



RS-15-100

10 CFR 50.55a

March 26, 2015

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

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

Subject: Response to Request for Additional Information Regarding Proposed Alternative Testing Requirements for ASME Class 1, 2, and 3 Valves

- References:
- (1) Letter from Patrick R. Simpson (Exelon Generation Company, LLC) to U.S. NRC, "Proposed Alternative Testing Requirements for ASME Class 1, 2, and 3 Valves in an IST Cold Shutdown Justification or Refuel Justification," dated December 1, 2014
 - (2) Letter from Patrick R. Simpson (Exelon Generation Company, LLC) to U.S. NRC, "Proposed Alternative Testing Requirements for ASME Class 1, 2, and 3 Motor Operated Valves (MOV) in CPS MOV Testing Program," dated December 1, 2014
 - (3) Email from Blake Purnell (U.S. NRC) to Timothy A. Byam (Exelon Generation Company, LLC), "Clinton Power Station, Unit 1 - Relief Requests 2203 and 2204 (TAC Nos. MF5344 and MF5345)," dated February 24, 2015

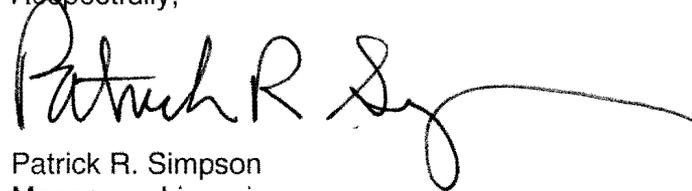
In References 1 and 2, Exelon Generation Company, LLC, (EGC) requested, in accordance with 10 CFR 50.55a, "Codes and Standards," NRC approval of a request for a proposed alternative to the requirements of the American Society of Mechanical Engineers (ASME), "Code for Operation and Maintenance of Nuclear Power Plants," (ASME OM Code), Subsections ISTC-3521(e), ISTC-3521(h), ISTC-3522(c) and ISTC-3522(f) and ASME OM Code, with the 2006 addenda version of OMN-01 for Clinton Power Station (CPS), respectively.

In Reference 3, the NRC requested that EGC provide additional information to support their review of the subject relief requests (i.e., References 1 and 2). The response to these requests is provided in Attachment 1. In a February 24, 2015 teleconference between Blake Purnell (U.S. NRC) and Timothy Byam (EGC), it was agreed that EGC would provide the requested information to the NRC on or before March 26, 2015.

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This letter contains no new regulatory commitments. If you have any questions concerning this letter, please contact Timothy A. Byam at (630) 657-2818.

Respectfully,

A handwritten signature in black ink, appearing to read "Patrick R. Simpson", with a long horizontal flourish extending to the right.

Patrick R. Simpson
Manager – Licensing
Exelon Generation Company, LLC

Attachment: Response to Request for Additional Information

cc: NRC Regional Administrator, Region III
NRC Senior Resident Inspector – Clinton Power Station
Illinois Emergency Management Agency – Division of Nuclear Safety

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In an email from Blake Purnell (U.S. NRC) to Timothy A. Byam (Exelon Generation Company, LLC), "Clinton Power Station, Unit 1 - Relief Requests 2203 and 2204 (TAC Nos. MF5344 and MF5345)," dated February 24, 2015, the following request for additional information was provided.

On December 1, 2014, Exelon Generation Company, LLC (the licensee) submitted relief requests (RRs) 2203 and 2204 for Clinton Power Station (CPS), Unit 1 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML14335A541 and ML14335A540, respectively). These RRs are requested because CPS will transition to a 12-month fuel cycle beginning in the spring of 2015. In the past, CPS has operated with a 24-month fuel cycle and the current cycle is scheduled to be 18-months ending this spring.

RR 2203 is a proposed alternative to the requirements of the American Society of Mechanical Engineers (ASME), "Code for Operation and Maintenance of Nuclear Power Plants," 2004 Edition (OM Code), Subsections ISTC-3521(e), ISTC-3521(h), ISTC-3522(c), and ISTC-3522(f). These OM Code subsections require that ASME Class 1, 2, and 3 valves in an inservice testing (IST) cold shutdown justification (CSJ) or refueling justification (RFJ) be tested each refueling outage. The licensee's proposed alternative is to test CSJ and RFJ valves every 2 years.

RR 2204 is a proposed alternative to ASME Code Case OMN-1 (2006 addenda), Subsection 3.6.1, which requires all motor-operated valves (MOVs) within the scope of the code case to be "full-cycle exercised at least once per refueling cycle with the maximum time between exercises to be not greater than 24 months." The licensee's proposed alternative is to continue to exercise these MOVs every 24 months.

The NRC staff has reviewed the RRs and determined that it needs additional information to complete its review.

NRC RAI 1 (RR 2203 and 2204):

The requests state that the proposed alternatives are for the third IST interval at CPS. Provide the start and end date for the third IST interval.

EGC Response to NRC RAI 1:

CPS is currently in the third IST interval. As documented in Reference 1, the third IST interval started on July 1, 2010 and will end on June 30, 2020.

NRC RAI 2 (RR 2203):

ASME OM Code exercise test provides an opportunity for tracking and trending valve and accessory performance. It is recognized there is a possibility that not all valves listed on the CSJ list will be tested during a shorter "refueling only" outage. Section 3.1.1.1, "IST Cold Shutdown Testing," of NRC NUREG-1482, Revision 2, "Guidelines for Inservice Testing at Nuclear Power Plants," published October 2013, provides an acceptable method of scheduling valves for testing during a cold shutdown. Use of this method helps ensure that the selection of valves to be tested during a cold shutdown are diverse and not the same group of valves each

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time. Explain how the valves identified in the CSJ list will be selected for testing during the shorter "refueling only" outage.

EGC Response to NRC RAI 2:

CPS currently maintains a list of all CSJ valves that are eligible for testing during an extended cold shutdown (i.e., greater than 48 hours). This list is provided to Operations and Outage Planning before each planned outage and within one shift in the case of a forced outage. From this list, Operations selects the valves to be tested during the course of the outage. Engineering coordinates with Operations to ensure testing of CSJ valves is consistent with the guidance provided in Section 3.1.1.1 of NUREG 1482, Revision 2. In addition to testing the CSJ valves during an extended cold shutdown, the CPS testing program currently requires that all valves on the CSJ list are tested each refueling outage to ensure all these valves are tested every two years. Once CPS transitions to annual refueling outages, the CPS testing program will continue to require testing of CSJ valves during extended cold shutdowns including the "refueling only outages." In addition, the CPS testing program will continue to require that all CSJ valves are tested during the "refueling/maintenance outages" ensuring that all of these valves are tested every 2 years. This in turn will reset the CSJ list.

NRC RAI 3 (RR 2203):

The OM Code requires exercise testing of valves at least once every 3 months; however, the OM Code permits the testing to be deferred to cold shutdown or refueling outages based on practicality. Operating experience indicates that valve reliability is higher with more frequent testing. The application indicates that a test interval of 24 months for RFJ valves "maintains the current acceptable level of quality and safety" for these valves. The application also indicates that testing of the CSJ valves during the "refueling only" outage will "increase the level of quality and safety for the CPS CSJ valves." However, the application does not describe the impact on the reliability of the valves given the intent of the OM code.

Justify that the CSJ and RFJ valves will be adequately reliable by comparing the reliability based on testing at 3-month, 1-year, and 2-year intervals. Provide additional justification why it is acceptable for valves on the RFJ list to maintain the current 2 year test interval.

EGC Response to NRC RAI 3:

As noted above in the response to RAI 2, CPS intends to continue testing CSJ valves during all extended cold shutdowns (i.e., longer than 48 hours). Since EGC intends to treat the "refueling only outages" as a cold shutdown in accordance with OM code requirements, CSJ valves will be tested during the "refueling only outages" just as they are tested during any other cold shutdown. Based on this approach, the CSJ valves will continue to be tested at a frequency that will ensure reliability in accordance with the OM code requirements.

The OM Code permits the testing of valves to be deferred to cold shutdown or refueling outages based on practicality. The CPS valves currently classified as RFJ valves have been tested each refueling outage in accordance with the requirements of the OM Code. In support of the response to this question, EGC has reviewed the test history for the RFJ valves to determine if

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test failures would indicate that more frequent testing of these valves would ensure more reliable performance.

After reviewing the test history for all 70 current RFJ valves for the past 6 refueling outages (i.e., 2003 (C1R09) – 2013 (C1R14)), a total of 11 unsatisfactory tests were identified involving 7 different valves. The valves that had an unsatisfactory test are listed in the table below organized by the outage that the failure occurred in. The other 63 valves have satisfactory test history that supports their continued testing on a 2 year test interval. Of the 7 valves that experienced an unsatisfactory test, 4 valves experienced one failure, 2 valves experienced two failures, and 1 valve was found to have experienced three failures. By virtue of no reoccurring failures, it has been demonstrated that the corrective actions taken with the 4 single failure valves have fixed their issues. The reactor pressure excess flow check valve 1CM067, which experienced a failure in C1R14 (2013), was replaced with a new valve.

Low Pressure Coolant Injection testable check valve (i.e., 1E12-F041B) has experienced 2 failures, one on its open test and one on its close test. The open test issue found the packing gland out of alignment. This was repaired in C1R14. In C1R11 (2008) the closed test found the clearances between the disk and the valve body to be out of tolerance. The disk hole was re-bored to align the disk and body in C1R11. No repeat close test failure has occurred since C1R11.

High Pressure Core Spray System testable check valve (i.e., 1E22-F005) had back to back failures of its check closed test, one in C1R11 and again in C1R12 (2010). Each time, repair work orders were completed. In C1R11 the valve was disassembled, no issues noted, the valve was reassembled, and passed its post-maintenance testing (PMT). In C1R12 it was disassembled and noted there were out of tolerance gaps between the valve disk and body. This was corrected under the repair work order and no repeat failure has occurred since C1R12.

Reactor Core Isolation Cooling System testable check valve (i.e., 1E51-F066) has experienced multiple failures with the last two in consecutive outages. This valve is in a position to be tested during "refueling only outages" in addition to "refueling/maintenance outages." Until four consecutive years of tests are passed, this valve will be tested each refueling outage (i.e., 1 year test interval).

Based on test data review, CPS concludes it has adequate justification to support 2 year test interval RFJ valve testing for all current RFJ valves with the exception of 1E51-F066.

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Valve (RFJ#)	Test Failure Outage (test type)
1E12-F041B (RFJ-005)	C1R11 (CC)
1E22-F005 (RFJ-005)	C1R11 (CC)
1E51-F066 (RFJ-002)	C1R11 (CC)
1B21-F032A (RFJ-003)	C1R11 (CC)
1E21-F006 (RFJ-005)	C1R12 (CC)
1E22-F005 (RFJ-005)	C1R12 (CC)
1B21-F032B (RFJ-003)	C1R12 (CC)
1E51-F066 (RFJ-002)	C1R13 (CC)
1CM067 (RFJ-013)	C1R14 (CC)
1E51-F066 (RFJ-002)	C1R14 (CC)
1E12-F041B (RFJ-005)	C1R14 (CO)

CC = Check Valve Exercise Test - Closed

CO = Check Valve Exercise Test - Open

REFERENCES

1. Letter from Daniel J. Kemper (Exelon Generation Company, LLC) to U.S. NRC, "Submittal of Inservice Testing Program Plan for the Third Ten-Year Interval," dated July 10, 2010 (ADAMS Accession No. ML102010118)