Amendment 31, LRA Changes

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Revised Section 2.1.2.3.1 to note that Callaway is transitioning to a fire protection program based on 10 CFR 50.48(c).

Section 2.1.2.3.1 (Page 2.1-9) is revised as follows (new text underlined):

2.1.2.3.1 Fire Protection

Criterion 10 CFR 54.4(a)(3) requires that plant SSCs within the scope of license renewal include all SSCs relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with the regulations for fire protection (10 CFR 50.48).
10 CFR 50.48 requires each operating nuclear power plant to have a fire protection plan that satisfies the requirement of Criterion 3 of 10 CFR 50 Appendix A.

The CLB for fire protection for Callaway consists of General Design Criterion 3 to 10 CFR 50 Appendix A, Appendix A of BTP APCSB 9.5-1, 10 CFR 50, Appendix R, FSAR Section 9.5.1 SP and Operating License Condition 2.C(5). These documents identify features required for Callaway to demonstrate compliance with 10 CFR 50.48.

10 CFR 50.48(a) requires that operating nuclear power plants have a fire protection plan that satisfies Criterion 3 of 10 CFR 50 Appendix A. 10 CFR 50.48(a) does not provide specific criteria for the content of the required fire protection plan, however, the required contents of the fire protection plan are derived from 10 CFR 50.48(b).

10 CFR 50.48(b) states that Appendix R establishes fire protection features required to satisfy Criterion 3 of Appendix A. 10 CFR 50.48(b), however, allows the use of provisions of Appendix A to BTP APCSB 9.5-1 as an alternative to the requirements of Appendix R provided those provisions have been accepted by the NRC. In addition to the provisions of Appendix A to BTP APCSB 9.5-1, 10 CFR 50.48(b) imposes the provisions of Appendix R Sections III.G, J and O on plants licensed to operate prior to January 1, 1979.

Callaway is transitioning to a risk-informed, performance-based fire protection program based on 10 CFR 50.48(c), which incorporates, by reference, NFPA 805, with exceptions. The NRC has issued license amendment number 206, which approves the use of NFPA 805. The license amendment requires Union Electric to implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee amendment request and supplements, and as approved in the safety evaluation report.

SSCs classified as satisfying criterion 10 CFR 54.4(a)(3) related to fire protection are identified as within the scope of license renewal.

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Revised Table 2.2-1 to add the circulating water system to the scope of license renewal due to NFPA-805 changes.

Table 2.2-1 (Pages 2.2-2 and 2.2-4) is revised as follows (new text underlined and deleted text shown in strikethrough):

Table 2.2-1 Callaway Plant Scoping Results

System/Structure	In-Scope	Section 2 Scoping and Screening Results
Auxiliary Systems		
Circulating Water	Yes	2.3.3.29
Radwaste Building HVAC System	~~Yes~~ No	2.3.3.17
~~Circulating Water~~ Cooling Tower Makeup and Blowdown System also includes: Cooling Water Chemical Control System ~~Cooling Tower Makeup and Blowdown System~~ Intake Structure and Water Treatment System	No	N/A

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Amendment 31

Revised Section 2.3.2.4 to add a fire barrier function for dampers as a result of NFPA-805 changes.

Section 2.3.2.4 (Pages 2.3-19 and 2.3-20) is revised as follows (new text underlined):

2.3.2.4 Containment Purge System

System Description

The purpose of the containment purge system is to provide ventilation of the containment building for habitability when required and provide a vent path for equalization of containment pressure with the atmosphere. The containment minipurge system is typically used during power operation to reduce the concentration of noble gases within containment prior to and during personnel access to the containment or to equalize containment internal pressure with the external pressure. The containment shutdown purge system supplies outside air into the containment for ventilation and cooling or heating needed for prolonged containment access during a reactor outage. It may also be used when the reactor is in the cold shutdown mode to reduce the concentration of noble gases within the containment prior to and during personnel access.

The containment purge system consists of the common HVAC intake, common unit vent, nonessential filtering unit, supply fans, exhaust fans, containment isolation valves, radiation monitors, dampers, and associated ventilation ducts.

System Intended Functions

The containment purge system provides containment isolation valves that are capable of rapid closure, following a design basis event, to limit the escape of fission products from the containment, and radiation monitors that provide radiation level input to the engineered safety feature actuation signal for the containment purge system. Therefore, the containment purge system is within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1).

Portions of the containment purge system are within the scope of license renewal as nonsafety-related affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2) for spatial interaction and structural integrity.

Portions of the containment purge system are within the scope of license renewal to support fire protection and environmental qualification requirements based upon the criteria of 10 CFR 54.4(a)(3).

Callaway FSAR References

Additional details of the containment purge system are included in FSAR Sections 7.3.2 SP and 9.4.6 SP.

License Renewal Boundary Drawings

The license renewal boundary drawing for the containment purge system is listed below:
LR-CW-GT-M-22GT01

Component-Function Relationship Table

The component types subject to aging management review are indicated in Table 2.3.2-4 - *Containment Purge System*.

Table 2.3.2-4 Containment Purge System

Component Type	Intended Function
Closure Bolting	Leakage Boundary (spatial) Pressure Boundary Structural Integrity (attached)
Damper	Fire Barrier Pressure Boundary
Ductwork	Pressure Boundary
Filter	Filter, Pressure Boundary
Flex Connectors	Pressure Boundary
Flow Orifice	Structural Integrity (attached)
Heat Exchanger (Containment Purge)	Leakage Boundary (spatial)
Piping	Leakage Boundary (spatial) Pressure Boundary Structural Integrity (attached)
Pump	Pressure Boundary
Screen	Structural Integrity (attached)
Solenoid Valve	Pressure Boundary
Valve	Leakage Boundary (spatial) Pressure Boundary Structural Integrity (attached)

The AMR results for these component types are provided in Table 3.2.2-4, *Engineered Safety Features – Summary of Aging Management Evaluation – Containment Purge System*.

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Revised Section 2.3.3 to add Section 2.3.3.29 for the circulating water system as a result of NFPA-805 changes.

Section 2.3.3 (Pages 2.3-26 and 2.3-27) is revised as follows (new text underlined):

2.3.3 Auxiliary Systems

This section addresses scoping and screening results for the following systems:

- Fuel Storage and Handling System (Section 2.3.3.1)
- Fuel Pool Cooling and Cleanup System (Section 2.3.3.2)
- Cranes, Hoists, and Elevators (Section 2.3.3.3)
- Essential Service Water System (Section 2.3.3.4)
- Service Water System (Section 2.3.3.5)
- Reactor Makeup Water System (Section 2.3.3.6)
- Component Cooling Water System (Section 2.3.3.7)
- Compressed Air System (Section 2.3.3.8)
- Nuclear Sampling System (Section 2.3.3.9)
- Chemical and Volume Control System (Section 2.3.3.10)
- Control Building HVAC System (Section 2.3.3.11)
- Essential Service Water Pumphouse HVAC System (Section 2.3.3.12)
- Auxiliary Building HVAC System (Section 2.3.3.13)
- Fuel Building HVAC System (Section 2.3.3.14)
- Miscellaneous Buildings HVAC System (Section 2.3.3.15)
- Diesel Generator Building HVAC System (Section 2.3.3.16)
- Radwaste Building HVAC System (Section 2.3.3.17)
- Turbine Building HVAC System (Section 2.3.3.18)
- Containment Cooling System (Section 2.3.3.19)
- Fire Protection System (Section 2.3.3.20)
- Emergency Diesel Engine Fuel Oil Storage and Transfer System (Section 2.3.3.21)
- Standby Diesel Generator Engine System (Section 2.3.3.22)
- EOF and TSC Diesels, Security Building System (Section 2.3.3.23)

- Liquid Radwaste System (Section 2.3.3.24)
- Decontamination System (Section 2.3.3.25)
- Oily Waste System (Section 2.3.3.26)
- Floor and Equipment Drainage System (Section 2.3.3.27)
- Miscellaneous systems in-scope ONLY for Criterion (a)(2) (Section 2.3.3.28)
  Includes:
  Boron Recycle System
  Central Chilled Water System
  Chemical and Detergent Waste System
  Condensate and Feedwater Chemical Addition System
  Condensate System
  Demineralized Water Makeup System
  Domestic Water System
  Gaseous Radwaste
  Plant Heating System
  Sanitary Drainage System
  Secondary Liquid Waste System
  Solid Radwaste System
  Roof Drains System
- Circulating Water System (Section 2.3.3.29)

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Revised Section 2.3.3.5 FSAR references and added a flow orifice as a result of NFPA-805 changes.

Section 2.3.3.5 (Pages 2.3-34 through 2.3-36) is revised as follows (new text underlined and deleted text shown in strikethrough):

2.3.3.5 Service Water System

System Description

The purpose of the service water system is to supply cooling water to the non-essential plant auxiliary equipment and components served by the essential service water system (ESWS) during normal plant operation and normal plant shutdown. The service water system also normally supplies fire water to two hose stations within the ESW pumphouse via ESWS piping. The service water system takes suction from the cooling tower basin, and the heated return water is discharged into the circulating water system. The service water system is nonsafety-related and performs no safety-related functions.

The service water system consists of three pumps, piping, valves, strainers, heat exchangers, and chillers.

System Intended Functions

Portions of the service water system are within the scope of license renewal as nonsafety-related affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2) for spatial interaction and structural integrity.

Portions of the service water system are within the scope of license renewal to support fire protection requirements based upon the criteria of 10 CFR 54.4(a)(3).

Callaway FSAR References

Additional details of the service water system are included in FSAR Sections 9.2.1.1 SA, 9.2.1.1 SP, 9.5.1.2.2 SA and 9.5.1.2.2.SP ~~and Appendix 9.5B SA~~.

License Renewal Boundary Drawings

The license renewal boundary drawings for the service water system are listed below:
LR-CW-EA-M-22EA01
LR-CW-EA-M-22EA02
LR-CW-EA-X-89610
LR-CW-EA-X-89611
LR-CW-EA-X-89612
LR-CW-EA-X-89613
LR-CW-EA-X-89614
LR-CW-EA-X-89615

Component-Function Relationship Table

The component types subject to aging management review are indicated in Table 2.3.3-5 - *Service Water System*.

Table 2.3.3-5 Service Water System

Component Type	Intended Function
Closure Bolting	Leakage Boundary (spatial) Pressure Boundary Structural Integrity (attached)
Flow Orifice	Pressure Boundary
Piping	Leakage Boundary (spatial) Pressure Boundary Structural Integrity (attached)
Strainer	Pressure Boundary
Thermowell	Pressure Boundary
Tubing	Pressure Boundary
Valve	Leakage Boundary (spatial) Pressure Boundary Structural Integrity (attached)

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Revised Section 2.3.3.16 FSAR references as a result of NFPA-805 changes.

Section 2.3.3.16 (Page 2.3-57) is revised as follows (deleted text shown in strikethrough):

2.3.3.16 Diesel Generator Building HVAC System

System Description

The purpose of the diesel generator building HVAC system is to provide combustion air and cooling for the diesel generators, using outside air as the medium. Outside air is supplied to the building, circulated, and is returned outside through exhaust louvers. In the event of a fire, heat and smoke venting for each diesel generator room is provided utilizing the exhaust flow path. In an emergency, the exhaust air flow path is a backup source for combustion air. Each diesel generator room is provided with a separate ventilation system. Nonsafety-related electric unit heaters are provided in each room for space heating.

The diesel generator building HVAC system consists of safety-related supply fans, dampers, and connecting ductwork. Nonsafety-related electric unit heaters are provided in each room for space heating.

The ventilation air supply and exhaust louvers for the diesel generator building HVAC system are evaluated as structural components in Section 2.4.5, *Diesel Generator Building*.

System Intended Functions

The diesel generator building HVAC system provides combustion air and a suitable environment for operation of the diesel generators during design basis events. Therefore, the diesel generator building HVAC system is within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1).

Portions of the diesel generator building HVAC system are within the scope of license renewal to support fire protection requirements based on the criterion of 10 CFR 54.4(a)(3).

Callaway FSAR References

Additional details of the diesel generator building HVAC system are included in FSAR Section 9.4.7 SP ~~and Appendix 9.5B SP~~.

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Revised Section 2.3.3.17 to delete the radwaste building HVAC system from the scope of license renewal to be consistent with NFPA-805 changes.

Section 2.3.3-17 (Pages 2.3-58 and 2.3-59) is revised as follows (new text underlined and deleted text shown in strikethrough):

2.3.3.17 Radwaste Building HVAC System

The radwaste building HVAC system is not within the scope of license renewal.

~~**System Description**~~

~~The purpose of the radwaste building HVAC system is to provide a suitable environment for equipment and for personnel occupation. The radwaste building ventilation system is nonsafety-related and performs no safety-related functions.~~

~~The portion of the radwaste building HVAC system within the scope of license renewal consists of the exhaust filter adsorber, unit charcoal filter, fire suppression piping and fusible-link actuated fire dampers in various locations in the system.~~

~~**System Intended Functions**~~

~~The radwaste building HVAC system performs no safety-related function. Failure of any radwaste building ventilation system component will not prevent the satisfactory accomplishment of any safety-related functions.~~

~~Portions of the radwaste building HVAC system are within the scope of license renewal to support fire protection requirements based upon the criteria of 10 CFR 54.4(a)(3).~~

~~**Callaway FSAR References**~~

~~Additional details of the radwaste HVAC system are included in FSAR Sections 9.4.5 SP, 9.5.1 SP, and Appendix 9.5A SP.~~

~~**License Renewal Boundary Drawings**~~

~~The license renewal drawings for the radwaste HVAC system are listed below:~~
~~LR-CW-GH-M-22GH01~~
~~LR-CW-GH-M-22GH02~~

~~**Component-Function Relationship Table**~~

~~The component types subject to aging management review are indicated in Table 2.3.3-17 - *Radwaste Building HVAC System*.~~

~~*Table 2.3.3-17 Radwaste Building HVAC System*~~

~~Component Type~~	~~Intended Function~~
~~Damper~~	~~Fire Barrier~~
~~Piping~~	~~Pressure Boundary~~

~~The AMR results for these component types are provided in Table 3.3.2-17, *Auxiliary Systems – Summary of Aging Management Evaluation – Radwaste Building HVAC System*.~~

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Revised Table 2.3.3-20 to add the add a leakage boundary (spatial) function to components that no longer had a fire barrier function as a result of NFPA-805 changes.

Table 2.3.3-20 (Pages 2.3-64 and 2.3-65) is revised as follows (new text underlined):

Table 2.3.3-20 Fire Protection System

Component Type	Intended Function
Closure Bolting	Pressure Boundary
Expansion Joint	Pressure Boundary
Filter	Pressure Boundary
Filter (Halon)	Pressure Boundary
Flame Arrestor	Pressure Boundary
Flexible Hoses	Pressure Boundary
Flow Element	Pressure Boundary
Flow Orifice	Leakage Boundary (spatial) Pressure Boundary
Heat Exchanger (DFP Jacket Water)	Pressure Boundary
Hose Station	Pressure Boundary
Hydrant	Pressure Boundary
Piping	Pressure Boundary Structural Integrity (attached)
Piping (Halon)	Pressure Boundary
Pump	Pressure Boundary
Silencer	Pressure Boundary
Solenoid Valve	Leakage Boundary (spatial) Pressure Boundary
Solenoid Valve (Halon)	Pressure Boundary
Spray Nozzle	Spray
Spray Nozzle (Halon)	Spray
Strainer	Leakage Boundary (spatial) Pressure Boundary

Table 2.3.3-20 Fire Protection System (Continued)

Component Type	Intended Function
Tank	Leakage Boundary (spatial) Pressure Boundary
Tank (Halon)	Pressure Boundary
Tubing	Pressure Boundary
Valve	Leakage Boundary (spatial) Pressure Boundary Structural Integrity (attached)
Valve (Halon)	Pressure Boundary

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Revised Section 2.3.3.26 FSAR references as a result of NFPA-805 changes.

Section 2.3.3.26 (Pages 2.3-75 and 2.3-76) is revised as follows (new text underlined and deleted text shown in strikethrough):

2.3.3.26 Oily Waste System

System Description

The purpose of the oily waste system is to collect nonradioactive waste water from areas where oil may be present for processing and disposal and collect waste water that may contain oil and/or trace amounts of radioactive contaminants for processing and recycling. The mechanical portions of the oily waste system are nonsafety and perform no safety-related functions.

The portions of the oily waste system within the scope of license renewal consist of sumps, sump pumps, piping, valves, and control and instrumentation equipment located in the diesel generator building, auxiliary building, control building and the tendon access gallery.

The safety-related portion of the oily waste system for leak detection in the diesel generator rooms is evaluated as part of the electrical and instrumentation and control evaluation in Section 2.5, *Scoping and Screening Results: Electrical and Instrumentation and Control Systems*.

System Intended Functions

Portions of the oily waste system are within the scope of license renewal as nonsafety-related affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2) for spatial interaction and flood control.

Portions of the oily waste system are within the scope of license renewal to support fire protection requirements based upon the criteria of 10 CFR 54.4(a)(3).

Callaway FSAR References

Additional details of the oily waste system are included in FSAR Sections 3B.4.2.3 SP, 9.3.3 SP, and 9.5.1 SP~~, and Appendices 9.5A SP and 9.5B SP~~.

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Added Section 2.3.3.29 for the circulating water system as a new system within the scope of license renewal. The circulating water system provides a return path to the cooling tower for the service water system consistent with NFPA-805 changes.

Section 2.3.3.29 (Page 2.3-87) is added as a new system within the scope of license renewal.

2.3.3.29 Circulating Water System

System Description

The purpose of the circulating water system is to supply cooling water from the plant's cooling water source to the main condenser to condense the steam that discharges from the exhaust of the turbine or the turbine bypass system. The Callaway site utilizes a large natural draft cooling tower for its source of cooling. The circulating water system is nonsafety and performs no safety-related functions.

The circulating water system consists of pumps, piping and valves, and the large hyperbolic natural draft cooling tower.

System Intended Functions

Portions of the circulating water system are within the scope of license renewal to support fire protection requirements based upon the criteria of 10 CFR 54.4(a)(3).

Callaway FSAR References

Additional details of the circulating water system are included in
FSAR Section 10.4.5 SA.

License Renewal Boundary Drawings

The license renewal boundary drawings for the circulating water system are listed below:
LR-CW-DA-M-22DA01
LR-CW-DA-M-22DA02
LR-CW-DA-X-89615

Component-Function Relationship Table

The component types subject to aging management review are indicated in
Table 2.3.3-29 – *Circulating Water System*.

Table 2.3.3-29 Circulating Water System

Component Type	Intended Function
Closure Bolting	Pressure Boundary
Expansion Joint	Pressure Boundary
Piping	Pressure Boundary
Valve	Pressure Boundary

The AMR results for these component types are provided in Table 3.3.2-29, *Auxiliary Systems – Summary of Aging Management Evaluation – Circulating Water System.*

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Revised Section 2.3.4.6 to add the nonsafety auxiliary feedwater pump and associated piping components to incorporate NFPA-805 changes.

Section 2.3.4.6 (Pages 2.3-97 and 2.3-98) is revised as follows (deleted text shown in strikethrough and new text underlined):

2.3.4.6 Condensate Storage and Transfer System

System Description

The purpose of the condensate storage and transfer system is to supply or receive condensate to compensate for changes in plant systems inventory as required by the condenser hotwell level control system. It is also a nonseismically designed source of water to the auxiliary feedwater system and is not credited for accident mitigation. The condensate storage and transfer system is nonsafety-related and performs no safety-related functions.

The condensate storage and transfer system consists of one 450,000 gallon condensate storage tank, nonsafety auxiliary feedwater pump, and associated valves and piping.

Valves ADV0204 and ADV0389 were realigned from the condensate system to this system because they form part of the boundary for the nonsafety auxiliary feedwater pump.

System Intended Functions

Portions of the condensate storage and transfer system are in scope as nonsafety-related affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2) for spatial interaction.

Portions of the condensate storage and transfer system are within the scope of license renewal to support fire protection, environmental qualification, and station blackout requirements based upon the criteria of 10 CFR 54.4(a)(3).

Callaway FSAR References

Additional details of the condensate storage and transfer system are included in FSAR Section 9.2.6 SP.

License Renewal Boundary Drawings

The license renewal boundary drawings for the condensate storage and transfer system are listed below:
LR-CW-AL-M-22AL01
LR-CW-AP-M-22AP01
LR-CW-AD-M-22AD01

Component-Function Relationship Table

The component types subject to aging management review are indicated in Table 2.3.4-6 – *Condensate Storage and Transfer System*.

Table 2.3.4-6 Condensate Storage and Transfer System

Component Type	Intended Function
Closure Bolting	Pressure Boundary
Flow Orifice	Pressure Boundary
Insulation	Insulate (Mechanical)
Piping	~~Leakage Boundary (spatial)~~ Pressure Boundary ~~Structural Integrity (attached)~~
Pump	Pressure Boundary
Tank	Pressure Boundary
Tubing	Pressure Boundary
Valve	Leakage Boundary (spatial) Pressure Boundary ~~Structural Integrity (attached)~~

The AMR results for these component types are provided in Table 3.4.2-6, *Steam and Power Conversion Systems – Summary of Aging Management Evaluation – Condensate Storage and Transfer System.*

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Revised Table 2.4-1 to delete the fire barrier doors and the fire barrier function from the hatch emergency airlock to incorporate NFPA-805 changes. The tendon gallery fire barrier door is now evaluated with the auxiliary building fire area.

Table 2.4-1 (Pages 2.4-6 and 2.4-7) is revised as follows (deleted text shown in strikethrough):

Table 2.4-1 Reactor Building

Component Type	Intended Function
Barrier	Missile Barrier Shelter, Protection
Bolting (Pressure-retaining)	Structural Pressure Boundary Structural Support
Bolting (Structural)	Structural Support
Coatings	Maintain Coating Integrity
Compressible Joints and Seals	Expansion/Separation Shelter, Protection Structural Pressure Boundary
Concrete Elements	Fire Barrier Flood Barrier Missile Barrier Shelter, Protection Shielding Structural Pressure Boundary Structural Support
Debris Barrier	Filter Shelter, Protection
Fire Barrier Coatings/Wraps	Fire Barrier
~~Fire Barrier Doors~~	~~Fire Barrier~~ ~~Missile Barrier~~ ~~Shelter, Protection~~
Gate	Shelter, Protection Structural Pressure Boundary
Hatch Emergency Airlock	~~Fire Barrier~~ Shelter, Protection Shielding Structural Pressure Boundary Structural Support
Hatch Equipment	Shelter, Protection Shielding Structural Pressure Boundary Structural Support

Table 2.4-1 Reactor Building (Continued)

Component Type	Intended Function
Hatch Personnel Airlock	Fire Barrier Shelter, Protection Shielding Structural Pressure Boundary Structural Support
Hatches and Plugs	Missile Barrier Shelter, Protection
High Strength Bolting	Structural Support
Liner Containment	Shelter, Protection Structural Pressure Boundary
Liner Refueling	Shelter, Protection
Liner Sumps	Shelter, Protection Structural Pressure Boundary
Penetration	Shelter, Protection Shielding Structural Pressure Boundary Structural Support
Penetration - Electrical	Shelter, Protection Structural Pressure Boundary Structural Support
Penetrations Mechanical	Shelter, Protection Shielding Structural Pressure Boundary Structural Support
Pipe Whip Restraints and Jet Shields	HELB Shielding Missile Barrier Pipe Whip Restraint Structural Support
Stairs, Platforms and Grates	Structural Support
Structural Steel	Shelter, Protection Structural Support
Tendons	Structural Support

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Amendment 31

Revised Section 2.4.4 to delete the fire barrier structural intended functions from the turbine building consistent with NFPA-805 changes. Also added a structural pressure boundary function for a portion of the turbine building that provides a NFPA-805 return path for the circulating water system.

Section 2.4.4 (Pages 2.4-12 through 2.4-14) is revised as follows (new text underlined and deleted text shown in strikethrough):

2.4.4 Turbine Building

Structure Description

The purpose of the turbine building is to support and shelter and protect the turbine generator, condensers, main feed pumps, and other power-conversion equipment. The non-Category I turbine building is a three level steel structure supported on both mat and spread footing foundations. The auxiliary boiler room, which houses the auxiliary boiler, is also evaluated with the turbine building in this section.

The turbine building is located north of the auxiliary building and east of the communications corridor, which are evaluated separately. Non-Category I structures located near seismic Category I SSCs have been designed to preclude gross collapse upon safety-related structures or components under loads imposed by the design basis tornado.

Structure Intended Functions

Portions of the turbine building provide structural support and shelter and protection for nonsafety-related SSCs whose failure could prevent performance of a safety-related function. Therefore, the turbine building is within the scope of license renewal based on the criterion of 10 CFR 54.4(a)(2).

Portions of the turbine building provide structural support and shelter and protection for SSCs that are within the scope of license renewal to support fire protection and ATWS requirements ~~based upon criteria of 10 CFR 54.4(a)(3)~~. The wall and associated structural components that separate the turbine building fire area from the auxiliary boiler room fire area support fire protection requirements based on NFPA 805. Therefore the turbine building is within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(3).

Callaway FSAR References

Additional design requirements applicable to the turbine building are included in FSAR Sections 2.5.4.10.2.1 SA, and 3.3.2.3 SP~~, and Appendix 9.5B SP~~.

Component-Function Relationship Table

The component types subject to aging management review are indicated in Table 2.4-4 - *Turbine Building*.

Table 2.4-4 Turbine Building

Component Type	Intended Function
Bolting (Structural)	Structural Support
Caulking and Sealant	Flood Barrier Shelter, Protection
Compressible Joints and Seals	Expansion/Separation Shelter, Protection
Concrete Block (Masonry Walls)	Fire Barrier Flood Barrier Shelter, Protection Structural Support
Concrete Elements	~~Fire Barrier~~ Flood Barrier Missile Barrier Shelter, Protection Structural Pressure Boundary Structural Support
Door	Shelter, Protection
~~Fire Barrier Coatings/Wraps~~	~~Fire Barrier~~
Fire Barrier Doors	Fire Barrier Shelter, Protection
Fire Barrier Seals	Fire Barrier
Hatch	Missile Barrier Shelter, Protection
Hatches and Plugs	~~Fire Barrier~~ Missile Barrier Shelter, Protection Structural Support
High Strength Bolting	Structural Support
Metal Siding	~~Fire Barrier~~ Shelter, Protection
Penetrations Electrical	Shelter, Protection Structural Support
Penetrations Mechanical	Shelter, Protection Structural Support
Roofing Membrane	Flood Barrier Shelter, Protection
Stairs, Platforms and Grates	Structural Support
Structural Steel	Shelter, Protection Structural Support

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Revised Section 2.4.5 references section to be consistent with NFPA-805 changes.

Section 2.4.5 (Pages 2.4-14 and 2.4-15) is revised as follows (new text underlined and deleted text shown in strikethrough):

2.4.5 Diesel Generator Building

Structure Intended Function

The diesel generator building provides structural support and shelter and protection for safety-related SSCs providing the capability to shutdown the reactor and maintains it in a safe shutdown condition. Therefore, the diesel generator building is within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1).

Portions of the diesel generator building provide structural support and shelter and protection for nonsafety-related SSCs whose failure could prevent performance of a safety-related function. Therefore, the diesel generator building is within the scope of license renewal based on the criterion of 10 CFR 54.4(a)(2).

Portions of the diesel generator building provide structural support and shelter and protection for SSCs that are within the scope of license renewal to support fire protection and station blackout requirements based upon criteria of 10 CFR 54.4(a)(3).

Callaway FSAR References

Additional details of the diesel generator building are included in FSAR Sections 3.7(B).1.4 SP, 3.8.4.1.4 SP, and 3.8.4.1.6 SP~~, and Appendix 9.5B SP~~.

Callaway Plant
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Revised Section 2.4.6 references section to be consistent with NFPA-805 changes.

Section 2.4.6 (Pages 2.4-17 and 2.4-18) is revised as follows (new text underlined and deleted text shown in strikethrough):

2.4.6 Miscellaneous In-Scope Structures

Structure Intended Function

Portions of the miscellaneous in-scope structures provide structural support and shelter and protection for SSCs that are within the scope of license renewal to support fire protection and station blackout requirements based upon criteria of 10 CFR 54.4(a)(3).

Callaway FSAR References

Additional details of the Miscellaneous In-Scope Structures are included in FSAR Sections 8.3A.4.a SP, and 9.2.5.3 SA ~~and 9.5.1.3 SA~~.

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Amendment 31

Revised Section 2.4.7 references section to be consistent with NFPA-805 changes.

Section 2.4.7 (Page 2.4-19) is revised as follows (deleted text shown in strikethrough):

2.4.7 In-Scope Tank Foundations and Structures

Structure Intended Function

The in-scope tank foundations and structures provide structural support and shelter and protection for safety-related SSCs providing the capability to shutdown the reactor and maintain it in a safe shutdown condition. Therefore, the in-scope tank foundations and structures are within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1).

Portions of the in-scope tank foundations and structures provide structural support and shelter and protection for nonsafety-related SSCs whose failure could prevent performance of a safety-related function. Therefore, the in-scope tank foundations and structures are within the scope of license renewal based on the criterion of 10 CFR 54.4(a)(2).

Portions of the in-scope tank foundations and structures provide structural support and shelter and protection for SSCs that are within the scope of license renewal to support fire protection and station blackout requirements based upon criteria of 10 CFR 54.4(a)(3).

Callaway FSAR References

Additional details of the in-scope tank foundations and structures are included in FSAR Sections 1.2.2 SP, 3.8.4.1.5 SP, 3.8.5.1.5 SP, 8.3A.5.1 SP, ~~9.5.1 SA~~, and 10.4.9.1.2 SP.

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Revised Section 2.4.8 references section to be consistent with NFPA-805 changes.

Section 2.4.8 (Pages 2.4-21 and 2.4-22) is revised as follows (new text underlined and deleted text shown in strikethrough):

2.4.8 Electrical Foundations and Structures

Structure Intended Function

The electrical foundations and structures provide structural support and shelter and protection for safety-related SSCs providing the capability to shutdown the reactor and maintain it in a safe shutdown condition and SSCs required to mitigate the consequences of accidents that could result in potential offsite exposure. Therefore, the electrical foundations and structures are within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1).

Portions of the electrical foundations and structures provide structural support and shelter and protection for nonsafety-related SSCs whose failure could prevent performance of a safety-related function. Therefore, the electrical foundations and structures are within the scope of license renewal based on the criterion of 10 CFR 54.4(a)(2).

Portions of the electrical foundations and structures provide structural support and shelter and protection for SSCs that are within the scope of license renewal to support fire protection and station blackout requirements based upon criteria of 10 CFR 54.4(a)(3).

Callaway FSAR References

Additional details of the electrical foundations and structures are included in FSAR Section 3.8.4.1.3 SA~~, and Appendices 9.5B SP and 9.5B SA~~.

Callaway Plant
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Amendment 31

Revised Section 2.4.9 to delete the fire barrier structural intended functions from the radwaste building consistent with NFPA-805 changes.

Section 2.4.9 (Pages 2.4-23 and 2.4-24) is revised as follows (new text underlined and deleted text shown in strikethrough):

2.4.9 Radwaste Building

Structure Description

The purpose of the radwaste building is to provide support and shelter and protection for radioactive waste treatment facilities, tanks, filters, and other miscellaneous equipment. The radwaste pipe tunnel provides access and carries electrical cable trays and piping between the auxiliary building and the radwaste building.

The radwaste building is a rectangular, multistory, structural steel and reinforced concrete structure. The building is supported on a reinforced concrete mat foundation constructed on structural backfill. The building has a built-up roof supported by structural steel beams and girders and the roof and intermediate floor framing are supported by structural steel columns and reinforced concrete bearing walls. The radwaste pipe tunnel is a below grade, reinforced concrete, two-cell box structure connecting the auxiliary building and the radwaste building. It is separated from both buildings by isolation joints.

With the exception of the radwaste tunnel, the radwaste building is physically separated from the rest of the plant by approximately 100 ft. The radwaste tunnel is separated from the connected auxiliary building by a fire barrier wall which is included in the scope of the auxiliary building.

Structure Intended Function

Portions of the radwaste building provide structural support and shelter and protection for SSCs that are within the scope of license renewal to support fire protection requirements based on the criteria of 10 CFR 54.4(a)(3).

Callaway FSAR References

Additional details of the radwaste building are included in FSAR Section 3.8.6 SP ~~and Appendices 9.5A SP and 9.5B SP~~.

Component-Function Relationship Table

The component types subject to aging management review are indicated in Table 2.4-9 – *Radwaste Building*.

Table 2.4-9 – Radwaste Building

Component Type	Intended Function
Bolting (Structural)	Structural Support
Caulking and Sealant	Flood Barrier Shelter, Protection
Compressible Joints and Seals	Expansion/Separation Shelter, Protection
Concrete Block (Masonry Walls)	Flood Barrier Shelter, Protection Structural Support
Concrete Elements	~~Fire Barrier~~ Flood Barrier Missile Barrier Shelter, Protection Structural Support
Door	Flood Barrier Shelter, Protection
~~Fire Barrier Coatings/Wraps~~	~~Fire Barrier~~
~~Fire Barrier Doors~~	~~Fire Barrier~~ ~~Shelter, Protection~~
~~Fire Barrier Seals~~	~~Fire Barrier~~
High Strength Bolting	Structural Support
Penetrations Electrical	Structural Support
Penetrations Mechanical	Structural Support
Roofing Membrane	Flood Barrier Shelter, Protection
Stairs, Platforms and Grates	Structural Support
Structural Steel	Shelter, Protection Structural Support

The AMR results for these component types are provided in Table 3.5.2-9, *Containments, Structures, and Component Supports - Summary of Aging Management Evaluation - Radwaste Building*.

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Revised Section 2.4.10 to delete the fire barrier door structural intended functions from the fuel building consistent with NFPA-805 changes. Also provided an editorial correction in the structure intended function section.

Section 2.4.10 (Pages 2.4-24 through 2.4-26) is revised as follows (deleted text shown in strikethrough):

2.4.10 Fuel Building

Structure Description

The purpose of the fuel building is to provide support and shelter and protection for the spent fuel pool, transfer canal, cask loading pool and cask washdown pit, spent fuel pool bridge crane, cask handling crane, and other miscellaneous equipment. The spent fuel pool receives spent fuel from the containment through the fuel transfer tube. The spent fuel pool, including the transfer canal, cask loading pool, and cask washdown pit consist of reinforced concrete walls and floors lined with stainless steel plates. A leak chase system is provided to check the leaktightness of the liners. The concrete dividing walls and the spent fuel pool gates permit de-watering of the spent fuel pool without dewatering the entire pool.

The fuel building is a multistory, structural steel and reinforced concrete seismic Category I structure, supported by a two-way reinforced concrete basemat founded on structural backfill. The exterior walls have integral reinforced concrete pilasters. The elevated floors and roof are reinforced concrete slabs supported by steel beams and girders. The floor and roof framing are supported by reinforced concrete bearing walls.

Structure Intended Function

The fuel building provides structural support and shelter and protection for safety-related SSCs required to mitigate the consequences of accidents that could result in potential offsite exposure. Therefore, the fuel building is within the scope of license renewal based on the criteria of 10 CFR 54(a)(1).

Portions of the fuel building provide structural support and shelter and protection for nonsafety-related SSCs whose failure could prevent performance of a safety-related function. Therefore, the ~~auxiliary building~~ fuel building is within the scope of license renewal based on the criterion of 10 CFR 54.4(a)(2).

Portions of the fuel building provide structural support and shelter and protection for SSCs that are within the scope of license renewal to support fire protection requirements based upon criteria of 10 CFR 54.4(a)(3).

Callaway FSAR References

Additional details of the fuel building are included in FSAR Section 3.8.4.1.2 SP.

Component-Function Relationship Table

The component types subject to aging management review are indicated in Table 2.4-10 – *Fuel Building*.

Table 2.4-10 – Fuel Building

Component Type	Intended Function
Bolting (Structural)	Structural Support
Caulking and Sealant	Flood Barrier Shelter, Protection
Compressible Joints and Seals	Expansion/Separation Shelter, Protection
Concrete Elements	Fire Barrier Flood Barrier Missile Barrier Shelter, Protection Structural Support
Door	Shelter, Protection
Fire Barrier Coatings/Wraps	Fire Barrier
~~Fire Barrier Doors~~	~~Fire Barrier~~ ~~Shelter, Protection~~
Fire Barrier Seals	Fire Barrier
Hatch	Shelter, Protection
High Strength Bolting	Structural Support
Liner Spent Fuel Pool	Shelter, Protection Structural Pressure Boundary
Penetrations Electrical	Structural Support
Penetrations Mechanical	Structural Support
Roofing Membrane	Flood Barrier Shelter, Protection
Stairs, Platforms and Grates	Structural Support
Structural Metals	Shelter, Protection
Structural Steel	Missile Barrier Shelter, Protection Structural Support

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Amendment 31

Revised the environments portion of Section 3.2.2.1.4 to reflect addition of a new environment for dampers with a fire barrier function as a result of NFPA-805 changes.

Section 3.2.2.1.4 (Page 3.2-5) is revised as follows (new text underlined):

3.2.2.1.4 Containment Purge System

Environment

The containment purge system component types are exposed to the following environments:

- Borated Water Leakage
- Closed Cycle Cooling Water
- Concrete
- Condensation
- Plant Indoor Air
- Ventilation Atmosphere
- Waste Water

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Amendment 31

Added aging evaluation lines for a damper with a fire barrier function for NFPA-805 changes.

Table 3.2.2-4 (Page 3.2-45) is revised as follows (new text underlined):

Table 3.2.2-4 Engineered Safety Features – Summary of Aging Management Evaluation – Containment Purge System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Damper	FB, PB	Carbon Steel (Galvanized)	Concrete (Ext)	None	None	VII.J.AP-282	3.3.1.112	C
Damper	FB, PB	Carbon Steel (Galvanized)	Ventilation Atmosphere (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)	VII.F3.A-08	3.3.1.090	B

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Revised Section 3.3.1 to reference Section 2.3.3.29 for the circulating water system as a result of NFPA-805 changes. Also revised Section 3.3.2 to add Table 3.3.2-29 for the circulating water system as a result of NFPA-805 changes.

Section 3.3.1 and Section 3.3.2 (Pages 3.3-1 through 3.3-4) are revised as follows (new text underlined):

3.3.1 Introduction

Section 3.3 provides the results of the aging management reviews (AMRs) for those component types identified in Section 2.3.3, *Auxiliary Systems*, subject to AMR. These systems are described in the following sections:

- Fuel Storage and Handling System (Section 2.3.3.1)
- Fuel Pool Cooling and Cleanup System (Section 2.3.3.2)
- Cranes, Hoists, and Elevators (Section 2.3.3.3)
- Essential Service Water System (Section 2.3.3.4)
- Service Water System (Section 2.3.3.5)
- Reactor Makeup Water System (Section 2.3.3.6)
- Component Cooling Water System (Section 2.3.3.7)
- Compressed Air System (Section 2.3.3.8)
- Nuclear Sampling System (Section 2.3.3.9)
- Chemical and Volume Control System (Section 2.3.3.10)
- Control Building HVAC System (Section 2.3.3.11)
- Essential Service Water Pumphouse HVAC System (Section 2.3.3.12)
- Auxiliary Building HVAC System (Section 2.3.3.13)
- Fuel Building HVAC System (Section 2.3.3.14)
- Miscellaneous Buildings HVAC System (Section 2.3.3.15)
- Diesel Generator Building HVAC System (Section 2.3.3.16)
- Radwaste Building HVAC System (Section 2.3.3.17)
- Turbine Building HVAC System (Section 2.3.3.18)
- Containment Cooling System (Section 2.3.3.19)
- Fire Protection System (Section 2.3.3.20)
- Emergency Diesel Engine Fuel Oil Storage and Transfer System (Section 2.3.3.21)

- Standby Diesel Generator Engine System (Section 2.3.3.22)
- EOF and TSC Diesels, Security Building System (Section 2.3.3.23)
- Liquid Radwaste System (Section 2.3.3.24)
- Decontamination System (Section 2.3.3.25)
- Oily Waste System (Section 2.3.3.26)
- Floor and Equipment Drainage System (Section 2.3.3.27)
- Miscellaneous Systems in scope ONLY for Criterion 10 CFR 54.4(a)(2) (Section 2.3.3.28) includes:
  - Boron Recycle
  - Central Chilled Water
  - Chemical and Detergent Waste
  - Condensate
  - Condensate and Feedwater Chemical Addition
  - Demineralized Water Makeup
  - Domestic Water
  - Gaseous Radwaste
  - Plant Heating
  - Roof Drains
  - Sanitary Drainage
  - Secondary Liquid Waste
  - Solid Radwaste
- Circulating Water System (Section 2.3.3.29)

Table 3.3-1, *Summary of Aging Management Programs in Chapter VII of NUREG-1801 for Auxiliary Systems*, provides the summary of the programs evaluated in NUREG-1801 that are applicable to the component types in this section. Table 3.3-1 uses the format of Table 1 described in Section 3.0, *Aging Management Review*.

3.3.2 Results

The following tables summarize the results of the AMR for the systems in the Auxiliary Systems area:

- Table 3.3.2-1, *Auxiliary Systems – Summary of Aging Management Evaluation – Fuel Storage and Handling System*
- Table 3.3.2-2, *Auxiliary Systems – Summary of Aging Management Evaluation –Fuel Pool Cooling and Cleanup System*
- Table 3.3.2-3, *Auxiliary Systems – Summary of Aging Management Evaluation – Cranes, Hoists, and Elevators*
- Table 3.3.2-4, *Auxiliary Systems – Summary of Aging Management Evaluation – Essential Service Water System*
- Table 3.3.2-5, *Auxiliary Systems – Summary of Aging Management Evaluation – Service Water System*

- Table 3.3.2-6, *Auxiliary Systems – Summary of Aging Management Evaluation – Reactor Makeup Water System*
- Table 3.3.2-7, *Auxiliary Systems – Summary of Aging Management Evaluation – Component Cooling Water System*
- Table 3.3.2-8, *Auxiliary Systems – Summary of Aging Management Evaluation – Compressed Air System*
- Table 3.3.2-9, *Auxiliary Systems – Summary of Aging Management Evaluation – Nuclear Sampling System*
- Table 3.3.2-10, *Auxiliary Systems – Summary of Aging Management Evaluation – Chemical and Volume Control System*
- Table 3.3.2-11, *Auxiliary Systems – Summary of Aging Management Evaluation – Control Building HVAC System*
- Table 3.3.2-12, *Auxiliary Systems – Summary of Aging Management Evaluation – Essential Service Water Pumphouse HVAC System*
- Table 3.3.2-13, *Auxiliary Systems – Summary of Aging Management Evaluation – Auxiliary Building HVAC System*
- Table 3.3.2-14, *Auxiliary Systems – Summary of Aging Management Evaluation – Fuel Building HVAC System*
- Table 3.3.2-15, *Auxiliary Systems – Summary of Aging Management Evaluation – Miscellaneous Buildings HVAC System*
- Table 3.3.2-16, *Auxiliary Systems – Summary of Aging Management Evaluation – Diesel Generator Building HVAC System*
- Table 3.3.2-17, *Auxiliary Systems – Summary of Aging Management Evaluation – Radwaste Building HVAC System*
- Table 3.3.2-18, *Auxiliary Systems – Summary of Aging Management Evaluation – Turbine Building HVAC System*
- Table 3.3.2-19, *Auxiliary Systems – Summary of Aging Management Evaluation – Containment Cooling System*
- Table 3.3.2-20, *Auxiliary Systems – Summary of Aging Management Evaluation – Fire Protection System*
- Table 3.3.2-21, *Auxiliary Systems – Summary of Aging Management Evaluation – Emergency Diesel Engine Fuel Oil Storage and Transfer System*
- Table 3.3.2-22, *Auxiliary Systems – Summary of Aging Management Evaluation – Standby Diesel Generator Engine System*
- Table 3.3.2-23, *Auxiliary Systems – Summary of Aging Management Evaluation – EOF and TSC Diesels, Security Building System*
- Table 3.3.2-24, *Auxiliary Systems – Summary of Aging Management Evaluation – Liquid Radwaste System*

- Table 3.3.2-25, *Auxiliary Systems – Summary of Aging Management Evaluation – Decontamination System*
- Table 3.3.2-26, *Auxiliary Systems – Summary of Aging Management Evaluation – Oily Waste System*
- Table 3.3.2-27, *Auxiliary Systems – Summary of Aging Management Evaluation – Floor and Equipment Drainage System*
- Table 3.3.2-28, *Auxiliary Systems – Summary of Aging Management Evaluation – Miscellaneous Systems in scope ONLY for Criterion 10 CFR 54.4(a)(2)*
- Table 3.3.2-29, *Auxiliary Systems – Summary of Aging Management Evaluation – Circulating Water System*

These tables use the format of Table 2 discussed in Section 3.0, *Aging Management Review*.

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Revised Section 3.3.2.1.17 to delete the radwaste building HVAC system from the scope of license renewal to be consistent with NFPA-805 changes.

Section 3.3.2.1.17 (Pages 3.3-21 and 3.3-22) is revised as follows (new text underlined and deleted text shown in strikethrough):

3.3.2.1.17 Radwaste Building HVAC System

The radwaste building HVAC system is not within the scope of license renewal.

~~**Materials**~~

~~The materials of construction for the radwaste building HVAC system component types are:~~

- ~~Carbon Steel~~
- ~~Carbon Steel (Galvanized)~~
- ~~Copper Alloy~~
- ~~Stainless Steel~~

~~**Environment**~~

~~The radwaste building HVAC system component types are exposed to the following environments:~~

- ~~Plant Indoor Air~~
- ~~Ventilation Atmosphere~~

~~**Aging Effects Requiring Management**~~

~~The following radwaste building HVAC system aging effect requires management:~~

- ~~Loss of material~~

~~**Aging Management Programs**~~

~~The following aging management programs manage the aging effects for the radwaste building HVAC system component types:~~

- ~~External Surfaces Monitoring of Mechanical Components (B2.1.21)~~
- ~~Fire Protection (B2.1.13)~~
- ~~Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)~~

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Amendment 31

Added Section 3.3.2.1.29 for the circulating water system as a new system within the scope of license renewal. The circulating water system provides a return path to the cooling tower for the service water system consistent with NFPA-805 changes.

Section 3.3.2.1.29 (Page 3.3-35) is added as a new system within the scope of license renewal.

3.3.2.1.29 Circulating Water System

Materials

The materials of construction for the circulating water system component types are:

- Carbon Steel
- Carbon Steel (with coating or lining)
- Cast Iron (Gray Cast Iron)
- Concrete
- Elastomer

Environment

The circulating water system component types are exposed to the following environments:

- Atmosphere/Weather
- Buried
- Plant Indoor Air
- Raw Water

Aging Effects Requiring Management

The following circulating water system aging effects require management:

- Changes in Material Properties
- Cracking
- Cracking and Changes in Material Properties
- Cracking, Spalling, Corrosion of Rebar
- Hardening and Loss of Strength
- Loss of material
- Loss of preload

Aging Management Programs

The following aging management programs manage the aging effects for the circulating water system component types:

- Bolting Integrity (B2.1.8)
- Selective Leaching (B2.1.19)
- External Surfaces Monitoring of Mechanical Components (B2.1.21)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)
- Buried and Underground Piping and Tanks (B2.1.25)

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Changes made to add a flow orifice and internally coated carbon steel piping in the service water return path to the cooling tower for NFPA-805 changes.

Table 3.3.2-5 (Pages 3.3-100) is revised as follows (new text underlined):

Table 3.3.2-5 Auxiliary Systems – Summary of Aging Management Evaluation – Service Water System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Flow Orifice	PB	Stainless Steel	Plant Indoor Air (Ext)	None	None	VII.J.AP-17	3.3.1.120	A
Flow Orifice	PB	Stainless Steel	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)	VII.C1.A-409a	3.3.1.134	B
Piping	PB, SIA	Carbon Steel (with coating or lining)	Buried (Ext)	Loss of material	Buried and Underground Piping and Tanks (B2.1.25)	VII.C1.AP-198	3.3.1.106	A
Piping	PB, SIA	Carbon Steel (with coating or lining)	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)	VII.C1.AP-194	3.3.1.037	E, 1

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Changes made to delete galvanized steel dampers in a plant indoor air environment due to removal of fire barrier functions for NFPA-805 changes.

Table 3.3.2-13 (Pages 3.3-164) is revised as follows (deleted text shown in strikethrough):

Table 3.3.2-13 Auxiliary Systems – Summary of Aging Management Evaluation – Auxiliary Building HVAC System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Damper	~~FB,~~ PB	Carbon Steel (Galvanized)	Plant Indoor Air (Ext)	None	None	VII.J.AP-13	3.3.1.116	C

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Revised Table 3.3.2-17 to delete the radwaste building HVAC system from the scope of license renewal to be consistent with NFPA-805 changes.

Table 3.3.2-17 (Pages 3.3-193 and 3.3-194) is revised as follows (new text underlined and deleted text shown in strikethrough):

Table 3.3.2-17 Auxiliary Systems – Summary of Aging Management Evaluation – Radwaste Building HVAC System
The radwaste building HVAC system is not within the scope of license renewal.

~~Component Type~~	~~Intended Function~~	~~Material~~	~~Environment~~	~~Aging Effect Requiring Management~~	~~Aging Management Program~~	~~NUREG-1801 Item~~	~~Table 1 Item~~	~~Notes~~
~~Damper~~	~~FB~~	~~Carbon Steel (Galvanized)~~	~~Plant Indoor Air (Ext)~~	~~None~~	~~None~~	~~VII.J.AP-13~~	~~3.3.1.116~~	~~C~~
~~Damper~~	~~FB~~	~~Carbon Steel (Galvanized)~~	~~Ventilation Atmosphere (Int)~~	~~Loss of material~~	~~Fire Protection (B2.1.13)~~	~~VII.F2.A-08~~	~~3.3.1.090~~	~~E, 2~~
~~Piping~~	~~PB~~	~~Carbon Steel~~	~~Plant Indoor Air (Ext)~~	~~Loss of material~~	~~External Surfaces Monitoring of Mechanical Components (B2.1.21)~~	~~VII.I.A-77~~	~~3.3.1.078~~	~~A~~
~~Piping~~	~~PB~~	~~Carbon Steel~~	~~Ventilation Atmosphere (Ext)~~	~~Loss of material~~	~~Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)~~	~~VII.I.A-81~~	~~3.3.1.078~~	~~E, 1~~
~~Piping~~	~~PB~~	~~Carbon Steel~~	~~Ventilation Atmosphere (Int)~~	~~Loss of material~~	~~Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)~~	~~VII.F2.A-08~~	~~3.3.1.090~~	~~B~~
~~Piping~~	~~PB~~	~~Copper Alloy~~	~~Plant Indoor Air (Ext)~~	~~None~~	~~None~~	~~VII.J.AP-144~~	~~3.3.1.114~~	~~A~~

Table 3.3.2-17 Auxiliary Systems – Summary of Aging Management Evaluation – Radwaste Building HVAC System (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Piping	PB	Copper Alloy	Ventilation Atmosphere (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)	VII.G.AP-143	3.3.1.089	B
Piping	PB	Stainless Steel	Plant Indoor Air (Ext)	None	None	VII.J.AP-17	3.3.1.120	A
Piping	PB	Stainless Steel	Ventilation Atmosphere (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)	VII.F2.AP-99	3.3.1.094	D

- Notes for Table 3.3.2-17:
- Standard Notes:

A Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.
B Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP takes some exceptions to NUREG-1801 AMP.
C Component is different, but consistent with NUREG-1801 item for material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.
D Component is different, but consistent with NUREG-1801 item for material, environment, and aging effect. AMP takes some exceptions to NUREG-1801 AMP.
E Consistent with NUREG-1801 for material, environment, and aging effect, but a different aging management program is credited or NUREG-1801 identifies a plant-specific aging management program.

Plant Specific Notes:
1 The subject component is enclosed within another component. Loss of material on the external surface of the subject component is managed by the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program (B2.1.23).
2. Fire Protection (B2.1.13) manages the aging effects associated with this fire damper material and environment combination.

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Revised Table 3.3.2-18 to reflect deletion of the fire barrier function from dampers as a result of NFPA-805 changes.

Table 3.3.2-18 (Page 3.3-195) is revised as follows (deleted text shown in strikethrough):

Table 3.3.2-18 Auxiliary Systems – Summary of Aging Management Evaluation – Turbine Building HVAC System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Damper	FB, ~~PB~~	Carbon Steel (Galvanized)	Ventilation Atmosphere (Int)	Loss of material	Fire Protection (B2.1.13)	VII.F2.A-08	3.3.1.090	E, 3
Damper	~~FB,~~ PB	Carbon Steel (Galvanized)	Plant Indoor Air (Ext)	None	None	VII.J.AP-13	3.3.1.116	C
Damper	~~FB,~~ PB	Carbon Steel (Galvanized)	Ventilation Atmosphere (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)	VII.F2.A-08	3.3.1.090	B

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Revised Table 3.3.2-20 to incorporate the following as a result of NFPA-805 changes:

- **deleted the fire water storage tank sump pump and the fire protection pumphouse valve pit pumps,**
- **added a leakage boundary (spatial) function to components that no longer had a fire barrier function as a result of NFPA-805 changes,**
- **Added copper alloy (>15% zinc) hose stations**
- **Added loss of material and flow blockage aging effect to hydrants, gray cast iron piping, solenoid valves, strainers, tanks (retard chambers), gray cast iron valves, and copper alloy (>15% zinc) valves**

Table 3.3.2-20 (Pages 3.3-204, 3.3-206, 3.3-207, and 3.3-209 through 3.3-216) is revised as follows (new text underlined and deleted text shown in strikethrough):

Table 3.3.2-20 Auxiliary Systems – Summary of Aging Management Evaluation – Fire Protection System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
~~Closure Bolting~~	~~PB~~	~~Carbon Steel~~	~~Raw Water (Ext)~~	~~Loss of preload~~	~~Bolting Integrity (B2.1.8)~~	~~VII.I.AP-264~~	~~3.3.1.015~~	~~A~~
~~Closure Bolting~~	~~PB~~	~~Carbon Steel~~	~~Raw Water (Ext)~~	~~Loss of material~~	~~Bolting Integrity (B2.1.8)~~	~~VIII.G.SP-136~~	~~3.4.1.038~~	~~E, 5~~
Flow Orifice	LBS, PB	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring of Mechanical Components (B2.1.21)	VII.I.A-77	3.3.1.078	A
Flow Orifice	LBS, PB	Carbon Steel	Raw Water (Int)	Loss of material and flow blockage	Fire Water System (B2.1.14)	VII.G.A-33	3.3.1.064	B
Hose Station	PB	Copper Alloy (> 15% Zinc)	Plant Indoor Air (Ext)	None	None	VII.J.AP-144	3.3.1.114	A

Table 3.3.2-20 Auxiliary Systems – Summary of Aging Management Evaluation – Fire Protection System (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Hose Station	PB	Copper Alloy (> 15% Zinc)	Raw Water (Int)	Loss of material	Selective Leaching (B2.1.19)	VII.G.A-47	3.3.1.072	D
Hose Station	PB	Copper Alloy (> 15% Zinc)	Raw Water (Int)	Loss of material and flow blockage	Fire Water System (B2.1.14)	VII.G.AP-197	3.3.1.064	D
Hydrant	PB	Cast Iron (Gray Cast Iron)	Raw Water (Int)	Loss of material and flow blockage	Fire Water System (B2.1.14)	VII.G.A-33	3.3.1.064	B
Piping	PB	Cast Iron (Gray Cast Iron)	Raw Water (Int)	Loss of material and flow blockage	Fire Water System (B2.1.14)	VII.G.A-33	3.3.1.064	B
~~Pump~~	~~PB~~	~~Cast Iron (Gray Cast Iron)~~	~~Raw Water (Ext)~~	~~Loss of material and flow blockage~~	~~External Surfaces Monitoring of Mechanical Components (B2.1.21)~~	~~VII.G.A-33~~	~~3.3.1.064~~	~~E, 3~~
~~Pump~~	~~PB~~	~~Cast Iron (Gray Cast Iron)~~	~~Raw Water (Ext)~~	~~Loss of material~~	~~Selective Leaching (B2.1.19)~~	~~VII.G.A-51~~	~~3.3.1.072~~	~~B~~
Solenoid Valve	LBS, PB	Copper Alloy (> 15% Zinc)	Plant Indoor Air (Ext)	None	None	VII.J.AP-144	3.3.1.114	A
Solenoid Valve	LBS, PB	Copper Alloy (> 15% Zinc)	Raw Water (Int)	Loss of material	Selective Leaching (B2.1.19)	VII.G.A-47	3.3.1.072	B
Solenoid Valve	LBS, PB	Copper Alloy (> 15% Zinc)	Raw Water (Int)	Loss of material and flow blockage	Fire Water System (B2.1.14)	VII.G.AP-197	3.3.1.064	B
Strainer	LBS, PB	Cast Iron (Gray Cast Iron)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring of Mechanical Components (B2.1.21)	VII.I.A-77	3.3.1.078	A
Strainer	LBS, PB	Cast Iron (Gray Cast Iron)	Raw Water (Int)	Loss of material and flow blockage	Fire Water System (B2.1.14)	VII.G.A-33	3.3.1.064	B

Table 3.3.2-20 Auxiliary Systems – Summary of Aging Management Evaluation – Fire Protection System (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Strainer	LBS, PB	Cast Iron (Gray Cast Iron)	Raw Water (Int)	Loss of material	Selective Leaching (B2.1.19)	VII.G.A-51	3.3.1.072	B
Strainer	LBS, PB	Copper Alloy (> 15% Zinc)	Plant Indoor Air (Ext)	None	None	VII.J.AP-144	3.3.1.114	A
Strainer	LBS, PB	Copper Alloy (> 15% Zinc)	Raw Water (Int)	Loss of material	Selective Leaching (B2.1.19)	VII.G.A-47	3.3.1.072	B
Strainer	LBS, PB	Copper Alloy (> 15% Zinc)	Raw Water (Int)	Loss of material and flow blockage	Fire Water System (B2.1.14)	VII.G.AP-197	3.3.1.064	B
Tank	PB	Carbon Steel (with coating or lining)	Raw Water (Int)	Loss of material	Fire Water System (B2.1.14)	VII.H2.AP-194	3.3.1.037	~~E, 4~~ E, 3
Tank	LBS, PB	Cast Iron (Gray Cast Iron)	Borated Water Leakage (Ext)	Loss of material	Boric Acid Corrosion (B2.1.4)	VII.I.A-79	3.3.1.009	A
Tank	LBS, PB	Cast Iron (Gray Cast Iron)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring of Mechanical Components (B2.1.21)	VII.I.A-77	3.3.1.078	A
Tank	LBS, PB	Cast Iron (Gray Cast Iron)	Raw Water (Int)	Loss of material and flow blockage	Fire Water System (B2.1.14)	VII.G.A-33	3.3.1.064	D
Tank	LBS, PB	Cast Iron (Gray Cast Iron)	Raw Water (Int)	Loss of material	Selective Leaching (B2.1.19)	VII.G.A-51	3.3.1.072	D
Valve	LBS, PB, SIA	Cast Iron (Gray Cast Iron)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring of Mechanical Components (B2.1.21)	VII.I.A-77	3.3.1.078	A
Valve	LBS, PB, SIA	Cast Iron (Gray Cast Iron)	Raw Water (Int)	Loss of material and flow blockage	Fire Water System (B2.1.14)	VII.G.A-33	3.3.1.064	B

Table 3.3.2-20 Auxiliary Systems – Summary of Aging Management Evaluation – Fire Protection System (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Valve	LBS, PB, SIA	Cast Iron (Gray Cast Iron)	Raw Water (Int)	Loss of material	Selective Leaching (B2.1.19)	VII.G.A-51	3.3.1.072	B
Valve	LBS, PB, SIA	Copper Alloy	Plant Indoor Air (Ext)	None	None	VII.J.AP-144	3.3.1.114	A
Valve	LBS, PB, SIA	Copper Alloy	Raw Water (Int)	Loss of material and flow blockage	Fire Water System (B2.1.14)	VII.G.AP-197	3.3.1.064	B
Valve	LBS, PB	Copper Alloy (> 15% Zinc)	Plant Indoor Air (Ext)	None	None	VII.J.AP-144	3.3.1.114	A
Valve	LBS, PB	Copper Alloy (> 15% Zinc)	Raw Water (Int)	Loss of material	Selective Leaching (B2.1.19)	VII.G.A-47	3.3.1.072	B
Valve	LBS, PB	Copper Alloy (> 15% Zinc)	Raw Water (Int)	Loss of material and flow blockage	Fire Water System (B2.1.14)	VII.G.AP-197	3.3.1.064	B

Notes for Table 3.3.2-20:

Plant Specific Notes:

1 The fire water storage tanks rest on a sand cushion surrounded by a reinforced concrete ring beam.

2 PVC in a wastewater environment is unaffected by water, concentrated alkalies, nonoxidizing acids, oils, ozone, or humidity changes. PVC in a waste water environment is not exposed to direct sunlight or ionizing radiation. Therefore PVC in a wastewater environment has no aging effect.

~~3 The external surface of these components will be managed by the External Surfaces Monitoring of Mechanical Components program (B2.1.21).~~

3~~4~~ The Fire Water System (B2.1.14) program is used to manage components in the fire water system.

~~5. The Bolting Integrity program (B2.1.8) is used instead of the Internal Surfaces in Miscellaneous Piping and Ducting Components program (B2.1.23) to manage loss of material in submerged closure bolting.~~

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Added Table 3.3.2-29 for the circulating water system as a new system within the scope of license renewal. The circulating water system provides a return path to the cooling tower for the service water system consistent with NFPA-805 changes.

Table 3.3.2-29 (Page 3.3-283) is added as a new system within the scope of license renewal.

Table 3.3.2-29 Auxiliary Systems – Summary of Aging Management Evaluation – Circulating Water System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Closure Bolting	PB	Carbon Steel	Plant Indoor Air (Ext)	Loss of preload	Bolting Integrity (B2.1.8)	VII.I.AP-124	3.3.1.015	A
Closure Bolting	PB	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	Bolting Integrity (B2.1.8)	VII.I.AP-125	3.3.1.012	A
Expansion Joint	PB	Elastomer	Plant Indoor Air (Ext)	Hardening and loss of strength	External Surfaces Monitoring of Mechanical Components (B2.1.21)	VII.F4.AP-102	3.3.1.076	A
Expansion Joint	PB	Elastomer	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring of Mechanical Components (B2.1.21)	VII.F4.AP-113	3.3.1.082	A
Expansion Joint	PB	Elastomer	Raw Water (Int)	Hardening and loss of strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)	VII.C1.AP-75	3.3.1.032a	E, 1

Table 3.3.2-29 Auxiliary Systems – Summary of Aging Management Evaluation – Circulating Water System (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Expansion Joint	PB	Elastomer	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)	VII.C1.AP-76	3.3.1.032a	E, 1
Piping	PB	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring of Mechanical Components (B2.1.21)	VII.I.A-77	3.3.1.078	A
Piping	PB	Carbon Steel	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)	VII.C1.A-408a	3.3.1.134	B
Piping	PB	Carbon Steel (with coating or lining)	Buried (Ext)	Loss of material	Buried and Underground Piping and Tanks (B2.1.25)	VII.C1.AP-198	3.3.1.106	A
Piping	PB	Carbon Steel (with coating or lining)	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)	VII.C1.AP-194	3.3.1.037	E, 1
Piping	PB	Concrete	Atmosphere/ Weather (Ext)	Cracking	External Surfaces Monitoring of Mechanical Components (B2.1.21)	VII.C1.AP-251	3.3.1.074	A
Piping	PB	Concrete	Atmosphere/ Weather (Ext)	Loss of material	External Surfaces Monitoring of Mechanical Components (B2.1.21)	VII.C1.AP-252	3.3.1.077	A

Table 3.3.2-29 Auxiliary Systems – Summary of Aging Management Evaluation – Circulating Water System (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Piping	PB	Concrete	Atmosphere/ Weather (Ext)	Changes in material properties	External Surfaces Monitoring of Mechanical Components (B2.1.21)	VII.C1.AP-253	3.3.1.073	A
Piping	PB	Concrete	Buried (Ext)	Cracking and Changes in material properties	Buried and Underground Piping and Tanks (B2.1.25)	VII.C1.AP-157	3.3.1.103	A
Piping	PB	Concrete	Buried (Ext)	Cracking, spalling, corrosion of rebar	Buried and Underground Piping and Tanks (B2.1.25)	VII.C1.AP-178	3.3.1.105	A
Piping	PB	Concrete	Raw Water (Int)	Cracking	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)	VII.C1.AP-248	3.3.1.031	E, 1
Piping	PB	Concrete	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)	VII.C1.AP-249	3.3.1.033	E, 1
Piping	PB	Concrete	Raw Water (Int)	Changes in material properties	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)	VII.C1.AP-250	3.3.1.030	E, 1
Valve	PB	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring of Mechanical Components (B2.1.21)	VII.I.A-77	3.3.1.078	A

Table 3.3.2-29 Auxiliary Systems – Summary of Aging Management Evaluation – Circulating Water System (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Valve	PB	Carbon Steel	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)	VII.C1.A-408a	3.3.1.134	B
Valve	PB	Cast Iron (Gray Cast Iron)	Atmosphere/ Weather (Ext)	Loss of material	External Surfaces Monitoring of Mechanical Components (B2.1.21)	VII.I.A-78	3.3.1.078	A
Valve	PB	Cast Iron (Gray Cast Iron)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring of Mechanical Components (B2.1.21)	VII.I.A-77	3.3.1.078	A
Valve	PB	Cast Iron (Gray Cast Iron)	Raw Water (Int)	Loss of material	Selective Leaching (B2.1.19)	VII.C1.A-51	3.3.1.072	B
Valve	PB	Cast Iron (Gray Cast Iron)	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23)	VII.C1.A-408a	3.3.1.134	B

Notes for Table 3.3.2-29:

Standard Notes:

A Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.

B Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP takes some exceptions to NUREG-1801 AMP.

E Consistent with NUREG-1801 for material, environment, and aging effect, but a different aging management program is credited or NUREG-1801 identifies a plant-specific aging management program.

Plant Specific Notes:

1 NUREG-1801, Section XI.M20, Open-Cycle Cooling Water System, is for water which cools safety-related components and rejects heat to the ultimate heat sink. Since the circulating water system rejects heat to the cooling tower and is nonsafety-related, the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program (B2.1.23) is credited.

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Revised aging evaluations to add the nonsafety auxiliary feedwater pump and associated piping components to incorporate NFPA-805 changes.

Table 3.4.2-6 (Pages 3.4-61 through 3.4-64) is revised as follows (new text underlined and deleted text shown in strikethrough):

Table 3.4.2-6 Steam and Power Conversion System – Summary of Aging Management Evaluation – Condensate Storage and Transfer System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Flow Orifice	PB	Stainless Steel	Plant Indoor Air (Ext)	None	None	VIII.I.SP-12	3.4.1.058	A
Flow Orifice	PB	Stainless Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.18)	VIII.E.SP-87	3.4.1.016	A
~~Piping~~	~~LBS, SIA~~	~~Carbon Steel~~	~~Plant Indoor Air (Ext)~~	~~Loss of material~~	~~External Surfaces Monitoring of Mechanical Components (B2.1.21)~~	~~VIII.H.S-29~~	~~3.4.1.034~~	~~A~~
~~Piping~~	~~LBS, SIA~~	~~Carbon Steel~~	~~Secondary Water (Int)~~	~~Loss of material~~	~~Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.18)~~	~~VIII.G.SP-74~~	~~3.4.1.013~~	~~A~~
Piping	PB~~, LBS, SIA~~	Carbon Steel	Borated Water Leakage (Ext)	Loss of material	Boric Acid Corrosion (B2.1.4)	VIII.H.S-30	3.4.1.004	A
Piping	PB~~, LBS, SIA~~	Carbon Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.18)	VIII.G.SP-74	3.4.1.013	A

Table 3.4.2-6 Steam and Power Conversion System – Summary of Aging Management Evaluation – Condensate Storage and Transfer System (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Pump	PB	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring of Mechanical Components (B2.1.21)	VIII.H.S-29	3.4.1.034	A
Pump	PB	Carbon Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.18)	VIII.G.SP-74	3.4.1.013	A
Tubing	PB	Stainless Steel	Plant Indoor Air (Ext)	None	None	VIII.I.SP-12	3.4.1.058	A
Tubing	PB	Stainless Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.18)	VIII.G.SP-87	3.4.1.016	A
Valve	PB	Stainless Steel	Plant Indoor Air (Ext)	None	None	VIII.I.SP-12	3.4.1.058	A
Valve	PB	Stainless Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.18)	VIII.G.SP-87	3.4.1.016	A

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The following changes were made to delete fire barrier materials and aging effects associated with NFPA-805 changes. Also added a portion of the turbine building that provides a NFPA-805 return path for the circulating water system.

Section 3.5.2.1.4 (Page 3.5-7 and 3.5-8) is revised as follows (deleted text shown in strikethrough):

3.5.2.1.4 Turbine Building

Materials

The materials of construction for the turbine building component types are:

- Carbon Steel
- Concrete
- Concrete Block (Masonry Walls)
- Elastomer
- ~~Fire Barrier (Cementitious Coating)~~
- High Strength Low Alloy Steel (Bolting)

Environment

The turbine building component types are exposed to the following environments:

- Atmosphere/ Weather (Structural)
- Buried (Structural)
- Concrete (Structural)
- Plant Indoor Air (Structural)
- Submerged (Structural)

Aging Effects Requiring Management

The following turbine building aging effects require management:

- ~~Concrete cracking and spalling~~
- Cracking
- Cracking and distortion
- ~~Cracking, loss of material~~

- Cracking; loss of bond; and loss of material (spalling, scaling)
- Increase in porosity and permeability; cracking; loss of material (spalling, scaling)
- Increase in porosity and permeability; loss of strength
- Increased hardness; shrinkage; loss of strength
- Loss of material
- Loss of material (spalling, scaling) and cracking
- Loss of preload
- Loss of sealing

Aging Management Programs

The following aging management programs manage the aging effects for the turbine building component types:

- Fire Protection (B2.1.13)
- Masonry Walls (B2.1.30)
- RG 1.127, Inspection of Water-Control Structures Assocaited with Nuclear Power Plants (B2.1.31)
- Structures Monitoring (B2.1.31)

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The following change was made to delete fire barrier materials, aging effects, and aging management programs associated with NFPA-805 changes.

Section 3.5.2.1.9 (Page 3.5-13 and 3.5-14) is revised as follows (deleted text shown in strikethrough):

3.5.2.1.9 Radwaste Building

Materials

The materials of construction for the radwaste building component types are:

- Carbon Steel
- Concrete
- Concrete Block (Masonry Walls)
- Elastomer
- ~~Fire Barrier (Cementitious Coating)~~
- High Strength Low Alloy Steel (Bolting)

Environment

The radwaste building component types are exposed to the following environments:

- Atmosphere/ Weather (Structural)
- Buried (Structural)
- Concrete (Structural)
- Plant Indoor Air (Structural)

Aging Effects Requiring Management

The following radwaste building aging effects require management:

- ~~Concrete cracking and spalling~~
- Cracking
- Cracking and distortion
- ~~Cracking, loss of material~~
- Cracking; loss of bond; and loss of material (spalling, scaling)
- Increase in porosity and permeability; cracking; loss of material (spalling, scaling)

- Increase in porosity and permeability; loss of strength
- Increased hardness; shrinkage; loss of strength
- Loss of material
- Loss of material (spalling, scaling) and cracking
- Loss of preload
- Loss of sealing

Aging Management Programs

The following aging management programs manage the aging effects for the radwaste building component types:

- ~~Fire Protection (B2.1.13)~~
- Masonry Walls (B2.1.30)
- Structures Monitoring (B2.1.31)

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The following change was made to delete aging effects associated with NFPA-805 changes.

Section 3.5.2.1.11 (Page 3.5-16 and 3.5-17) is revised as follows (deleted text shown in strikethrough):

3.5.2.1.11 Essential Service Water Structures

Aging Effects Requiring Management

The following essential service water structures aging effects require management:

- Concrete cracking and spalling
- Cracking
- Cracking and distortion
- Cracking, blistering, change in color
- ~~Cracking, loss of material~~
- Cracking; loss of bond; and loss of material (spalling, scaling)
- Increase in porosity and permeability; cracking; loss of material (spalling, scaling)
- Increase in porosity and permeability; loss of strength
- Increased hardness; shrinkage; loss of strength
- Loss of material
- Loss of material (spalling, scaling) and cracking
- Loss of material; loss of form
- Loss of preload
- Loss of sealing

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Revised Table 3.5.2-1 to delete the fire barrier doors and the fire barrier structural intended function from selected reactor building components consistent with NFPA-805 changes.

Table 3.5.2-1 (Pages 3.5-55, 3.5-56, and 3.5-59) is revised as follows (deleted text shown in strikethrough):

Table 3.5.2-1 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Reactor Building

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Concrete Elements	~~FB,~~ MB, SH, SLD, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Loss of material (spalling, scaling) and cracking	ASME Section XI, Subsection IWL (B2.1.27)	II.A1.CP-31	3.5.1.018	A
Concrete Elements	~~FB,~~ MB, SH, SLD, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; loss of strength	ASME Section XI, Subsection IWL (B2.1.27)	II.A1.CP-32	3.5.1.020	A
Concrete Elements	~~FB,~~ MB, SH, SLD, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking	ASME Section XI, Subsection IWL (B2.1.27)	II.A1.CP-33	3.5.1.019	A
Concrete Elements	~~FB,~~ MB, SH, SLD, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking; loss of bond; and loss of material (spalling, scaling)	ASME Section XI, Subsection IWL (B2.1.27)	II.A1.CP-68	3.5.1.021	A
Concrete Elements	~~FB,~~ MB, SH, SLD, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; cracking; loss of material (spalling, scaling)	ASME Section XI, Subsection IWL (B2.1.27)	II.A1.CP-87	3.5.1.017	A

Table 3.5.2-1 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Reactor Building (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Concrete Elements	~~FB,~~ MB, SH, SLD, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking; loss of bond; and loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	II.A1.CP-97	3.5.1.025	A
~~Concrete Elements~~	~~FB, MB, SH, SLD, SS~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Cracking, loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-92~~	~~3.3.1.061~~	~~A~~
~~Concrete Elements~~	~~FB, MB, SH, SLD, SS~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-93~~	~~3.3.1.062~~	~~A~~
~~Fire Barrier Doors~~	~~FB, MB, SH~~	~~Carbon Steel~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Loss of material~~	~~Structures Monitoring (B2.1.31)~~	~~III.A1.TP-302~~	~~3.5.1.077~~	~~A~~
~~Fire Barrier Doors~~	~~FB, MB, SH~~	~~Carbon Steel~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-21~~	~~3.3.1.059~~	~~A~~
Hatch Emergency Airlock	~~FB,~~ SH, SLD, SPB, SS	Carbon Steel	Plant Indoor Air (Structural) (Ext)	Loss of material	ASME Section XI, Subsection IWE (B2.1.26) and 10 CFR Part 50, Appendix J (B2.1.29)	II.A3.C-16	3.5.1.028	A
~~Hatch Emergency Airlock~~	~~FB, SH, SLD, SPB, SS~~	~~Carbon Steel~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-21~~	~~3.3.1.059~~	~~A~~
Hatch Emergency Airlock	~~FB,~~ SH, SLD, SPB, SS	Carbon Steel	Plant Indoor Air (Structural) (Ext)	Loss of leak tightness	ASME Section XI, Subsection IWE (B2.1.26) and 10 CFR Part 50, Appendix J (B2.1.29)	II.A3.CP-39	3.5.1.029	A

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Revised Table 3.5.2-2 to delete fire barrier seals and the fire barrier structural intended function from selected control building components consistent with NFPA-805 changes.

Table 3.5.2-2 (Pages 3.5-67, 3.5-68, and 3.5-70) is revised as follows (deleted text shown in strikethrough):

Table 3.5.2-2 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Control Building

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Loss of material (spalling, scaling) and cracking	Structures Monitoring (B2.1.31)	III.A1.TP-23	3.5.1.064	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; loss of strength	Structures Monitoring (B2.1.31)	III.A1.TP-24	3.5.1.063	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking	Structures Monitoring (B2.1.31)	III.A1.TP-25	3.5.1.054	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking; loss of bond; and loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A1.TP-26	3.5.1.066	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; cracking; loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A1.TP-28	3.5.1.067	A

Table 3.5.2-2 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Control Building (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
~~Concrete Elements~~	~~FB, MB, SH, SS~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Cracking, loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-92~~	~~3.3.1.061~~	~~A~~
~~Concrete Elements~~	~~FB, MB, SH, SS~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-93~~	~~3.3.1.062~~	~~A~~
~~Fire Barrier Seals~~	~~FB~~	~~Elastomer~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of sealing~~	~~Structures Monitoring (B2.1.31)~~	~~III.A6.TP-7~~	~~3.5.1.072~~	~~A~~
~~Fire Barrier Seals~~	~~FB~~	~~Elastomer~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Increased hardness; shrinkage; loss of strength~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-20~~	~~3.3.1.057~~	~~A~~

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Revised Table 3.5.2-3 to delete the fire barrier structural intended functions from the auxiliary building components consistent with NFPA-805 changes.

Table 3.5.2-3 (Pages 3.5-74, 3.5-75, 3.5-77 through 3.5-80) is revised as follows (new text underlined and deleted text shown in strikethrough):

Table 3.5.2-3 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Auxiliary Building

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Concrete Elements	~~FB,~~ FLB, MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Loss of material (spalling, scaling) and cracking	Structures Monitoring (B2.1.31)	III.A3.TP-23	3.5.1.064	A
Concrete Elements	~~FB,~~ FLB, MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; loss of strength	Structures Monitoring (B2.1.31)	III.A3.TP-24	3.5.1.063	A
Concrete Elements	~~FB,~~ FLB, MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking	Structures Monitoring (B2.1.31)	III.A3.TP-25	3.5.1.054	A
Concrete Elements	~~FB,~~ FLB, MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking; loss of bond; and loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A3.TP-26	3.5.1.066	A
Concrete Elements	~~FB,~~ FLB, MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; cracking; loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A3.TP-28	3.5.1.067	A

Table 3.5.2-3 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Auxiliary Building (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
~~Concrete Elements~~	~~FB, FLB, MB, SH, SS~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Cracking, loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-92~~	~~3.3.1.061~~	~~A~~
~~Concrete Elements~~	~~FB, FLB, MB, SH, SS~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-93~~	~~3.3.1.062~~	~~A~~
~~Fire Barrier Doors~~	~~FB, FLB, HLBS, MB, SH, SPB~~	~~Carbon Steel~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-22~~	~~3.3.1.059~~	~~A~~
~~Fire Barrier Seals~~	~~FB~~	~~Elastomer~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of sealing~~	~~Structures Monitoring (B2.1.31)~~	~~III.A6.TP-7~~	~~3.5.1.072~~	~~A~~
~~Fire Barrier Seals~~	~~FB~~	~~Elastomer~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Increased hardness; shrinkage; loss of strength~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-20~~	~~3.3.1.057~~	~~A~~
Hatch	~~FB,~~ HLBS, MB, SH	Carbon Steel	Atmosphere/ Weather (Structural) (Ext)	Loss of material	Structures Monitoring (B2.1.31)	III.A3.TP-302	3.5.1.077	A
~~Hatch~~	~~FB, HLBS, MB, SH~~	~~Carbon Steel~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-22~~	~~3.3.1.059~~	~~C~~
Hatches and Plugs	~~FB,~~ HLBS, MB, SH	Concrete	Atmosphere/ Weather (Structural) (Ext)	Loss of material (spalling, scaling) and cracking	Structures Monitoring (B2.1.31)	III.A3.TP-23	3.5.1.064	A

Table 3.5.2-3 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Auxiliary Building (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Hatches and Plugs	~~FB,~~ HLBS, MB, SH	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; loss of strength	Structures Monitoring (B2.1.31)	III.A3.TP-24	3.5.1.063	A
Hatches and Plugs	~~FB,~~ HLBS, MB, SH	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking	Structures Monitoring (B2.1.31)	III.A3.TP-25	3.5.1.054	A
Hatches and Plugs	~~FB,~~ HLBS, MB, SH	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking; loss of bond; and loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A3.TP-26	3.5.1.066	A
Hatches and Plugs	~~FB,~~ HLBS, MB, SH	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; cracking; loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A3.TP-28	3.5.1.067	A
~~Hatches and Plugs~~	~~FB, HLBS, MB, SH~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Cracking, loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-92~~	~~3.3.1.061~~	~~A~~
~~Hatches and Plugs~~	~~FB, HLBS, MB, SH~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-93~~	~~3.3.1.062~~	~~A~~

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Revised Table 3.5.2-4 to delete the fire barrier structural intended functions from the turbine building components consistent with NFPA-805 changes. Also added a portion of the turbine building that provides a NFPA-805 return path for the circulating water system.

Table 3.5.2-4 (Pages 3.5-84 through 3.5-92) is revised as follows (new text underlined and deleted text shown in strikethrough):

Table 3.5.2-4 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Turbine Building

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Concrete Block (Masonry Walls)	~~FB,~~ SH, SS	Concrete Block (Masonry Walls)	Atmosphere/ Weather (Structural) (Ext)	Cracking	~~Fire Protection (B2.1.13) and~~ Masonry Walls (B2.1.30)	III.A3.T-12	3.5.1.070	~~E, 1~~ A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Loss of material (spalling, scaling) and cracking	Structures Monitoring (B2.1.31)	III.A3.TP-23	3.5.1.064	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; loss of strength	Structures Monitoring (B2.1.31)	III.A3.TP-24	3.5.1.063	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking	Structures Monitoring (B2.1.31)	III.A3.TP-25	3.5.1.054	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking; loss of bond; and loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A3.TP-26	3.5.1.066	A

Table 3.5.2-4 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Turbine Building (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; cracking; loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A3.TP-28	3.5.1.067	A
~~Concrete Elements~~	~~FB, MB, SH, SS~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Cracking, loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-92~~	~~3.3.1.061~~	~~A~~
~~Concrete Elements~~	~~FB, MB, SH, SS~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-93~~	~~3.3.1.062~~	~~A~~
Concrete Elements	~~FB,~~ FLB, SH, SS	Concrete	Plant Indoor Air (Structural) (Ext)	Increase in porosity and permeability; loss of strength	Structures Monitoring (B2.1.31)	III.A3.TP-24	3.5.1.063	A
Concrete Elements	~~FB,~~ FLB, SH, SS	Concrete	Plant Indoor Air (Structural) (Ext)	Cracking	Structures Monitoring (B2.1.31)	III.A3.TP-25	3.5.1.054	A
Concrete Elements	~~FB,~~ FLB, SH, SS	Concrete	Plant Indoor Air (Structural) (Ext)	Cracking; loss of bond; and loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A3.TP-26	3.5.1.066	A
Concrete Elements	~~FB,~~ FLB, SH, SS	Concrete	Plant Indoor Air (Structural) (Ext)	Increase in porosity and permeability; cracking; loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A3.TP-28	3.5.1.067	A

Table 3.5.2-4 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Turbine Building (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Concrete Elements	~~FB,~~ FLB, SH, SS	Concrete	Plant Indoor Air (Structural) (Ext)	Cracking and distortion	Structures Monitoring (B2.1.31)	III.A3.TP-30	3.5.1.044	A
~~Concrete Elements~~	~~FB, FLB, SH, SS~~	~~Concrete~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Concrete cracking and spalling~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-90~~	~~3.3.1.060~~	~~A~~
~~Concrete Elements~~	~~FB, FLB, SH, SS~~	~~Concrete~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-91~~	~~3.3.1.062~~	~~A~~
Concrete Elements	SPB, SS	Concrete	Submerged (Structural) (Ext)	Loss of material	RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants (B2.1.32)	III.A6.T-20	3.5.1.056	A
Concrete Elements	SPB, SS	Concrete	Submerged (Structural) (Ext)	Increase in porosity and permeability; loss of strength	RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants (B2.1.32)	III.A6.TP-37	3.5.1.061	A
~~Fire Barrier Coatings/ Wraps~~	~~FB~~	~~Fire Barrier (Cementitious Coating)~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Cracking, loss of material~~	~~Fire Protection (B2.1.13)~~	~~None~~	~~None~~	~~J, 2~~
~~Fire Barrier Doors~~	~~FB, SH~~	~~Carbon Steel~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Structures Monitoring (B2.1.31)~~	~~III.A3.TP-302~~	~~3.5.1.077~~	~~A~~

Table 3.5.2-4 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Turbine Building (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
~~Fire Barrier Doors~~	~~FB, SH~~	~~Carbon Steel~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-22~~	~~3.3.1.059~~	~~A~~
~~Fire Barrier Seals~~	~~FB~~	~~Elastomer~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of sealing~~	~~Structures Monitoring (B2.1.31)~~	~~III.A6.TP-7~~	~~3.5.1.072~~	~~A~~
~~Fire Barrier Seals~~	~~FB~~	~~Elastomer~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Increased hardness; shrinkage; loss of strength~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-20~~	~~3.3.1.057~~	~~A~~
Hatches and Plugs	~~FB,~~ MB, SH, SS	Concrete	Plant Indoor Air (Structural) (Ext)	Increase in porosity and permeability; loss of strength	Structures Monitoring (B2.1.31)	III.A3.TP-24	3.5.1.063	A
Hatches and Plugs	~~FB,~~ MB, SH, SS	Concrete	Plant Indoor Air (Structural) (Ext)	Cracking	Structures Monitoring (B2.1.31)	III.A3.TP-25	3.5.1.054	A
Hatches and Plugs	~~FB,~~ MB, SH, SS	Concrete	Plant Indoor Air (Structural) (Ext)	Cracking; loss of bond; and loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A3.TP-26	3.5.1.066	A
Hatches and Plugs	~~FB,~~ MB, SH, SS	Concrete	Plant Indoor Air (Structural) (Ext)	Increase in porosity and permeability; cracking; loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A3.TP-28	3.5.1.067	A

Table 3.5.2-4 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Turbine Building (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Hatches and Plugs	~~FB,~~ MB, SH, SS	Concrete	Plant Indoor Air (Structural) (Ext)	Cracking and distortion	Structures Monitoring (B2.1.31)	III.A3.TP-30	3.5.1.044	A
~~Hatches and Plugs~~	~~FB, MB, SH, SS~~	~~Concrete~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Concrete cracking and spalling~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-90~~	~~3.3.1.060~~	~~A~~
~~Hatches and Plugs~~	~~FB, MB, SH, SS~~	~~Concrete~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-91~~	~~3.3.1.062~~	~~A~~
Metal Siding	~~FB,~~ SH	Carbon Steel	Atmosphere/ Weather (Structural) (Ext)	Loss of material	Structures Monitoring (B2.1.31)	III.A3.TP-302	3.5.1.077	A
~~Metal Siding~~	~~FB, SH~~	~~Carbon Steel~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-22~~	~~3.3.1.059~~	~~C~~
Metal Siding	~~FB,~~ SH	Carbon Steel	Plant Indoor Air (Structural) (Ext)	Loss of material	Structures Monitoring (B2.1.31)	III.A3.TP-302	3.5.1.077	A
~~Metal Siding~~	~~FB, SH~~	~~Carbon Steel~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-21~~	~~3.3.1.059~~	~~C~~

Notes for Table 3.5.2-4:

Standard Notes:

A Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.

C Component is different, but consistent with NUREG-1801 item for material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.

Notes for Table 3.5.2-4: (continued)

E Consistent with NUREG-1801 for material, environment, and aging effect, but a different aging management program is credited or NUREG-1801 identifies a plant-specific aging management program.

~~J Neither the component nor the material and environment combination is evaluated in NUREG-1801.~~

Plant Specific Notes:

1 NUREG-1801 does not provide a line in which concrete masonry is inspected per the Fire Protection program (B2.1.13).

~~2 NUREG-1801 does not provide a line in which fire barriers (ceramic fiber or cementitious coating) are inspected per the Fire Protection program (B2.1.13).~~

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Revised Table 3.5.2-5 to delete the fire barrier structural intended functions from the diesel generator building components consistent with NFPA-805 changes.

Table 3.5.2-5 (Pages 3.5-93, 3.5-94, and 3.5-97) is revised as follows (deleted text shown in strikethrough):

Table 3.5.2-5 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Diesel Generator Building

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Loss of material (spalling, scaling) and cracking	Structures Monitoring (B2.1.31)	III.A3.TP-23	3.5.1.064	A
Concrete Elements	FB, MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; loss of strength	Structures Monitoring (B2.1.31)	III.A3.TP-24	3.5.1.063	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking	Structures Monitoring (B2.1.31)	III.A3.TP-25	3.5.1.054	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking; loss of bond; and loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A3.TP-26	3.5.1.066	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; cracking; loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A3.TP-28	3.5.1.067	A

Table 3.5.2-5 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Diesel Generator Building (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
~~Concrete Elements~~	~~FB, MB, SH, SS~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Cracking, loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-92~~	~~3.3.1.061~~	~~A~~
~~Concrete Elements~~	~~FB, MB, SH, SS~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-93~~	~~3.3.1.062~~	~~A~~
~~Fire Barrier Seals~~	~~FB~~	~~Elastomer~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of sealing~~	~~Structures Monitoring (B2.1.31)~~	~~III.A6.TP-7~~	~~3.5.1.072~~	~~A~~
~~Fire Barrier Seals~~	~~FB~~	~~Elastomer~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Increased hardness; shrinkage; loss of strength~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-20~~	~~3.3.1.057~~	~~A~~

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Revised Table 3.5.2-9 to delete the fire barrier structural intended functions from the radwaste building components consistent with NFPA-805 changes.

Table 3.5.2-9 (Pages 3.5-123 through 3.5-128) is revised as follows (deleted text shown in strikethrough):

Table 3.5.2-9 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Radwaste Building

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Loss of material (spalling, scaling) and cracking	Structures Monitoring (B2.1.31)	III.A3.TP-23	3.5.1.064	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; loss of strength	Structures Monitoring (B2.1.31)	III.A3.TP-24	3.5.1.063	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking	Structures Monitoring (B2.1.31)	III.A3.TP-25	3.5.1.054	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking; loss of bond; and loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A3.TP-26	3.5.1.066	A

Table 3.5.2-9 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Radwaste Building (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; cracking; loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A3.TP-28	3.5.1.067	A
~~Concrete Elements~~	~~FB, MB, SH, SS~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Cracking, loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-92~~	~~3.3.1.061~~	~~A~~
~~Concrete Elements~~	~~FB, MB, SH, SS~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-93~~	~~3.3.1.062~~	~~A~~
Concrete Elements	~~FB,~~ FLB, SH, SS	Concrete	Plant Indoor Air (Structural) (Ext)	Increase in porosity and permeability; loss of strength	Structures Monitoring (B2.1.31)	III.A3.TP-24	3.5.1.063	A
Concrete Elements	~~FB,~~ FLB, SH, SS	Concrete	Plant Indoor Air (Structural) (Ext)	Cracking	Structures Monitoring (B2.1.31)	III.A3.TP-25	3.5.1.054	A
Concrete Elements	~~FB,~~ FLB, SH, SS	Concrete	Plant Indoor Air (Structural) (Ext)	Cracking; loss of bond; and loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A3.TP-26	3.5.1.066	A
Concrete Elements	~~FB,~~ FLB, SH, SS	Concrete	Plant Indoor Air (Structural) (Ext)	Increase in porosity and permeability; cracking; loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A3.TP-28	3.5.1.067	A

Table 3.5.2-9 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Radwaste Building (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Concrete Elements	~~FB,~~ FLB, SH, SS	Concrete	Plant Indoor Air (Structural) (Ext)	Cracking and distortion	Structures Monitoring (B2.1.31)	III.A3.TP-30	3.5.1.044	A
~~Concrete Elements~~	~~FB, FLB, SH, SS~~	~~Concrete~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Concrete cracking and spalling~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-90~~	~~3.3.1.060~~	~~A~~
~~Concrete Elements~~	~~FB, FLB, SH, SS~~	~~Concrete~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-91~~	~~3.3.1.062~~	~~A~~
~~Fire Barrier Coatings/ Wraps~~	~~FB~~	~~Fire Barrier (Cementitious Coating)~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Cracking, loss of material~~	~~Fire Protection (B2.1.13)~~	~~None~~	~~None~~	~~J, 1~~
~~Fire Barrier Doors~~	~~FB, SH~~	~~Carbon Steel~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Loss of material~~	~~Structures Monitoring (B2.1.31)~~	~~III.A3.TP-302~~	~~3.5.1.077~~	~~A~~
~~Fire Barrier Doors~~	~~FB, SH~~	~~Carbon Steel~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-21~~	~~3.3.1.059~~	~~A~~
~~Fire Barrier Seals~~	~~FB~~	~~Elastomer~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of sealing~~	~~Structures Monitoring (B2.1.31)~~	~~III.A6.TP-7~~	~~3.5.1.072~~	~~A~~
~~Fire Barrier Seals~~	~~FB~~	~~Elastomer~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Increased hardness; shrinkage; loss of strength~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-20~~	~~3.3.1.057~~	~~A~~
~~Fire Barrier Seals~~	~~FB~~	~~Elastomer~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Loss of sealing~~	~~Structures Monitoring (B2.1.31)~~	~~III.A6.TP-7~~	~~3.5.1.072~~	~~A~~

Table 3.5.2-9 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Radwaste Building (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
~~Fire Barrier Seals~~	~~FB~~	~~Elastomer~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Increased hardness; shrinkage; loss of strength~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-19~~	~~3.3.1.057~~	~~A~~

Notes for Table 3.5.2-9:

Standard Notes:

A Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.

C Component is different, but consistent with NUREG-1801 item for material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.

~~J Neither the component nor the material and environment combination is evaluated in NUREG-1801.~~

Plant Specific Notes:

~~1 NUREG-1801 does not provide a line in which fire barriers (ceramic fiber or cementitious coating) are inspected per the Fire Protection program (B2.1.13).~~

None

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Revised Table 3.5.2-10 to delete fire barrier doors and the fire barrier structural intended functions from the fuel building components consistent with NFPA-805 changes.

Table 3.5.2-10 (Pages 3.5-129, 3.5-130, and 3.5-133) is revised as follows (deleted text shown in strikethrough):

Table 3.5.2-10 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Fuel Building

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Loss of material (spalling, scaling) and cracking	Structures Monitoring (B2.1.31)	III.A5.TP-23	3.5.1.064	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; loss of strength	Structures Monitoring (B2.1.31)	III.A5.TP-24	3.5.1.063	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking	Structures Monitoring (B2.1.31)	III.A5.TP-25	3.5.1.054	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking; loss of bond; and loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A5.TP-26	3.5.1.066	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; cracking; loss of material (spalling, scaling)	Structures Monitoring (B2.1.31)	III.A5.TP-28	3.5.1.067	A

Table 3.5.2-10 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Fuel Building (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
~~Concrete Elements~~	~~FB, MB, SH, SS~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Cracking, loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-92~~	~~3.3.1.061~~	~~A~~
~~Concrete Elements~~	~~FB, MB, SH, SS~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-93~~	~~3.3.1.062~~	~~A~~
~~Fire Barrier Doors~~	~~FB, SH~~	~~Carbon Steel~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Structures Monitoring (B2.1.31)~~	~~III.A5.TP-302~~	~~3.5.1.077~~	~~A~~
~~Fire Barrier Doors~~	~~FB, SH~~	~~Carbon Steel~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-22~~	~~3.3.1.059~~	~~A~~
~~Fire Barrier Doors~~	~~FB, SH~~	~~Carbon Steel~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Loss of material~~	~~Structures Monitoring (B2.1.31)~~	~~III.A5.TP-302~~	~~3.5.1.077~~	~~A~~
~~Fire Barrier Doors~~	~~FB, SH~~	~~Carbon Steel~~	~~Plant Indoor Air (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-21~~	~~3.3.1.059~~	~~A~~

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Revised Table 3.5.2-11 to delete the fire barrier structural intended functions from the essential service water structures components consistent with NFPA-805 changes.

Table 3.5.2-11 (Pages 3.5-138, 3.5-139, and 3.5-143) is revised as follows (deleted text shown in strikethrough):

Table 3.5.2-11 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Essential Service Water Structures

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Loss of material	RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants (B2.1.32)	III.A6.T-20	3.5.1.056	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Loss of material (spalling, scaling) and cracking	RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants (B2.1.32)	III.A6.TP-36	3.5.1.060	A
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Increase in porosity and permeability; loss of strength	RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants (B2.1.32)	III.A6.TP-37	3.5.1.061	A

Table 3.5.2-11 Containments, Structures, and Component Supports – Summary of Aging Management Evaluation – Essential Service Water Structures (continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Item	Table 1 Item	Notes
Concrete Elements	~~FB,~~ MB, SH, SS	Concrete	Atmosphere/ Weather (Structural) (Ext)	Cracking; loss of bond; and loss of material (spalling, scaling)	RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants (B2.1.32)	III.A6.TP-38	3.5.1.059	A
~~Concrete Elements~~	~~FB, MB, SH, SS~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Cracking, loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-92~~	~~3.3.1.061~~	~~A~~
~~Concrete Elements~~	~~FB, MB, SH, SS~~	~~Concrete~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13) and Structures Monitoring (B2.1.31)~~	~~VII.G.A-93~~	~~3.3.1.062~~	~~A~~
~~Fire Barrier Doors~~	~~FB, SH~~	~~Carbon Steel~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants (B2.1.32)~~	~~III.A6.TP-221~~	~~3.5.1.083~~	~~C~~
~~Fire Barrier Doors~~	~~FB, SH~~	~~Carbon Steel~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of material~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-22~~	~~3.3.1.059~~	~~A~~
~~Fire Barrier Seals~~	~~FB~~	~~Elastomer~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Loss of sealing~~	~~Structures Monitoring (B2.1.31)~~	~~III.A6.TP-7~~	~~3.5.1.072~~	~~A~~
~~Fire Barrier Seals~~	~~FB~~	~~Elastomer~~	~~Atmosphere/ Weather (Structural) (Ext)~~	~~Increased hardness; shrinkage; loss of strength~~	~~Fire Protection (B2.1.13)~~	~~VII.G.A-20~~	~~3.3.1.057~~	~~A~~

A1.23 INSPECTION OF INTERNAL SURFACES IN MISCELLANEOUS PIPING AND DUCTING COMPONENTS

The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program manages changes in material properties, cracking, loss of material, hardening and loss of strength. The program inspects internal surfaces of metallic piping, concrete piping, piping components, ducting, polymeric components, and other components that are exposed to plant indoor air, ventilation atmosphere, atmosphere/weather, condensation, borated water leakage, diesel exhaust, lubricating oil, and water system environment not managed by Open-Cycle Cooling Water System (A1.10), Closed Treated Water System (A1.11), Fire Water System (A1.14), and Water Chemistry (A1.2) programs.

Internal inspections are normally performed at opportunities where the internal surfaces are made accessible, such as periodic system and component surveillance activities or maintenance activities. Visual inspections of internal surfaces of plant components are performed by qualified personnel. For certain materials, such as polymers, visual inspections will be augmented by physical manipulation or pressurization to detect hardening, loss of strength, and cracking. The program includes inspections to detect material degradation that could result in a loss of component intended function.

If work opportunities are not sufficient to allow inspection of a representative sample of components, supplemental inspections are also performed. A representative sample size is 20 percent of the accessible and inaccessible component population (defined as components having the same material and environment combination) up to a maximum of 25 components. The locations and intervals for supplemental inspections are based on assessments of the likelihood of significant aging effects, derived from current industry and plant-specific operating experience.

Components having the same material-environment combination with repetitive failures due to aging require a plant-specific program, unless the component material has been replaced by a material of more corrosion resistance for the environment of interest.

In addition, the internal coatings of the service water pump strainers are periodically visually inspected to ensure that loss of coating integrity is detected prior to (1) loss of component intended function, including loss of function due to accelerated degradation caused by localized coating failures, and (2) degradation of downstream component performance due to flow blockage.

The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is a new program and will be implemented prior to the period of extended operation.

Industry and plant-specific operating experience will be evaluated in the development and implementation of this program.

A1.25 BURIED AND UNDERGROUND PIPING AND TANKS

The Buried and Underground Piping and Tanks program manages loss of material, cracking, blistering, and change of color of the external surfaces of buried and underground piping and tanks. The program augments other programs that manage the aging of internal surfaces of buried and underground piping and tanks. The materials managed by this program include steel, stainless steel, concrete, and high-density polyethylene. The program manages aging through preventive, mitigative, and inspection activities.

Preventive and mitigative actions include selection of component materials, external coatings for corrosion control, backfill quality control and the application of cathodic protection. The cathodic protection system is operated consistent with the guidance of NACE SP 0169-2007 for piping, and NACE RP 0285-2002 for tanks. Trending of the cathodic protection system is performed to identify changes in the effectiveness of the system and to ensure that the rectifiers are available to protect buried components. An annual cathodic protection survey is performed consistent with NACE SP 0169-2007.

Soil samples will be conducted during the 10-year period prior to the period of extended operation and in each subsequent 10-year period during the period of extended operation. Soil samples will be performed in the vicinity of buried steel piping in which the cathodic protection system does not meet the following availability or effectiveness requirements:

- Cathodic protection has been operational (available) at least 85 percent of the time since either 10 years prior to the period of extended operation or since installation/refurbishment, whichever is shorter; or

- Cathodic protection has provided effective protection for buried piping as evidenced by meeting the acceptance criteria of -850 mV relative to a copper/copper sulfate electrode, instant off, at least 80 percent of the time since either 10 years prior to the period of extended operation or since installation/refurbishment, whichever is shorter.

Inspection activities include non-destructive evaluation of pipe or tank wall thickness, and visual inspection of the exterior, as permitted by opportunistic or directed excavations.

The Buried and Underground Piping and Tanks program is a new program that will be implemented within the 10-year period prior to entering the period of extended operation.

Industry and plant-specific operating experience will be evaluated in the development and implementation of this program.

A1.32 RG 1.127, INSPECTION OF WATER-CONTROL STRUCTURES ASSOCIATED WITH NUCLEAR POWER PLANTS

The RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants program, which is implemented as part of the Structures Monitoring program (SMP), manages the following aging effects:

- Cracking; loss of bond; and loss of material (spalling, scaling)
- Increase in porosity and permeability; loss of strength
- Loss of material
- Loss of material (spalling, scaling) and cracking
- Loss of material; loss of form

The scope of this program also includes structural steel and structural bolting associated with water-control structures. SNUPPS-Callaway positions are compliant with that of the Regulatory Guide 1.127 with respect to the ultimate heat sink (UHS) retention pond. The Structures Monitoring program (A1.31) includes all water-control structures within the scope of Regulatory Guide 1.127. The UHS retention pond, the essential service water pumphouse, the ESW supply lines yard vault, the UHS cooling tower, and ~~the~~ associated submerged discharge structures, and the concrete structures in the turbine building that provide a flowpath for the circulating water system are the water-control structures within the scope for license renewal that are monitored by this program. The UHS retention pond and its associated structures receive periodic in-service inspections for assessment of their structural safety and operational adequacy every five years. Callaway performs algae treatment and riprap inspections along the UHS retention pond to ensure smooth operation of the essential service water pumps. Callaway maintains benchmarks for monitoring settlement in any of the Category 1 structures including the UHS cooling tower. The inspections of all structural components, including masonry walls and water-control structures, are performed at intervals no more than 5 years.

Table A4-1 License Renewal Commitments

Item #	Commitment	LRA Section	Implementation Schedule
34	Callaway replacement steam generator divider plate assemblies are fabricated of Alloy 690. The divider plate to primary head and tubesheet junctions are welded with Alloy 152 weld materials. The tubesheet cladding is Alloy 182 and the primary head cladding is stainless steel. There is a concern regarding potential failure at the divider plate welds to primary head and tubesheet cladding and Callaway commits to perform one of the following three resolution options: Option 1: Inspection Perform a one-time inspection of each steam generator to assess the condition of the divider plate welds. The examination technique(s) will be capable of detecting PWSCC in the divider plate assemblies and the associated welds. OR Option 2: Analysis Perform an analytical evaluation of the steam generator divider plate welds in order to establish a technical basis which concludes that the steam generator reactor coolant system pressure boundary is adequately maintained with the presence of steam generator divider plate weld cracking. The analytical evaluation will be submitted to the NRC for review and approval. OR Option 3: Industry/NRC Studies If results of industry and NRC studies and operating experience document that potential failure of the steam generator reactor coolant system pressure boundary due to PWSCC cracking of steam generator divider plate welds is not a credible concern, this commitment will be revised to reflect that conclusion.	Section 3.1.2.2.11.1, Table 3.1.2-4	Option 1 completed between Fall 2025 and Fall 2029 when the replacement steam generators are in service for more than 20 years. Option 2 or Option 3 available for NRC review in the Fall 2023.

Table A4-1 License Renewal Commitments

Item #	Commitment	LRA Section	Implementation Schedule
35	The material of steam generator tubesheet cladding is Alloy 182. The tubes are made of Alloy 690 and are secured to the tubesheet by means of tube to tubesheet leaktight weld and tube expansion. There is a concern regarding potential failure of primary-to-secondary pressure boundary due to PWSCC cracking of tube-to-tubesheet welds. Callaway commits to perform one of the following two resolution options: Option 1: Inspection Perform a one-time inspection of a representative number of tube-to-tubesheet welds in each steam generator to determine if PWSCC cracking is present. The examination technique(s) will be capable of detecting PWSCC in the tube-to-tubesheet welds. If weld cracking is identified, the condition will be resolved through repair or engineering evaluation to justify continued service, as appropriate, and a periodic monitoring program will be established to perform routine tube-to-tubesheet weld inspections for the remaining life of the steam generators. OR Option 2: Analysis Perform an analytical evaluation of the steam generator tube-to-tubesheet welds either determining that the welds are not susceptible to PWSCC, or redefining the reactor coolant pressure boundary of the tubes, where the steam generator tube-to-tubesheet welds are not required to perform a reactor coolant pressure boundary function. The redefinition of the reactor coolant pressure boundary will be submitted as part of a license amendment request requiring approval from the NRC. The evaluation for determination that the welds are not susceptible to PWSCC and do not require inspection will be submitted to the NRC for review.	Section 3.1.2.2.11.2, Table 3.1.2-4	Option 1 completed between Fall 2025 and Fall 2029 when the replacement steam generators are in service for more than 20 years. Option 2 available for NRC review in the Fall 2023.

Table A4-1 License Renewal Commitments

Item #	Commitment	LRA Section	Implementation Schedule
39	NFPA 805 and LRA GAP analysis: A gap analysis of LRA Tables 2.3.3-20 and 3.3.2-20 will be provided to identify differences between the existing and NFPA 805 post-transition changes. The results and the impacts of these gaps on the fire protection program described in LRA Tables 2.3.3-20 and 3.3.2-20 will be summarized, as the basis for transitioning to the NFPA 805 nuclear safety capabilities. The summary will also list the fire protection systems and components including structural fire barriers, (e.g., fire walls and slabs, fire doors, fire barrier penetration seals, fire dampers, fire barrier coatings/wraps, equipment/personnel hatchways and plugs, metal siding), that will be added or removed based on the NFPA 805 transition in the scope of license renewal in accordance with 10 CFR 54.4(a) and whether they are subject to an AMR in accordance with 10 CFR 54.21(a)(1). (Completed Amendment 31)	B2.1.13 B2.1.14	~~Within thirty days after the final NFPA 805 Safety Evaluation Report is issued. (Revised Amendment 23)~~ Completed
43	The core design procedure will be modified to include a review for the following core design parameters to ensure that these limits are met in future core designs: • Active fuel – upper core plate distance > 12.2 inches • Average core power density < 124 watts/cm^3 • Heat generation figure of merit, F ≤ 68 watts/cm^3 (Completed Amendment 31)	B2.1.6	~~Completed before December 19, 2014 (prior to 30 years of service on the reactor vessel internals)~~ Completed

Table A4-1 License Renewal Commitments

Item #	Commitment	LRA Section	Implementation Schedule
45	Enhance the RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants program procedures to: • include the concrete structures in the turbine building that provide a flowpath for the circulating water system in the scope of the program.		Completed no later than six months prior to the PEO. Inspections to be completed no later than six months prior to PEO or the end of the last refueling outage prior to the PEO, whichever occurs later.

B2.1.23 Inspection of Internal Surfaces of Miscellaneous Piping and Ducting Components

Program Description

The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program manages changes in material properties, cracking, loss of material, hardening and loss of strength. The program inspects internal surfaces of metallic piping, concrete piping, piping components, ducting, polymeric components, and other components that are exposed to plant indoor air, ventilation atmosphere, atmosphere/weather, condensation, borated water leakage, diesel exhaust, lubricating oil, and any water system environment not managed by Open-Cycle Cooling Water System (B2.1.10), Closed Treated Water System (B2.1.11), Fire Water System (B2.1.14), and Water Chemistry (B2.1.2) programs.

Internal inspections are performed opportunistically whenever the internal surfaces are made accessible, such as periodic system and component surveillance activities or maintenance activities. Visual inspections of internal surfaces of plant components are performed by qualified personnel. For certain materials, such as polymers, visual inspections will be augmented by physical manipulation of at least 10 percent of the accessible surface area or pressurization to detect hardening, loss of strength, and cracking. Volumetric evaluations are performed when appropriate for the component environment and material. Volumetric evaluations such as ultrasonic examinations are used to detect stress corrosion cracking of internal surfaces such as stainless steel components exposed to diesel exhaust.

If work opportunities are not sufficient to allow inspection of a representative sample of components, supplemental inspections are also performed. A representative sample size is 20 percent of the accessible and inaccessible component population (defined as components having the same material and environment combination) up to a maximum of 25 components. The locations and intervals for supplemental inspections are based on assessments of the likelihood of significant aging effects, derived from current industry and plant-specific operating experience.

Identified aging deficiencies are documented and evaluated by the Corrective Action Program. Acceptance criteria are established in the maintenance and surveillance procedures or are established during engineering evaluation of the degraded condition. If the inspection results are not acceptable, the condition is evaluated to determine whether the component intended function is affected, and a corrective action is implemented.

Components having the same material-environment combination with repetitive failures due to aging require a plant-specific program, unless the component material has been replaced by a material of more corrosion resistance for the environment of interest.

In addition, the internal coatings of the service water pump strainers are periodically visually inspected to ensure that loss of coating integrity is detected prior to (1) loss of component intended function, including loss of function due to accelerated degradation caused by localized coating failures, and (2) degradation of downstream component performance due to flow blockage.

The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is a new program that will be implemented prior to entering the period of extended operation.

NUREG-1801 Consistency

The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is a new program that, when implemented, will be consistent with exception to NUREG-1801, Section XI.M38, *Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components*.

Exceptions to NUREG-1801

Program Elements Affected:

Scope of Program (Element 1), Parameters Monitored or Inspected (Element 3), Detection of Aging Effects (Element 4), and Monitoring and Trending (Element 5)

NUREG-1801 requires a visual examination of the internal surface of components within the scope of this program. The diesel exhaust is not available for internal surface inspection, so a volumetric examination will be performed for this component. The volumetric examination is adequate for detecting loss of material (wall thinning) and cracking of piping and tubing.

Enhancements

None

Operating Experience

The following discussion of operating experience provides objective evidence that the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program will be effective in ensuring that intended functions are maintained consistent with the current licensing basis for the period of extended operation.

1. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program will be a new program at Callaway. Internal surface monitoring through visual inspections conducted during maintenance activities and surveillance testing are already in effect in Callaway. The results of the inspections provide data for performance trending, are an input to work planning and prioritization process, and are communicated in the System Health Reports and System Performance Monitoring Indicators. Plant-specific operating experience since 2000 was reviewed to ensure that the operating experience discussed in the corresponding NUREG-1801 aging management program is bounding, i.e., that there is no unique plant-specific operating experience in addition to that described in NUREG-1801. The review also showed that the Plant Health and Performance Monitoring Program had been effective in maintaining the condition of component internal surfaces.

2. In 2007, during maintenance activities, the threaded tube end plugs on the 'B' centrifugal charging pump room cooler were found to have a loss of material due to corrosion as introduced by wear and deformation to the plugs from the repeated assembly/disassembly and cleanings. None of the plugs were leaking. An evaluation determined that 125 plugs would be replaced, future inspections of the room cooler coils would include inspection of tube plugs for loss of material due to corrosion, and replacements would be determined on a case-by-case basis. Later in 2007, the 'A' containment spray pump room cooler was inspected. There was no noticeable damage to the plugs in this cooler. Additional corrective action was to ensure a continuous on-site availability of enough plugs to replace all the plugs in one room cooler.

Internal inspections conducted during maintenance activities and surveillance testing and the Plant Health and Performance Monitoring Program have been effective in maintaining the condition of component internal surfaces. Occurrences that would be identified under the Internal Surfaces in Miscellaneous Piping and Ducting Components program will be evaluated to ensure there is no significant impact to safe operation of the plant and corrective actions will be taken to prevent recurrence. Guidance for re-evaluation, repair, or replacement is provided for locations where aging is found. There is confidence that the implementation of the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program will effectively identify aging prior to loss of intended function.

Industry and plant-specific operating experience will be evaluated in the development and implementation of this program.

Conclusion

The implementation of the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program will provide reasonable assurance that aging effects will be managed such that the systems and components within the scope of this program will continue to perform their intended functions consistent with the current licensing basis for the period of extended operation.

B2.1.25 Buried and Underground Piping and Tanks

Program Description

The Buried and Underground Piping and Tanks program manages loss of material, cracking, blistering, and changes in color of external surfaces of buried and underground piping and tanks. The program augments other programs that manage the aging of internal surfaces of buried and underground piping and tanks. The materials managed by this program include steel, stainless steel, concrete, and high-density polyethylene. The program manages aging through preventive, mitigative, and inspection activities.

Preventive and mitigative actions include the selection of component materials, external coatings for corrosion control, backfill quality control, and the application of cathodic protection. The cathodic protection system is operated consistent with the guidance of NACE SP0169-2007 for piping and NACE RP 0285-2002 for tanks. Trending of the cathodic protection system is performed to identify changes in the effectiveness of the system and to ensure that the rectifiers are available to protect buried components. An annual cathodic protection survey is performed consistent with NACE SP0169-2007.

Soil samples will be conducted during the 10-year period prior to the period of extended operation and in each subsequent 10-year period during the period of extended operation. Soil samples will be performed in the vicinity of buried steel piping in which the cathodic protection system does not meet the following availability or effectiveness requirements:

- Cathodic protection has been operational (available) at least 85 percent of the time since either 10 years prior to the period of extended operation or since installation/refurbishment, whichever is shorter; or

- Cathodic protection has provided effective protection for buried piping as evidenced by meeting the acceptance criteria of -850 mV relative to a copper/copper sulfate electrode, instant off, at least 80 percent of the time since either 10 years prior to the period of extended operation or since installation/refurbishment, whichever is shorter.

Inspection activities may include nondestructive evaluation of pipe and tank wall thicknesses, and visual inspections of pipe and tank exterior surfaces, as permitted by opportunistic or directed excavations. The fire protection system jockey pump is monitored to identify changes in jockey pump activity.

Direct visual inspections will be performed on buried steel piping, stainless steel, piping, concrete piping, and carbon steel tanks. Inspection locations will be selected based on susceptibility to degradation and consequences of failure. A minimum of 10 feet of pipe of each material type must be inspected. The inspection will consist of a 100 percent visual inspection of the exposed pipe. If adverse indications are detected, inspection sample sizes within the affected piping categories are doubled. If adverse indications are

found in the expanded sample, further increases in inspection sample size would be based on an analysis of extent of cause and extent of condition. Visual inspections of metallic components will be supplemented with surface or volumetric nondestructive testing (NDT) if significant indications are observed, to determine local area wall thickness. All buried high density polyethylene piping is encased in controlled low strength material; therefore, no direct visual inspections are required.

Direct visual inspections will be performed on underground steel, stainless steel and high density polyethylene piping, tank access covers, and valves to detect external corrosion. Inspection locations will be selected based on susceptibility to degradation and consequences of failure.

Inspections will begin during the 10-year period prior to entering the period of extended operation. Upon entering the period of extended operation, inspections will occur every 10 years.

The internal surfaces of buried and underground piping and tanks are managed through other programs. Internal surfaces may be managed by the Open-Cycle Cooling Water System (B2.1.10), Closed Treated Water Systems (B2.1.11), Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.23), Fuel Oil Chemistry (B2.1.16), Fire Water System (B2.1.14) or Water Chemistry (B2.1.2) programs. The Selective Leaching program (B2.1.19) works in conjunction with this program to manage buried or underground components subject to selective leaching.

NUREG-1801 Consistency

The Buried and Underground Piping and Tanks program is a new program that, when implemented, will be consistent with NUREG-1801, Section XI.M41, *Buried and Underground Piping and Tanks*.

Exceptions to NUREG-1801

None

Enhancements

None

Operating Experience

The following discussion of operating experience provides objective evidence that the Buried and Underground Piping and Tanks program will be effective in ensuring that intended functions are maintained consistent with the current licensing basis for the period of extended operation:

1. In the winter of 2005, an alarm was triggered for fire protection loop jockey pump excessive run time and an investigation was initiated. The location of the leak was determined and promptly isolated from the main fire water loop. The isolation of the leak did not affect any required suppression systems. The leak was promptly repaired and the fire water piping was returned to service.

2. Prior to Refuel 15 (Spring 2007), Close Interval Surveys (CIS) were performed on various tanks and associated piping systems to identify cathodic protection effectiveness. The CIS testing measures cathodic protection levels along the pipeline at approximately 2.5 foot intervals. These surveys were performed on the following structures and components within the scope of license renewal: emergency fuel oil storage tanks, fire water storage tank bottoms, ESW system piping, and condensate storage tank piping. The results indicated that emergency fuel oil storage tanks, condensate storage tank piping, and one quadrant of the fire water storage tank, were not meeting the 850mV polarization potential criterion of the National Association of Corrosion Engineers (NACE). Corrective actions were taken to correct these deficiencies by adjusting the cathodic protection where possible. In some instances the cathodic protection system could not be adjusted to correct a condition. Cathodic protection system refurbishment and modifications are planned in areas where the system does not meet the NACE criteria.

3. From 2008 to 2009, the underground portions of the ESW supply from the ESW pump house and return to the ultimate heat sink cooling tower were replaced with HDPE piping. In addition, sections of above ground or underground carbon steel piping that interfaces with the buried piping was replaced with stainless steel piping. These modifications were performed as a result of the material condition of the ESW system. These modifications were performed as a result of corrective action documents that have been written concerning pinhole leaks, pitting, and other localized degradation of the ESW piping system.

4. In the summer of 2011, the annual cathodic protection survey was performed. Several locations in the fire water system had a negative potential below the NACE criteria of 850 mV. Modification and refurbishment of the cathodic protection system will address areas of low negative potential identified during the annual survey and the CIS described above.

5. Due to industry operating experience with buried condensate system piping, Callaway reviewed cathodic protection records related to the buried carbon steel piping for the condensate storage tank to determine if the external corrosion control provided for this piping was adequate. The review of the cathodic protection for this line found that the negative potential was below the NACE criteria. The cathodic protection system will be refurbished/modified in areas where it does not meet the NACE criteria. The buried portion of the condensate storage tank suction line will be inspected prior to the period of extended operation.

Inspection and preventive measures that will be implemented by the Buried and Underground Piping and Tanks program will be effective in managing aging of underground and buried components. Occurrences that would be identified under the Buried and Underground Piping and Tanks program will be evaluated to ensure there is no significant impact to safe operation of the plant and corrective actions will be taken to prevent recurrence. Guidance for re-evaluation, repair, or replacement is provided for locations where aging is found. There is confidence that the implementation of the Buried and Underground Piping and Tanks program will effectively identify aging prior to loss of intended function.

Industry and plant-specific operating experience will be evaluated in the development and implementation of this program.

Conclusion

The implementation of the Buried and Underground Piping and Tanks program will provide reasonable assurance that aging effects will be managed such that the systems and components within the scope of this program will continue to perform their intended functions consistent with the current licensing basis for the period of extended operation.

B2.1.32 RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants

Program Description

The RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants program, which is implemented as part of the Structures Monitoring program (SMP), manages the following aging effects:

- Cracking; loss of bond; and loss of material (spalling, scaling)
- Increase in porosity and permeability; loss of strength
- Loss of material
- Loss of material (spalling, scaling) and cracking
- Loss of material; loss of form

The scope of this program also includes structural steel and structural bolting associated with water-control structures. SNUPPS-Callaway positions are compliant with that of Regulatory Guide 1.127 with respect to the ultimate heat sink (UHS) retention pond. The Structures Monitoring program (B2.1.31), which is in compliance with 10 CFR 50.65, *Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants*, includes all water-control structures within the scope of RG 1.127. The UHS retention pond, the essential service water pumphouse, the ESW supply lines yard vault, the UHS cooling tower, and ~~the~~ associated submerged discharge structures, and the concrete structures in the turbine building that provide a flowpath for the circulating water system are the water-control structures within the scope for license renewal that are monitored by this program. The UHS retention pond and its associated structures receive periodic inservice inspections for assessment of their structural safety and operational adequacy every five years. Callaway performs algae treatment and riprap inspections along the UHS retention pond. Callaway maintains benchmarks for monitoring settlement in any of the Category 1 structures including the UHS cooling tower. The inspections of all structural components, include masonry walls and water-control structures, are performed at intervals of no more than 5 years.

NUREG-1801 Consistency

The RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants program, is an existing program that, following enhancement, will be ~~is~~ consistent with NUREG-1801, Section XI.S7, RG 1.127, *Inspection of Water-Control Structures Associated with Nuclear Power Plants*.

Exceptions to NUREG-1801

None

Enhancements

~~None~~

Prior to the period of extended operation, the following enhancement will be implemented in the following program element:

Scope of the Program (Element 1)

Procedures will be enhanced to include the concrete structures in the turbine building that provide a flowpath for the circulating water system in the scope of the program.

Operating Experience

The following discussion of operating experience provides objective evidence that the RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants program will be effective in ensuring that intended functions are maintained consistent with the current licensing basis for the period of extended operation:

1. An instance of concrete delamination occurred in 2005. Open electrical boxes that were part of the abandoned lighting system in the 'A' UHS fan deck room allowed water to enter the embedded conduits located in the concrete wall. This water contributed to the corrosion growth on the conduit which eventually deteriorated enough to cause spalling on the plant north face of the wall separating 'A' and 'B' UHS fan deck rooms. The spalled area was patched with cement grout in 2006.

2. Similar spalling was noted on the south wall in the 'D' UHS cooling tower fan room which had an area approximately 1 ft by 1 ft where the concrete had popped out. The degradation appeared to be about two to three inches deep. The apparent cause was rainwater seeping through an abandoned electrical conduit. A job was initiated to repair both spalled areas in the "D" cooling tower fan room. To prevent recurrence of the concrete spalling, prior to installing the grout patch, a hole was drilled in the exposed part of the conduit to drain any water remaining in the abandoned conduits.

The above examples provide objective evidence that the RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants program is capable of both monitoring and detecting the aging effects associated with the program. Occurrences that would be identified under the RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants program will be evaluated to ensure there is no significant impact to safe operation of the plant and corrective actions will be taken to prevent recurrence. Guidance for re-evaluation, repair, or replacement is provided for locations where aging is found. There is confidence that the continued implementation of the RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants program will effectively identify aging prior to loss of intended function.

Conclusion

The continued implementation of the RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants program, following enhancement, provides reasonable assurance that aging effects will be managed such that the systems and components within the scope of this program will continue to perform their intended functions consistent with the current licensing basis for the period of extended operation.