the potential for binding due to cycling or impurities. For these reasons, AmerGen currently tests this valve on a refueling frequency.

Valve 1C11-F122 has no external lever arm or practical means to verify closure other than by performance of a local leak rate test. Non-intrusive testing, although a possible option, would still require system isolation and the introduction of a reverse flow to generate the valve closure, essentially duplicating the steps needed for a local leak rate test. Valve disassembly is not practical because local leakage rate testing would be required both before and after disassembly.

During refueling outages it is desirable to minimize CRD system inoperability time. The CRD system must be in service to perform CRD mechanism change-out and it is the preferred method of maintaining level control in the reactor pressure vessel/refuel pool. Performance of the local leakage rate test necessitates draining the CRD penetration and adjacent piping. Filling and venting of the system is required prior to return to service, and the length of total system inoperability time is increased. It is estimated that it would take several hours (approximately 16-20 hours) to secure and drain the system, complete the test, and refill and vent the system.

The IA Header Containment Isolation Check Valve, 1IA175, is currently exercised in the closed direction during each refueling outage. Valve 1IA175 is a ½ inch, simple check valve located in the supply line that provides instrument air to the actuator of inboard Containment Isolation Valve 1IA006. Since this line taps off the IA header between the containment penetration and 1IA006, this valve performs a primary containment isolation function and is required to close in the event of an accident. Testing this valve during normal operation or during cold shutdown is impractical because it requires isolating and depressurizing a portion of the IA system supply to filter demineralizer control valves located in the drywell. Filtered and dried air continuously flows through the valve, minimizing the potential for binding due to cycling or impurities. This valve has no external lever arm or practical means to verify closure other than by performance of a local leak rate test. Valve disassembly is not a viable option because local leakage rate testing would be required both before and after disassembly. Likewise, due to the size of the valve, non-intrusive techniques are not practical, and essentially the same system manipulations would be needed to isolate the penetration and introduce a closure flow as in doing the local leak rate test. During refueling outages, it is desirable to minimize the loss of instrument air to containment because this valve supplies air to the filter demineralizer control valves which, if air is lost, is the preferred method of maintaining reactor coolant chemistry and providing an alternate shutdown cooling method would be removed.

5. Proposed Alternative and Basis for Use

Relief is being requested for the exercise testing of the affected CRD and IA system valves. Each of the affected valves has a safety function to close to provide primary containment isolation. Failure of the affected valves could impact the capability to isolate primary containment. The valves are leakage rate tested per 10 CFR Part 50, Appendix J, Option B. Option B allows a variable testing frequency, based on component performance, and allows test intervals for valves with acceptable performance to be extended to once per three refueling outages. The test to exercise these valves closed is verified through performance of the Appendix J leakage rate test. In accordance with the CPS Appendix J Test Program, failure of a valve to meet the acceptance criteria would result in returning to a once per refueling outage test interval until acceptable performance can be demonstrated. AmerGen, therefore, requests a proposed alternative to exercise these valves per the Appendix J testing frequency in lieu of the Code requirement for exercising these valves each refueling outage. This alternative is in accordance with 10 CFR 50.55a(a)(3)(i) where proposed alternatives to the specified Code requirements may be approved by the NRC when it has been demonstrated that the proposed alternatives would provide an acceptable level of quality and safety.

Each of the above mentioned valves are currently exercised during each refueling outage, in accordance with ASME/ANSI OMa-1988, Part 10, Section 4.3.2.2(e). The history of both the maintenance and in-service testing (IST) for each valve shows good material condition and test history. Valve 1IA175 has satisfactorily passed all local leakage rate testing since plant startup, with no

discernable trend in increasing leakage, thus demonstrating that an acceptable level of quality and safety is maintained when tested per the Appendix J frequency. Valve 1C11-F122 has been replaced once, in 1996, since initial plant operation. The valve was replaced because the leakage rate, while still within accepted limits, was slightly fluctuating by a few hundred standard cubic centimeters per minute (sccm) between one test and the next. The valve has always demonstrated a positive closure. Since replacement, the valve has shown very low leakage (<20 sccm) consistently, again demonstrating that an acceptable level of quality and safety is maintained when tested per the Appendix J frequency. The Option B Program requires any failure to be reverted to a refueling frequency. Should poor performance be detected, the program will require the valves to go back to a refueling frequency.

The Code required frequency of closure exercise testing is once per refueling cycle. However, due to the excellent leakage rate testing performance of each of these valves, and the other components in their respective primary containment penetrations, the local leakage rate testing is only required once per every third outage. The Appendix J testing imposes much more stringent acceptance criteria than the Code specified exercise by requiring quantitative leakage rate measurement, whereas the Code specified exercise only necessitates qualitative proof of valve closure, a much less vigorous test. Performance of additional local leakage rate testing solely to satisfy an exercise requirement of these components places a burden on AmerGen by imposing increased duration for CRD and IA system unavailability/outages. Each of the valves have an established performance history which shows that an acceptable frequency of testing necessary to detect component degradation is achieved through testing on the Appendix J frequency. As such, testing these valves on the Code specified frequency represents an unnecessary burden on AmerGen without a commensurate gain in assurance of the component's ability to perform their safety function. An equivalent level of quality and safety will be provided by testing these valves per the Appendix J testing frequency.

6. Duration of Proposed Alternative

The duration of the proposed alternative testing would be in place for the remainder of the Second 10-year IST Program, which ends on December 31, 2009.

7. Precedents

There are no known precedents for this requested alternative testing.

8. References

ASME/ANSI OMa-1988, "Operations and Maintenance of Nuclear Power Plants," 1987 Edition through the 1988 Addenda, Part 10