Exelon Generation®

200 Exelon Way
Kennett Square, PA 19348

www.exeloncorp.com

10 CFR 50.55a

August 21, 2019

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

Subject: Inservice Inspection Relief Request I5R-10

Reference: Letter from J. Danna (U.S. Nuclear Regulatory Commission) to B. Hanson (Exelon Generation Company, LLC), "Peach Bottom Atomic Power Station, Units 2 and 3 – Issuance of Relief Request RE: Examination of Standby Liquid Control Nozzle Inside Radius Section in Lieu of Specific ASME Code Requirements (EPID L-2018-LLR-0133)," dated June 11, 2019

Exelon Generation Company, LLC is submitting for your review Relief Request I5R-10 associated with the fifth Inservice Inspection (ISI) interval for the Peach Bottom Atomic Power Station, Units 2 and 3. This relief request concerns the examination of the Standby Liquid Control (SLC) nozzle inside radius section. The fifth interval program complies with the 2013 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code.

This same relief request was recently approved in the Referenced letter. Updates to this relief request have been identified with revision bars. We request your review and approval by August 21, 2020.

There are no regulatory commitments in this request.

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

Respectfully,

D. P. Helker

David P. Helker
Sr. Manager, Licensing
Exelon Generation Company, LLC

cc: USNRC Region I, Regional Administrator
USNRC Senior Resident Inspector, PBAPS
USNRC Project Manager, PBAPS
R. R. Janati, Pennsylvania Bureau of Radiation Protection
D. A. Tancabel, State of Maryland

Request for Relief I5R-10 for the Examination of Standby Liquid Control Nozzle Inside Radius Section in Accordance with 10 CFR 50.55a(g)(5)(iii)

1. ASME Code Component(s) Affected

Code Class:	1
Reference:	IWB-2500, Table IWB-2500-1
Examination Category:	B-D
Item Number:	B3.100
Description:	Examination of Standby Liquid Control Nozzle Inside Radius Section
Component Numbers:	Unit 2: N10-IRS, Unit 3: N10-IRS

2. Applicable Code Edition and Addenda

The fifth Inservice Inspection (ISI) program is based on the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, 2013 Edition.

3. Applicable Code Requirement

Table IWB-2500-1, Examination Category B-D, Item No. B3.100, requires a volumetric examination to be performed on the inner radius section of all reactor vessel nozzles each inspection interval. Table IWB-2500-1, Examination Category B-D, Item No. B3.100 refers to the nozzle configurations shown in Figure No. IWB-2500-7.

4. Impracticality of Compliance

The Standby Liquid Control (SLC) nozzle, as shown in Figure 1, is designed with an integral socket to which the boron injection piping is fillet welded. This design is different from the configurations shown in ASME, Section XI, Figure No. IWB-2500-7. The SLC nozzle is located in the bottom head of the vessel in an area that is inaccessible for ultrasonic examinations from the inside of the vessel. Therefore, ultrasonic examinations can only be performed from the outside diameter of the vessel. As shown in Figure 1, the ultrasonic scan would need to travel through the full thickness of the vessel into a complex cladding/socket configuration. These geometric and material reflectors inherent in the design prevent a meaningful examination from being performed on the inner radius of the SLC nozzle.
In addition, the inner radius socket attaches to piping that injects boron at locations far removed from the nozzle. Therefore, the SLC nozzle inner radius is not subjected to turbulent mixing conditions that are a concern at other nozzles.

5. Burden Caused by Compliance

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested on the basis that conformance with these ASME Section XI Code requirements is impractical as conformance would require extensive structural modifications to the component or surrounding structure. In order to perform the examinations to meet the code requirements, cost prohibitive modifications would need to be performed on the reactor vessel.

6. Proposed Alternative and Basis for Use

As an alternative examination, a system leakage test of the Class 1 pressure boundary is conducted at the end of each outage at operating pressure. The reactor pressure vessel bottom head penetrations, including the SLC penetration, are visually inspected during the leakage test, with the acceptance criteria being zero leakage.

7. Duration of Proposed Alternative

Relief is requested for the fifth ISI interval for PBAPS, Units 2 and 3 which began on January 1, 2019 and is scheduled to conclude on December 31, 2028, and the remainder of the plant life.

8. Precedents

1. Letter from J. Danna (U.S. Nuclear Regulatory Commission) to B. Hanson (Exelon Generation Company, LLC), "Peach Bottom Atomic Power Station, Units 2 and 3 – Issuance of Relief Request RE: Examination of Standby Liquid Control Nozzle Inside Radius Section in Lieu of Specific ASME Code Requirements (EPID L-2018-LLR-0133)," dated June 11, 2019

2. Letter from J. Clifford (U.S. Nuclear Regulatory Commission) to J. Hutton (Exelon Generation Company, LLC), "Third 10-Year Interval Inservice Inspection Program Plan Request for Relief Nos. RR-08, RR-10, RR-17, RR-23, RR-24, RR-25, RR-26, RR-27, RR-28, RR-29, RR-30, RR-31, RR-32, and RR-33 for Peach Bottom Atomic Power Station, Units 2 and 3 (TAC Nos. MA4008 and MA4009)," dated July 31, 2000 (ML003728069)

FIGURE 1

2 INCH STANDBY LIQUID CONTROL NOZZLE