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> 10 CFR 50 10 CFR 51 10 CFR 54

July 1, 2019

U. S. Nuclear Regulatory Commission Attention: 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 <u>NRC Docket Nos. 50-277 and 50-278</u>

- Subject: First 10 CFR 54.21(b) Annual Amendment to the Peach Bottom Atomic Power Station, Units 2 and 3, Subsequent License Renewal Application
- Reference: Letter from Michael P. Gallagher, Exelon Generation Company LLC (Exelon) to NRC Document Control Desk, dated July 10, 2018, "Application for Subsequent Renewed Operating Licenses"

In the Reference letter, Exelon Generation Company, LLC (Exelon) submitted the Subsequent License Renewal Application (SLRA) for the Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3.

Exelon has completed a review to identify any current licensing basis (CLB) changes made since submittal of the Reference letter, which have a material effect on the content of the SLRA, including the FSAR Supplement. This amendment identifies four (4) changes to the CLB that are considered to materially affect the contents of the PBAPS SLRA.

The enclosure to this letter contains a description of these CLB changes, and the corresponding mark-ups to the portions of the SLRA affected by the changes, thereby supplementing the PBAPS SLRA.

This submittal satisfies the 10 CFR 54.21(b) requirement to submit an annual amendment to the SLRA for 2019, as well as the requirement to submit an amendment addressing any such changes at least three months before scheduled completion of the NRC review of the SLRA.

There are no new or revised regulatory commitments contained in this letter.

If you have any questions, please contact Mr. David J. Distel, Licensing Lead, PBAPS Subsequent License Renewal Project, at 610-765-5517.

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I declare under penalty of perjury that the foregoing is true and correct. Executed on the 1<sup>st</sup> day of July 2019.

Respectfully submitted,

P. hll

Michael P. Gallagher Vice President - License Renewal and Decommissioning Exelon Generation Company, LLC

- Enclosure: Current Licensing Basis Changes that Impact the SLRA Associated with the First 10 CFR 54.21(b) Annual Amendment
- cc: Regional Administrator NRC Region I NRC Project Manager (Safety Review), NRR-DMLR NRC Project Manager (Environmental Review), NRR-DMLR NRC Project Manager, NRR-DORL – Peach Bottom Atomic Power Station NRC Senior Resident Inspector, Peach Bottom Atomic Power Station R.R. Janati, Pennsylvania Bureau of Radiation Protection D.A. Tancabel, State of Maryland

#### Enclosure

#### Peach Bottom Atomic Power Station, Units 2 and 3 Current Licensing Basis Changes that Impact the SLRA Associated with the First 10 CFR 54.21(b) Annual Amendment

#### Introduction

This Enclosure contains the descriptions of the four changes that are being made to the Subsequent License Renewal Application (SLRA) as a result of the 10 CFR 54.21(b) annual amendment incorporating Current Licensing Basis (CLB) changes that materially affect the contents of the PBAPS SLRA. For each item, the change is described and the affected page number(s) and portion(s) of the SLRA is provided. For clarity, entire sentences or paragraphs from the SLRA are provided with deleted text highlighted by strikethroughs and inserted text highlighted by **bolded italics**. Revisions to SLRA tables are shown by providing excerpts from the affected tables.

#### Change # 1 - Reactor Water Cleanup (RWCU) System Sample Chiller Relocation and Chiller Condenser Replacement

Affected SLRA Sections: Table 2.3.3-21, Table 2.3.3-25, Section 3.3.2.1.21, Section 3.3.2.1.25, Table 3.3.1, Table 3.3.2-21, Table 3.3.2-25

SLRA Page Numbers: 2.3-96, 2.3-106, 3.3-28, 3.3-33, 3.3-141, 3.3-148, 3.3-317, 3.3-340

#### **Description of Change:**

Both PBAPS Unit 2 and Unit 3 RWCU System sample chillers were relocated within the Reactor Buildings. As a result, the liquid filled sample chiller process pumps and associated piping are no longer in an enclosure and are added to the scope of the Process Sampling System for spatial interaction with a leakage boundary intended function. In addition to relocating the chillers, the air cooled condensers were replaced with water cooled condensers. The water heat sink for the condensers is provided by the Reactor Building Closed Cooling Water (RBCCW) System. The liquid filled water cooled condensers, which are also not contained within an enclosure, are added to the scope of the RBCCW System for spatial interaction with a leakage boundary intended function.

All other liquid filled components associated with the sample chillers remain within an enclosure and therefore are not in scope for spatial interaction.

Accordingly, SLRA Table 2.3.3-21, Table 2.3.3-25, Section 3.3.2.1.21, Section 3.3.2.1.25, Table 3.3.1, Table 3.3.2-21, and Table 3.3.2-25 are revised.

SLRA Table 2.3.3-21, Process Sampling System Components Subject to Aging Management Review on page 2.3-96 is revised as shown below:

# Table 2.3.3-21 Process Sampling System Components Subject to Aging Management Review

| Component Type                                 | Intended Function  |
|------------------------------------------------|--------------------|
| Bolting (Closure)                              | Mechanical Closure |
| Insulated piping, piping components            | Leakage Boundary   |
| Insulated Pump Casing (RWCU Sample<br>Chiller) | Leakage Boundary   |
| Piping, piping components                      | Leakage Boundary   |
| Tanks (TBCCW HX Service Water<br>Sample Tank)  | Leakage Boundary   |
| Valve Body                                     | Leakage Boundary   |

SLRA Table 2.3.3-25, Reactor Building Closed Cooling Water System Components Subject to Aging Management Review on page 2.3-106 is revised as shown below:

| Table 2.3.3-25 | Reactor Building Closed Cooling Water System         |
|----------------|------------------------------------------------------|
|                | <b>Components Subject to Aging Management Review</b> |

| Component Type                                                                           | Intended Function  |
|------------------------------------------------------------------------------------------|--------------------|
| Bolting (Closure)                                                                        | Mechanical Closure |
| Compressor Housing (Instrument<br>Nitrogen Compressor)                                   | Leakage Boundary   |
| Heat Exchanger - (Instrument Nitrogen<br>Compressor Aftercooler) Tube Side<br>Components | Leakage Boundary   |
| Heat Exchanger - (Instrument Nitrogen<br>Compressor Aftercooler) Tubes                   | Leakage Boundary   |
| Heat Exchanger - (PASS Jet Pump and<br>Liquid Sample Coolers) Shell Side<br>Components   | Leakage Boundary   |
| Heat Exchanger - (RBCCW Heat<br>Exchangers) Shell Side Components                        | Leakage Boundary   |
| Heat Exchanger - (RWCU Non-<br>Regenerative Heat Exchanger) Shell Side<br>Components     | Leakage Boundary   |
| Heat Exchanger - (RWCU Pump Motor<br>Cooler) Shell Side Components                       | Leakage Boundary   |
| Heat Exchanger - (RWCU Sample<br>Chiller Condenser) Tubes                                | Leakage Boundary   |
| Heat Exchanger - (Reactor Water Sample<br>Heat Transfer Coil) Shell Side<br>Components   | Leakage Boundary   |
| Hoses                                                                                    | Leakage Boundary   |
| Insulated Valve Body                                                                     | Leakage Boundary   |
| Insulated piping, piping components                                                      | Leakage Boundary   |
| Piping elements                                                                          | Leakage Boundary   |
| Piping, piping components                                                                | Leakage Boundary   |
| Pump Casing (RBCCW Pumps)                                                                | Leakage Boundary   |
| Tanks (RBCCW Chemical Addition Tank)                                                     | Leakage Boundary   |
| Tanks (RBCCW Head Tank)                                                                  | Leakage Boundary   |
| Valve Body                                                                               | Leakage Boundary   |

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SLRA Section 3.3.2.1.21, Process Sampling System on page 3.3-28 is revised as shown below:

## 3.3.2.1.21 Process Sampling System

#### Environments

The Process Sampling System components are exposed to the following environments:

- Air Indoor Uncontrolled
- Closed Cycle Cooling Water
- Condensation
- Raw Water
- Treated Water
- Treated Water > 140 F
- Waste Water

SLRA Section 3.3.2.1.25, Reactor Building Closed Cooling Water System on page 3.3-33 is revised as shown below:

### 3.3.2.1.25 Reactor Building Closed Cooling Water System

#### Environments

The Reactor Building Closed Cooling Water System components are exposed to the following environments:

- Air Indoor Uncontrolled
- Closed Cycle Cooling Water
- Condensation
- Gas

SLRA Table 3.3.1, Summary of Aging Management Evaluations for the Auxiliary Systems, Items 3.3.1-205 and 3.3.1-232 on pages 3.3-141 and 3.3-148 is revised as shown below:

| ltem<br>Number | Component                                                                                                         | Aging Effect/<br>Mechanism                               | Aging Management<br>Programs                                                                                                                                                                                                                                                                                                   | Further<br>Evaluation<br>Recommended | Discussion                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.3.1-205      | Insulated stainless steel<br>piping, piping<br>components, tanks<br>exposed to air,<br>condensation               | Cracking due to SCC                                      | AMP XI.M29, "Outdoor<br>and Large Atmospheric<br>Metallic Storage Tanks,"<br>AMP XI.M32, "One-Time<br>Inspection," AMP XI.M36,<br>"External Surfaces<br>Monitoring of Mechanical<br>Components," or AMP<br>XI.M42, "Internal<br>Coatings/Linings for In-<br>Scope Piping, Piping<br>Components, Heat<br>Exchangers, and Tanks" | Yes                                  | Consistent with NUREG-2191. The One-<br>Time Inspection (B.2.1.21) program will be<br>used to manage cracking of insulated<br>stainless steel piping, piping components<br>exposed to air-outdoor and condensation i<br>the Chilled Water System, Emergency<br>Service Water System, Process Sampling<br>System, Refueling Water Storage and<br>Transfer System, and Service Water<br>System.<br>See Subsection 3.3.2.2.3.                      |
| 3.3.1-232      | Insulated stainless steel,<br>nickel alloy piping, piping<br>components, tanks<br>exposed to air,<br>condensation | Loss of material due<br>to pitting, crevice<br>corrosion | AMP XI.M29, "Outdoor<br>and Large Atmospheric<br>Metallic Storage Tanks,"<br>AMP XI.M32, "One-Time<br>Inspection," AMP XI.M36,<br>"External Surfaces<br>Monitoring of Mechanical<br>Components," or AMP<br>XI.M42, "Internal<br>Coatings/Linings for In-<br>Scope Piping, Piping<br>Components, Heat<br>Exchangers, and Tanks" | Yes                                  | Consistent with NUREG-2191. The One-<br>Time Inspection (B.2.1.21) program will be<br>used to manage loss of material of the<br>insulated stainless steel piping, piping<br>components exposed to air-outdoor and<br>condensation in the Chilled Water System,<br>Emergency Service Water System,<br><i>Process Sampling System</i> , Refueling<br>Water Storage and Transfer System, and<br>Service Water System.<br>See Subsection 3.3.2.2.4. |

SLRA Table 3.3.2-21, Process Sampling System, Summary of Aging Management Evaluation on page 3.3-317 is revised as shown below:

Table 3.3.2-21

Process Sampling System

| Component<br>Type                                              | Intended<br>Function | Material                                 | Environment                             | Aging Effect<br>Requiring<br>Management | Aging Management<br>Programs      | NUREG-2191<br>Item | NUREG-2192<br>Table 1 Item | Notes |
|----------------------------------------------------------------|----------------------|------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------|--------------------|----------------------------|-------|
| Bolting (Closure) Mechanical Closu                             | Mechanical Closure   | Carbon and Low<br>Alloy Steel<br>Bolting | Air - Indoor<br>Uncontrolled (External) | Loss of Material                        | Bolting Integrity (B.2.1.10)      | VII.I.A-03         | 3.3.1-012                  | В     |
|                                                                |                      | 5                                        |                                         | Loss of Preload                         | Bolting Integrity (B.2.1.10)      | VII.I.AP-124       | 3.3.1-015                  | В     |
| Insulated piping, Leakage Bo<br>piping<br>components           | Leakage Boundary     | Copper Alloy<br>with 15% Zinc or<br>Less | Condensation<br>(External)              | None                                    | None                              | VII.J.AP-144       | 3.3.1-114                  | A     |
|                                                                |                      |                                          | Treated Water<br>(Internal)             | Loss of Material                        | One-Time Inspection<br>(B.2.1.21) | VII.E3.AP-140      | 3.3.1-022                  | A     |
|                                                                |                      |                                          |                                         |                                         | Water Chemistry<br>(B.2.1.2)      | VII.E3.AP-140      | 3.3.1-022                  | В     |
| Insulated Pump Leakage Bour<br>Casing (RWCU<br>Sample Chiller) | Leakage Boundary     | Stainless Steel                          | Condensation<br>(External)              | Cracking                                | One-Time Inspection<br>(B.2.1.21) | VII.I.A-734b       | 3.3.1-205                  | A     |
|                                                                |                      |                                          |                                         | Loss of Material                        | One-Time Inspection<br>(B.2.1.21) | VII.I.A-761b       | 3.3.1-232                  | A     |
|                                                                |                      |                                          | Treated Water<br>(Internal)             | Loss of Material                        | One-Time Inspection<br>(B.2.1.21) | VII.E4.AP-110      | 3.3.1-203                  | A     |
|                                                                |                      |                                          |                                         |                                         | Water Chemistry<br>(B.2.1.2)      | VII.E4.AP-110      | 3.3.1-203                  | В     |

SLRA Table 3.3.2-25, Reactor Building Closed Cooling Water System, Summary of Aging Management Evaluation on page 3.3-340 is revised as shown below:

| Table 3.3.2-25                                                           | Rea                  | ctor Building                            | Closed Cooling Wa                        | iter System (                           | Continued)                                 |                    |                            |       |
|--------------------------------------------------------------------------|----------------------|------------------------------------------|------------------------------------------|-----------------------------------------|--------------------------------------------|--------------------|----------------------------|-------|
| Component<br>Type                                                        | Intended<br>Function | Material                                 | Environment                              | Aging Effect<br>Requiring<br>Management | Aging Management<br>Programs               | NUREG-2191<br>Item | NUREG-2192<br>Table 1 Item | Notes |
| Heat Exchanger -<br>(RWCU Pump<br>Motor Cooler) Shell<br>Side Components | Leakage Boundary     | Carbon Steel                             | Closed Cycle Cooling<br>Water (Internal) | Loss of Material                        | Closed Treated Water<br>Systems (B.2.1.12) | VII.C2.AP-189      | 3.3.1-046                  | В     |
| Heat Exchanger -<br>(RWCU Sample<br>Chiller                              | Leakage Boundary     | Copper Alloy<br>with 15% Zinc or<br>Less | Closed Cycle Cooling<br>Water (Internal) | Loss of Material                        | Closed Treated Water<br>Systems (B.2.1.12) | VII.C2.AP-199      | 3.3.1-046                  | D     |
| Condenser)<br>Tubes                                                      |                      |                                          | Gas (External)                           | None                                    | None                                       | VII.J.AP-9         | 3.3.1-114                  | С     |
| Heat Exchanger -<br>(Reactor Water                                       | Leakage Boundary     | Copper Alloy with 15% Zinc or Less       | Air - Indoor<br>Uncontrolled (External)  | None                                    | None                                       | VII.J.AP-144       | 3.3.1-114                  | A     |
| Sample Heat<br>Transfer Coil) Shell<br>Side Components                   |                      |                                          | Closed Cycle Cooling<br>Water (Internal) | Loss of Material                        | Closed Treated Water<br>Systems (B.2.1.12) | VII.C2.AP-199      | 3.3.1-046                  | В     |

#### Table 3.3.2-25 Reactor Building Closed Cooling Water System

#### Change # 2 - Fuel Pool Cooling and Cleanup System Heat Exchanger Replacement

Affected SLRA Sections: Tables 3.3.1, 3.3.2-16

SLRA Page Numbers: 3.3-96, 3.3-279, 3.3-280

#### **Description of Change:**

The Fuel Pool Cooling heat exchangers have been replaced, and the heat exchanger shells for the new heat exchangers are a different material than the original heat exchangers. SLRA Table 3.3.2-16, "Fuel Pool Cooling and Cleanup System," identifies the original fuel pool cooling heat exchanger shells as carbon steel; however the material for the replacement heat exchanger shells is stainless steel.

Accordingly, SLRA Tables 3.3.1 and 3.3.2-16 are updated to reflect the new material.

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SLRA Table 3.3.1, Summary of Aging Management Evaluations for the Auxiliary Systems, page 3.3-96, is revised as shown below:

| ltem<br>Number | Component                                                                                                                     | Aging Effect/<br>Mechanism                                        | Aging Management<br>Programs                                              | Further<br>Evaluation<br>Recommended | Discussion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.3.1-080      | Steel heat exchanger<br>components, piping,<br>piping components<br>exposed to air – indoor<br>uncontrolled, air –<br>outdoor | Loss of material due<br>to general, pitting,<br>crevice corrosion | AMP XI.M36, "External<br>Surfaces Monitoring of<br>Mechanical Components" | No                                   | Consistent with NUREG-2191. The<br>External Surfaces Monitoring of Mechanic<br>Components (B.2.1.24) program will be<br>used to manage loss of material of the<br>carbon steel, ductile iron, and gray cast iro<br>heat exchanger components, piping, pipin<br>components exposed to air-indoor<br>uncontrolled and air-outdoor in the Auxilian<br>Steam System, Chilled Water System,<br>Emergency Cooling Water System,<br>Emergency Diesel Generator System,<br>Emergency Service Water System, Fuel<br>Pool Cooling and Cleanup System, Reactor<br>Building Closed Cooling Water System,<br>Reactor Water Cleanup System, Service<br>Water System, and Turbine Building Closed<br>Cooling Water System. |

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SLRA Table 3.3.2-16, Fuel Pool Cooling and Cleanup System, Summary of Aging Management Evaluation, pages 3.3-279 and 3.3-280, is revised as shown below:

| Component<br>Type                     | Intended<br>Function | Material                   | Environment                             | Aging Effect<br>Requiring<br>Management | Aging Management<br>Programs                                           | NUREG-2191<br>Item             | NUREG-2192<br>Table 1 Item               | Notes    |
|---------------------------------------|----------------------|----------------------------|-----------------------------------------|-----------------------------------------|------------------------------------------------------------------------|--------------------------------|------------------------------------------|----------|
| (Fuel Pool Cooling<br>Heat Exchanger) |                      | kage Boundary Carbon Steel | Air - Indoor<br>Uncontrolled (External) | Cracking                                | One-Time Inspection<br>(B.2.1.21)                                      | VII.E4.AP-209a                 | 3.3.1-004                                | С        |
|                                       | Stainless Steel      | s Steel                    | Steel                                   | Loss of Material                        | One-Time Inspection<br>(B.2.1.21)                                      | VII.E4.AP-221a                 | 3.3.1-006                                | С        |
|                                       |                      |                            |                                         |                                         | External Surfaces<br>Monitoring of Mechanical<br>Components (B.2.1.24) | VII.LAP-41                     | <del>3.3.1-080</del>                     | A        |
|                                       |                      | Treated Water (Internal)   | Treated Water (Internal                 | Long-Term Loss of<br>Material           | One-Time Inspection<br>(B.2.1.21)                                      | <del>VII.A4.A-439</del>        | <del>3.3.1-193</del>                     | A        |
|                                       | 2                    |                            |                                         | Loss of Material                        | One-Time Inspection<br>(B.2.1.21)                                      | VII.A4.AP-111<br>VII.E4.AP-106 | <i>3.3.1-203</i><br><del>3.3.1-021</del> | А<br>С   |
|                                       |                      |                            |                                         |                                         | Water Chemistry (B.2.1.2)                                              | VII.A4.AP-111<br>VII.E4.AP-106 | <b>3.3.1-203</b><br><del>3.3.1-021</del> | <b>B</b> |

# Table 3.3.2-16 Fuel Pool Cooling and Cleanup System

#### Change # 3 - Feedwater System High/Low Pressure Interface

Affected SLRA Sections: 2.3.4.3, Table 3.4.2-3

SLRA Page Numbers: 2.3-137, 3.4-77

#### **Description of Change:**

An additional fire protection function has been identified for several valves in the feedwater system. These valves perform a high/low pressure interface function for Appendix R. These valves are already in the scope of second license renewal and are subject to aging management as identified in SLRA Table 3.4.2-3, stainless steel valve bodies with leakage boundary function exposed to Air – Indoor Uncontrolled (External) and Treated Water > 140 F (Internal) environments. SLRA Section 2.3.4.3 and Table 3.4.2-3 are revised to include the pressure boundary function to reflect this fire protection function.

Accordingly, SLRA Section 2.3.4.3 and Table 3.4.2-3 are revised.

SLRA Section 2.3.4.3, Feedwater System, page 2.3-137, is revised as shown below:

#### 2.3.4.3 <u>Feedwater System</u>

#### **Intended Functions**

6. Relied upon in safety analyses or plant evaluations to perform a function that demonstrates compliance with the Commission's regulations for Fire Protection (10 CFR 50.48). The Feedwater System provides an injection path into the reactor pressure vessel for both HPCI and RCIC. *The Feedwater System also includes valves that are high/low pressure interfaces which are credited for Fire Safe Shutdown.* 10 CFR 54.4(a)(3)

SLRA Table 3.4.2-3, Feedwater System, Summary of Aging Management Evaluation, page 3.4-77, is revised as shown below:

| Table 3.4.2-3     | Fee                  | edwater Syste   | m                                       |                                         | (Continued)                       |                    | 4720.01                    |               |           |   |
|-------------------|----------------------|-----------------|-----------------------------------------|-----------------------------------------|-----------------------------------|--------------------|----------------------------|---------------|-----------|---|
| Component<br>Type | Intended<br>Function | Material        | Environment                             | Aging Effect<br>Requiring<br>Management | Aging Management<br>Programs      | NUREG-2191<br>Item | NUREG-2192<br>Table 1 Item | Notes         |           |   |
| Valve Body        | Pressure Boundary    | Stainless Steel | Air - Indoor<br>Uncontrolled (External) | Cracking                                | One-Time Inspection<br>(B.2.1.21) | VIII.D2.SP-118a    | 3.4.1-002                  | A             |           |   |
|                   |                      |                 |                                         | Loss of Material                        | One-Time Inspection<br>(B.2.1.21) | VIII.D2.SP-127a    | 3.4.1-003                  | А             |           |   |
|                   |                      |                 | Treated Water (Internal)                | Loss of Material                        | One-Time Inspection<br>(B.2.1.21) | VIII.D2.SP-87      | 3.4.1-085                  | А             |           |   |
|                   |                      |                 |                                         |                                         |                                   |                    | Water Chemistry (B.2.1.2)  | VIII.D2.SP-87 | 3.4.1-085 | В |
|                   |                      |                 | Treated Water > 140 F<br>(Internal)     | Cracking                                | One-Time Inspection<br>(B.2.1.21) | VIII.E.SP-88       | 3.4.1-011                  | A             |           |   |
|                   |                      |                 |                                         |                                         | Water Chemistry<br>(B.2.1.2)      | VIII.E.SP-88       | 3.4.1-011                  | В             |           |   |
|                   |                      |                 |                                         | Loss of Material                        | One-Time Inspection<br>(B.2.1.21) | VIII.D2.SP-87      | 3.4.1-085                  | A             |           |   |
|                   |                      |                 |                                         |                                         | Water Chemistry<br>(B.2.1.2)      | VIII.D2.SP-87      | 3.4.1-085                  | В             |           |   |

#### Change # 4 - Transition to the Fifth Ten-Year Interval of the ISI Program

Affected SLRA Sections: A.2.1.5, B.2.1.1, B.2.1.3, B.2.1.5, B.2.1.30

SLRA Page Numbers: A-12, B-15, B-25, B-29, B-30, B-35, B-37, B-171

#### **Description of Change:**

The SLRA contains several references to the Fourth Ten-Year Interval of the ISI Program, which was the relevant Interval at the time that the SLRA was submitted. PBAPS is now in the Fifth Ten-Year Interval of the ISI Program. The SLRA is revised to reflect administrative changes that are relevant to the new Interval.

Accordingly, SLRA Sections A.2.1.5, B.2.1.1, B.2.1.3, B.2.1.5, and B.2.1.30 are revised.

SLRA Section A.2.1.5, page A-12, second paragraph, is revised as shown below:

#### A.2.1.5 BWR Stress Corrosion Cracking

The program includes periodic volumetric examinations to detect and manage IGSCC in accordance with NRC GL 88-01. The extent and schedule of inspection described in GL 88-01 are modified in accordance with the inspection guidance in staff-approved BWRVIP-75-A. Welds classified as IGSCC Category A may be *inspected at a frequency in accordance with ASME Section XI, including the Code Case N-716-1 Risk Informed Inspection (RI ISI) program.* subsumed into the Risk-Informed Inservice Inspection program in accordance with staff-approved EPRI Topical Report TR-112657, Revision B-A, pending approval of ASME Code relief requests during the second period of extended operation. The program includes the staff-approved positions delineated in NUREG-0313, Revision 2, and GL 88-01 and its Supplement 1 regarding selection of IGSCC resistant materials, solution heat treatment and stress improvement processes, water chemistry, weld overlay reinforcement, partial replacement, clamping devices, crack characterization and repair criteria, inspection methods and personnel, inspection schedules, sample expansion, leakage detection, and reporting requirements.

SLRA Section B.2.1.1, page B-15, fourth paragraph, is revised as shown below:

#### B.2.1.1 ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD

For the current fourth *fifth* 10-year inspection interval, the ISI program applies the requirements of ASME Code, Section XI, 2001 2013 Edition. Edition through 2003 Addenda, and Risk-Informed Inservice Inspection (RI-ISI) alternative requirements to Examination Categories B-F, B-J, C-F-1, and C-F-2 for Class 1 and Class 2 piping welds as approved by relief request. Examination locations, and the number of locations requiring examination, are based on the guidelines provided in EPRI TR-112657, "Revised Risk-Informed Inservice Inspection Evaluation Procedure," Revision B-A, and ASME Code Case N-578-1. Examination Categories B-F, B-J, C-F-1, C-F-2, C-A, and C-B piping welds have been exempted from ASME Section XI required surface and/or volumetric inspections by N-716-1. This Code Case allows for the implementation of the RI-ISI Program.

SLRA Section B.2.1.3 is revised in several locations as shown below:

#### B.2.1.3 Reactor Head Closure Stud Bolting

#### Page B-25, second paragraph

The Reactor Head Closure Stud Bolting program implements ASME Code, Section XI inspection requirements through the ISI Program plan. The current ISI Program plan for the fourth *fifth* 10-year inspection interval (November 5, 2008 January 2019 through December-31, 2018 2028) is based on the 2001 2013 Edition of the ASME Code, Section XI, including 2003 addenda. The future 120-month inspection intervals will incorporate the requirements specified in the version of the ASME Code referenced in 10 CFR 50.55a 12 months before the start of the inspection interval.

#### Page B-29, second paragraph

During this effectiveness review, examination reports for Unit 3 RPV head stud bushings 1-46 in 2011, and examination reports for flange threads 47-92 in 2015, could not be located. These examinations were recorded as complete in the ISI Program database. This issue was entered into the corrective action program. Because the examination reports could not be located, the inspection of RPV head stud bushings 1-46 was rescheduled and performed during the 2017 refueling outage, thereby ensuring that this required examination of the fourth 10-year ISI interval, covering the period from 2008 to 2018, was met. The inspection of flange threads 47-92 was not performed due to NRC approval of a relief request that has since eliminated the need to perform these inspections for the remainder of the eurrent fourth 10-year ISI interval (Reference: NRC Relief Request Approval, ADAMS Accession No. ML17170A013). The ISI Program database software that is currently in use addresses the cause of this issue and precludes recurrence by requiring all the necessary records associated with the completed examination to be entered into the database before the database statuses the examination as complete. An extent of condition review was also performed that determined there are no other similar issues.

#### Page B-30, fourth paragraph

During the Unit 3 refueling outage in 2015, reactor head closure studs 47 through 92 were examined using the UT examination method. Reactor head closure nuts, washers, and bushings 47 through 92 were examined using the VT-1 method. There were no recordable indications. The Unit 3 RPV head stud bushings 1-46 were examined using the VT-1 method during the refueling outage in 2017. A Relief Request to ASME Code, Section XI requirements was approved in June 2017 that eliminated the need to perform UT examination of the flange threads for the remainder of the <del>current</del> fourth 10-year ISI interval.

SLRA Section B.2.1.5, page B-35, third paragraph, is revised as shown below:

#### B.2.1.5 BWR Stress Corrosion Cracking

The program addresses the management of crack initiation and growth due to IGSCC in the piping, welds, and components through the implementation of the ISI program in accordance with ASME Code, Section XI. Inservice inspections, performed as augmented requirements of the Section XI ISI program, ensure that aging effects are identified and repaired before the loss of intended function of in scope components. The inspection frequency for welds classified in accordance with NRC GL 88-01 as IGSCC Category B through G is per the recommendations provided in the staff-approved BWRVIP-75-A, "BWR Vessel and Internals Project Technical Basis for Revisions to Generic Letter 88-01 Inspection Schedules" for normal water chemistry conditions. Welds classified as IGSCC Category A may be subsumed into the Risk-Informed Inservice Inspection (RI-ISI) program in accordance with staff-approved EPRI Topical Report TR-112657, Revision B-A, Final Report, "Revised Risk-Informed Inservice Inspection Evaluation Procedure," December 1999, pending approved ASME Code relief request. In the event that such relief is not approved by NRC staff for future ISI intervals during the second period of extended operation. Category A welds would be examined per the extent and schedule defined by BWRVIP-75-Ainspected at a frequency in accordance with ASME Section XI, including the Code Case N-716-1 Risk Informed Inspection (RI ISI) program, inspected at a frequency in accordance with ASME Section XI. including the Code Case N-716-1 Risk Informed Inspection (RI ISI) program.

SLRA Section B.2.1.5 is also revised on page B-37 as shown below:

2. On Unit 2, during the fourth 10-year ISI inspection interval (November 2008 through December 2018), volumetric examinations are being performed on all 15 IGSCC Category D welds every six years and an examination was performed on one of the two IGSCC Category E welds. There are no IGSCC Category B, C, F, or G welds on Unit 2. Also, during this current *the fourth* interval, 16 IGSCC Category A welds were examined. No indications of cracking were identified. Examinations of the Category D and E welds were performed per the schedules within BWRVIP-75-A. Examinations of the Category A welds were performed per the Risk-Informed ISI program schedules.

This example demonstrates that the industry guidelines delineated in NRC GL 88-01, NUREG-0313, Revision 2, and BWRVIP-75-A continue to be effectively implemented to monitor the condition of welds within the scope of the program.

3. On Unit 3, during the fourth 10-year ISI inspection interval, (November 2008 through December 2018), volumetric examinations were performed on two of the five IGSCC Category C welds and an examination was performed on the one IGSCC Category E weld. There are no IGSCC Category B, D, F, or G welds on Unit 3. Also, during this current the fourth interval, 22 IGSCC Category A welds were examined. No indications of cracking were identified. Examinations of the Category C and E welds were performed per the schedules within BWRVIP-75-A. Examinations of the Category A welds were performed per the Risk-Informed ISI program schedules.

SLRA Section B.2.1.30, page B-171, sixth paragraph, is revised as shown below:

#### B.2.1.30 ASME Section XI, Subsection IWE

The current program complies with ASME Section XI, Subsection IWE, 2001 2013 Edition through the 2003 Addenda, supplemented with the applicable requirements of 10 CFR 50.55a. In accordance with 10 CFR 50.55a(g)(4), the ISI program is updated each successive 120-month inspection interval to comply with the requirements of the latest edition of the ASME Code specified 12 months before the start of the inspection interval. The ASME Code edition consistent with the provisions of 10 CFR 50.55a will be used during the second period of extended operation.