

10 CFR 50  
10 CFR 51  
10 CFR 54

June 6, 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  
NRC Docket Nos. 50-277 and 50-278

Subject: Response to NRC Request for Additional Information, dated May 15, 2019  
related to the Peach Bottom Atomic Power Station, Units 2 and 3,  
Subsequent License Renewal Application

References: 1. Letter from Michael P. Gallagher, Exelon Generation Company LLC, to  
NRC Document Control Desk, dated July 10, 2018, "Application for  
Subsequent Renewed Operating Licenses"

2. E-mail from Bennett Brady, NRC to Michael P. Gallagher, Exelon  
Generation Company, LLC, dated May 15, 2019, "Request for Additional  
Information for the Safety Review of the Peach Bottom Subsequent  
License Renewal Application – Responses to Set 1 RAIs"

In Reference 1, Exelon Generation Company, LLC (Exelon) submitted the Subsequent License Renewal Application (SLRA) for the Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3. In Reference 2, the NRC requested additional information to support staff review of the SLRA.

Enclosure A contains the response to this request for additional information.

Enclosure B contains updates to sections of the SLRA affected by the response.

This letter contains no new regulatory commitments.

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

June 6, 2019  
U.S. Nuclear Regulatory Commission  
Page 2

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 6<sup>th</sup> day of June 2019.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael P. Gallagher", is written over a horizontal line.

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

Enclosures: A: Response to Request for Additional Information  
B: Subsequent License Renewal Application Updates

cc: Regional Administrator – NRC Region I  
NRC Senior 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 A**

**Response to Request for Additional Information  
Peach Bottom Atomic Power Station, Units 2 and 3  
Subsequent License Renewal Application (SLRA)**

RAI 3.3.2.1.1-1a

Regulatory Basis:

10 CFR 54.21(a)(3) requires an applicant to demonstrate that the effects of aging for structures and components will be adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis for the subsequent period of extended operation. One of the findings that the staff must make to issue a renewed license (10 CFR 54.29(a)) is that actions have been identified and have been or will be taken with respect to manage the effects of aging during the subsequent period of extended operation on the functionality of structures and components that have been identified to require review under 10 CFR 54.21, such that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the current licensing basis. To complete its review and enable making a finding under 10 CFR 54.29(a), the staff requires additional information about the matters described below.

**RAI 3.3.2.1.1-1a**

Background:

A. The May 2, 2019, (ML19122A289) response to RAI 3.3.2.1.1-1 states that, “cracking due to SCC [stress corrosion cracking] is not cited as an aging effect requiring management for copper alloy with greater than 15 percent zinc components in the environment of air – indoor, uncontrolled.” The response provided a basis for this position citing NUREG-2221, “Technical Bases for Changes in the Subsequent License Renewal Guidance Documents NUREG-2191 and NUREG-2192,” Table 3-2 “SRP-SLR Chapter 2, Scoping and Screening, Differences from SRP-LR, Revision 2 and Their Technical Bases,” as follows:

- It is unlikely that leakage from packing, gaskets, seals or o-rings would result in failure of the system to deliver sufficient flow at adequate pressure.
- In regard to leakage, which could affect either the pressure boundary (containment leak boundary) or leakage boundary (spatial) intended functions, licensees routinely conduct tours of the operating spaces. When leakage is detected it is typically promptly entered into the corrective action program. The leakage is corrected by replacing the packing, gaskets, seals, and o-rings as consumables.

Regarding the air-indoor uncontrolled environment, the RAI response states:

It is feasible that trace amounts of ammonia or ammonium compounds could exist in the air – indoor, uncontrolled environment due to (1) incidental leakage from the raw water cooling systems from packing, gaskets, seals, and o-rings, and, (2) incidental leakage from packing, gaskets, seals, and o-rings through insulation where the insulation contains contaminants.

The associated copper alloy with greater than 15 percent zinc components are cited as being consistent.

B. For six of the environments (i.e., air indoor-uncontrolled, air-outdoor, air-dry, treated water, condensation, waste water) cited in the response to RAI 3.3.2.1.1-1, the response states in part that, “ammonia or ammonium compounds are not assumed to be present.”



Issue:

A. In justifying that potential sources of ammonia are not required to be considered when determining aging effects requiring management, the RAI response misapplied the position documented in NUREG-2221, Table 3-2 regarding why it is not necessary to manage loss of leak tightness for packing, gaskets, seals, and O-rings. Referencing the staff position in the basis documents, the staff concludes that the RAI response basis is not correct as follows:

- The technical basis statement associated with leakage from degraded packing, gaskets, seals, and O-rings is in relation to the process flow. There is reasonable assurance that the pressure boundary intended function of the component would not be adversely affected due to leaks from packing, gasket, seals and O-rings; however, that does not imply that leaks from these types of components cannot cause aging effects that adversely affect the pressure boundary intended functions of other components.
- The technical basis document statement regarding the replacement of these components as consumables:
  - The function of the containment leakage boundary is to provide containment isolation for fission product retention. While packing, gaskets, seals, and O-rings could impact this function, the GALL-SLR Report recommends periodic testing of containment penetrations, which would test these items along with the entire penetration. It is not necessary to “separately” manage aging effects for packing, gaskets, seals, and O-rings in regard to this intended function.
  - The staff recognizes that leakage and spray from nonsafety-related components are associated with the leakage boundary (spatial) intended function. However, as stated in the basis, leaks are typically promptly identified and corrected. As a result, it is the staff’s position that recommending management of aging effects associated with packing, gaskets, seals, and O-rings is not warranted. Stating it in another manner, it is not warranted that packing, gaskets, seals, and O-rings be identified as items requiring aging management in the Table 2s of applications.
  - These positions do not extend to include an interpretation that this leakage is, “not required to be considered when determining aging effects requiring management.” In fact, such an interpretation contradicts SRP-SLR Section A.1.2.1, which states:

However, leakage from bolted connections should not be considered as abnormal events. Although bolted connections are not supposed to leak, experience shows that leaks do occur, and the leakage could cause corrosion. In addition, condensation frequently occurs during humid periods of normal plant operation and can also occur during plant shutdown when normally hot components might be below the dew point. The aging effects from leakage of bolted connections and condensation occurring during humid periods of normal plant operations should be evaluated for SLR.

In summary, the GALL-SLR Report and SRP-SLR do not recommend that aging effects be managed for packing, gaskets, seals, and O-rings. However, potential aging effects due to degraded (leaking) packing, gaskets, seals, and O-rings should be evaluated to be consistent with the GALL-SLR Report.

B. The RAI response lacks sufficient clarity on whether ammonia or ammonium compounds are or could be present.

**Request:**

A. State the basis for why cracking due to SCC is not cited as an aging effect requiring management for copper alloy with greater than 15 percent zinc components exposed to an environment of air - indoor, uncontrolled.

B. Definitively state whether ammonia or ammonium compounds are or could be present in the following environments: air indoor-uncontrolled, air-outdoor, air-dry, treated water, condensation, and waste water.

**Exelon Response:**

A. Copper alloy with greater than 15 percent zinc components exposed to the environment of air-indoor uncontrolled will cite cracking due to stress corrosion cracking as an aging effect since ammonia or ammonium compounds could be present via leakage through degraded packing, gaskets, seals, and O-rings. These components will be managed by programs which include periodic visual inspections capable of detecting this aging effect.

B. As discussed in the item A response above, ammonia or ammonium compounds could be present in the environment of air-indoor uncontrolled due to leakage through degraded packing, gaskets, seals, and O-rings.

For the environments of air-outdoor, air-dry, treated water, and certain condensation and waste water environments as described in response to RAI 3.3.2.1.1-1 (Letter from Michael P. Gallagher, Exelon Generation Company LLC, to NRC Document Control Desk, dated May 2, 2019, "Response to NRC Requests for Additional Information, Set 1, dated April 10, 2019 related to the Peach Bottom Atomic Power Station, Units 2 and 3, Subsequent License Renewal Application"), the presence of ammonia or ammonium compounds was not assumed. The term "not assumed" is based on the determination that potential sources of ammonia or ammonium compounds are not present in these environments that can impact copper alloy with greater than 15 percent zinc components and therefore, are not required to be considered when determining aging effects requiring management.

SLRA Sections 3.3.2.1.9, 3.3.2.1.22, 3.3.2.1.28, Table 3.4.1 Item Number 3.4.1-106 and Tables 3.1.2-3, 3.2.2-2, 3.2.2-3, 3.2.2-4, 3.2.2-5, 3.2.2-6, 3.2.2-8, 3.3.2-1, 3.3.2-2, 3.3.2-3, 3.3.2-7, 3.3.2-9, 3.3.2-12, 3.3.2-14, 3.3.2-20, 3.3.2-21, 3.3.2-22, 3.3.2-24, 3.3.2-25, 3.3.2-28, 3.3.2-29, 3.3.2-35, and 3.5.2-4 are revised as shown in Enclosure B to cite cracking as an aging effect requiring management in copper alloy with greater than 15 percent zinc in the air-indoor uncontrolled environment.

## Enclosure B

### Peach Bottom Atomic Power Station, Units 2 and 3 Subsequent License Renewal Application Updates Resulting from the Response to the following RAI:

RAI 3.3.2.1.1-1a

#### Notes:

- Updated SLRA Information is provided in the same order as the RAI responses contained in Enclosure A.
- To facilitate understanding, portions of the original SLRA have been repeated in this Enclosure, with revisions indicated. Previously submitted information is shown in normal font. Changes are highlighted with ***bolded italics*** for inserted text and ~~strikethroughs~~ for deleted text.

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Section 3.3.2.1.9 on page 3.3-13 of the SLRA is revised as shown below:

**Aging Effects Requiring Management**

The following aging effects associated with the Diesel Generator Building Ventilation System components require management:

- ***Cracking***
- Hardening and Loss of Strength
- Loss of Material
- Loss of Preload

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Section 3.3.2.1.22 on page 3.3-29 of the SLRA is revised as shown below:

**Aging Effects Requiring Management**

The following aging effects associated with the Pump Structure Ventilation System components require management:

- ***Cracking***
- Hardening and Loss of Strength
- Loss of Material
- Loss of Preload

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Section 3.3.2.1.28 on page 3.3-37 of the SLRA is revised as shown below:

**Aging Management Programs**

The following aging management programs manage the aging effects for the Safety Grade Instrument Gas System components:

- Bolting Integrity (B.2.1.10)
- Compressed Air Monitoring (B.2.1.14)
- ***External Surfaces Monitoring of Mechanical Components (B.2.1.24)***
- One-Time Inspection (B.2.1.21)

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.4.1, Item 3.4.1-106 on page 3.4-51 of the SLRA is revised as shown below:

Table 3.4.1 Summary of Aging Management Evaluations for the Steam and Power Conversion Systems					
Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-106	Copper alloy (>15% Zn or >8% Al) piping, piping components exposed to air, condensation	Cracking due to SCC	AMP XI.M36, "External Surfaces Monitoring of Mechanical Components"	No	<p><del>Not Applicable.</del></p> <p><del>There are no copper alloy (&gt;15% Zn or &gt;8% Al) piping, piping components exposed to air or condensation in Steam and Power Conversion Systems.</del></p> <p><i>For the environment of air-indoor uncontrolled, cracking due to stress corrosion cracking can occur due to the presence of ammonia or ammonium compounds via leakage through the insulation from bolted connections (e.g., flange joints, valve packing). Ammonia or ammonium compounds are not present in other air environments or condensation.</i></p> <p><i>Consistent with NUREG-2191. The External Surfaces Monitoring of Mechanical Components (B.2.1.24) program will be used to manage cracking of the copper alloy with greater than 15% zinc piping, piping components, spray nozzles, and sprinklers exposed to air-indoor uncontrolled in the Auxiliary Steam System, Backup Instrument Nitrogen to ADS System, Battery and Emergency Switchgear Ventilation System, Control Room Ventilation System, Diesel Generator Building Ventilation System, Emergency Diesel Generator System, Fire Protection System, Post Accident</i></p>

**Table 3.4.1 Summary of Aging Management Evaluations for the Steam and Power Conversion Systems**

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					<p><b><i>Sampling System, Process Sampling System, Pump Structure Ventilation System, Radwaste System, Reactor Building Closed Cooling Water System, Safety Grade Instrument Gas System, Service Water System, Turbine Building Closed Cooling Water System, Core Spray System, High Pressure Coolant Injection System, Primary Containment Isolation System, Reactor Core Isolation Cooling System, Residual Heat Removal System, Standby Gas Treatment System, and Reactor Recirculation System.</i></b></p> <p><b><i>The ASME Section XI, Subsection IWF (B.2.1.31) program has been substituted and will be used to manage cracking of the brass bolting in supports for ASME Class 2 and 3 piping and components exposed to air-indoor uncontrolled in the Component Supports commodity group.</i></b></p> <p><b><i>The Structures Monitoring (B.2.1.34) program has been substituted and will be used to manage cracking of the brass bolting in supports for non-ASME piping and components exposed to air-indoor uncontrolled in the Component Supports commodity group.</i></b></p>



As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.1.2-3 on page 3.1-118 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.1.2-3 Reactor Recirculation System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Leakage Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	IV.E.P-453 <i>VIII.H.S-454</i>	3.1.1-137 <i>3.4.1-106</i>	A
			Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis (B.2.1.26)	V.D2.EP-76	3.2.1-050	A
					One-Time Inspection (B.2.1.21)	V.D2.EP-76	3.2.1-050	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.2.2-2 on page 3.2-90 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.2.2-2                      Core Spray System                      (Continued)**

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Programs</b>	<b>NUREG-2191 Item</b>	<b>NUREG-2192 Table 1 Item</b>	<b>Notes</b>
Valve Body	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	<del>V.F.EP-10</del> <i>VIII.H.S-454</i>	<del>3.2.1-057</del> <i>3.4.1-106</i>	A
			Condensation (Internal)	None	None	V.F.EP-10	3.2.1-057	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.2.2-3 on pages 3.2-103, 3.2-109, and 3.2-110 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.2.2-3 High Pressure Coolant Injection System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	<del>V.F.EP-10</del> <i>VIII.H.S-454</i>	<del>3.2.1-057</del> <i>3.4.1-106</i>	A
			Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis (B.2.1.26)	V.D2.EP-76	3.2.1-050	A
					One-Time Inspection (B.2.1.21)	V.D2.EP-76	3.2.1-050	A

**Table 3.2.2-3 High Pressure Coolant Injection System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Valve Body	Leakage Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <b>Cracking</b>	None <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>V.F.EP-10</del> <b>VIII.H.S-454</b>	<del>3.2.1-057</del> <b>3.4.1-106</b>	A
			Condensation (Internal)	None	None	V.F.EP-10	3.2.1-057	A

**Table 3.2.2-3 High Pressure Coolant Injection System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Valve Body	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <b>Cracking</b>	None <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>V.F.EP-10</del> <b>VIII.H.S-454</b>	<del>3.2.1-057</del> <b>3.4.1-106</b>	A
			Condensation (Internal)	None	None	V.F.EP-10	3.2.1-057	A
			Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis (B.2.1.26)	V.D2.EP-76	3.2.1-050	A
					One-Time Inspection (B.2.1.21)	V.D2.EP-76	3.2.1-050	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.2.2-4 on page 3.2-121 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.2.2-4 Primary Containment Isolation System (Continued)**

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Programs</b>	<b>NUREG-2191 Item</b>	<b>NUREG-2192 Table 1 Item</b>	<b>Notes</b>
Valve Body	Structural Integrity (Attached)	Copper Alloy with Greater Than 15% Zinc	Air - Dry (Internal)	Loss of Material	Compressed Air Monitoring (B.2.1.14)	VII.D.A-764	3.3.1-235	A
			Air - Indoor Uncontrolled (External)	<del>None</del> <b>Cracking</b>	<del>None</del> <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>V.F.EP-10</del> <b>VIII.H.S-454</b>	<del>3.2.1-057</del> <b>3.4.1-106</b>	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.2.2-5 on pages 3.2-131 and 3.2-138 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.2.2-5                      Reactor Core Isolation Cooling System                      (Continued)**

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Programs</b>	<b>NUREG-2191 Item</b>	<b>NUREG-2192 Table 1 Item</b>	<b>Notes</b>
Piping, piping components	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	V.F.EP-10 <i>VIII.H.S-454</i>	3.2.1-057 <i>3.4.1-106</i>	A
			Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis (B.2.1.26)	V.D2.EP-76	3.2.1-050	A
					One-Time Inspection (B.2.1.21)	V.D2.EP-76	3.2.1-050	A

**Table 3.2.2-5                      Reactor Core Isolation Cooling System                      (Continued)**

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Programs</b>	<b>NUREG-2191 Item</b>	<b>NUREG-2192 Table 1 Item</b>	<b>Notes</b>
Valve Body	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	V.F.EP-10 <i>VIII.H.S-454</i>	3.2.1-057 <i>3.4.1-106</i>	A
			Condensation (Internal)	None	None	V.F.EP-10	3.2.1-057	A



As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.2.2-6 on pages 3.2-147 and 3.2-148 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.2.2-6                      Residual Heat Removal System                      (Continued)**

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Programs</b>	<b>NUREG-2191 Item</b>	<b>NUREG-2192 Table 1 Item</b>	<b>Notes</b>
Spray Nozzles	Spray	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	V.F.EP-10 <i>VIII.H.S-454</i>	3.2.1-057 <i>3.4.1-106</i>	A
			Condensation (Internal)	Flow Blockage	One-Time Inspection (B.2.1.21)	V.D2.EP-113a	3.2.1-006	A

**Table 3.2.2-6 Residual Heat Removal System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Valve Body	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	<del>V.F.EP-10</del> <i>VIII.H.S-454</i>	<del>3.2.1-057</del> <i>3.4.1-106</i>	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.2.2-8 on page 3.2-157 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.2.2-8 Standby Gas Treatment System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <b>Cracking</b>	None <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	V.F.EP-10 <b>VIII.H.S-454</b>	3.2.1-057 <b>3.4.1-106</b>	A
			Condensation (Internal)	None	None	V.F.EP-10	3.2.1-057	A
	Structural Integrity (Attached)	Copper Alloy with Greater Than 15% Zinc	Air - Dry (Internal)	Loss of Material	Compressed Air Monitoring (B.2.1.14)	VII.D.A-764	3.3.1-235	A
			Air - Indoor Uncontrolled (External)	None <b>Cracking</b>	None <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	VII.J.AP-144 <b>VIII.H.S-454</b>	3.3.1-114 <b>3.4.1-106</b>	A
Valve Body	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <b>Cracking</b>	None <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	V.F.EP-10 <b>VIII.H.S-454</b>	3.2.1-057 <b>3.4.1-106</b>	A
			Condensation (Internal)	None	None	V.F.EP-10	3.2.1-057	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.3.2-1 on pages 3.3-163 and 3.3-165 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.3.2-1                      Auxiliary Steam System                      (Continued)**

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Programs</b>	<b>NUREG-2191 Item</b>	<b>NUREG-2192 Table 1 Item</b>	<b>Notes</b>
Piping, piping components	Leakage Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	VII.J.AP-144 <i>VIII.H.S-454</i>	3.3.1-114 <i>3.4.1-106</i>	A
			Treated Water (Internal)	Loss of Material	One-Time Inspection (B.2.1.21)	VII.E3.AP-140	3.3.1-022	A
					Water Chemistry (B.2.1.2)	VII.E3.AP-140	3.3.1-022	B
					Selective Leaching (B.2.1.22)	VII.E3.AP-32	3.3.1-072	A

**Table 3.3.2-1                      Auxiliary Steam System                      (Continued)**

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Programs</b>	<b>NUREG-2191 Item</b>	<b>NUREG-2192 Table 1 Item</b>	<b>Notes</b>
Valve Body	Leakage Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	VII.J.AP-144 <i>VIII.H.S-454</i>	3.3.1-114 <i>3.4.1-106</i>	A
			Treated Water (Internal)	Loss of Material	One-Time Inspection (B.2.1.21)	VII.E3.AP-140	3.3.1-022	A
					Water Chemistry (B.2.1.2)	VII.E3.AP-140	3.3.1-022	B
					Selective Leaching (B.2.1.22)	VII.E3.AP-32	3.3.1-072	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.3.2-2 on page 3.3-169 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.3.2-2 Backup Instrument Nitrogen to ADS System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Valve Body	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Dry (Internal)	Loss of Material	Compressed Air Monitoring (B.2.1.14)	VII.D.A-764	3.3.1-235	A
			Air - Indoor Uncontrolled (External)	<del>None</del> <b>Cracking</b>	<del>None</del> <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>VII.J.AP-144</del> <b>VIII.H.S-454</b>	<del>3.3.1-114</del> <b>3.4.1-106</b>	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.3.2-3 on pages 3.3-172 and 3.3-173 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.3.2-3 Battery and Emergency Switchgear Ventilation System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Dry (Internal)	Loss of Material	Compressed Air Monitoring (B.2.1.14)	VII.D.A-764	3.3.1-235	A
			Air - Indoor Uncontrolled (External)	<del>None</del> <b>Cracking</b>	<del>None</del> <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>VII.J.AP-144</del> <b>VIII.H.S-454</b>	<del>3.3.1-114</del> <b>3.4.1-106</b>	A
			Condensation (Internal)	None	None	VII.J.AP-144	3.3.1-114	A
			Gas (Internal)	None	None	VII.J.AP-9	3.3.1-114	A
	Structural Integrity (Attached)	Copper Alloy with Greater Than 15% Zinc	Air - Dry (Internal)	Loss of Material	Compressed Air Monitoring (B.2.1.14)	VII.D.A-764	3.3.1-235	A
			Air - Indoor Uncontrolled (External)	<del>None</del> <b>Cracking</b>	<del>None</del> <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>VII.J.AP-144</del> <b>VIII.H.S-454</b>	<del>3.3.1-114</del> <b>3.4.1-106</b>	A

**Table 3.3.2-3 Battery and Emergency Switchgear Ventilation System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Valve Body	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Dry (Internal)	Loss of Material	Compressed Air Monitoring (B.2.1.14)	VII.D.A-764	3.3.1-235	A
			Air - Indoor Uncontrolled (External)	<del>None</del> <b>Cracking</b>	<del>None</del> <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>VII.J.AP-144</del> <b>VIII.H.S-454</b>	<del>3.3.1-114</del> <b>3.4.1-106</b>	A
			Condensation (Internal)	None	None	VII.J.AP-144	3.3.1-114	A



As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.3.2-7 on pages 3.3-194 and 3.3-195 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.3.2-7 Control Room Ventilation System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <b>Cracking</b>	None <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>VII.J.AP-144</del> <b>VIII.H.S-454</b>	<del>3.3.1-114</del> <b>3.4.1-106</b>	A
			Condensation (Internal)	None	None	VII.J.AP-144	3.3.1-114	A
	Structural Integrity (Attached)	Copper Alloy with Greater Than 15% Zinc	Air - Dry (Internal)	Loss of Material	Compressed Air Monitoring (B.2.1.14)	VII.D.A-764	3.3.1-235	A

**Table 3.3.2-7 Control Room Ventilation System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Structural Integrity (Attached)	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <b>Cracking</b>	None <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>VII.J.AP-144</del> <b>VIII.H.S-454</b>	<del>3.3.1-114</del> <b>3.4.1-106</b>	A
Valve Body	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <b>Cracking</b>	None <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>VII.J.AP-144</del> <b>VIII.H.S-454</b>	<del>3.3.1-114</del> <b>3.4.1-106</b>	A
			Condensation (Internal)	None	None	VII.J.AP-144	3.3.1-114	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.3.2-9 on page 3.3-202 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.3.2-9 Diesel Generator Building Ventilation System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <b>Cracking</b>	None <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	VII.J.AP-144 <b>VIII.H.S-454</b>	3.3.1-114 <b>3.4.1-106</b>	A
			Condensation (Internal)	None	None	VII.J.AP-144	3.3.1-114	A
Valve Body	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <b>Cracking</b>	None <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	VII.J.AP-144 <b>VIII.H.S-454</b>	3.3.1-114 <b>3.4.1-106</b>	A
			Condensation (Internal)	None	None	VII.J.AP-144	3.3.1-114	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.3.2-12 on pages 3.3-222, 3.3-224, 3.3-230, and 3.3-232 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.3.2-12 Emergency Diesel Generator System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <b>Cracking</b>	None <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	VII.J.AP-144 <b>VIII.H.S-454</b>	<del>3.3.1-114</del> <b>3.4.1-106</b>	A
			Closed Cycle Cooling Water (Internal)	Cracking	Closed Treated Water Systems (B.2.1.12)	VII.C2.A-473a	3.3.1-160	B
				Loss of Material	Closed Treated Water Systems (B.2.1.12)	VII.H2.AP-199	3.3.1-046	B
					Selective Leaching (B.2.1.22)	VII.H2.AP-43	3.3.1-072	A
			Condensation (Internal)	None	None	VII.J.AP-144	3.3.1-114	A
			Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry (B.2.1.19)	VII.H1.AP-132	3.3.1-069	A
					One-Time Inspection (B.2.1.21)	VII.H1.AP-132	3.3.1-069	A
			Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis (B.2.1.26)	VII.H2.AP-133	3.3.1-099	A
					One-Time Inspection (B.2.1.21)	VII.H2.AP-133	3.3.1-099	A

**Table 3.3.2-12 Emergency Diesel Generator System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Structural Integrity (Attached)	Copper Alloy with 15% Zinc or Less	Air - Indoor Uncontrolled (External)	None	None	VII.J.AP-144	3.3.1-114	A
			Condensation (Internal)	None	None	VII.J.AP-144	3.3.1-114	A
		Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	<del>None</del> <b>Cracking</b>	<del>None</del> <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>VII.J.AP-144</del> <b>VIII.H.S-454</b>	<del>3.3.1-114</del> <b>3.4.1-106</b>	A
			Condensation (Internal)	None	None	VII.J.AP-144	3.3.1-114	A
		Stainless Steel	Air - Indoor Uncontrolled (External)	Cracking	One-Time Inspection (B.2.1.21)	VII.H2.AP-209a	3.3.1-004	A
				Loss of Material	One-Time Inspection (B.2.1.21)	VII.H2.AP-221a	3.3.1-006	A
			Condensation (Internal)	Cracking	One-Time Inspection (B.2.1.21)	VII.H2.AP-209a	3.3.1-004	A
				Loss of Material	One-Time Inspection (B.2.1.21)	VII.H2.AP-221a	3.3.1-006	A

**Table 3.3.2-12 Emergency Diesel Generator System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Valve Body	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	<del>VII.J.AP-144</del> <i>VIII.H.S-454</i>	<del>3.3.1-114</del> <i>3.4.1-106</i>	A
			Closed Cycle Cooling Water (Internal)	Cracking	Closed Treated Water Systems (B.2.1.12)	VII.C2.A-473a	3.3.1-160	B
				Loss of Material	Closed Treated Water Systems (B.2.1.12)	VII.H2.AP-199	3.3.1-046	B
					Selective Leaching (B.2.1.22)	VII.H2.AP-43	3.3.1-072	A
			Condensation (Internal)	None	None	VII.J.AP-144	3.3.1-114	A
			Fuel Oil (External)	Loss of Material	Fuel Oil Chemistry (B.2.1.19)	VII.H1.AP-132	3.3.1-069	A
					One-Time Inspection (B.2.1.21)	VII.H1.AP-132	3.3.1-069	A
			Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry (B.2.1.19)	VII.H1.AP-132	3.3.1-069	A
					One-Time Inspection (B.2.1.21)	VII.H1.AP-132	3.3.1-069	A
			Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis (B.2.1.26)	VII.H2.AP-133	3.3.1-099	A
					One-Time Inspection (B.2.1.21)	VII.H2.AP-133	3.3.1-099	A

**Table 3.3.2-12 Emergency Diesel Generator System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Valve Body	Structural Integrity (Attached)	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	VII.J.AP-144 <i>VIII.H.S-454</i>	3.3.1-114 <i>3.4.1-106</i>	A
			Condensation (Internal)	None	None	VII.J.AP-144	3.3.1-114	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.3.2-14 on pages 3.3-255, 3.3-257, 3.3-264, 3.3-265, and 3.3-269 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.3.2-14 Fire Protection System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Leakage Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	<del>None</del> <b>Cracking</b>	<del>None</del> <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>VII.J.AP-144</del> <b>VIII.H.S-454</b>	<del>3.3.1-114</del> <b>3.4.1-106</b>	A
			Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B.2.1.25)	VII.G.A-650	3.3.1-198	A
					Selective Leaching (B.2.1.22)	VII.G.A-47	3.3.1-072	A



**Table 3.3.2-14 Fire Protection System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	VII.J.AP-144 <i>VIII.H.S-454</i>	3.3.1-114 <i>3.4.1-106</i>	A
			Air - Outdoor (External)	Loss of Material	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	D

**Table 3.3.2-14 Fire Protection System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Sprinklers	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	VII.J.AP-144 <i>VIII.H.S-454</i>	<del>3.3.1-114</del> <i>3.4.1-106</i>	A <i>C</i>
			Air - Outdoor (External)	Loss of Material	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	B
			Condensation (Internal)	Flow Blockage	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	B
				Loss of Material	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	B
			Raw Water (Internal)	Flow Blockage	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	B
				Loss of Material	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	B
					Selective Leaching (B.2.1.22)	VII.G.A-47	3.3.1-072	A
		Copper Alloy with Greater Than 15% Zinc (with Chrome Plating)	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	VII.J.AP-144 <i>VIII.H.S-454</i>	<del>3.3.1-114</del> <i>3.4.1-106</i>	A <i>C</i>
			Raw Water (Internal)	Flow Blockage	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	B
				Loss of Material	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	B

Table 3.3.2-14

Fire Protection System

(Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Sprinklers	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc (with Chrome Plating)	Raw Water (Internal)	Loss of Material	Selective Leaching (B.2.1.22)	VII.G.A-47	3.3.1-072	A
	Spray	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	VII.J.AP-144 VIII.H.S-454	3.3.1-114 3.4.1-106	A C
			Air - Outdoor (External)	Loss of Material	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	B
			Condensation (Internal)	Flow Blockage	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	B
				Loss of Material	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	B
			Raw Water (Internal)	Flow Blockage	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	B
				Loss of Material	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	B
					Selective Leaching (B.2.1.22)	VII.G.A-47	3.3.1-072	A
		Copper Alloy with Greater Than 15% Zinc (with Chrome Plating)	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	VII.J.AP-144 VIII.H.S-454	3.3.1-114 3.4.1-106	A C
			Raw Water (Internal)	Flow Blockage	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	B
				Loss of Material	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	B

Table 3.3.2-14

Fire Protection System

(Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Valve Body	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	<del>None</del> <b>Cracking</b>	<del>None</del> <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>VII.J.AP-144</del> <b>VIII.H.S-454</b>	<del>3.3.1-114</del> <b>3.4.1-106</b>	A
			Air - Outdoor (External)	Loss of Material	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	D
			Condensation (Internal)	Flow Blockage	Fire Water System (B.2.1.17)	VII.G.A-404	3.3.1-131	B
				Loss of Material	Fire Water System (B.2.1.17)	VII.G.A-403	3.3.1-130	D
			Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry (B.2.1.19)	VII.G.AP-132a	3.3.1-069	A
			Gas (Internal)	None	None	VII.J.AP-9	3.3.1-114	A
			Raw Water (Internal)	Flow Blockage	Fire Water System (B.2.1.17)	VII.G.AP-197	3.3.1-064	B
				Loss of Material	Fire Water System (B.2.1.17)	VII.G.AP-197	3.3.1-064	B
					Selective Leaching (B.2.1.22)	VII.G.A-47	3.3.1-072	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.3.2-20 on page 3.3-314 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.3.2-20 Post Accident Sampling System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Valve Body	Leakage Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	<del>None</del> <b>Cracking</b>	<del>None</del> <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>VII.J.AP-144</del> <b>VIII.H.S-454</b>	<del>3.3.1-114</del> <b>3.4.1-106</b>	A
			Treated Water (Internal)	Loss of Material	One-Time Inspection (B.2.1.21)	VII.E3.AP-140	3.3.1-022	A
					Water Chemistry (B.2.1.2)	VII.E3.AP-140	3.3.1-022	B
					Selective Leaching (B.2.1.22)	VII.E3.AP-32	3.3.1-072	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.3.2-21 on pages 3.3-318 and 3.3-319 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.3.2-21 Process Sampling System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Leakage Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <b>Cracking</b>	None <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>VII.J.AP-144</del> <b>VIII.H.S-454</b>	<del>3.3.1-114</del> <b>3.4.1-106</b>	A
			Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System (B.2.1.11)	VII.C1.AP-196	3.3.1-034	A
					Selective Leaching (B.2.1.22)	VII.C1.A-47	3.3.1-072	A

**Table 3.3.2-21**

**Process Sampling System**

**(Continued)**

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Programs</b>	<b>NUREG-2191 Item</b>	<b>NUREG-2192 Table 1 Item</b>	<b>Notes</b>
Valve Body	Leakage Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	<del>VII.J.AP-144</del> <i>VIII.H.S-454</i>	<del>3.3.1-114</del> <i>3.4.1-106</i>	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.3.2-22 on page 3.3-323 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.3.2-22 Pump Structure Ventilation System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <b>Cracking</b>	None <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	VII.J.AP-144 <b>VIII.H.S-454</b>	3.3.1-114 <b>3.4.1-106</b>	A
			Condensation (Internal)	None	None	VII.J.AP-144	3.3.1-114	A
Valve Body	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <b>Cracking</b>	None <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	VII.J.AP-144 <b>VIII.H.S-454</b>	3.3.1-114 <b>3.4.1-106</b>	A
			Condensation (Internal)	None	None	VII.J.AP-144	3.3.1-114	A



As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.3.2-24 on page 3.3-336 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.3.2-24 Radwaste System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Valve Body	Leakage Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	VII.J.AP-144 <i>VIII.H.S-454</i>	3.3.1-114 <i>3.4.1-106</i>	A
			Waste Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B.2.1.25)	VII.E5.AP-272	3.3.1-095	A
					Selective Leaching (B.2.1.22)	VII.E5.A-547	3.3.1-072	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.3.2-25 on pages 3.3-341 and 3.3-343 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.3.2-25 Reactor Building Closed Cooling Water System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Leakage Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <b>Cracking</b>	None <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>VII.J.AP-144</del> <b>VIII.H.S-454</b>	<del>3.3.1-114</del> <b>3.4.1-106</b>	A
			Closed Cycle Cooling Water (Internal)	Cracking	Closed Treated Water Systems (B.2.1.12)	VII.C2.A-473a	3.3.1-160	B
				Loss of Material	Closed Treated Water Systems (B.2.1.12)	VII.C2.AP-199	3.3.1-046	B
					Selective Leaching (B.2.1.22)	VII.C2.AP-43	3.3.1-072	A

**Table 3.3.2-25 Reactor Building Closed Cooling Water System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Valve Body	Leakage Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	VII.J.AP-144 <i>VIII.H.S-454</i>	3.3.1-114 <i>3.4.1-106</i>	A
			Closed Cycle Cooling Water (Internal)	Cracking	Closed Treated Water Systems (B.2.1.12)	VII.C2.A-473a	3.3.1-160	B
				Loss of Material	Closed Treated Water Systems (B.2.1.12)	VII.C2.AP-199	3.3.1-046	B
					Selective Leaching (B.2.1.22)	VII.C2.AP-43	3.3.1-072	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.3.2-28 on pages 3.3-362 through 3.3-364 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.3.2-28 Safety Grade Instrument Gas System**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Dry (Internal)	Loss of Material	Compressed Air Monitoring (B.2.1.14)	VII.D.A-764	3.3.1-235	A
			Air - Indoor Uncontrolled (External)	<del>None</del> <b>Cracking</b>	<del>None</del> <b>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</b>	<del>VII.J.AP-144</del> <b>VIII.H.S-454</b>	<del>3.3.1-114</del> <b>3.4.1-106</b>	A
			Gas (Internal)	None	None	VII.J.AP-9	3.3.1-114	A

**Table 3.3.2-28 Safety Grade Instrument Gas System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Structural Integrity (Attached)	Copper Alloy with Greater Than 15% Zinc	Air - Dry (Internal)	Loss of Material	Compressed Air Monitoring (B.2.1.14)	VII.D.A-764	3.3.1-235	A
			Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	<del>VII.J.AP-144</del> <i>VIII.H.S-454</i>	<del>3.3.1-114</del> <i>3.4.1-106</i>	A
Valve Body	Pressure Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Dry (Internal)	Loss of Material	Compressed Air Monitoring (B.2.1.14)	VII.D.A-764	3.3.1-235	A
			Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	<del>VII.J.AP-144</del> <i>VIII.H.S-454</i>	<del>3.3.1-114</del> <i>3.4.1-106</i>	A
			Gas (Internal)	None	None	VII.J.AP-9	3.3.1-114	A

**Table 3.3.2-28 Safety Grade Instrument Gas System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Valve Body	Structural Integrity (Attached)	Copper Alloy with Greater Than 15% Zinc	Air - Dry (Internal)	Loss of Material	Compressed Air Monitoring (B.2.1.14)	VII.D.A-764	3.3.1-235	A
			Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	<del>VII.J.AP-144</del> VIII.H.S-454	<del>3.3.1-114</del> 3.4.1-106	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.3.2-29 on pages 3.3-369 and 3.3-371 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.3.2-29 Service Water System (Continued)**

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Programs</b>	<b>NUREG-2191 Item</b>	<b>NUREG-2192 Table 1 Item</b>	<b>Notes</b>
Piping, piping components	Leakage Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	VII.J.AP-144 <i>VIII.H.S-454</i>	3.3.1-114 <i>3.4.1-106</i>	A

Table 3.3.2-29

Service Water System

(Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Valve Body	Leakage Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	VII.J.AP-144 <i>VIII.H.S-454</i>	3.3.1-114 <i>3.4.1-106</i>	A
			Raw Water (Internal)	Cracking	Open-Cycle Cooling Water System (B.2.1.11)	VII.C1.A-473b	3.3.1-160	A
				Loss of Material	Open-Cycle Cooling Water System (B.2.1.11)	VII.C1.AP-196	3.3.1-034	A
					Selective Leaching (B.2.1.22)	VII.C1.A-47	3.3.1-072	A



As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.3.2-35 on pages 3.3-398 and 3.3-400 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.3.2-35 Turbine Building Closed Cooling Water System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Piping, piping components	Leakage Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	<del>VII.J.AP-144</del> <i>VIII.H.S-454</i>	<del>3.3.1-114</del> <i>3.4.1-106</i>	A
			Closed Cycle Cooling Water (Internal)	Cracking	Closed Treated Water Systems (B.2.1.12)	VII.C2.A-473a	3.3.1-160	B

**Table 3.3.2-35 Turbine Building Closed Cooling Water System (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Valve Body	Leakage Boundary	Copper Alloy with Greater Than 15% Zinc	Air - Indoor Uncontrolled (External)	None <i>Cracking</i>	None <i>External Surfaces Monitoring of Mechanical Components (B.2.1.24)</i>	<del>VII.J.AP-144</del> <i>VIII.H.S-454</i>	<del>3.3.1-114</del> <i>3.4.1-106</i>	A
			Closed Cycle Cooling Water (Internal)	Cracking	Closed Treated Water Systems (B.2.1.12)	VII.C2.A-473a	3.3.1-160	B
				Loss of Material	Closed Treated Water Systems (B.2.1.12)	VII.C2.AP-199	3.3.1-046	B
					Selective Leaching (B.2.1.22)	VII.C2.AP-43	3.3.1-072	A

As a result of the response to RAI 3.3.2.1.1-1a provided in Enclosure A of this letter, SLRA Table 3.5.2-4 on pages 3.5-135 and 3.5-142 of the SLRA is revised as shown below. The table is abbreviated to show only affected line items. Line items not shown from the original SLRA are not revised and remain applicable.

**Table 3.5.2-4 Component Supports (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Supports for ASME Class 2 and 3 piping and components: sliding surfaces	Structural Support	Brass Bolting	Air - Indoor Uncontrolled	Loss of Preload	ASME Section XI, Subsection IWF (B.2.1.31)	III.B1.2.TP-229	3.5.1-087	A
				None <i>Cracking</i>	None <i>ASME Section XI, Subsection IWF (B.2.1.31)</i>	IV.E.R-453 <i>VIII.H.S-454</i>	<del>3.1.1-137</del> <i>3.4.1-106</i>	<del>G</del> <i>E, 3</i>

**Table 3.5.2-4 Component Supports (Continued)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-2191 Item	NUREG-2192 Table 1 Item	Notes
Supports for Cable Trays, Conduit, HVAC Ducts, Tube Track, Instrument Tubing, Non-ASME Piping and Components: sliding support bearings; sliding support surfaces	Structural Support	Brass Bolting	Air - Indoor Uncontrolled	Loss of Preload	Structures Monitoring (B.2.1.34)	III.B2.TP-261	3.5.1-088	A
				None <i>Cracking</i>	None <i>Structures Monitoring (B.2.1.34)</i>	IV.E.R-453 <i>VIII.H.S-454</i>	<del>3.1.1-137</del> <i>3.4.1-106</i>	<del>C</del> <i>E, 5</i>