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

Peach Bottom Atomic Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56
NRC Docket Nos. 50-277 and 50-278

Quad Cities Nuclear Power Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Response to Request for Additional Information - Proposed Alternative to Utilize Code Case N-513-3, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1," at a Higher System Operating Pressure

References:

1. Letter from J. Barstow (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission, "Proposed Alternative to Utilize Code Case N-513-3, 'Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1,' at a Higher System Operating Pressure," dated March 28, 2014

2. E-Mail from J. Weibe (U.S. Nuclear Regulatory Commission) to T. Loomis (Exelon Generation Company, LLC), "Peach Bottom & Quad Cities---RAI questions for Relief Request I4R-55 TAC MF3799, MF 3800, MF3801 and MF3802," dated September 8, 2014

3. Letter from J. Barstow (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information - Proposed Alternative to Utilize Code Case N-513-3, 'Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1,' at a Higher System Operating Pressure," dated October 29, 2014

4. E-Mail from J. Weibe (U.S. Nuclear Regulatory Commission) to T. Loomis (Exelon Generation Company, LLC), "Additional RAI Regarding Peach Bottom and Quad Cities-Relief Requests to use N-513-3," dated November 18, 2014

In the Reference 1 letter, Exelon Generation Company, LLC (Exelon) requested a proposed alternative to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components." Specifically, Exelon is requesting approval to apply the evaluation methods of ASME Code Case N-513-3, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1," to the Class 3 High Pressure Service Water System piping (Peach Bottom Atomic Power Station) and the Residual Heat Removal Service Water System piping (Quad Cities Nuclear Power Station) with a maximum operating pressure of 375 psig.

In the Reference 2 e-mail, the U.S. Nuclear Regulatory Commission requested additional information. Reference 3 was our response. In the Reference 4 e-mail, the U.S. Nuclear Regulatory Commission requested additional information. Attached is our response to that request.

If you have any questions concerning this letter, please contact Tom Loomis at (610) 765-5510.

There are no commitments contained in this submittal.

Respectfully,

D. P. Helker

David P. Helker
Manager - Licensing and Regulatory Affairs
Exelon Generation Company, LLC

Attachment: Response to Request for Additional Information

cc: Regional Administrator - NRC Region I
Regional Administrator - NRC Region III
NRC Senior Resident Inspector - Peach Bottom Atomic Power Station
NRC Senior Resident Inspector - Quad Cities Nuclear Power Station
NRC Project Manager - Peach Bottom Atomic Power Station
NRC Project Manager - Quad Cities Nuclear Power Station
R. R. Janati, Bureau of Radiation Protection
S. T. Gray, State of Maryland

Attachment

Response to Request for Additional Information

By letter dated March 28, 2014 (Agencywide Documents and Access Management System (ADAMS) Accession No. ML14090A140) with supplement dated October 29, 2014 (ADAMS Accession No. ML14303A463), Exelon Generation Company, LLC (Exelon or the licensee) requested relief from certain requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, at the Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, and Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2. The licensee submitted contingency Relief Requests I4R-55, Revision 1, for PBAPS and I5R-12, Revision 1, for QCNPS. The relief requests will be used to temporarily accept unacceptable flaws in High Pressure Service Water (HPSW) System piping at PBAPS and Residual Heat Removal Service Water (RHRSW) System piping at QCNPS.

The NRC has reviewed the October 29, 2014 letter from Exelon and would like to confirm a few items regarding the operations of the HPSW System at PBAPS and RHRSW System at QCNPS.

Question:

1. The NRC staff understands that both HPSW and RHRSW Systems are used only during testing and plant shutdown. What is the pressure in these pipes when HPSW and RHRSW Systems are not used during normal operation?

Response:

Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3

A review of data since November 1, 2012 (which included an outage) shows that the High Pressure Service Water (HPSW) System at PBAPS is placed into operation for HPSW System testing and to support Residual Heat Removal (RHR) in Torus Cooling (during normal operation and plant shutdown) and Shutdown Cooling/Alternate Decay Heat Removal (SDC/ADHR) modes. The HPSW System pressure is 275 - 375 psig for a maximum of 3% of the total time during a 2-year cycle (526 hours for any train). This is based on the observed system pressures during testing, allowable operating ranges during Torus Cooling and SDC/ADHR, and typical outage durations. The pressure in this system when not in operation is generally less than 50 psig.

Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2

A review of computer point data on 20-minute intervals since November 1, 2012, (which included an outage) shows that the Residual Heat Removal Service Water (RHRSW) System at QCNPS is placed into operation for RHRSW System testing and to support RHR in Torus water transfer, Torus Cooling and SDC/ADHR modes. Based on the observed system pressures during testing over the time period reviewed, allowable operating pressure during RHRSW System operation, the RHRSW System pressure was above 275 psig for a maximum of 3.81% of the approximately two-year period (697 hours for any train). The pressure in this system when not in operation was generally less than 50 psig. Reference 3, response 5(a) indicated that the maximum operating pressure for the system is 350 psig based on system relief valve setting. Review of more than two years of operating pressure history indicates that the 1B RHRSW system operated between 350 psig and 360 psig for

about two hours and the 2B RHRSW system operated between 350 psig and 374 psig for about 1.5 hours. There were no other instances of operation above 350 psig.

Question:

2. During the quarterly pump testing, what is the approximate duration (in terms of minutes or hours), when the pressure in the HPSW and RHRSW pipes exceeds 275 psi? During the time when the pressure exceeds 275 psi, what is the duration when the pressure is at 375 psi during pump testing?

Response:

Peach Bottom Atomic Power Station, Units 2 and 3

HPSW is normally in standby mode. Each HPSW pump is run quarterly during Inservice Testing (IST), with each pump run for approximately one hour during a typical test. A review of plant IST data since November 1, 2012 indicated three of the eight combined Unit 2 and Unit 3 HPSW pumps regularly develop pressures of 275 to 295 psig during testing. Two other pumps exceeded 275 psig once during the observed testing interval but were less than 285 psig and the other three pumps did not exceed 275 psig during testing. This constitutes about 20 combined hours above 275 psig for both units over the two years.

Quad Cities Nuclear Power Station, Units 1 and 2

RHRSW is normally in standby mode. Each RHRSW pump is run quarterly during IST, with each pump run for approximately three hours. It is common for RHRSW pumps to develop pressures greater than 275 psig during IST runs. This constitutes approximately 96 combined hours for both units over two years. See response to Question 1 above for pressure discussion.

Question:

3. During plant shutdown, what is the approximate duration (in terms of minutes or hours), when the pressure in the HPSW and RHRSW pipes exceeds 275 psi? During the time when the pressure exceeds 275 psi, what is the duration when the pressure is at 375 psi during plant shutdown? The submittal stated that for RHRSW at QCNPS, the maximum pressure will be 350 psi. However, Questions 2 and 3 above apply to how long (time-wise) the RHRSW pipe experiences a pressure of 350 psi.

Response:

See answers to Questions 1 and 2 above for PBAPS and QCNPS. PBAPS does not have electronically recorded data points for the HPSW system. Review of PBAPS IST data did not identify any instances where test pressure exceeded 295 psig. PBAPS does not have electronically recorded operating pressures available; however, review of operating history indicates the HPSW System was in operation no more than 526 hours for the 2-year cycle for any specific train. Based on allowable HPSW operating flow ranges during unit shutdown, it would be very conservative to consider the HPSW system to be above 350 psig during the entire 526 hours of operation. The operating time above 350 psig for the QCNPS station was approximately 3.5 total hours based on available computer point data review.